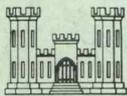
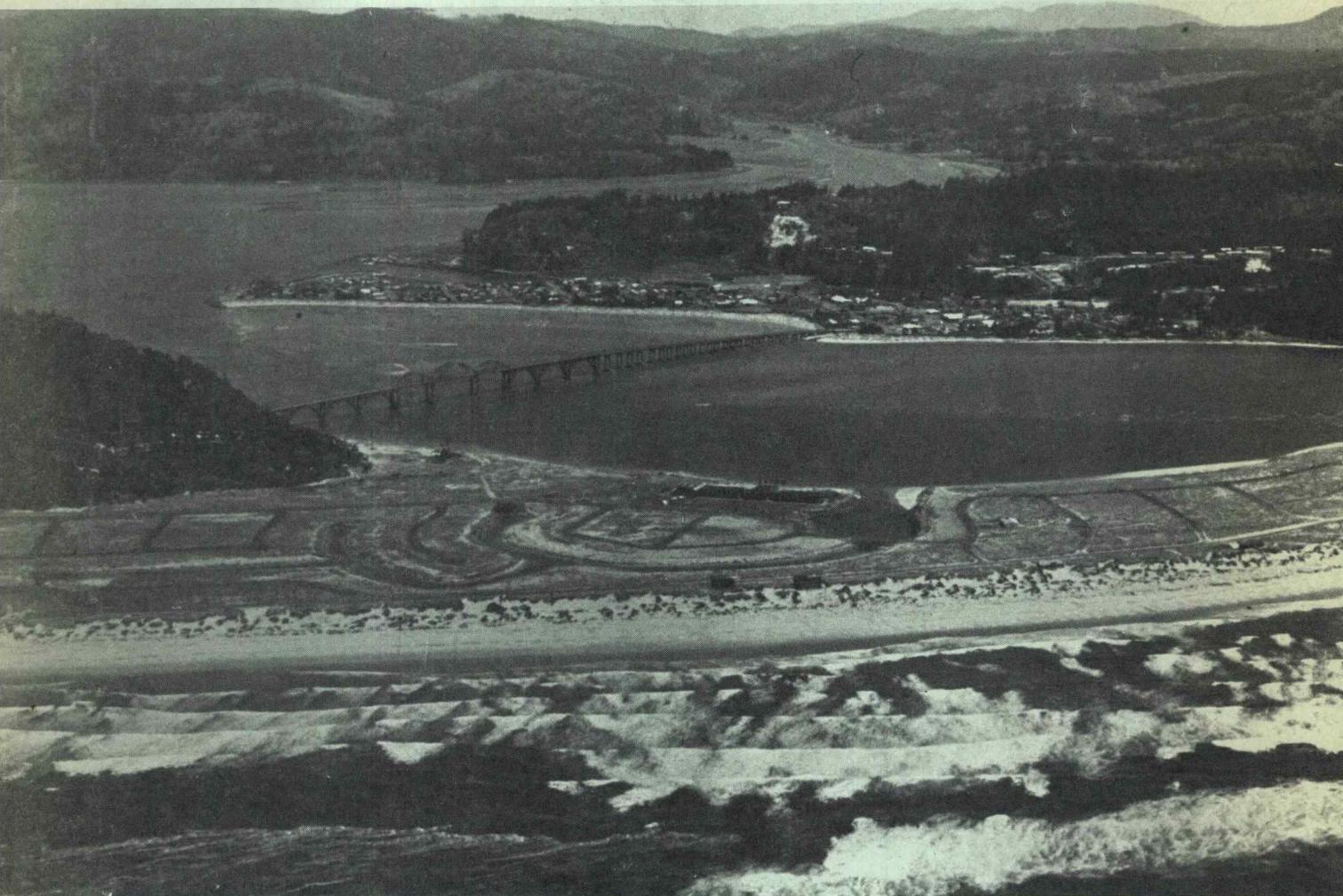


Alan Bottom

ALSEA WETLANDS REVIEW



U.S. ARMY ENGINEER DISTRICT, PORTLAND

CORPS OF ENGINEERS

April 1976

WETLANDS REVIEW
 ALSEA BAY, OREGON
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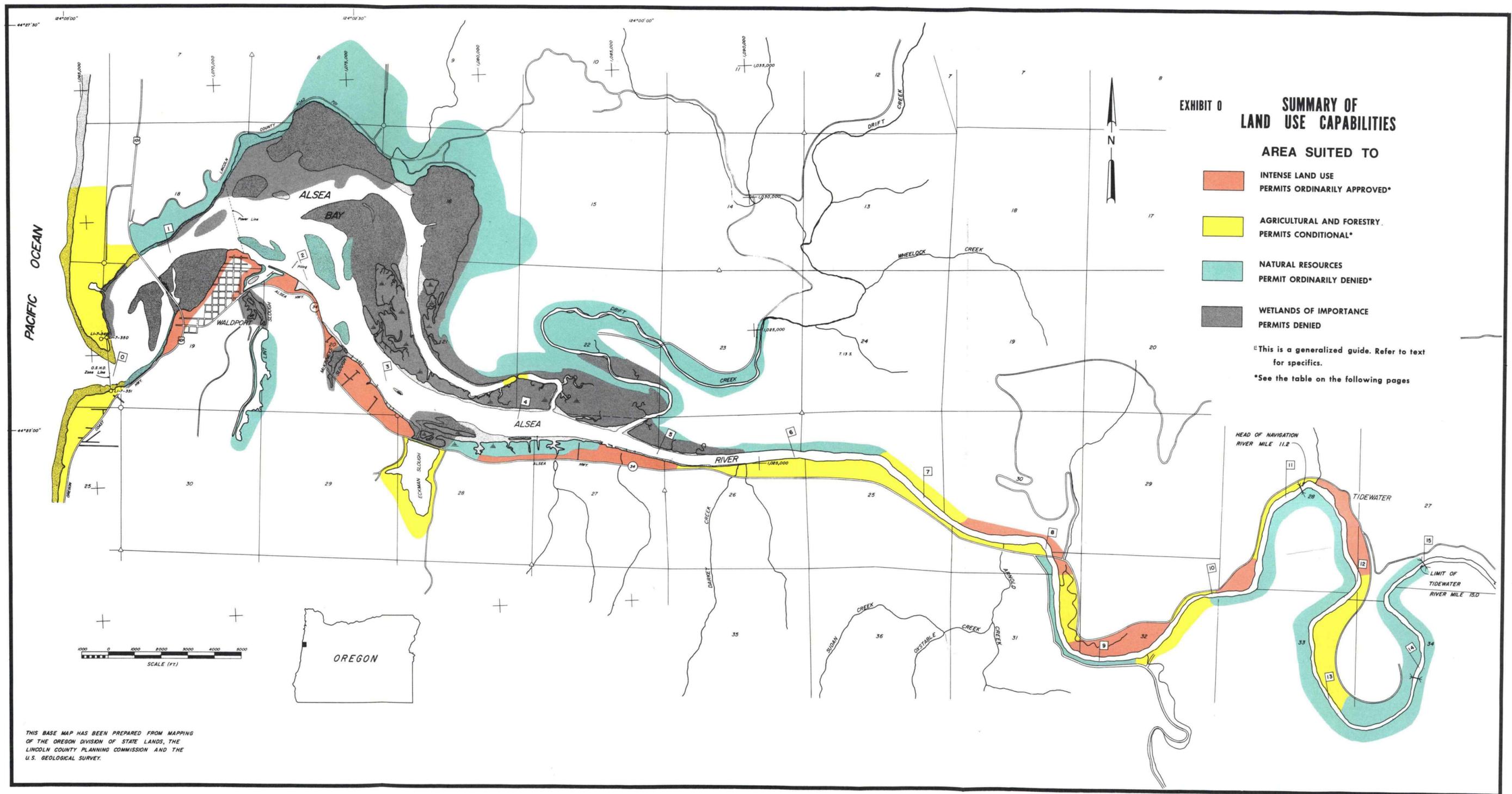


EXHIBIT 0
SUMMARY OF
LAND USE CAPABILITIES

AREA SUITED TO

- INTENSE LAND USE
PERMITS ORDINARILY APPROVED*
- AGRICULTURAL AND FORESTRY
PERMITS CONDITIONAL*
- NATURAL RESOURCES
PERMIT ORDINARILY DENIED*
- WETLANDS OF IMPORTANCE
PERMITS DENIED

*This is a generalized guide. Refer to text for specifics.
 *See the table on the following pages

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

GENERALIZED SUMMARY OF PERMIT RESPONSES

Table 0

This table is to be used with the preceding Figure only as a guide. For specific considerations and detailed information, see the Profiles, Chapters 1-6, and Evaluations, Chapter 7. All permits will be subject to standards and criteria found in Chapter 7. Response symbols indicate a likely approval (OK), denial (NO), conditional (C), or Environmental Impact Statement requirement (EIS).

ACTIVITY	RED	YELLOW	GREEN
Bridge (new)	C(1)	EIS	EIS
Bridge (replacement/expansion)	C(1)	C(2)	C(2)
Bridge (maintenance/repair)	OK	OK	OK
Boardwalk (on pilings)	OK	OK	OK
Boardwalk (on fill)	C(3)	NO	NO
Breakwaters	OK	C(4,5)	NO
Dikes (new)	OK	NO	NO
Dikes (repair)	OK	OK	C(4)
Docks (single)	OK	C(6)	NO
Docks (multiple and scattered)	C(7)	NO	NO
Docks (multiple and clustered)	OK	C(7)	NO
Dredging (more than 50 cu.yds.)	C(8)	C(7)	NO
Dredging (less than 50 cu. yds.)	OK	C(9)	NO
Dredged Disposal (more than 50 cu.yds.)	C(9)	C(9)	NO
Dredged Disposal (less than 50 cu.yds.)	OK	C(9)	NO
Fill (creation of fast land)	NO	NO	NO
Marinas	OK	C(10)	NO
Marina Parking, Storage, etc.	OK	C(11)	NO
Overhead Lines	C(12)	C(7)	NO
Pilings (installation)	OK	C(13)	C(13)
Pilings (removal)	OK	OK	C(14)
Pilings (replacement)	OK	OK	C(14)
Riprap (wood/stone)	OK	C(14)	C(4)
Riprap (steel sheeting)	C(15)	C(15)	NO
Riprap (vegetated bank)	OK	C(14)	C(4)
Riprap (unvegetated bank)	NO	NO	NO
Roads (new)	C(7)	C(7)	EIS
Roads (expansion)	OK	C(7)	C(4,16)
Roads (maintenance/repair)	OK	OK	C(4,16)

<u>ACTIVITY</u>	<u>RED</u>	<u>YELLOW</u>	<u>GREEN</u>
<u>Shoreline Developments^{a/}</u>	OK	C(14)	NO
o <u>Removal of Shoreline Vegetation</u>	C(17)	C(17)	NO
o <u>Managed Timbering</u>			OK
o <u>Single Family Housing (low density)</u>	OK	OK	C(4)
o <u>Single Family Housing (high density)</u>	C(18)	C(18)	NO
o <u>Multiple Family Housing (low density)</u>	C(18)	C(18)	NO
o <u>Multiple Family Housing (high density)</u>	EIS	C(18)	NO
o <u>Trailer Parks (seasonal/temporary)</u>	OK	OK	NO
o <u>Commercial Structures (marine oriented)</u>	OK	C(18)	NO
o <u>Commercial Structures (non-marine)</u>	C(18,19)	NO	NO
o <u>Industrial (marine oriented)</u>	C(18,19)	C(18)	NO
o <u>Industrial (non-marine)</u>	C(18,19)	NO	NO
o <u>Developed Parkland</u>	OK	OK	NO
o <u>Undeveloped Parkland</u>	OK	OK	NO
<u>Tidegates</u>	OK	C(4)	NO
<u>Underwater Cables, Pipelines</u>	OK	C(20)	C(20)
<u>Waste Disposal (solid)</u>	C(21)	NO	NO
<u>Waste Disposal (liquid)</u>	C(22)	C(22)	NO
<u>Dune stabilization (structural)</u>		NO	

Special requirements for "conditional" (C) responses in the preceding table.

- (1) Avoid interruption of tidal flows.
- (2) Conditioned to improve tidal flows.
- (3) No new fill on existing fill.
- (4) Solely to maintain agriculture.
- (5) A detailed hydrographic study required.
- (6) Only to provide riparian owner access.
- (7) Apply the general standards.
- (8) Except at Millport Slough.
- (9) Depends on availability of disposal sites, and bottom samples.
- (10) Pursuant to the Estuary Plan.
- (11) Avoid filling of the flood plains.
- (12) Only horizontal to the bank.
- (13) Solely for riparian owner.
- (14) Only in man-dominated areas (see Exhibit 28, page 104).
- (15) Only if wood/stone are unfeasible or unavailable.
- (16) Only to maintain recreational access.
- (17) Only on showing of need.
- (18) Depending on City/County approval.
- (19) Should be water related.
- (20) Must protect aesthetics.
- (21) Only with debris for bank stabilization.
- (22) Must meet Oregon DEQ water standards.

^{a/} These items are not subject to permits, but activities such as fill and docks may be intended in the plan for the development. This study evaluates the items according to the land's capabilities.

USERS GUIDE TO ALSEA WETLANDS REVIEW

One of the purposes of this document is to provide the permit applicant with the standards that the Department of the Army would use to evaluate his permit. Having this information available will improve the permit process by giving the applicant sufficient information to perceive of the potential impact of his activities and to know the Corps' general response to such requests. To fully understand the requirements the Corps might impose, review of much of the document is necessary. Chapter 7 contains the standards, and it references the inventories in preceding chapters. This material is needed to evaluate each permit action.

A step-wise analysis of each permit includes:

- 1) Is the action covered by a general permit? (See General Permits Chapter 7, pages 289-291.)
- 2) Is the subject area in a wetlands of importance? (See Exhibit 4, pages 9, 13, 14 and 282-289.)
- 3) What does the county Land Use Plan designate for the area? How is the area zoned? (See Exhibits 4 and 39, pages 15 and 266.)
- 4) What is the general magnitude of potential impact? (See Table 55, page 292.)
- 5) What "evaluation unit" is the subject area located in? (See Exhibit 40, page 322 and site evaluations, pages 261-277.)
- 6) What is the general suitability of permit activities in the subject evaluation unit? (See Table 54 pages 284-287.)
- 7) How is the evaluation unit characterized? (See evaluation tables and appropriate subject groups pages 322-339.)
- 8) Find the "local goal/objective, actual/potential development" which is most similar to subject request. What are the "Findings" and "Response" for that action? (See pages 322-339.)
- 9) Find the standard which is related to the action of subject request. (See Chapter 7 pages 291-320. Do the criteria approve or exclude such activity? Are other standards or inventories referred to? If so check Table of Contents, List of Exhibits (page x) to find the appropriate chapters and figures.
- 10) Determine suitability of action or provide requisite information on permit application.

EXAMPLE - PERMIT APPLICATION, ALSEA RIVER

Request

I would like to place a private dock on my river frontage at river mile 7.7, north shore, Alsea River. The dock is to have a 5' x 20' walkway and a 10' x 30' floating dock. The dock will extend 15' from shore at low water.

Analysis

- 1) General Permit - no, there have been no general permits issued yet in the Alsea area.
- 2) Wetlands of Importance - no
- 3) The area is designated recreation residential by the plan and zoning is rural residential. This activity is not restricted in either designation, but the county may have certain conditions.
- 4) Magnitude of Impact - impact rating of 42 on scale of 30-81
- 5) Evaluation Unit - Barclay Meadow (North Bank Alsea Bay) A site evaluation is found on page 270.
- 6) General suitability is favorable.
- 7) Subunit "Man-dominated" on page 336 is characterized as having many docks, etc.
- 8) The goal of "allow new docks" in no. 4 is followed by findings of "concur" and response of "follow standards."
- 9) Access standards (page 302-208) states landowners' right of access is subject to similar rights of others nearby and the rights to navigation by the general public. Lincoln County standards for docks, piers and similar related structures limit dock length to 5% of the river width (at low water). The width of the channel is estimated as 250 feet at low water.

Criterion 1 refers to County standards and zoning. The Alsea Regional Land and Water Use Plan (Exhibit 5 page 16) classifies the area as recreational residential, and county zoning (Exhibit 39 page 250) classifies the area as A-2 on rural residential. Table 50 (page 351) shows zone A-2 has no specific conditions excluding dock construction. There seems to be no difficulty with zoning.

Criterion 2 refers to conflicts with other standards. Barclay Meadow is not listed, but additional checking is recommended.

a) Further investigation into the standards of fish and wildlife protection (from table on page 336) shows low productivity and habitat value, and moderate uniqueness. This raises no concern.

b) Esthetic rating (from table on page 336) is low. The area esthetic evaluation (Exhibit 32 page 162) is rated at 7. The effect of the proposed activity (dock, single) is estimated as moderate (page 173). Since there are already many docks there (page 336) the activity may be more realistically categorized "docks, multiple and scattered." This has a major effect here (page 174).

c) Land use changes are rated high (Exhibit 35 page 239) and Barclay Meadow is described on page 242 as an area with major impacts, particularly on the western end of the subdivision.

Criterion 3 concerns reducing dock proliferation. Dock sharing is encouraged.

10) The final determination of suitability takes all these factors into consideration.

General suitability for subject evaluation unit - favorable

Dock Standards - conflict in length of dock

Criteria

- 1) Zoning - no conflict
- 2) Other Standards - fish and wildlife protection - no conflict
esthetic - moderate to major impact
land use change - high potential
- 3) Proliferation - attempt to share

Conclusion. General suitability (#5) and finding and response (#7) are favorable; but esthetic, land use change, and dock proliferation impacts are of concern. The applicant should investigate alternatives, like sharing a dock. If this fails a permit application could be filed providing additional information on

- 1) dock sharing
- 2) how the impact of land use change and esthetic will be minimized
- 3) why the dock must extend 15 feet into the low water width instead of 13 feet.

GLOSSARY

Breakwater: Structure placed in an open body of water to dissipate the energy of waves.

Bridge: Any structure over, on or in the navigable waters of the United States which (1) is used for the passage or conveyance of persons, vehicles, commodities and other physical matter and (2) is constructed in such a manner that either the horizontal or vertical clearance, or both, may affect the passage of vessels or boats through or under the structure. This definition includes, but is not limited to, highway bridges, railroad bridges, foot bridges, aqueducts, aerial tramways and conveyors, overhead pipelines and similar structures of like function together with their approaches, fenders, pier protection systems, appurtenances and foundations. This definition does not include aerial power transmission lines, tunnels, submerged pipelines and cables, dams, dikes, dredging and filling in, wharves, piers, breakwaters, bulkheads, jetties and similar structures and works (except as they may be integral features of a bridge and used in its construction, maintenance, operation or removal; or except when they are affixed to the bridge and will have an effect on the clearances provided by the bridge).*

Bulkhead: Structure used to retain fill.

Causeway: A raised road across water or marshy land, with the water or marshy land on both sides of the road, and which is constructed in or affects navigation, navigable waters and design flood flows.*

Coastal Zone: The coastal waters and adjacent shorelands designated by a State as being included in its approved coastal zone management program under the Coastal Zone Management Act of 1972.

Dikes: Embankments placed around a wetland area for reclamation purposes—usually agriculture.

Dredged Material: Any material excavated or dredged from navigable waters of the United States including any runoff or overflow which occurs during a dredging operation or from a contained land or water disposal area.

Fill Material: Any material deposited or discharged into navigable waters which may result in creating fast lands or other planned elevations of lands beneath navigable waters.

* Under a memorandum of understanding, the Department of the Army and the Coast Guard, U. S. Department of Transportation have defined their respective jurisdictions for causeways, bridges and other similar structures.

GLOSSARY

(continued)

Groin: Structure extending from a shoreline to control erosion (usually rock).

Jetties: Structures extending from a shoreline to control the flow of water.

Navigable Waters: Those waters of the United States which are subject to the ebb and flow of the tide, and/or are presently, or have been in the past, or may be in the future susceptible for use for purposes of interstate or foreign commerce (See 33 CFR 209.260 for a more complete definition of these terms).*

Person: Any individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, any interstate body, or any agency or instrumentality of the Federal Government.

Revetment: A facing or sheeting, as of masonry, for protecting earthworks, rivers' banks and other surfaces exposed to erosion.

Riprap: Placement of rock, stone, wood beams or other materials against a bank to control erosion.

Seawall: Structure placed against an embankment to prevent erosion or dissipate the force of wind and waves.

Tidegates: Structures placed across a channel to stop the flow of salt water at high tides.

* Navigable waters run between the ordinary high water lines of river banks and between the mean higher high water lines of estuary banks.

WETLANDS REVIEW
ALSEA BAY, OREGON
INTRODUCTION

Overview

Although it does not yet have a navigation project in this coastal estuary, the Portland District, U.S. Army Corps of Engineers, is engaged in the regulation of activity and work in the navigable waters of the Alsea Bay and Alsea River, Oregon. Alsea Bay is considered one of the least altered estuaries of the entire western coast. Demands on its resources, however, have grown enormously in recent years. Since 1971 the Portland District, Corps of Engineers, has processed and approved more than 200 permit applications for docks, moorings and other structures to serve burgeoning recreational and commercial demands. Serious questions have been raised by Oregon residents and visitors who are seeking ways to limit growth, improve the local economy without destroying the estuary, and define Alsea's role in Oregon's rich heritage of coastal environments.

In 1972 the Alsea Bay Regional Land and Water Use Plan reported local concerns over the proliferation of docks and recommended large areas of the bay for protection as dunelands, marshlands or tidelands. By 1974 Lincoln County zoning, which formerly had governed only the immediate coastal area west of U.S. 101, was revised and land uses were prescribed for upstream areas. Also, during this time the Oregon Coastal Conservation and Development Commission presented the final phases of its report on Coastal Zone Management to the State Legislature, while the Land Conservation and Development Commission investigated how coastal planning recommendations might contribute to the development of Statewide planning goals. Research activities in the bay by the Oregon Fish and Game Commission, Oregon State University, the University of Oregon, and others continued throughout this period. The very large response to a public opinion questionnaire mailed to Lincoln County citizens by the Portland District in the fall of 1974 confirmed the intensity of public interest in the estuary. Against this background and as a result of a timely coincidence of local, State and Federal interests, this Alsea Wetlands Review was undertaken.

Authority

Through the River and Harbor Act of 1899, Congress delegated responsibility for structures, or work in or affecting the navigable waters of the United States to the Department of Army, Corps of Engineers. The Corps permit authority, which is the basis of this Wetlands Review, prohibits the "unauthorized obstruction or alteration of any navigable water of the United States, the excavation from or depositing of material in such waters, or the accomplishment of any other work affecting the source, location, or capacity of such waters unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army." The instrument of authorization is a permit or letter of permission.

Historically, the purpose of the Act has been to foster commerce under the Commerce Clause of the U.S. Constitution. Initially this primarily meant the protection and provision of water-borne trade. However, due to changes in public needs and attitudes since 1899, concepts of "commerce" and "navigability" have likewise changed to reflect society's concern for environmental and other values which the Nation's waterways represent. The Portland District must now take the broadest view possible in exercising its authority under 33 CFR 209.120.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed structure or work and its intended use on the public interest. Evaluation of the probable impact which the proposed structure or work may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefit that reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if authorized, the conditions under which it will be allowed to occur, are therefore determined by the outcome of the general balancing process . . . That decision should reflect the national concern for both protection and utilization of important resources. All factors that may be relevant to the proposal must be considered; among those factors are conservation, economics aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classifications, navigation, recreation, water supply, water quality and in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.*

In determining the public interest, the following general criteria apply and are to be considered in the evaluation of every permit application:

1. The relative extent of the public and private need for the proposed structure or work;
2. The desirability of using appropriate alternative locations and methods to accomplish the objective of the proposed structure or work;

* 33 CFR 209.120 (Permits for activities in navigable waters or ocean waters). See Appendix A.

3. The extent and permanence of the beneficial and/or detrimental effects that the proposed structure or work may have on the public and private uses to which the area is suited; and
4. The probable impact of each proposal in relation to the cumulative effect created by other existing and anticipated structures or work in the general area.
5. Where officially adopted State, regional or local land use classifications, determinations, or policies are applicable to the land or water areas under consideration, they shall be presumed to reflect local factors of the public interest and shall be considered in addition with the other national factors of the public interest identified. A more complete description of priorities, supporting legislation and special conditions for permit activities are in Appendix B-E.

Thus far, those "factors in the public interest" (fish, wildlife, esthetics, etc.) are defined to the extent that approval, denial or conditioning of permits is based on:

- o Consideration of information provided by each applicant.
- o Views and comments received from Lincoln County, the State of Oregon, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the U.S. Environmental Protection Agency (all of which are regularly consulted on each permit application).
- o Views and comments from the public through the Public Notice process.
- o The imposition of standard conditions derived from applicable Corps of Engineers regulations (Appendix B).
- o The requirements of related legislation (Appendix C and D).
- o Regulations contained in "Permits for Activities in Navigable Waters or Ocean Waters" (Appendix E).

Purpose

The Wetlands Review seeks to provide a more precise definition of those "factors in the public interest" as they apply to the Alsea Bay and River and through a comprehensive inventory of the area's resources, to lay the basis for consideration of the cumulative effects of Department of the Army permits.

Specifically, study purposes are:

1. To identify and recommend "wetlands considered to perform functions important to the public interest." Study findings are structured around these wetlands (Exhibit 4 in Chapter 1) because they are the most significant natural resource within the Alsea under the regulatory jurisdiction of the Portland District. Department of the Army permits in these wetlands will ordinarily be denied subject to the tests and requirements described in the beginning of Chapter 1.

2. To develop and recommend standards and criteria for the issuance, denial and/or conditioning of Department of the Army permits in the Alsea Bay and River which extends from the ocean inlet to the head of tide. The head of tide represents the estuarine related component of the study area. Also included in the study area to approximately Wheelock Creek is Drift Creek, Alsea's major tributary. Minor tributaries (above Mean Higher High Tide) are inventoried and described with respect to their function on the Alsea Bay ecosystem rather than for regulatory purposes. These standards will result in simplification of permit processing in certain areas through designation of certain areas for general permits which would allow rapid processing of certain permit actions.

Study standards and criteria for the bay and river are derived from:

- o Planning considerations (Chapter 1).
- o Environmental (physical and biological) considerations (Chapter 2).
- o Esthetic considerations (Chapter 3).
- o Social considerations (current and historical) (Chapter 4)
- o Economic considerations (Chapter 5)
- o Land and water use considerations (Chapter 6)

3. To identify potential activities within or affecting the navigable waters of the Alsea that would require the preparation of separate environmental assessments or impact statements.

It must be emphasized at the outset that the intent and approach of the Wetlands Review is to establish performance standards for various resources and public values represented by the navigable waters. In no way does the Wetlands Review attempt to impose Federal zoning of either waterways, submerged bottoms, or wetlands. Any similarity to zoning derives solely from the fact that the responsibility of the Corps of Engineers under law is also regulatory. The distinction is that zoning is based on the police powers of the State while the Corps' regulatory function is authorized directly by Congress. Basically, zoning addresses the purpose; the Wetlands Review; the environmental effects.

Study Approach

Each chapter describes the methodologies used in assembling and interpreting the resource inventory. Overall, the Wetlands Review is based on an examination of existing literature and data available through a wide variety of governmental and private sources including local, State and Federal agencies, universities, research institutions, and local citizens. Field samplings were not taken and in some areas such as in the discussion of marshes in the Environmental Profile, the study reflects these limitations; however, the exception was a public opinion questionnaire distributed by the Portland District for the Wetlands Review. Information gained from the questionnaire and field work with local citizens (described in Chapter 4, Social Profile) was very beneficial and had a significant bearing on the interpretation of data and on the structuring of study findings.

Certain chapters contain lengthy discourses on the value and functioning of various resource components (i.e., wildlife habitats, salinity ranges in the estuary, water quality data). These discussions verify and explain the conclusions and findings presented on numerous resource exhibits and in Chapter 7.* The exhibits are rendered at a uniform scale of 1:12,000 feet so they can be compared to highlight potential conflicts and resource tradeoffs i.e., vegetation types (Exhibit 28) pressure from land use changes (Exhibit 35); master plan (Exhibit 37) and zoning (Exhibit 39) conflicts; and the distribution of fish and wildlife resources (Exhibits 26 and 27) in contrast to the degree of past ecological disturbances (Exhibit 24). In addition, the exhibits are tools with which the Portland District can interpret the standards and criteria contained in Chapter 7 and apply them to distinct locations within the study area.

It should be noted that the boundaries of the study area itself are flexible. Extending from the ocean to the head of tide at approximately river mile 15, the area embraces not only the navigable waters under the regulatory jurisdiction of the Corps of Engineers, but also those shorelands (above the MHHW) which are directly affected by Section 10 permits and the uplands which may be secondarily affected by the permits. Because social and economic considerations involve the entire coastline within Lincoln County as well as population centers as far away as Portland and the communities of the Willamette Valley, the study area for these factors can be considered regional, as well as local, in scope.

* Mapped locations are approximate and are composites derived from numerous sources -- i.e., mapping at other scales, inspection of aerial photography, and from written texts.

Finally, the Wetlands Review would not have been possible without the participation and cooperation of numerous agencies and individuals. These are credited either in the references for each chapter or in the appendices.

Assumptions

With numerous disciplines and interests involved in the Wetlands Review, the study had to proceed with a definite point of view expressed by the following assumptions:

1. It is a desirable and achievable national goal, shared by the State of Oregon, to maintain the coastal ecosystem of Alsea Bay in its highest and best ecological condition and to limit adverse disturbances of the ecosystem as much as possible.
2. Submerged and submersible lands in the navigable waters of the Alsea Bay and River are resources held "in trust" for the benefit of the public as a whole, without regard to ownership.
3. Shorelands may or may not be considered as resources "held in trust" for the benefit of the entire public but at a minimum, constitute a scarce national, State and local resource demanding special attention.
4. Governmental agencies and shoreland owners have correlative rights and responsibilities with respect to use of wetlands and adjacent resources.
5. The Portland District has no major projects in Alsea. It is assumed that any future projects assisted by the Corps of Engineers or other Federal agencies would require consideration of separate environmental impact statements. The study, therefore, emphasizes the Corps' responsibility to regulate seaward influences on the coastal ecosystem rather than providing detailed consideration of the effects of constructing specific projects.
6. The highest Federal, State or local standard or regulation for water quality, air quality, land use and other elements within the study areas will apply.
7. To the extent possible, the exercise of the permit authority by the Portland District will be consistent with adopted regional, State and local comprehensive master plans and zoning.
8. The findings of this review complement rather than supersede existing regulations of the Portland District regarding permits for activities in the navigable waters of the Alsea.
9. The public's interest and active participation is an essential element of a successful study or proposed development affecting the coastal zone.

It is the desire of the Portland District that the findings & evaluations of this study conform as closely as possible to the long range needs and desires of the citizens who care most about the Alsea Bay and River. The time and effort by those who review and comment on this report are sincerely appreciated and most welcome. These may be mailed to:

Alsea Wetlands Review
Portland Engineer District
P. O. Box 2946
Portland, Oregon 97208

CHAPTER 1 THE POLITICAL SETTING

Summary of Findings

This chapter summarizes the plans, policies and programs of a spectrum of governmental and citizen interests that bear directly on the permit authorities of the Corps of Engineers in the Alsea study area. Decision-making in the study area involves local general purpose government (cities and counties), single purpose agencies (ports and sanitary districts), and numerous State and Federal agencies. No single agency possesses the authority or resources to manage, plan or regulate all aspects of the Alsea environment, thus requiring a high degree of coordination among government agencies and between government agencies and the general public. In this situation, the permit authority of the Corps of Engineers under 33 CFR 209.120 occupies an especially difficult and important place.

Decisions by the Corps of Engineers to grant, deny or condition permits for activities within its jurisdiction generally come after decisions already made by an applicant, or by other agencies of government. Permit actions thus have largely been a "reactive" process and the final step in a series of actions for which the Corps may not have primary or initiating responsibility. Because of this, a multi-disciplinary approach by the Corps is necessary to ensure that permits are responsive to the many and sometimes conflicting public interests which applications may represent. The plans, policies and programs of other agencies are therefore important, but they are not necessarily binding considerations in the exercise of regulatory authority.

The following groups, agencies and jurisdictions are discussed in this chapter:

1. "Wetlands important to the public interest "
2. The City of Waldport (Alsea Bay Regional Land and Water Use Plan)
3. Lincoln County
4. Oregon Division of State Lands
5. Oregon Coastal Conservation and Development Commission and its successor, the Land Conservation and Development Commission
6. Other State agencies
7. Pacific Northwest River Basins Commission

The "public trust" nature of Oregon's submerged and submersible lands is also discussed.

PLANS, POLICIES AND PROGRAMS

"Wetlands of Importance" in the Alsea Study Area

The Alsea River empties into the Pacific Ocean roughly 130 miles south of the mouth of the Columbia River. Of major Oregon estuaries, Alsea ranks seventh in size. It is located on the west slope of the precipitous Coast Range within the Mid-Coast Basin. (See Exhibit 1.) From head to tide, the Alsea River is within Lincoln County, which is bordered from north to south by Tillamook, Polk, Benton and Lane Counties (Exhibit 2).

The only incorporated town within the immediate Alsea study area is Waldport, which is located near the Alsea inlet. The town is linked to Corvallis by Route 34, and to other coastal towns by U.S. 101, the major north-south artery on the coast.

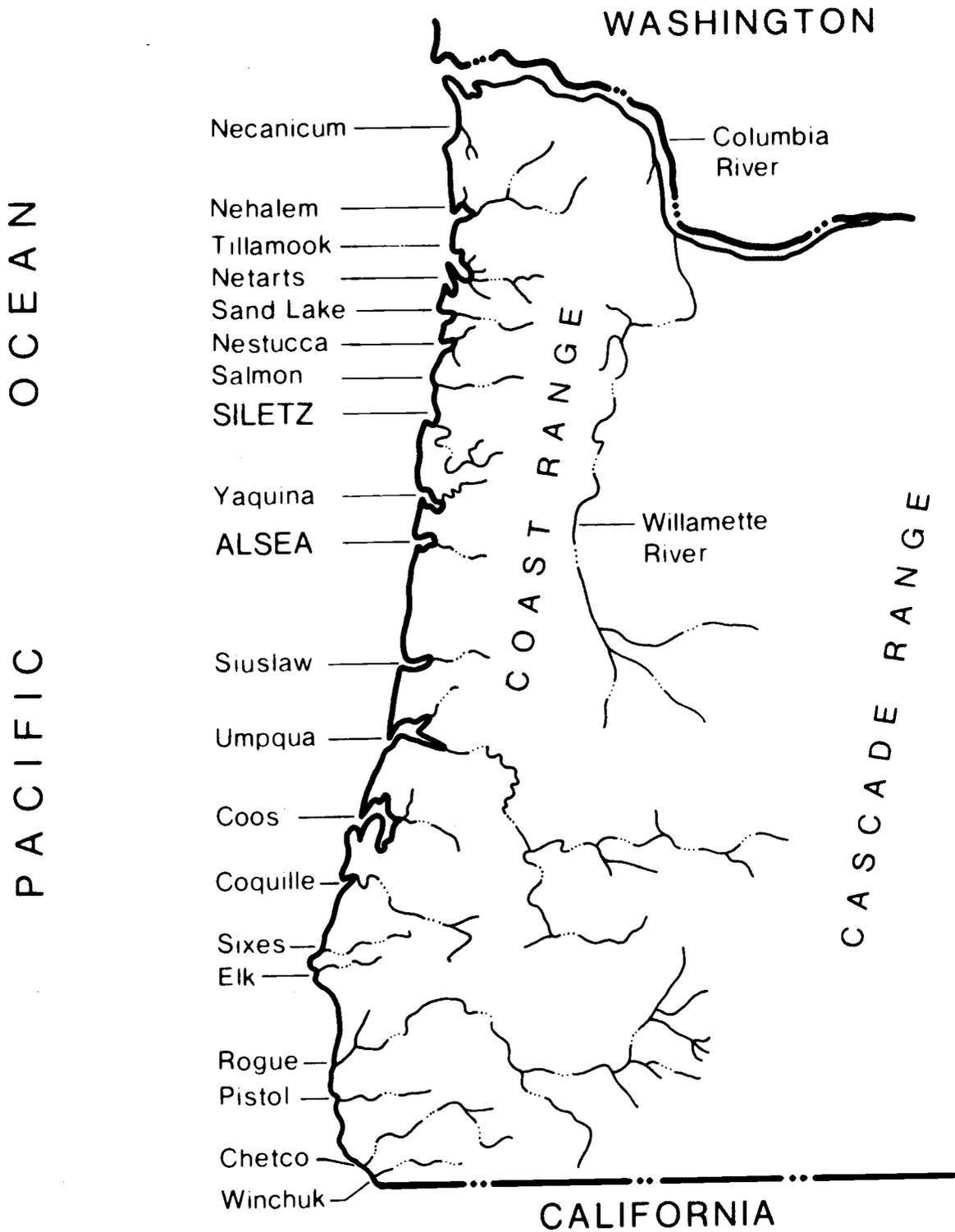
Although physically separated from inland populations by the Coast Range, the Alsea River, Bay and ocean shores are a strong attraction to recreationists. Exhibit 3 shows Oregon population centers, from which heavy weekend and seasonal tourism pressures arise. In addition, summer tourists from Canada, Washington and California have access to the area via U.S. Highway 101.

Within the study area, the most significant resource addressed by the U.S. Army Corps of Engineers regulation 33 CFR 209.120 are "wetlands important to the public interest" (Appendix A, page 31328, No. 3). These wetlands are defined as:

. . . those land and water areas subject to regular inundation by tidal, riverine or lacustrine flowage. Generally included are inland and coastal shallows, marshes, mudflats, estuaries, swamps, and similar areas in coastal and inland navigable waters. Many such areas serve important purposes relating to fish and wildlife, recreation, and other elements of the general public interest.

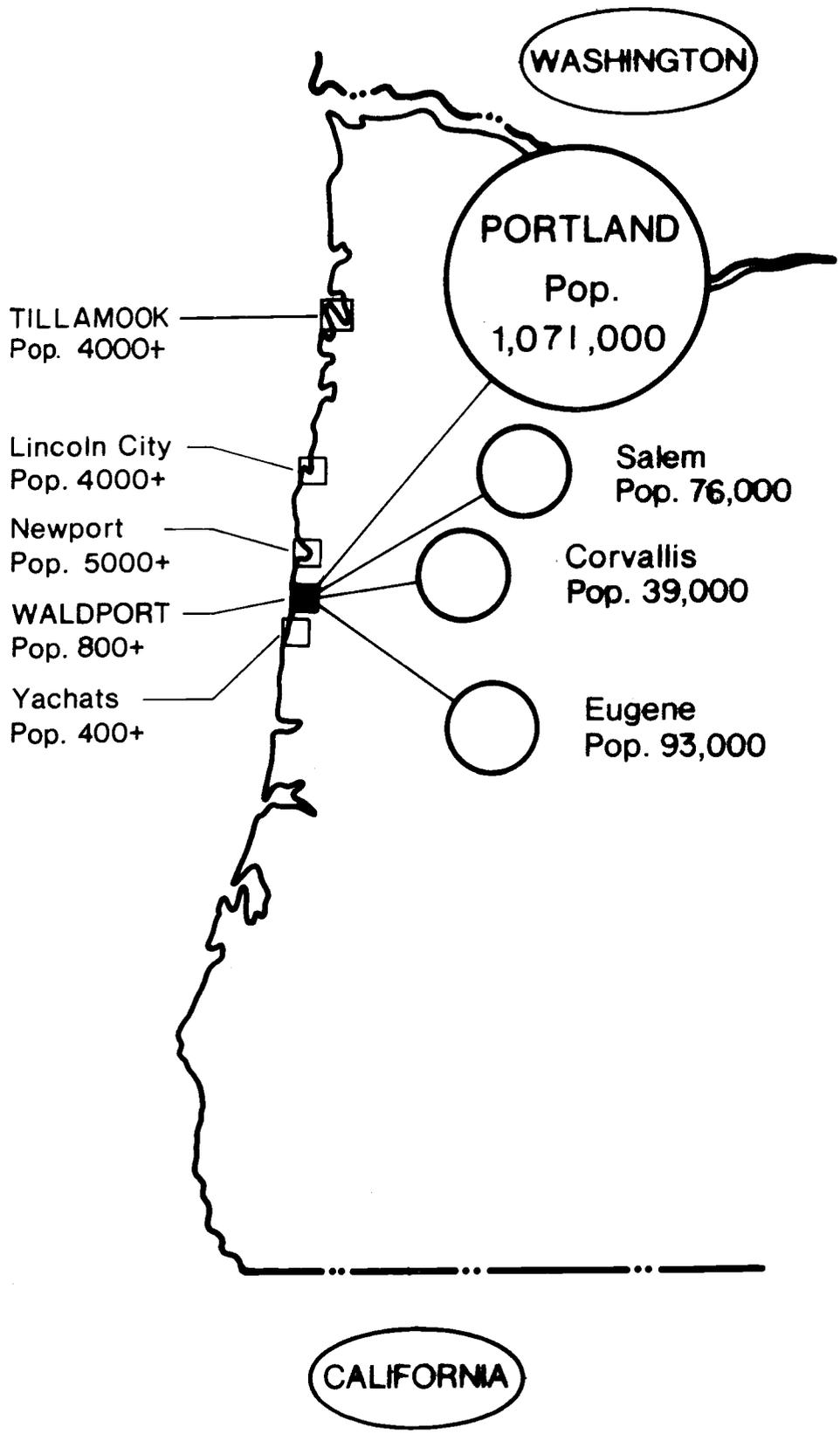
The Corps regulation sets specific minimum criteria defining wetlands that should be considered "important to the public interest:"

- (a) Wetlands which serve important natural biological functions, including food chain production, general habitat, and nesting, spawning, rearing and resting sites for aquatic or land species.
- (b) Wetlands set aside for study of the aquatic environment or as sanctuaries or refuges.
- (c) Wetlands contiguous to areas listed above, the destruction or alteration of which would affect detrimentally the natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics of the above areas.



SOURCE:
Division Of State Lands

PACIFIC OCEAN



**POPULATION CENTERS ON OR NEAR
COASTAL ZONE - ALSEA**

Exhibit 3

- (d) Wetlands that are significant in shielding other areas from wave action, erosion, or storm damage. Such wetlands often include barrier beaches, islands, reefs and bars.
- (e) Wetlands that serve as valuable storage areas for storm and flood waters.
- (f) Wetlands which are prime natural recharge areas. Prime recharge areas are locations where surface and groundwater are directly interconnected.

Further, the regulation addresses the interrelated nature of wetlands resources.

. . . Although a particular alteration of wetlands may constitute a minor change, the cumulative effect of numerous such piecemeal changes often results in a major impairment of the wetland resources. Thus, the particular wetland site for which an application is made will be evaluated with the recognition that it is part of a complete and interrelated wetlands area.

In order to assess potentially cumulative effects, the District Engineer is empowered to review particular wetland areas in response to new applications. In evaluating these applications, the Corps consults with the appropriate Regional Director of the Bureau of Sport Fisheries and Wildlife, the Regional Director of the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, the Regional Administrator of the Environmental Protection Agency, the local representative of the Soil Conservation Service of the Department of Agriculture, and the head of the appropriate State agency. This wetlands review will be provided to those agencies for comment.

Finally, the regulation states:

Unless the public interest requires otherwise, no permit shall be granted for work in wetlands identified as important [above], unless the District Engineer concludes, on the basis of the analysis required . . . that the benefits of the proposed alteration outweigh the damage to the wetlands resource and the proposed alteration is necessary to realize those benefits.

Criteria

The criteria used to identify "wetlands of importance" in the Alsea study area are primarily biological -- productivity, species diversity, uniqueness, lack of disturbance and low resiliency as defined in Chapter 2, The Environmental Profile. Other areas were included as "wetlands of importance," at the recommendation of local citizens and the Oregon

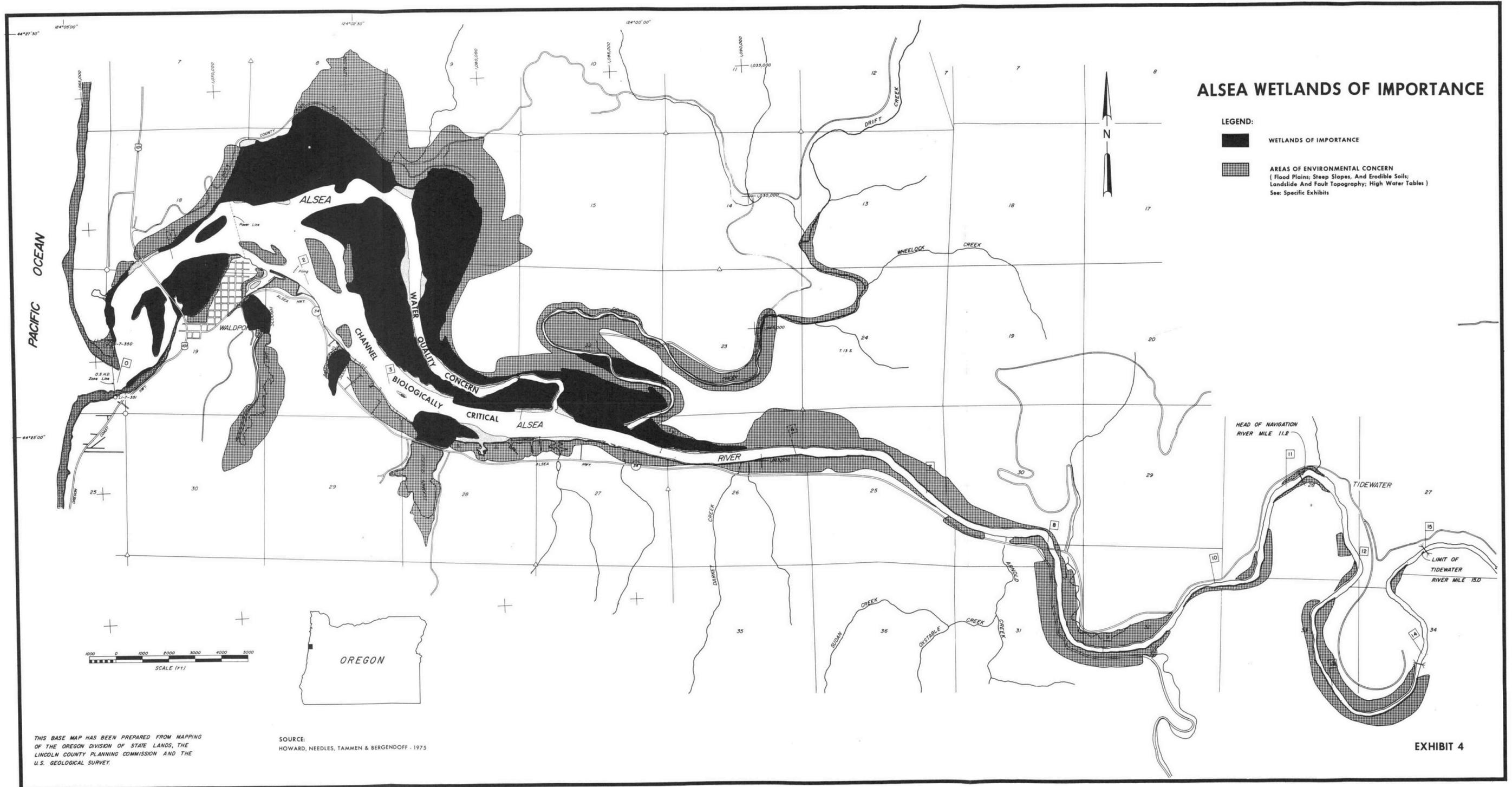
Department of Fish and Game, in view of their high recreational, social and esthetic value. "Wetlands of importance" total 1,518 acres (Exhibit 4).

Certain other areas on Exhibit 4, while not recommended as "wetlands of importance" as defined in Corps regulations, are considered areas of environmental concern -- floodplains and areas with high water tables, steep slopes, erodible soils, landslide topography and geologic faults. Also, channels which are critical to fish spawning and migration have been identified, but these are not recommended as "wetlands of importance" as defined in the regulation since such a designation (as in areas of environmental concern) would impose development restrictions with severe economic, social and political repercussions. Overall, areas recommended as "wetlands of importance" have been determined by a careful balancing of factors involved in the total public interest. Areas of environmental concern are defined as "broad areas of environmental sensitivity, the development of which should be carefully controlled."

City of Waldport/Alsea Bay Regional Land and Water Use Plan

Lincoln County adopted the Alsea Bay Regional Land and Water Use Plan in July 1972 as part of its overall county land use plan. Provisions of the Plan affecting the study area are displayed on Exhibit 5 and in Table 1. The Plan was based upon recommendations by a Task Force representing the City of Waldport, Waldport Planning Commission, the Board of Lincoln County Commissioners, the Lincoln County Planning Commission, and local representatives of State resource agencies. Its purpose is to provide necessary guidelines to "encourage continued growth of those types of facilities which are essential to the economic stability of the area, without diminishing the livability or deteriorating the natural beauty and estuarine and timber resources which made the area so desirable in which to live." The plan is intended to serve as a basis for zoning. While several inconsistencies between local zoning and the Plan exist, Lincoln County intends to correct them. Following the Baker decision (Oregon Supreme Court 1975), the comprehensive plan has become a legally binding requirement on land use. When inconsistencies occur between the plan and zoning, the county must follow the most restrictive requirement. Key features of the Plan (Exhibits 5 and 39) either include or call for:

- o A recommendation to create an "action program" for the bay -- an early reference to the need for comprehensive estuarine management.
- o Revival of a small boat basin development.
- o An increase in the role of the Port of Alsea in bay development activities such as moorage; launching facilities; snag removal; pile removal; and a groin and jetty proposal for the inlet, including activities that would help finance Port operations.
- o A step-up in water and sewer service from Waldport east to Little Switzerland, opening up an additional 1,500 acres of land "suitable for development."



ALSEA WETLANDS OF IMPORTANCE

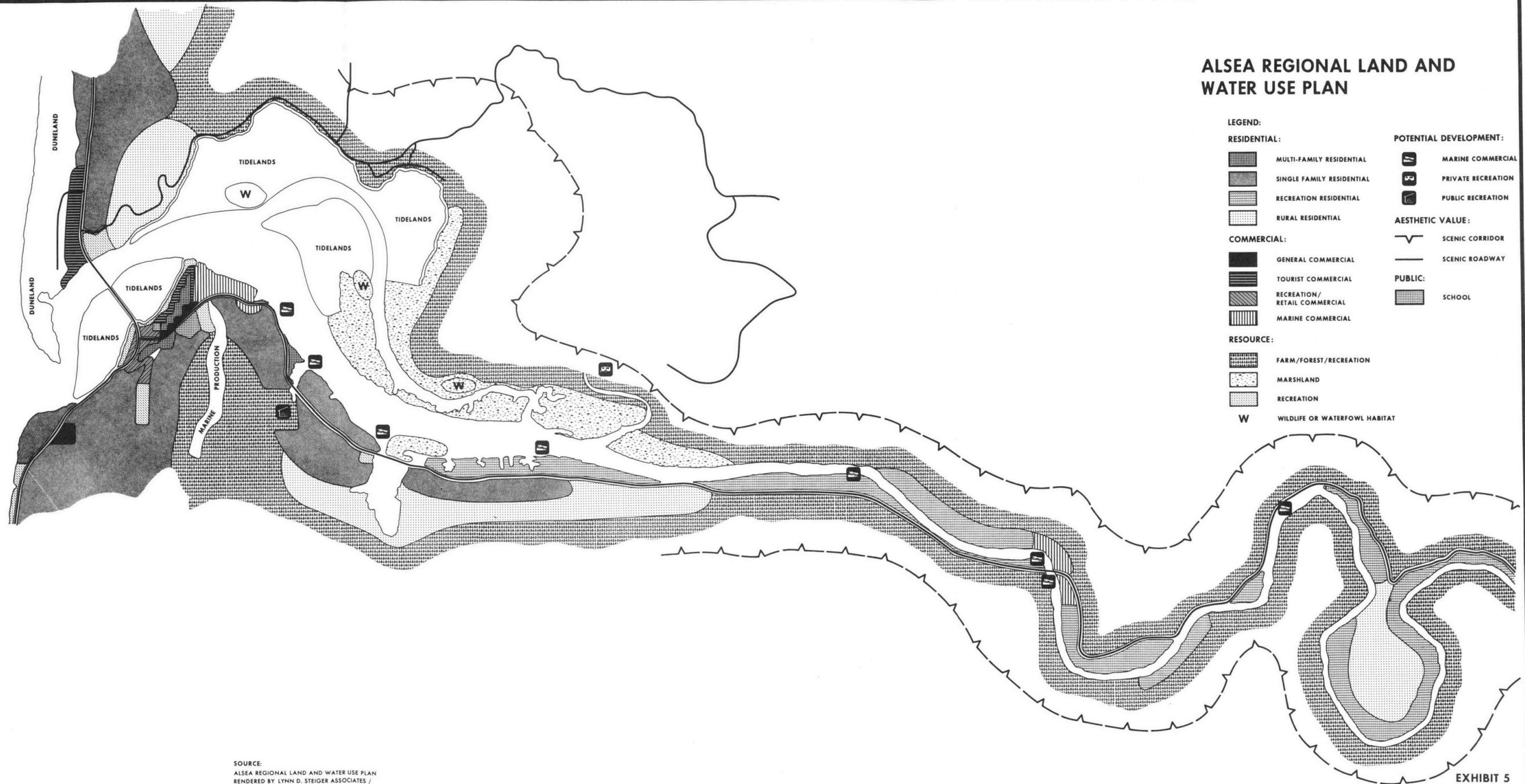
- LEGEND:**
- WETLANDS OF IMPORTANCE
 - AREAS OF ENVIRONMENTAL CONCERN
(Flood Plains; Steep Slopes, And Erodeble Soils;
Landslide And Fault Topography; High Water Tables)
See: Specific Exhibits

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
HOWARD, NEEDLES, TAMMEN & BERGENDOFF : 1975

EXHIBIT 4

ALSEA REGIONAL LAND AND WATER USE PLAN



- LEGEND:**
- | | |
|--|-------------------------------|
| RESIDENTIAL: | POTENTIAL DEVELOPMENT: |
| [Pattern] MULTI-FAMILY RESIDENTIAL | [Symbol] MARINE COMMERCIAL |
| [Pattern] SINGLE FAMILY RESIDENTIAL | [Symbol] PRIVATE RECREATION |
| [Pattern] RECREATION RESIDENTIAL | [Symbol] PUBLIC RECREATION |
| [Pattern] RURAL RESIDENTIAL | AESTHETIC VALUE: |
| COMMERCIAL: | [Symbol] SCENIC CORRIDOR |
| [Pattern] GENERAL COMMERCIAL | [Symbol] SCENIC ROADWAY |
| [Pattern] TOURIST COMMERCIAL | PUBLIC: |
| [Pattern] RECREATION/RETAIL COMMERCIAL | [Symbol] SCHOOL |
| [Pattern] MARINE COMMERCIAL | |
| RESOURCE: | |
| [Pattern] FARM/FOREST/RECREATION | |
| [Pattern] MARSHLAND | |
| [Pattern] RECREATION | |
| W WILDLIFE OR WATERFOWL HABITAT | |

SOURCE:
 ALSEA REGIONAL LAND AND WATER USE PLAN
 RENDERED BY LYNN D. STEIGER ASSOCIATES /
 HNTB - MARCH 1975

TABLE 1

ALSEA BAY MASTER PLANNING

Zoning	Length of Shoreline ^a	
	Feet	Percent in Study Area
Single Family	8,000	4.78
Recreation Residential	64,000	38.09
Rural Residential		
Multi-Family	7,000	4.18
General Commercial	1,000	0.60
Tourist Commercial	1,500	0.00
Marine Commercial	6,000	0.88
Recreation Commercial	0	3.58
Marshland	21,500	0.00
Farm/Forest/Recreation	59,000	12.79
Duneland	3,000	
Recreation (Resource)	5,500	

^aExcluding Drift Creek, Eckman Lake and Marine Production Area.

Source: Howard, Needles, Tammen and Bergendoff, 1975.

- o Improved parking and traffic circulation in downtown Waldport.
- o Acquisition of bay frontage for tourist and park development.
- o Discouragement of "strip" development along Highway 101 and Route 34.
- o Preservation and restoration of the character of Old Waldport.
- o Increased availability, particular downtown.
- o Encouragement of aquaculture and non-degrading industries.
- o Acquisition of the Junior High School for a community center (built on filled lands).
- o Establishment of a major north/south route one half mile east of Highway 101 for future local traffic from Yaquina to Alsea Bay.
- o Protection of public values in beaches, estuaries, river and stream shorelines as an "ever diminishing commodity;" limit uses to those which require water frontage or need water orientation.
- o Initiation of a local, State and Federal program for marshland and tideland acquisition.
- o Initiation and enforcement of standards for scenic roadways and corridors.
- o Establishment of development standards based on soils and slope limitations.
- o Revegetation of developed areas.
- o Initiation of a study of alternative solutions to proliferation of docks continuously along the channel. "Although all of the effects of such docks are not known, it is not felt that continuous dock construction along the channel can have a beneficial effect on either water quality or navigation. Alternative solutions might include periodic boat basins, more launching ramps, etc."

The Plan, as confirmed by the community participation program established for the Wetlands Review Study, is a fairly accurate guide to local goals and aspirations. Further, there is local interest in reconstituting the Task Force for the purpose of developing a comprehensive plan for the bay and river. Decisions to grant, deny or condition permit applications in several instances may be based on the recommendations of such a plan, as discussed in Chapter 6, The Land and Water Use Setting.*

Lincoln County

Lincoln County, which was represented in the Oregon Coastal Conservation and Development Commission, has anticipated a need for land use planning and development standards to protect its citizens and coastal and estuarine-related resources within its jurisdiction. This is reflected in 1) county zoning ordinances; 2) floodplain development standards; and 3) standards governing conditional uses that include docks, dredging, bulkheading and other activities for which the Corps of Engineers and, in most instances, the Division of State Lands have concurrent responsibility.

The Wetlands Review has considered county requirements, and in some important instances uses them as the basic criteria for activities requiring permits from the Corps of Engineers -- specifically, to determine standards for dock construction, protection of esthetic resources, and the compatibility of permit activities with land use goals and objectives. Inconsistencies are discussed in the Land and Water Use Setting, Chapter 6.

As a minimum, the Wetlands Review recommendations provide protection of natural resources equal to that afforded by local ordinances. Lincoln County ordinances deal in general with the following:

1. Shoreland zoning for marine waterways, natural resource zones, and standards for scenic corridors and scenic roadways. (See Exhibit 39 in Chapter 6.)
2. Conditional use standards governing filling, dredging, draining, disposal of dredged material, wharfs, bulkheads and similar devices; piers, docks, boathouses, and similar facilities, and outdoor recreation facilities.

*Areas of inconsistencies between the Alsea Regional Plan and Lincoln County Zoning within the Alsea study area can be determined by comparing the overlays of Exhibit 5, Alsea Regional Land and Water Use Plan (p. 16) with Exhibit 39, Alsea Generalized Zoning Map (p. 266).

3. Floodplain development standards and procedures.

In addition, Lincoln County has basic responsibility for regulating public activities in areas prone to geologic hazards such as flooding; and in areas affected by such catastrophic occurrences as tsunamis.* Because Lincoln County has qualified for the Federal Flood Insurance Program, it is presumed that such hazards have been accounted for in zoning and floodplain development standards.

The implications of Lincoln County zoning ordinances on study area resource development are discussed in Chapter 6, Land and Water Use Setting. It is noted here that failure to comply with Lincoln County legal requirements is sufficient grounds for denial of a Corps permit.

Oregon Division of State Lands

The Division of State Lands has responsibility for the protection, conservation and best use of public-owned waterway lands (below Mean High Water) water resources of the State. Included among its authorities are the issuance of State permits for removal of materials and for filling of submerged and submersible lands, and regulation of structures over navigable waters. The authority is analagous to that exercised by the Corps of Engineers.

The Division prepares the State of Oregon's comments on Corps permit applications and coordinates comments from such State agencies as the Department of Fish and Wildlife and the Department of Environmental Quality. As a matter of policy, the Corps of Engineers does not ordinarily approve permits opposed by the State of Oregon. Further, the Portland District does not have the authority to do so. In the event such a decision is necessary, the issue is referred to the North Pacific Division Engineer.

In Oregon, as in other estuarine States, controversy over permits has generally involved filling. In 1972 Governor McCall declared a six-month moratorium to permit the Division of State Lands time to conduct a selective review of pending applications. Permits for fill involving over 50 cubic yards of material in submerged or submersible lands were either granted or denied based on an evaluation of the factors described below. Fills must be:

1. Consistent with the paramount policy of the State to preserve the use of its waters for navigation, fishing and public recreation.

*

Tsunamis are shock waves generated by volcanic or seismic activity at sea.

2. In conformance with sound principles of conservation and consistent with the public health and safety.

3. In conformance with existing public uses of the water, and with duly enacted zoning and land use plans.

An inventory of filled lands in Alsea Bay prepared by the Division in 1972 has been incorporated in the map of disturbed areas appearing on Exhibit 24 in Chapter 2, the Environmental Profile. The extent of fill recorded by the Division is far less than has been identified through this study. In approximating the extent of fill, the Wetlands Review did not differentiate between "Trust" lands as defined by the Division (areas between the Mean High Water Mark and the Mean Low Water Mark) and areas within the jurisdiction of the Corps of Engineers (tidelands submerged at Mean Higher High Tide). Further, additional fills have occurred on the Alsea since the Division's report in October 1972.

Filling is perhaps the most irreversible activity within the navigable waters and is one that affords the greatest opportunity for preemption of public rights. The purpose and location of fills tend to prejudice consideration of subsequent permit activities (dredging, bulkheading, moorage and development within the floodplain).

In addition to Division of State Lands regulations, the Oregon Coastal Conservation and Development Commission suggested consideration of additional criteria related to filling, "that State and local governments prohibit the filling of estuarine areas unless the following conditions are found to exist:"

1. The fill satisfies existing statutes, administrative rules and criteria of the Oregon Division of State Lands.

2. The proposed uses will provide a public benefit.

3. The fill will be the minimum amount required for the proposed use.

4. Locating the proposed fill in other areas where it would create less adverse impacts is not practicable.

Oregon Coastal Conservation and Development Commission (OCC&DC)

In 1971, Oregon Revised Statute 191.120 created the Oregon Coastal Conservation and Development Commission with the purpose of preparing a comprehensive plan for the preservation and development of the natural resources of Oregon's "coastal zone." The Commission, consisting of representatives from coastal cities, counties and ports, as well as appointees of the governor, submitted its report to the State legislature in March 1975. Areas addressed by the Commission include:

1. General coastwide policies for the management of coastal resources.
2. Specific policies (based on general policies) which have been modified to reflect local conditions and are applied to particular geographic areas.
3. Maps designating specific management areas in the coastal zone where specific policies are to be applied.
4. An implementation program, which designates action to be taken by State agencies and local jurisdictions to carry out the management policies.
5. Other information required by the Coastal Zone Management Act of 1972.

Functional areas addressed by the Commission in a series of general policy statements and recommended actions are:

- o Incorporating Social Concerns in Planning and Decision Making
- o Planning and Providing for Multiple Use of Natural Resources
- o Establishing Scientific and Natural Areas
- o Protecting the Visual Attractiveness of the Coast
- o Historical and Archeological Resources in the Planning Process
- o Managing Urban Growth
- o Requiring Water Supply and Sewage Disposal for Development
- o Evaluating Development Proposals
- o Requiring Maintenance of Vegetative Cover
- o Evaluating Geologic Hazards in the Comprehensive Planning Process
- o Providing Information on Geologic Hazards
- o Regulating Uses in Geologic Hazard Areas
- o Conserving and Regulating Energy Resources
- o Regulating Flood Hazard Areas
- o Planning for Transportation Facilities
- o Evaluating Transportation Facility Proposals
- o Locating Utility Lines
- o Improving Employment Opportunities in the Coastal Zone
- o Providing for Recreational Needs
- o Providing Access to the Public and Private Lands
- o Preventing Over-Use of Recreational Resources
- o Regulating Off Road Use of Vehicles
- o Promoting Economic Development of Fishery Resources
- o Managing Fish and Wildlife on a Sustained Yield Basis
- o Protecting Significant Habitats of Fish and Wildlife Resources
- o Maintaining Values and Uses of Water Resources
- o Developing Potential Water Supplies
- o Providing Flow Protection to Maintain Values of Water Resources

- o Maintaining Values and Uses of Estuarine Areas
- o Managing Estuarine Areas Within the Comprehensive Planning Process
- o Regulating Alterations of Estuarine Areas
- o Designating Geographic Boundaries of Shorelands
- o Managing Shorelands within the Comprehensive Planning Process
- o Regulating Alterations of Shorelands to Avoid Geologic Hazards
- o Maintaining Values and Uses of Sand Areas
- o Regulating Uses in Sand Areas
- o Regulating Modifications of Foredunes
- o Managing Continental Shelf Resources
- o Regulating Mineral Resource Development on the Continental Shelf
- o Conserving Forest Lands
- o Reserving Productive Agricultural Lands

Within the study area, Lincoln County, the City of Waldport, and the Port of Alsea* have all been represented on the Commission.**

Most of OCC&DC's policies and recommended actions were directed to State and local agencies as general guidelines for the adoption of specific criteria and standards affecting specific localities. For the Alsea study area, OCC&DC deliberations were most valuable in the following respects.

1. OCC&DC inventories of wetlands and estuarine resources were major inputs to the Wetlands Review Study.
2. Areas recommended by OCC&DC for inclusion in a "marsh bank" were considered "wetlands of importance."
3. OCC&DC's Visual Resources report was an important input to development of Chapter 3, the Esthetic Profile.

* Port of Alsea's interests are discussed in Chapter 5, the Economic Profile.

** Commission activities and investigations were partially funded by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and were conducted in part to meet the requirements of the Coastal Zone Management Act of 1972. The Act requires, to the maximum extent practicable, that activities (conducted or supported by the Federal government) be consistent with approved State management programs. It is interesting to note that Federal agencies were not formally represented on the Commission despite funding and technical support to OCC&DC.

4. OCC&DC raised the issue of establishing a local estuarine clearinghouse for management of activities affecting Alsea Bay. While the Portland District cannot subject its permit authority under Section 10 of the Rivers and Harbors Act to a local management agency, it can participate in a "clearinghouse" that is directed toward public information on estuarine management; technical and research support; and informal coordination with Lincoln County, the Oregon State Coastal Zone Management Agency (Land Conservation and Development Commission) and other State agencies on activities requiring permits from the Corps of Engineers. Such an activity is authorized and could be funded through the Coastal Zone Management Act; it would facilitate local, State and Corps of Engineers, and other Federal agency coordination, particularly in such areas as esthetics and land use where the greatest amount of subjective judgment is generally involved in the granting, denying or conditioning of Corps permits.*

5. OCC&DC recommends that State and local governments select estuarine areas for different levels of management within a comprehensive planning process ranging from intense development to preservation:

Specific activities, such as dredging and filling, would be considered by the appropriate decision-making agency in terms of its consistency with the plan. At a minimum, these plans would include the comprehensive plans required of cities and counties within Oregon, the State coastal zone management program, and the wetlands ... (review) ... being prepared for Oregon estuarine areas by the U.S. Army Corps of Engineers. Those estuarine areas which encompass a number of jurisdictions might require additional planning, through a partnership of Federal, State and local interests to prepare a document which could be adopted by all participants at respective levels of government.¹

Past experience has shown that in the absence of a comprehensive estuary plan such as discussed above, disposition of permit applications tends to produce the following results:

1. Public uncertainty and confusion over long- and short-term estuarine management goals and procedures.

* "It is anticipated that the management center would be part of an existing office, such as a county planning department. Its purpose is to provide, in one location, a complete identification of all activities taking place in the estuarine area."¹

1. See references at the end of this chapter.

2. Inefficiencies, and often unnecessary delays, in the handling of routine permit applications.

3. Investment uncertainty for locally-sponsored projects that may be both economically and environmentally sound.

4. Loss of potential public financial and technical assistance to local jurisdictions charged with broad planning and management responsibilities.

5. Ad hoc local resource decisions that may be both economically and environmentally unsound but which are prompted by a lack of meaningful options and alternatives available to local agencies.

Lincoln County has indicated that comprehensive estuary plans are a matter of high priority. It is possible that Alsea Bay may be one of the best candidates along the Oregon Coast for prompt initiation of comprehensive local estuarine planning for the following reasons or assumptions:

1. Under aggressive leadership in the past few years, Lincoln County has prepared inventories and instituted local land use planning and zoning to serve as a basis for future detailed estuarine work.

2. Public interest is high.

3. Resource choices will become increasingly limited in the future, indicating a potential for future conflict rather than cooperative benefit.

4. Riverine resources on the Alsea are outstanding and require sensitive management.

5. Ocean-oriented resources on the Alsea are in need of enhancement and improvement.

Pacific Northwest River Basins Commission (PNRBC)

Under the Water Resources Planning Act of 1965, the Pacific Northwest River Basins Commission is entrusted with the development of comprehensive water and related resource plans for large river basins within the Pacific northwest states of Washington, Oregon, Idaho, Wyoming and Montana. The Commission, consisting of representatives from Federal and State resource agencies, has contributed both technical and financial support to the work of the Oregon Coastal Conservation and Development Commission. In March 1974, for example, the Commission sponsored a public questionnaire on citizen preferences for management of specific Oregon estuaries. Basic economic data on coastal resources management were provided to OCC&DC in a report prepared jointly by the PNRBC and the Portland District, Corps of Engineers.

Of local significance to the Alsea area is a Commission-sponsored study ("Level B Study") on water supply and other problems within the Mid-Coast Basin, which was directed by the Oregon State Water Resources Department. Potential reservoir sites and other alternatives to provide necessary water supplies (primarily municipal) in the Mid-Coast Basin will be identified in this study. Federal principles and standards for water and related land resources planning require that the study consider downstream effects, particularly on coastal environments, e.g., maintenance of fresh water supplies to estuaries, fish spawning and migration and floodplain developments. The study is scheduled for completion in 1977.

Department of Land Conservation and Development (DLCD)

A fundamental issue in Oregon has involved the integration of coastal zone management activities (represented initially by OCC&DC) with State-wide planning goals developed by the Land Conservation and Development Commission (LCDC) under Senate Bill 100. Early in 1975 the Oregon State Legislature, with the approval of the U. S. Secretary of Commerce, formally designated DLCD as Oregon's Coastal Zone Management Agency under the Coastal Zone Management Act of 1972. Operating under guidelines established by the Federal Office of Coastal Zone Management, DLCD is considering, through public hearings and other processes, implementation of certain OCC&DC policies and recommendations. OCC&DC's legislatively authorized mandate expired in the spring of 1975; some coastal interests have since formed the Oregon Coastal Conservation and Development Association, a private organization, in an effort to ensure continued coastal inputs into LCDC's decision-making process. LCDC held extensive public workshops along the coast prior to designation of the Department of Land Conservation and Development as Oregon's coastal zone management agency.

It is not clear what role the Portland District may eventually be expected to perform in the complex interplay of Federal, State, regional and local agencies with authority for the same coastal resource base, or the extent to which Federal and State agencies responsible for coastal resources ought to deal more directly with local and regional agencies such as DLCD for purposes other than regulation. Corps participation in comprehensive estuary plans is a good example. There is, however, considerable local sentiment for such involvement.

DLCD intends to complete its coastal zone management in spring, 1976. This Wetlands Review has been coordinated with the State of Oregon and appears consistent with interim planning guidance of State goals and guidelines. It is certain that the permit authorities exercised by the Portland District under the Rivers and Harbors Act of 1899 will be influenced by the development of basic coastal policies.

Other State Agencies

The programs and responsibilities of other State agencies have direct and in some cases paramount importance for the management of resources in the Alsea study area. Too numerous to describe in detail, they are summarized in the following paragraphs. Several are referenced in other portions of the text. Comments by these State agencies on specific permit applications to the Portland District, Corps of Engineers, are coordinated by the Division of State Lands for the Office of the Governor.

1. Department of Environmental Quality. Policy, regulatory and management authorities as they apply to water pollution control, prevention and abatement; and consultation requirements of other State agencies including notification by the Division of State Lands prior to State leasing of tidal and submerged lands, property tax exemptions and income tax credits for pollution control facilities.
2. Oregon Department of Fish and Wildlife. Policy, regulatory and management authorities including notification by the Division of State Lands prior to State leasing of submerged and submersible lands; notification by the State Highway Commission prior to issuance of permits for removal of products along ocean shores; and installation of fishways and hatcheries in scenic waterways. This Department provides major input on the potential effects of permit activities on fish and wildlife resources.
3. Department of Geology and Mineral Industries. Authorities to issue permits for geologic and geophysical surveys on tidal submerged and submersible lands and leases.
4. Department of Soil and Water Conservation. Authorities for watershed conservation and development, including prevention of soil erosion, flood control, maintenance of the navigability of rivers and harbors, and protection of wildlife, natural beauty and recreational opportunities.
5. Water Resources Department. Policy, regulatory and management authority over water resources of the State, including the preparation of comprehensive plans for water supply, recreation, wildlife, fisheries, water pollution abatement, flood control, floodplain management and reclamation; particularly authority, jointly shared with the Division of State Lands, to regulate filling and removal of materials from the beds and banks of the waters of the State, and coordination by other State agencies of programs affecting the waters of the State.

Reorganization of State agencies in 1975 resulted in the absorption by the Water Resources Department of the Oregon State Engineer's Office. Functions given to the department include: policy, regulatory and management functions as they apply to water resource surveys, watershed protection and flood prevention projects, reclamation projects in marsh and submersible lands, and installation and maintenance of stream gaging stations.

"The Public Trust"

The common law principle of the "public trust" is applied with increasing regularity by Federal and State courts regarding the use or disposition of estuarine resources. The principle has been summed up in the words of J. A. Holmes, Secretary to President Theodore Roosevelt's "National Conservation Commission" in 1909:

The resources which have required ages for their accumulation, to the intrinsic value and quantity of which human agency has not contributed, for which there are no known substitutes, must serve as the welfare of the Nation. In the highest sense, therefore, they should be regarded as property held in trust for the use of the race rather than for a single generation; and for the use of the Nation, rather than for the benefit of a few individuals who may hold them by right of discovery or purchase.

Modern commentators cite the underlying practicalities of the "trust" principle:^{2,3}

1. Some resources are of such importance that it would be unwise to make them the subject of private ownership; if already in private ownership, society has the right to expect that they be protected and managed to account for the public as well as private interest. This appears to be an extension of the following legal doctrine to societal interests as a whole: "Use your property but in such a manner as not to injure another."

2. The resources are such that government should use them to promote the interest of the general public rather than to redistribute them from broad public uses to restricted private benefits.

The submerged and submersible lands of the Alsea Bay and River to the Mean High Tide, regardless of ownership, are recognized as trust resources within the State of Oregon. Manifestations are the statutory and administrative requirements of the Division of State Lands; several notable State court decisions;* and the legal opinions of the State's Attorney General concerning the Division of State Land's regulation of private tidelands.

* Lewis v. City of Portland, 25 OR. 133; Corvallis and Eastern R. Co. v. Benson, 61 OR. 369-370; and other cases are discussed at length in an opinion by the Attorney General to the Advisory Committee to the State Land Board, September 17, 1971.

The concept of "public trust" tends to define the correlative rights and responsibilities of the public vis a vis the rights and responsibilities of riparian owners; moreover, with more clarity than in narrowly construed cases involving riparian law. Some commentators assert that riparian law is confusing, too localized and often contradictory to serve as an appropriate guide for management decisions involving estuaries.^{2,3} In contrast, whenever the principle of the "public trust" has been invoked, common questions by the courts tend to emerge repeatedly:

1. Will the resource remain effectively within the public interest with respect to navigation, fisheries and recreation, and esthetics?
2. Will the uses of the area be devoted to public purposes and made accessible to the public?
3. Will diminution of the resource be relatively minor, i.e., will marsh, for example, continue to be a marsh?
4. Will any of the uses guaranteed to the public be totally destroyed or greatly impaired?
5. Has "due process" been followed?
6. Is the activity "necessary to accomplish public purpose?"

Analogous to commercial law dealing with the relationship of trustees to the beneficiaries of the trust, is it, in other words, necessary to destroy the object of the trust (the estuary, for example) to improve the trustee's benefit?

These general guidelines gleaned from court decisions have major implications for two recommendations considered by the Oregon Coastal Conservation and Development Commission: 1) the suggestion that minimum acreages be set for Oregon's estuaries before filling is totally prohibited and 2) the requirement to use piling in lieu of fills whenever practicable, which according to OCC&DC's analysis is subject to a dual interpretation.

Whatever coastal policies finally emerge under the common law there exists a presumption in favor of continuing the resource in its existing state unless it can be demonstrated that the public benefit would exceed the public loss, through disposition, conversion by landfill or other activities. This is not to imply that economic benefit is not a criteria of "benefit" but that it is only one of a number of criteria, including navigation, fisheries, recreation, esthetics and maintenance of ecological integrity. A burden of proof involving more than economics alone, therefore, must be borne by those who would potentially infringe on this trust. The Corps summarizes the concept of "public trust" by

requiring that a permit not be issued unless the work can be shown to be in the "public interest." The Wetlands Review suggests that in the Alsea study area this burden cannot be successfully borne for certain activities such as landfilling: 1) in the absence of a comprehensive plan for Alsea Bay identifying among other things those activities that necessarily require use of submerged and submersible lands; and 2) in the absence of an evaluation of the availability of alternative sites for such uses.

REFERENCES

- ¹OCC&DC Report to the State Legislature, Spring 1975.
- ²Joseph L. Sax, Defending the Environment: A Strategy for Citizen Action (New York, N.Y.: Alfred A. Knopf, 1971).
- ³Victor J. Yannacone, Jr., Bernard S. Cohen and Steven G. Davison, Environmental Rights and Remedies, Volume 1 (Rochester, N.Y.: The Lawyer Co-operative Publishing Company, 1972).

CHAPTER 2 ENVIRONMENTAL PROFILE

Summary of Findings

The abrupt drop from the crest of the Coast Range west to the ocean dictates the physical configuration of Alsea's riverine and estuarine system. The river itself tends to be "flashy" with wide seasonal variations in volumes of flow, temperature and rates of sediment until it meets its ocean-dominated reaches. Highly erodible soils, steep slopes and geologic hazards limit development in the upstream portions of the study area, except in the floodplain. During the summer and fall seasons resources within the floodplain provide attractions for agriculture, recreation and habitation. Winter and spring bring risks of flood and erosion. The primary biological resources upstream are the fisheries of the river itself and riparian edges that provide habitat for wildlife and shade and nutrients for spawning and migrating fish.

From approximately river mile 5 downstream, physical risks to development are diminished somewhat at habitable terraces surrounding the wide expanse of the bay except where localized environments such as the sandspit and marine terraces are prone to erosion, landslides, geologic faults and physical changes brought about by the force of wind and waves. The primary biological resources of the bay are its estuarine components consisting of relatively unpolluted waters; marsh; tideflats; bottoms exhibiting high levels of biological productivity; species diversity; and unique habitats for fish, mammals, birds and other wildlife. These components are of such biological and scientific significance that they are considered as "wetlands of importance to the public interest."

Overall, the fact that the bay generally is not easily predictable supports a conclusion that activities requiring permits from the Corps of Engineers should be kept to the minimum. This would support a planned level of moderate growth and maintain the bay in a relatively undisturbed condition. There is, however, a notable absence of current data on the distribution of bottom sediments and on annual changes in channel depths. A major question has been raised by long-time residents whether or not upstream sediment rates are filling the estuary to the extent that restorative measures such as silt removal, are necessary in order to prolong its usefulness to man and the estuary's long term viability.

PHYSICAL FACTORS

General Topography

The Alsea study area lies within Oregon's mid-coast basin on the western side of the Coast Range. Narrow sandy beaches, spits, marine terraces and floodplains are characteristic of the bay area. Inland, the country-

side consists of mountainous terrain and steep-sided canyons with elevations of 3,000 feet or more. The Alsea River flows westward, one of the five major drainages of the basin.

The coast in this area consists of marine terraces, extending a mile inland in some places and rising to about 200 feet to form vertical bluffs. Marine terraces are elevated surfaces along a shoreline which owe their existence to erosion and deposition by the sea.

Terraces developed on basalt or other resistant rock, which erode more slowly than surrounding terrain, form headlands; Yaquina Head, Cape Perpetua and Seal Rock outside the study area are examples. Building on these headlands is relatively safe, compared to the coastal terraces at Alsea, if structures are located away from the abrupt cliffs.

Mountains extend inland from the terraces, although near the coast elevations are no higher than 200 to 300 feet. Moving easterly, the countryside changes to rugged ridge crests 500 to 700 feet above streambeds, with elevations as high as 2,000 feet. Ridges are oriented in a northwest-southeast direction. Higher mountain peaks located north to south in the Alsea Bay area include Table Mountain and Cannibal Mountain. (See Exhibit 6.)

Geology

In the Alsea River basin, there are four major geologic types: Quaternary marine terrace deposits and old dune sands, Siltstone of Alsea formation, Nestucca Formation and the Tyee Formation.

The Tyee Formation is the most extensive tertiary bedrock in the basin; it covers the entire area east of the mouth of Drift Creek except for minor intrusive formations. Mountainous with deep valleys, most of this formation weathers to silty and sandy soils which are easily erodible from steep slopes.

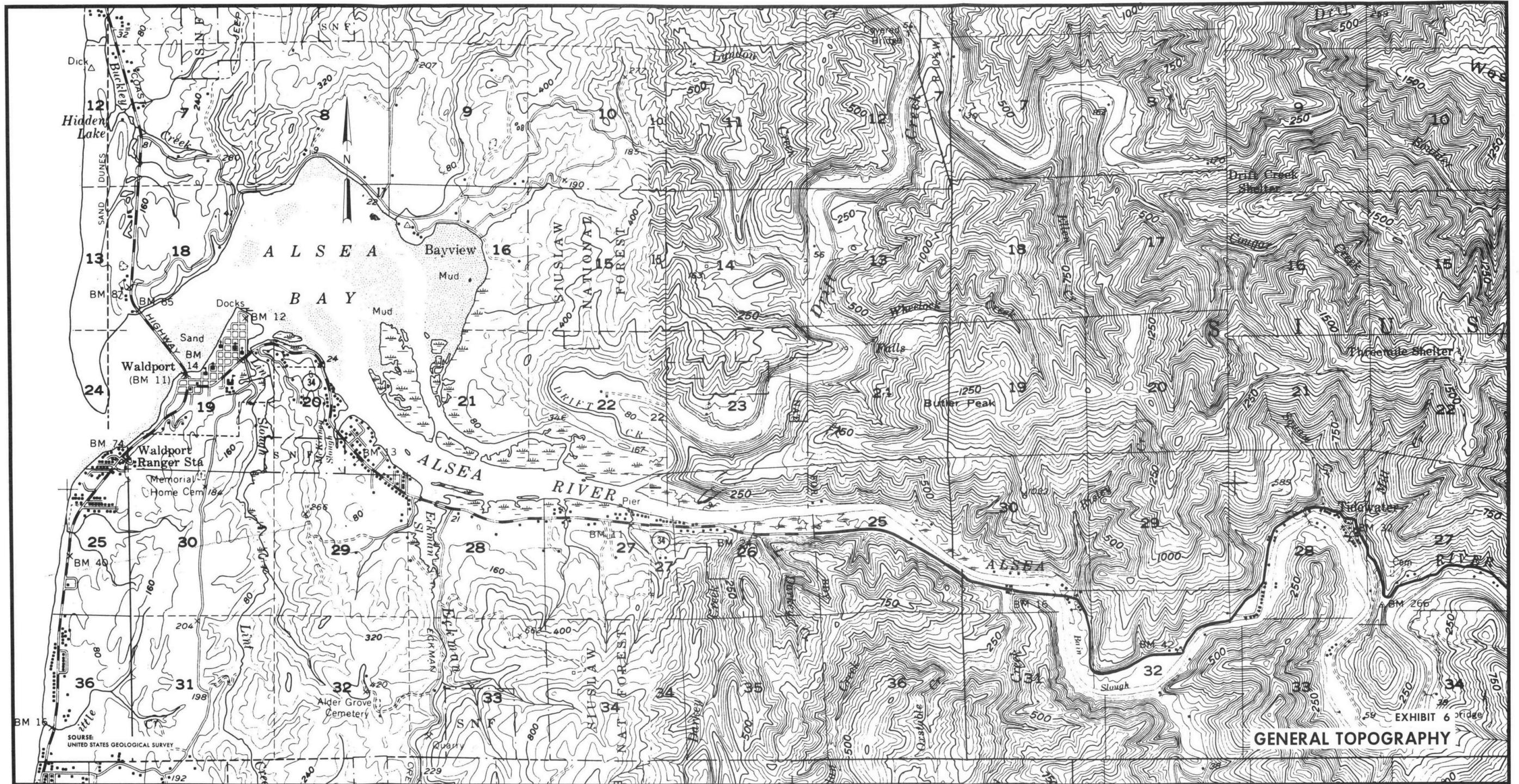
The two tertiary siltstone units in the basin, Siltstone of Alsea and Nestucca Formations, are located in the South Beaver Creek area on the north side of the bay and in the area between Lint Creek and Eckman Creek on the south. These formations are more susceptible to landslides than the Tyee Formation. The cliff on the north side of Alsea Bay east of the U.S. Highway 101 Bridge is Siltstone of Alsea.

Marine terrace deposits and sand dunes, which are prone to ^{1*}severe erosion, lie between the tertiary siltstones and the Pacific Ocean.

Soils

To differentiate soil capability and suitability for various uses, the

* See references following this chapter.



Soil Conservation Service has designated eight numerical soil classes (Classes I through VIII). The higher its numerical class, the more limited are a soil's practical uses. For example, Class I soils have few use limitations.

In the Alsea Bay area, there are no Class I soils. The north and south sides of Alsea Bay near the coastline consist of soils of the SKINNER-ASTORIA-FENDAL ASSOCIATION with slopes varying from 0 to 25 percent. Uses of this soil type, which is in the VIe-3 class, should be limited to forestry, wildlife, recreation and water supply. Under careful management it could also be used as pasture land; this would require not only careful rotation of grazing, but also large amounts of commercial fertilizers. This soil type could also provide good habitat for large game animals.

In the Bayview area and at the mouth of Drift Creek, soils of the KNAPPA-NEHALEM ASSOCIATION are most common. KNAPPA soils are in Classes IIe-1 and IIc-1. Class IIe-1 soils usually have slopes in the range of 3 to 8 percent, moderate permeability and moderate erodibility. Soils in this class should be used for cultivated crops, pasture land, forests, wildlife and limited recreation. High quality grasses and legumes could be maintained through application of commercial fertilizers. Livestock should be kept off soil during winter periods of prolonged wetness in order to avoid soil compaction, which retards pasture growth.

Class IIc-1 soils usually have a 0 to 3 percent slope; permeability is moderate and the erosion hazard is slight. Soil uses range from cultivated crops, pasture land and forests to wildlife and recreation. Climatically adapted crops will do well and quality grasses can be maintained with commercial fertilizers.

NEHALEM soils are in the IIw-2 class and are usually found on level floodplains. Permeability is moderately slow and the erosion hazard is slight. Because of continual wetness and flooding, the uses of these soils should be restricted. With careful management this soil class can be used for selected cultivated crops, pasture land, forest and wildlife. Climatically adapted crops which are resistant to long periods of wetness will do well. To avoid soil compaction livestock should be kept off the soil during periods of prolonged wetness.

Inland from the mouth of Drift Creek along the Alsea River, slope varies from almost 0 to more than 50 percent. Soils in this area are in Classes VIe-2, VIe-5 and VIIe-2. Depending on the slope, the soils are suitable for limited pasture use, forestry, wildlife and limited recreation. Permeability is moderately rapid and runoff is medium to rapid, while the hazard of erosion is moderate for soils with slopes of less than 37 percent. To avoid compaction of the soil and retardation of pasture growth, livestock should be kept off the soil during prolonged periods of wetness. Under proper management these soils make a suitable habitat for upland game animals.

Class VIe-5 soils have slopes in the range of 35 to 50 percent. Permeability is moderately rapid to moderately slow, while surface runoff is rapid. The hazard of erosion is high. Presently used for forestry and wildlife, these soils could also be used for water supply and recreation and with proper management, as suitable habitat for big game animals.

Class VIIe-2 soils have slopes ranging from 50 to 90 percent, moderately rapid permeability, rapid runoff and a high hazard of erosion. Soil texture and slope limit the use of this soil type to timber production; natural cover, such as forests, should be maintained.

In general, the soils of the Alsea are not suitable for development or farming because of steepness and susceptibility to erosion. As shown in Table 2, a correlation exists between highly erodible soils and slopes, surface runoff and soil permeability.

TABLE 2
SOIL CLASS CHARACTERISTICS

Soil Class	Slope	Permeability	Surface Runoff	Erosion
IIc-1 Bayview and mouth of Drift Creek	0-3%	M		S
IIw-1 Bayview and mouth of Drift Creek	0-3%	M	Slow	Slight
IIe-1 Beginning north of Drift Creek	3-8%	M		M
VIe-2 Upriver of Drift Creek	0-37%	M-MR	M-R	
VIe-3 North/south sides of bay near the coast	0-37%	M-MS	R	M
VIe-5 Upriver of Drift Creek	37-50%	M-R-MS	VR	H
VII-2 Upriver of Drift Creek	50-90%	MR		VH

M = Moderate

S = Slow

R = Rapid

H = High

Source: Corliss, 1973.

It should be noted that as slope increases from 0 to 90 percent, permeability increases from moderate to moderately rapid, surface runoff increases from slow to very rapid, and the hazard of erosion increases from slight to very high.

There is a direct relationship between soil characteristics and Corps of Engineers permits with respect to applications for bank stabilization. Banks along the floodplain of the bay downstream of Drift Creek tend to be less prone to erosion because of soil characteristics and lower water

velocities. Where banks are not steep, marsh grasses, plantings and retention of natural vegetation can provide a biologically preferable alternative to structural stabilization measures. Marine terraces nearer the coast, such as at Waldport, with steeper slopes are more likely to require structural stabilization measures unless adequate setbacks for development are required. Banks upriver of Drift Creek area more likely to require structural measures in connection with floodplain developments even though the level portions of the floodplain are not prone to erosion. In these upriver portions, erosion of steep banks is accelerated by the wash of motorboats. An alternative to structural measures is the retention of natural riparian vegetation and setbacks prior to development.

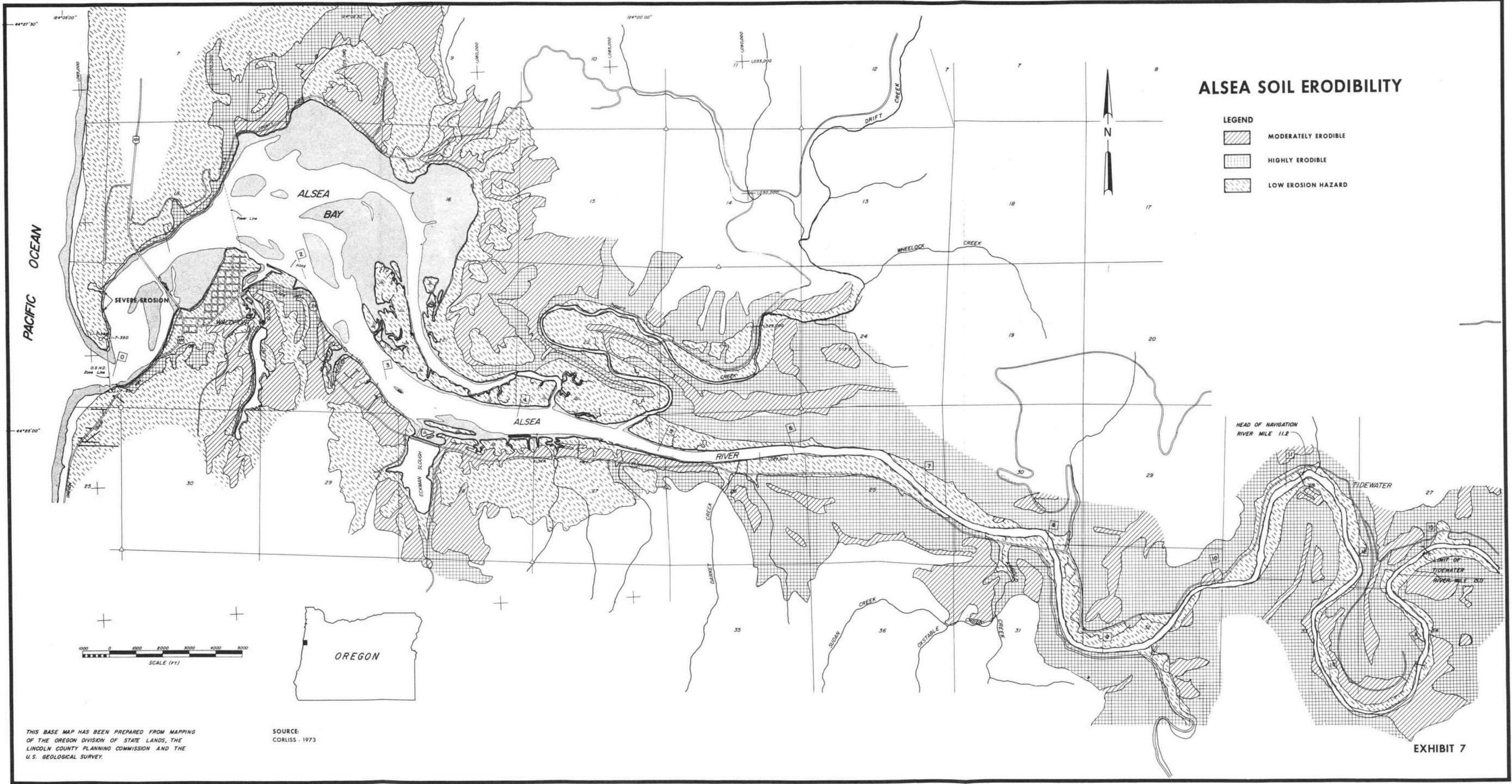
Geologic Hazards

The areas in the Alsea basin which are prone to erosion are shown on Exhibit 7. Very little land in the Alsea basin is naturally suitable for habitation. The slopes of most of the land seriously prohibit any usage other than forestry. Most available and developable land within the Alsea basin is in the floodplain. Any development outside the floodplain would require design and soils studies to insure stability.

Generally, residential, commercial and industrial development can be constructed on land with slopes less than 10 percent with little difficulty. Commercial and industrial development should be limited on land with slopes between 10 and 20 percent; some residential development is possible but grading and filling would be necessary. Development should not be encouraged on land with more than a 20 percent slope.

Landslides, sometimes referred to as slope failures, occur naturally and because of man's alterations of land forms. When soils, especially of siltstone and claystone formation, are eroded they are highly susceptible to slope failure.

In the Alsea basin, landslides are likely to occur in the five-mile area inland from the coast on either side of the bay. Near the head of tide-water there are few landslide areas, although steep slopes are frequent. Landslides are a potential hazard along the marine terraces, which are being eroded by ocean waves. Most of the population of the Alsea basin resides on the marine terraces, and U.S. Highway 101 north and south of Waldport is constructed on the terrace except for the portion along the seawall which is constructed on Siltstone of Alsea. This material is prone to erode and needs to be protected against the action of sea waves and surface water. The cliff on the north side of Alsea Bay (the North Terrace) is also a critical area of the Siltstone of Alsea Formation.¹ In Alsea Bay, compressible soils which include clays, sand and silt, are subject to flow under foundation loads. (See Exhibit 8.)



ALSEA SOIL ERODIBILITY

- LEGEND**
-  MODERATELY ERODIBLE
 -  HIGHLY ERODIBLE
 -  LOW EROSION HAZARD

PACIFIC OCEAN

OREGON

SCALE (FT)
0 1000 2000 3000 4000 5000

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE: CORLISS - 1973

EXHIBIT 7



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE: ENVIRONMENTAL GEOLOGY OF LINCOLN COUNTY - 1973

Geologic Faults

In the Alsea Bay area, fault lines can be observed from the coastline near Governor Patterson Memorial State Park south of the City of Waldport to the water line of Alsea Bay. The fault begins again on the opposite shore at Bayview and proceeds in a northeasterly direction. It should be noted that faults are more numerous north-northeast of Bayview in an area of high landslide hazard. Fault lines also follow a northwest direction, intersecting north of Bayview and continuing in a south-southeast direction through the Alsea River near river mile 8. Farther upstream at river mile 10, a meandering fault line intersects the Alsea River and continues northwest. As shown on Exhibit 8, extensive faulting is present in all the bedrock units of the area.

Although it is not realistic to restrict all building on faults, where faults intersect landslide hazards such as north of Bayview, development should be strictly limited. Such areas are included among "areas of concern" as shown on Exhibit 4.

Alsea Spit

The coastal shoreline, with its beach areas, dunes, headlands, and spits, is the most geologically hazardous area within the Alsea basin.

The Alsea sandspit is a critical area and very susceptible to wind and ocean erosion. It projects from the north bank of Alsea Bay in a southerly direction to form the estuary. The sandspit is subject to the same irregular cycle of sand removal and deposition as beaches. Under normal conditions, it serves as a natural buffer to dissipate wave-generated energy. If a beach area is large enough, this energy is dissipated far offshore, thus indirectly protecting coastal property and preventing erosion of sea cliffs.

The seaward side of the Alsea sandspit appears to be increasing at a rate of 10 feet per year. However, near the southwesterly tip, on the bayside of the spit, erosion is occurring at the rate of 1.5 feet per year.³ (See Exhibit 9.)

According to aerial photographs, the main foredune is presently about 100 feet landward of its 1939 location. Vegetation in the form of grasses has helped to stabilize the dune against wind erosion. Approximately 300 feet seaward of the 1939 location, a new foredune is forming with the help of driftwood which slows and accumulates windblown sand. The new foredune is approximately 10 feet above the mean tide line and prohibits high tides from reaching the area between the new developing foredune and the main foredune. Vegetation has taken hold in this area.

The formation of the new foredune is similar to the growth pattern of barrier islands, which are transient features of the sea environment. The deposition and erosion cycle may reverse itself at any time and place the

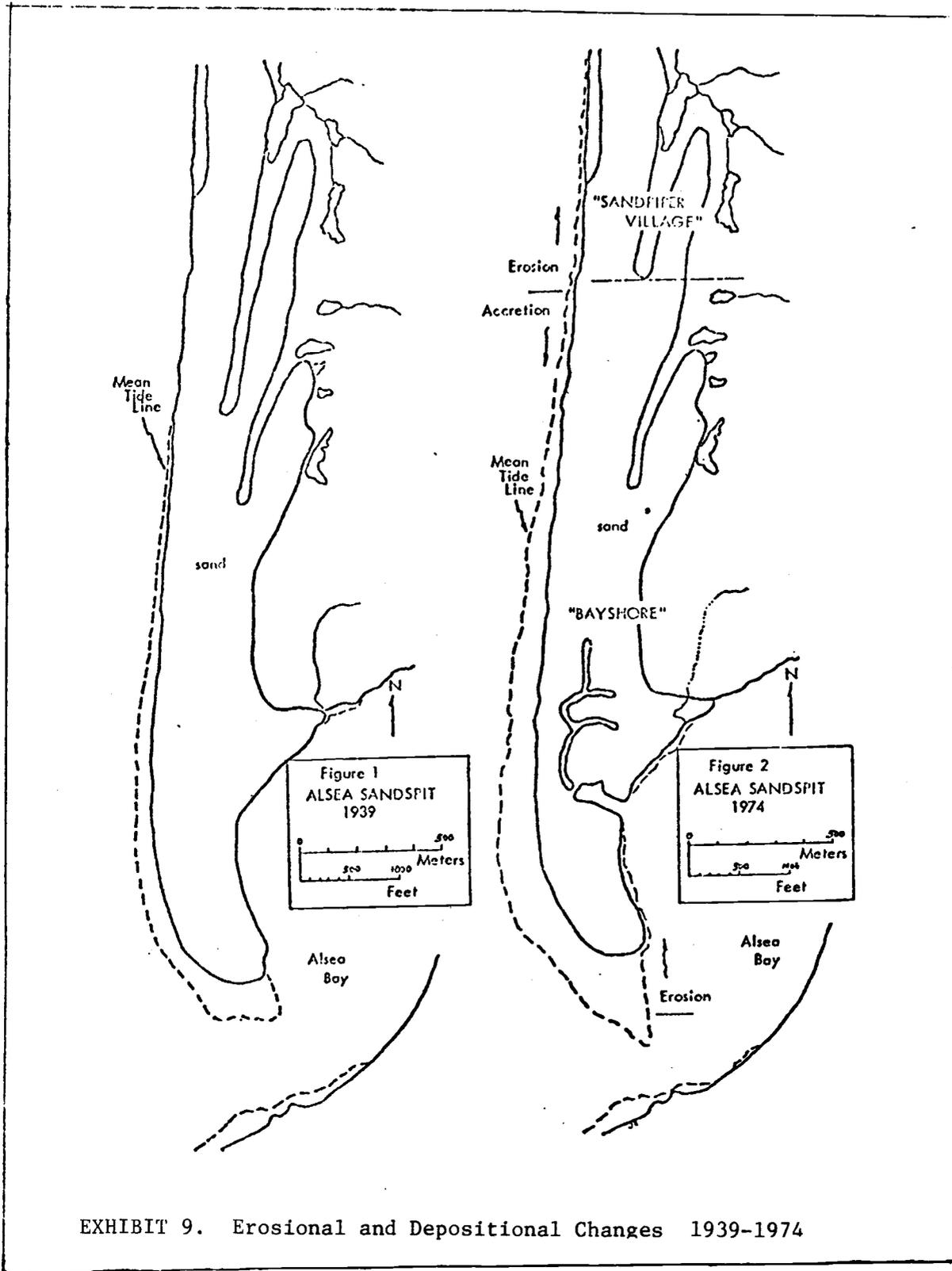


EXHIBIT 9. Erosional and Depositional Changes 1939-1974

Source: Stembridge, 1974

stability of the new dune in doubt.

Residential development is occurring on the Alsea sandspit. Prior to construction, all dunes except the foredune were leveled. Because the spit is constantly changing, additional or new construction in this area should be discouraged.

Various studies at Oregon State University have determined that rivers such as the Alsea **transport sand toward the ocean. However,** because this sand is trapped in the estuaries, these rivers should not be depended upon as sources of sand to replenish the beaches.

Erosion of sea cliffs adds sand to the beach, which in turn enhances the beach's ability to protect land forms from erosion by the sea. Sudden or unexpected removal of beach sand upsets this natural recycling process. For example, on the southern coast of England, the town of Hallsands was destroyed when beach sediment was removed for use as ship ballast. The construction of jetties also interferes with the natural sand movements of longshore drift.

Mineral Resources

Construction aggregate, which is used in the building and maintenance of roads and jetties, is a valuable and scarce commodity in Lincoln County. Concrete, made of sand, gravel and crushed rocks, is in great demand for use in highway, building and bridge construction. Recorded use of aggregate in Lincoln County in 1975 was about 400,000 tons and is expected to increase to 550,000 tons per year by 1990.¹

Because sand and gravel are limited in Lincoln County, crushed quarry rock has been used as a substitute. Rock quarries suitable for production of quality aggregate are found in about six areas. Construction of jetties requires a stone resistant to weathering and available in large angular pieces. A rare igneous rock meeting these requirements, Syenite, is found at Table Mountain northeast of Waldport; at Cannibal Mountain south-east of the Alsea River and approximately 11 miles inland; and at Butler Peak, north of the Alsea River.¹ Overall, the mineral resources of the region are limited, placing pressure on the beaches as a potential source of commercial sand.

Climatic Conditions

The Alsea River drainage basin is located approximately 130 miles south of the mouth of the Columbia River. (See Exhibit 10.) Bordered by the Pacific Ocean on the west and the crests of the Coast Range on the east, the basin drains a 474-square mile area within Lincoln, Benton and Lane Counties. The Alsea basin has the humid, temperate climate typical of Oregon's coastal areas. Annual precipitation is generally influenced by elevation, with 60 to 90 inches falling along the coastal regions, 80

PACIFIC OCEAN

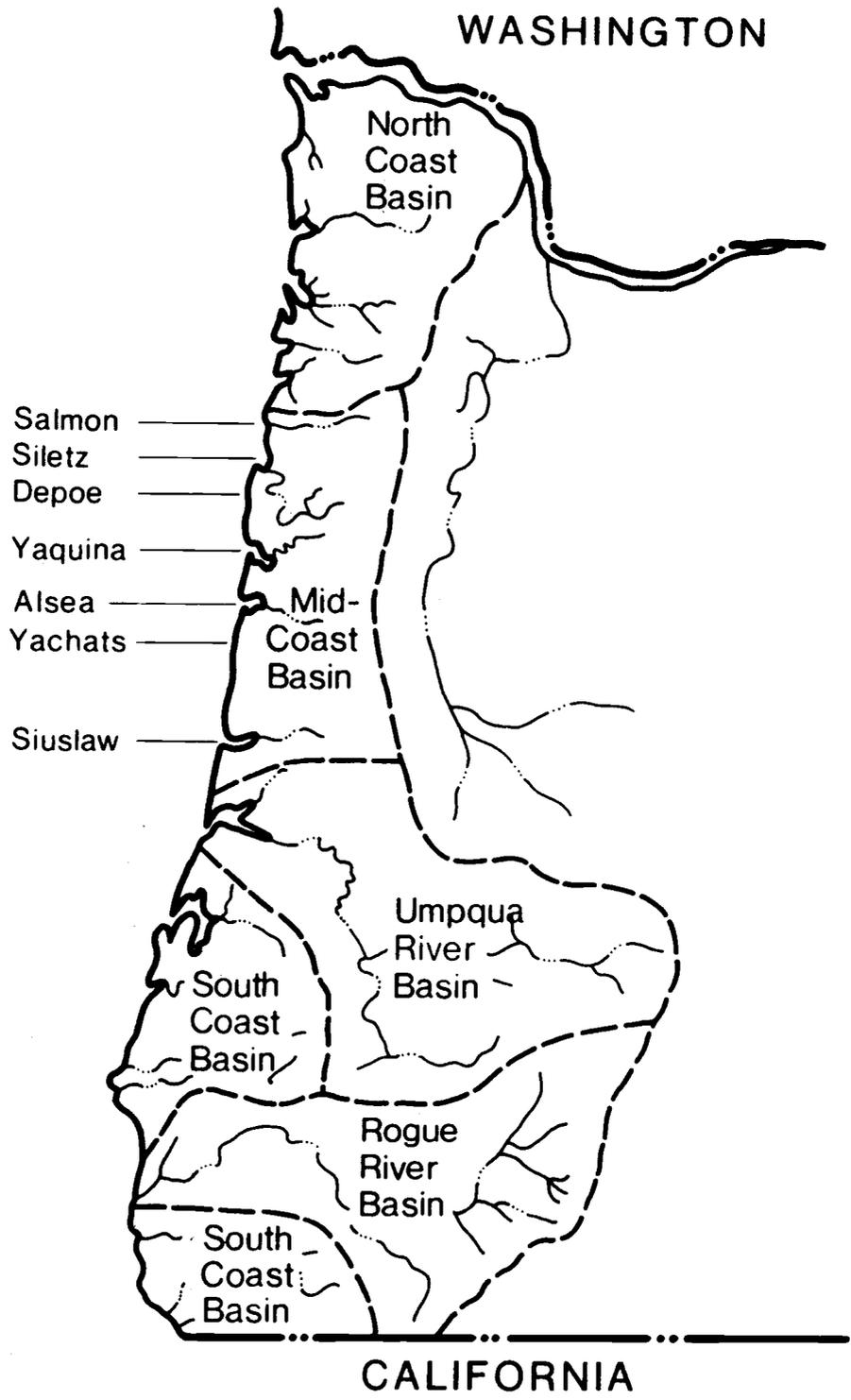


Exhibit 10

MID-COAST BASIN RIVERS

to 100 inches in the inland areas and up to 180 inches in some parts of the Coast Range Divide. Rainfall in the Alsea area is predominantly seasonal. Approximately 80 percent of the annual total is received between October and March. (See Exhibit 11.) Average monthly precipitation during this period ranges from 8 to 12 inches on the coast, and 12 to 20 inches in the high mountain area.

It is driest from June through September, when the area receives less than 10 percent of its annual average precipitation. Monthly totals during this period decrease to about one or two inches, most of which is attributable to light rainstorms and fog.

Snowfall in the drainage basin accounts for only a small portion of the total annual precipitation and generally melts within a few days. Depths usually vary from a few inches in the coastal valleys, to about three or four feet at the higher elevations.

Average monthly temperatures during the summer and winter months are 58.5°F and 43.9°F, respectively, and rarely exceed 95°F or drop below 20°F.

In summer, winds are gentle and usually from the northwest; during the winter months, gusty winds from the southwest prevail. Average wind velocities for the basin area range from 15 to 25 mph, but winter gusts of up to 100 mph have been reported. Weather is a major factor in attracting retirees, many of whom leave for drier climates in winter months.

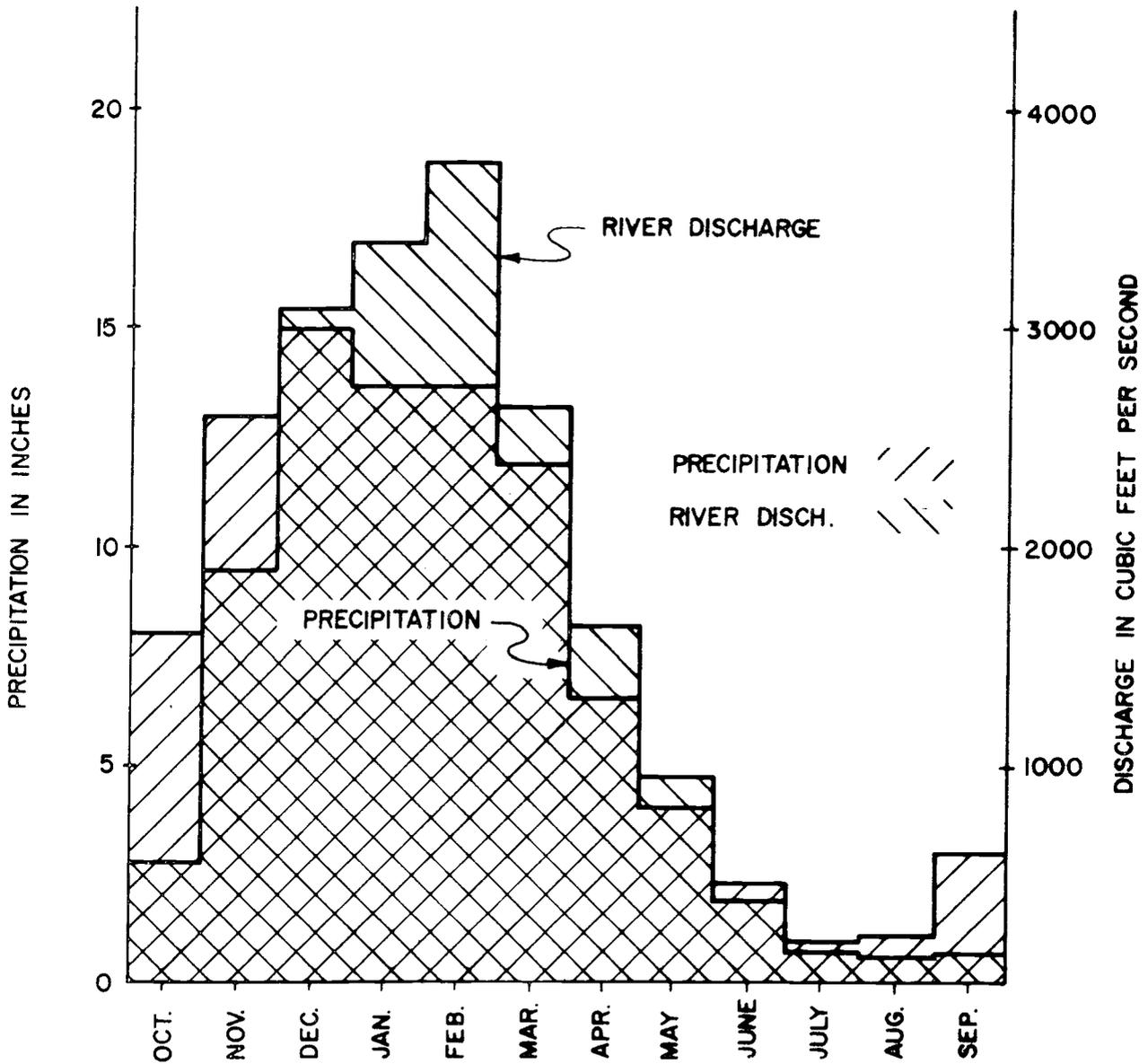
River Flows

The drainage system of the Alsea basin includes six major streams: the Alsea River, its North and South Forks, Drift Creek, Fall Creek and Five Rivers Creek. Streamflow data are measured and recorded at several locations in the central and eastern parts of the basin (Table 3).

The average annual yield of the drainage system is estimated to be 1.5 million acre-feet of water. However, the monthly distribution of runoff is not uniform. Discharge hydrographs from the gaging stations indicate that streamflow closely follows monthly precipitation trends, with high flows in the winter and low flows in the summer.

Of the nine gaging stations in the Alsea basin only four provide specific streamflow meaningful to this study. These are located on the Alsea River near Tidewater, on Five Rivers Creek near Fisher, and on the North and South Forks of the Alsea River near Alsea. Streamflow data from these four stations represent runoff from over 70 percent of the entire Alsea drainage basin. The remaining five gaging stations are located on small streams with insignificant drainage areas or are so close to the headwaters of the stream that the data are not applicable to a study of the entire drainage basin.

The average annual discharge from 1939 to 1960 was 1,547 cubic feet per



**AVERAGE MONTHLY PRECIPITATION
AND RIVER DISCHARGE AT TIDEWATER OREGON
GAGING STATION (R.M. 21)**

TABLE 3
 AVERAGE MONTHLY DISCHARGE OF PRINCIPAL STREAMS
 1937-1963

Stream	AVERAGE MONTHLY DISCHARGE IN CFS												Mean
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
Alsea River near Tidewater	509	1,862	3,064	3,391	3,758	2,613	1,603	904	392	192	119	136	1,533
North Fork Alsea River at Alsea	95	376	576	634	687	507	292	171	70	37	24	25	288
South Fork Alsea River near Alsea	47	159	306	371	418	322	188	100	45	23	14	10	161
Fall Creek near Alsea	73	250	354	372	384	252	167	103	48	26	16	23	171
Five Rivers near Fisher	184	710	1,127	1,245	1,374	943	554	320	129	66	39	40	566
Drift Creek near Tidewater	139	418	556	497	570	399	271	148	73	37	21	45	262

*Gaged or correlated records, other values are estimates based on precipitation and runoff.

Source: U.S. Geological Survey and State Water Resources Board.

second (cfs) at river mile 21. This figure, however, is not representative of monthly flow. Between 1940 and 1963, the average flow in February was 3,758 cfs as compared to 119 cfs in August of the same period. The specific streamflow data on other gaging stations follow the same pattern as the Alsea gaging station, with high flow in the winter and low flow in the summer. (See Table 4.)

As shown in Table 3, the only stream gaging stations in the basin are in the central and eastern regions upstream of river mile 21. As a result, streamflow averages and extremes can only be estimated for the portion of the drainage basin downstream of river mile 21. The mean monthly streamflow into the estuary is estimated to be 2,070 cfs. Streamflows are significant in water quality in fisheries maintenance discussed elsewhere in this chapter.

Tidal Data

Since most estuaries are relatively small bodies of water, there is no significant tide generation within their boundaries. The tidal range and associated flows in an estuary thus are dependent on ocean tidal force. In addition to the ocean tide range, river flow, water depth and shoreline geometry influence the wave. A gradually converging shoreline tends to amplify the tidal wave while high river flows (greater than 3,000 cfs), diverging shorelines, reductions in water depth and rapidly converging shorelines dampen the tidal wave. Tides in the Alsea area are of mixed diurnal-semidiurnal nature, with two unequal high tides and two unequal low tides each lunar day (24.85 hours).

The tidal cycle begins with mean higher high water (MHHW), then progresses to mean lower low water (MLLW), mean lower high water (MLHW), mean higher low water (MHLW), then back to mean higher high water. (See Exhibit 12.)

At Alsea, the mean tidal range, the difference between MHW and MLW, is 5.8 feet. The mean diurnal range, the difference between MHHW and MLLW, is 7.7 feet. The tidal prism, the volume of water between MHHW and MLLW, is estimated to be 5×10^8 cubic feet. The mean tide level, a point midway between MHW and MLW, is 4.1 feet above the U.S. Pacific Coast Datum. The mean distance to the head of tide, the farthest point upstream where high tide affects the river level, is river mile 15.0 of the Alsea River and river mile 1.5 of Drift Creek.

In the Alsea estuary the incoming tidal wave is damped between the mouth and about river mile 5.7. This damping is the result primarily of the diverging shoreline and shallow water depths. Beyond river mile 5.7, the incoming tidal waves are slightly amplified until the depth and width of the estuary stabilize. From this point to the head of tide, river flow and friction gradually reduce the wave amplitude to zero.

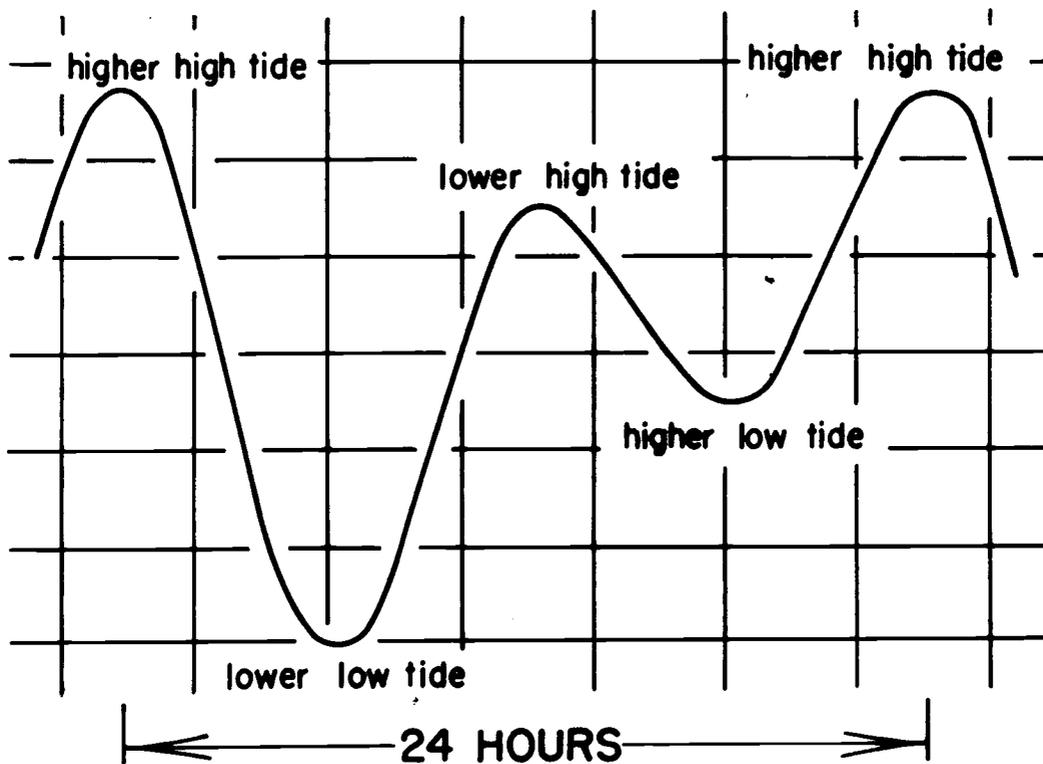
When friction is the only force acting on an incoming tidal wave, the time of high water at a given location depends upon the speed at which

TABLE 4
STREAM GAGING STATIONS

Name	USGS Station No.	Location			Active	Type	Drainage Area (Sq. Mi.)	Water Years of Record	Complete Water Years
		Twp.	Rng.	Sec.					
Alsea River (RM 21)	3065	14s	9w	6	X	Rec.	334.0	1940-1963	24
Deer Creek near Salado	3068.1	12s	10w	11	X	Rec.	1.2	1959-1963	5
Drift Creek near Salado	3066	12s	10w	24		Rec.	20.6	1959-1963	5
87 Fall Creek near Alsea (RM 20.5)	3063	13s	9w	35		Rec.	29.4	1959-1963	5
Five Rivers near Fisher	3064	14s	9w	19		Rec.	114.0	1959-1963	5
Flynn Creek near Salado	3068	12s	10w	12	X	Rec.	.8	1958-1963	5
Needle Branch near Salado	3067	12s	10w	24	X	Rec.	.3	1959-1963	5
North Fork Alsea River at Alsea	3061	14s	8w	1	X	Rec.	63.0	1958-1963	6
South Fork Alsea River near Alsea	3062	14s	8w	12		Rec.	49.5	1958-1963	6

Source: U.S. Geological Survey and State Water Resources Board.

TYPICAL DAY'S TIDE



NORMAL SEQUENCE OF SEMI-DIURNAL TIDES

the wave propagates upstream. This type of tidal wave is simple and easily converted to tide level at given spots. At Alsea, the tidal wave is complex, multi-reflected, and variably-damped. In general, time lag is less than if friction were the only force acting on the wave. At Waldport (river mile 1.5), the tidal lag varies from 5 to 30 minutes for high tide, and 0 to 105 minutes for low tide.⁴ The complex behavior of the tidal waves also results in a current velocity and flow phase difference of 90 to 100 degrees of arc, depending on river flow.

The tidal cycle causes several unusual current patterns in the Alsea estuary. During the early stages of flood tide, the incoming water is deflected from the sand flats near the estuary entrance. This causes the water to flow northerly along the southeast bank of the estuary (river mile 0 to river mile 1.5), then to continue in a northeasterly direction into Alsea Bay (Exhibit 13). For this reason, the northern portion of Alsea Bay (river mile 1.6 to river mile 2.5) begins to fill before the main channel does. This causes a temporary ebb flow from the north to the main channel. Unpublished tidal data indicate that the water level in the North Channel (river mile 1.6 to river mile 2.5) can be as much as one foot higher than the water level in the main channel. The ebb flow from north to south continues until the water level in the two channels equalizes (Exhibit 14). The flow then changes to a southeasterly direction and continues upstream until the onset at ebb tide.⁴

During ebb flow, most of the water follows the main channel through the estuary regardless of tidal stage. Water flowing out of the northern section of the bay drains from the adjacent tidal flats (Exhibit 15).

Mixing Characteristics

The method most appropriate for classifying estuaries in this study is based on freshwater-saltwater mixing patterns.

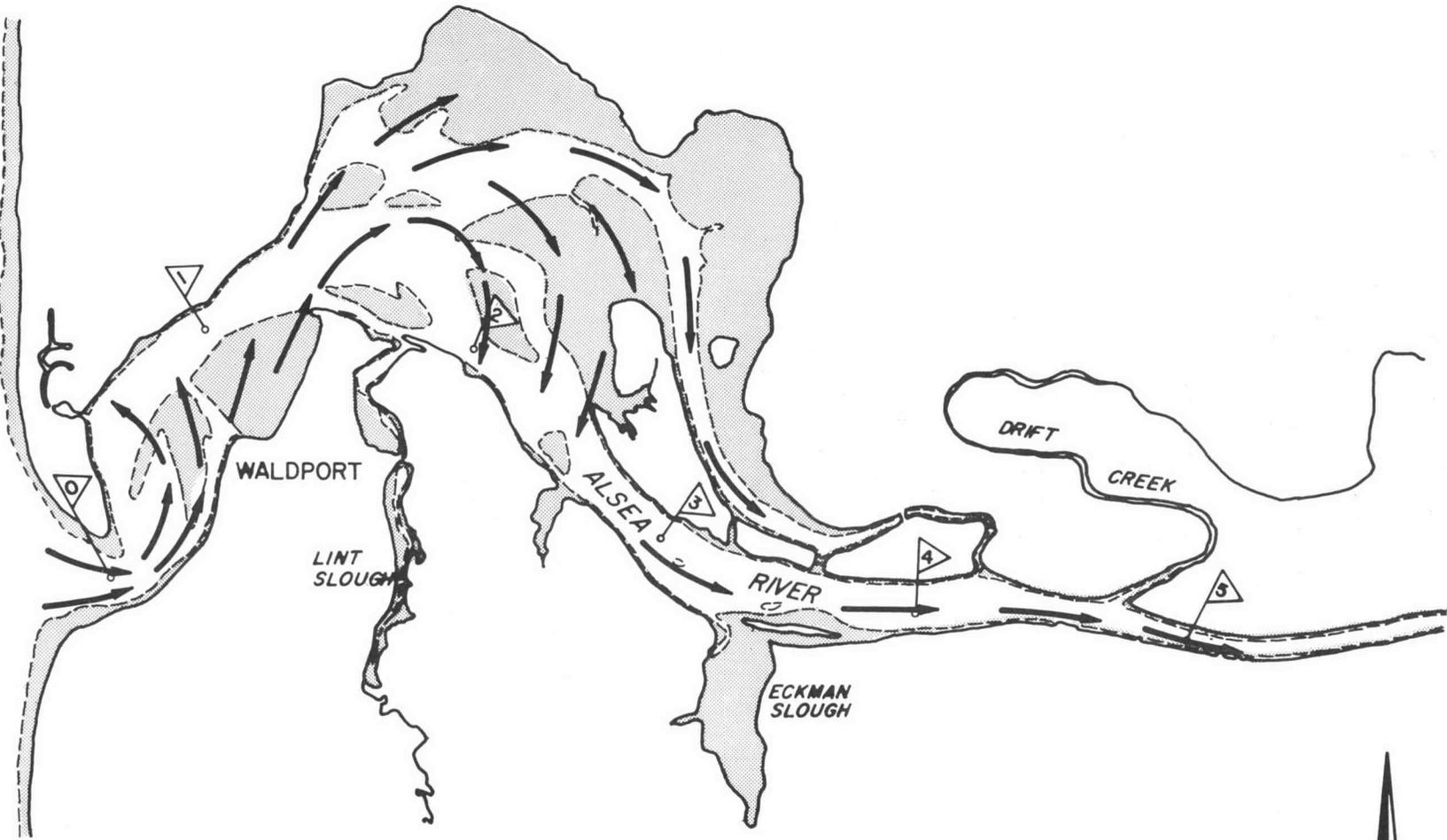
Three general mixing classifications have been described for estuaries: (1) stratified (two layers), (2) partially mixed, and (3) well-mixed (vertically homogeneous). These classifications are highly qualitative.

In a stratified system, the fresh water tends to flow over the intruding

Exhibit 13

FLOOD TIDE FLOW PATTERNS

PACIFIC OCEAN



976,000

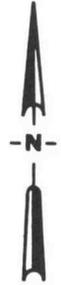
44°25'

975,000

124°08'

1,070,000

1,080,000



WALDPOR

LINT SLOUGH

ALSEA

RIVER

ECKMAN SLOUGH

DRIFT

CREEK

Exhibit 14

PACIFIC OCEAN
FLOOD TIDE PATTERNS
NO. & MAIN CHANNELS EQUALIZED

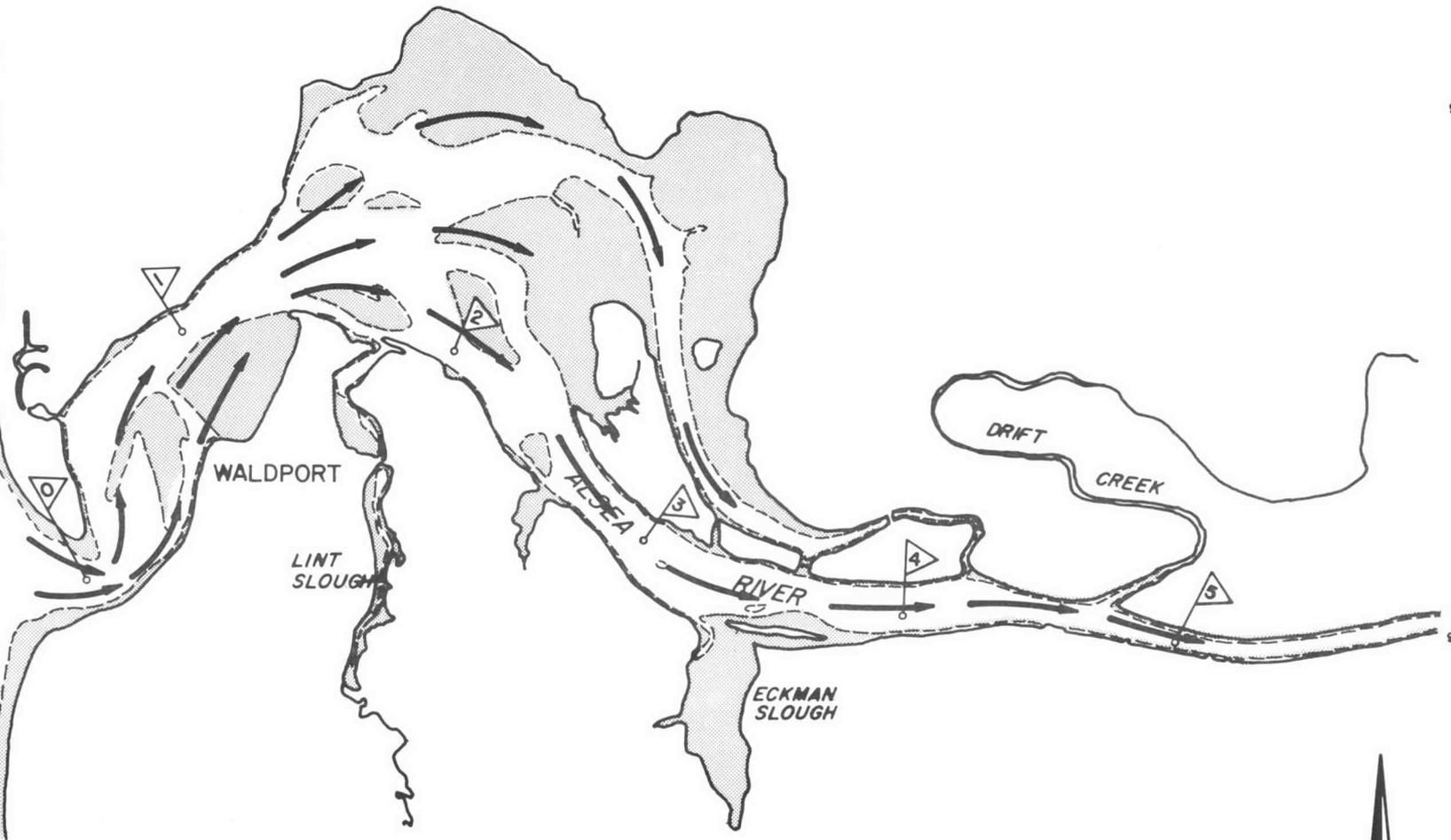
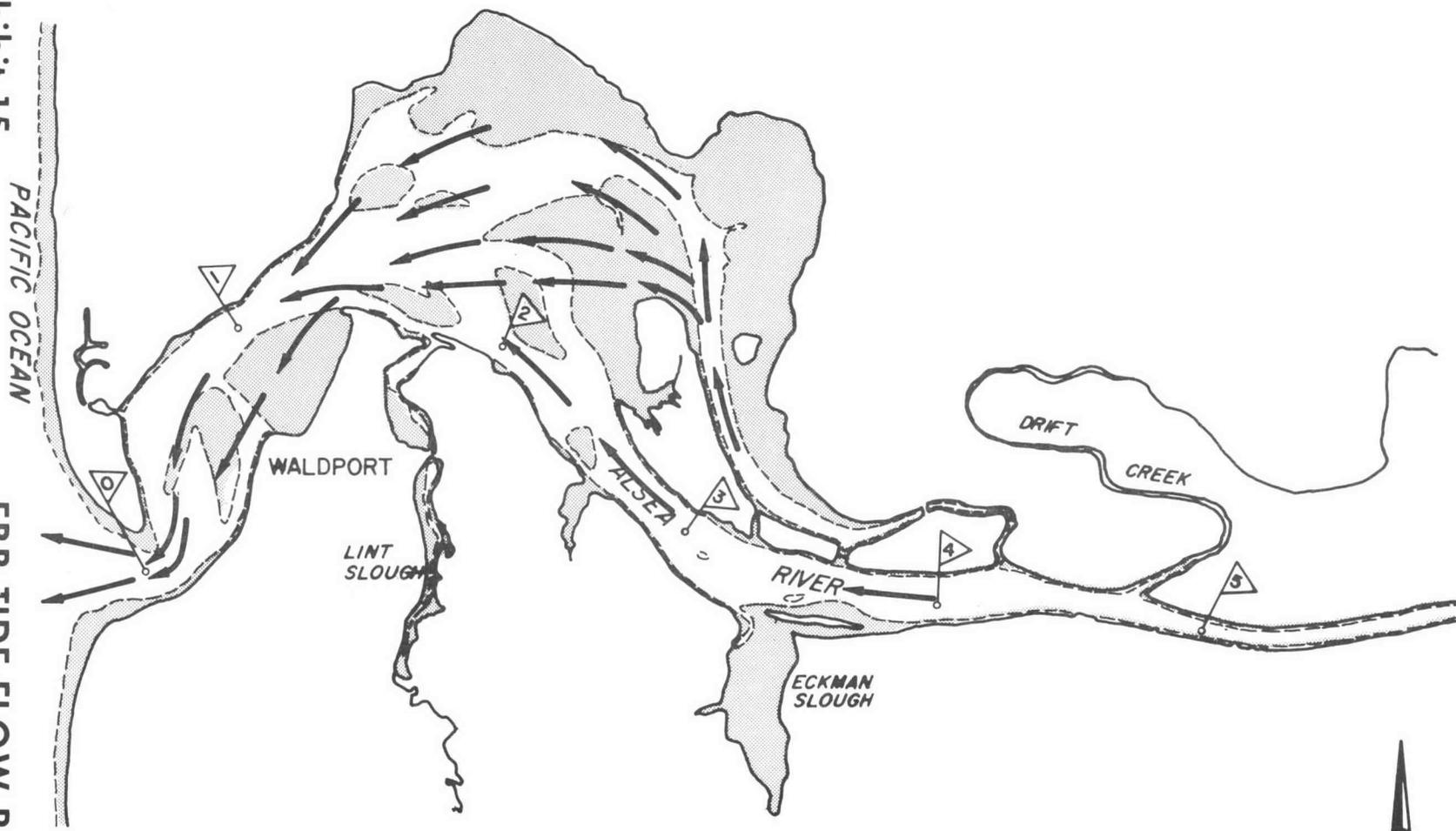


Exhibit 15

EBB TIDE FLOW PATTERNS



PACIFIC OCEAN

976,000

44°25'

975,000

124°08'

1,070,000

1,080,000



seawater creating a two-layered system with a distinct density interface between them. Little mixing occurs at this interface.

In a partially-mixed estuary, vertical mixing is more pronounced. The boundary between salt water and fresh water still exists but is less well defined than in a stratified system.

A well-mixed estuary has a barely detectable density interface. Because tidal forces dominate the system, there is considerable turbulence generated and as a result, the fresh water and salt water tend to mix thoroughly.

The mixing characteristics of an estuary thus depend on the relative magnitudes of tidal forces and river flow. The energy necessary to mix the salt water and fresh water is generally of tidal origin and is approximately proportional to the square of the tidal range. When tidal forces dominate the river flow, the estuary tends to be well-mixed.

When river flow is dominant, the estuary tends to become stratified. Because of seasonal changes in tidal range and river flow, the mixing characteristics of an estuary can change several times each year. Even when such factors are fairly constant, the classification often changes because of variations in tidal range.

Location within the estuary influences the mixing characteristics as well. Near the estuary entrance, tidal forces almost always dominate river flow. As a result, an estuary is usually well-mixed at this location. On the other hand, in the extreme upper reaches of an estuary, river flow is usually the dominant force and the system tends to be stratified at this location.

The mixing classifications of the Alsea estuary vary seasonally and spatially. During winter, the estuary is partially-mixed to well-mixed because of the dominant tidal forces. In the spring and fall, salt water and fresh water are generally partially-mixed to stratified depending on the specific location within the estuary. During the summer, when river flow is slight, tidal forces again dominate the system and the estuary becomes partially to well-mixed.

In general, the Alsea estuary tends toward stratification when river flow is high (greater than 3,000 cfs) and tidal range is less than 4 feet, and toward a well-mixed system when river flow is low (less than 1,500 cfs) and tidal range is greater than 4 feet.

One method commonly used to determine the mixing characteristics of an estuary is measurement of the salinity difference. The procedure involves finding the point in the estuary where the mean salinity is 17 parts per thousand (ppt) at high tide, then measuring the bottom and surface salinities at this point. If the difference is equal to or greater than 20 ppt, the estuary is considered to be stratified; an estuary with a differ-

once between 4 and 19 ppt is partially-mixed; and one with a difference equal to or less than 3 ppt is well-mixed.

The salinity difference method is a valuable tool. In addition to furnishing information about mixing characteristics, the method provides the data necessary to determine the limit of saltwater intrusion and the flushing time of the estuary.

In the Alsea estuary, the limit of saltwater intrusion varies with the tidal range and river flow. The approximate limit is between river mile 12 and river mile 13 at high tide and ⁴ low river flow, and river mile 4.5 at low tide and high river flow.

The flushing time of an estuary is defined as the time required to completely replace the fresh water in the estuary with additional fresh water flowing into the estuary. Flushing time, as with saltwater intrusion, is a function of tidal range and river flows. At low river flow (approximately 65 cfs), the estimated flushing time at Alsea is 18 tidal cycles, as compared to 2.7 tidal cycles at high river flow (approximately 3,000 cfs).⁵ Knowledge of an estuary's flushing time is necessary to estimate the persistence of simple pollutants in the estuary. Water quality and biological implications are discussed later in this chapter.

Surface Water

The average annual freshwater yield of the Alsea River basin is estimated to be 1.5 million acre-feet. Because flow is not artificially regulated, the amount of fresh water available for consumption and other use varies on a monthly and yearly basis.

Surface water runoff for the basin closely follows monthly trends in precipitation, with the largest flow occurring during the winter months. In the fall, surface runoff remains low until the dry soils become saturated. Surface water runoff in the spring, when precipitation is low, often remains high because of drainage from the saturated soils and fractured bedrock.

Surface water quality is generally suitable for agricultural and human use consumption in most areas above the estuary.

The total annual consumption of surface water amounts to less than two percent of the annual yield of the basin. Because of the seasonal distribution of runoff, however, the total consumptive surface water rights account for more than 25 percent of the available flow during the dry months of July, August and September. The consumptive surface water rights in the Alsea basin are held primarily for municipal, industrial, and irrigation purposes, with irrigation demanding the most water. (Table 5.) Domestic use is negligible, since most of the necessary supplies of water are drawn from wells.

TABLE 5

SURFACE WATER RIGHTS SUMMARY: August 1, 1964

	Consumptive					Nonconsumptive					TOTAL	
	DO. Cfs	MU. Cfs	IN. Cfs	Irrigation Cfs	Acres	TOTAL Cfs	PW. Cfs	FS. Cfs	RE. Cfs	MI. Cfs	TOTAL Cfs	Rights Cfs
Alsea River												
Upper Alsea	0.50	0.04	0	20.88	1,809	21.42	0.35	42.05	0	0	42.20	63.82
Five Rivers	0.11	0	0.11	3.39	226	3.61	0	0	0	0	0	3.61
Lower Alsea	1.47	5.44	0	3.22	285	10.13	0.40	5.09	0	0	5.13	15.26
TOTAL	2.08	5.48	0.11	27.49	2,320	35.16	0.39	47.14	0	0	47.53	82.69

DO - Domestic; MU - Municipal; IN - Industrial; PW - Power; FS - Fish- and Plant Life;
RE - Recreation; MI - Mining

Source: State Water Resources Board.

According to a Corps of Engineers review of the Alsea River and its tributaries in July 1973, presently developed municipal and industrial water supplies in the basin do not adequately meet current needs; however, present and future supply requirements could be met by developing storage reservoirs in the upper basin. Subsequent studies have shown that alternative sources of water closer to the users could be developed more economically. The entire question is being reviewed in the Alsea basin water resource study sponsored by the Pacific Northwest River Basins Commission.

Groundwater

The availability of groundwater throughout the basin is low because of the low porosity and permeability of the bedrock units. The predominantly sedimentary formations are so fine-grained that groundwater yield is generally insufficient for purposes other than domestic use.

While the general availability of groundwater is poor in the region, certain marine terrace deposits, dune sand areas, alluvial terraces and floodplain deposits are fair aquifers. The quality of groundwater is generally good, but varies considerably depending upon local geologic formations. Water in marine sediments is potable, but may have undesirable color and odor because of high iron, sulfur and chloride content.

In all of Lincoln County, probably the largest supply of groundwater underlies the three miles of sand dunes between Alsea Bay and Driftwood Beach Wayside west of U.S. Highway 101. This area could supply a large number of wells; but because of increasing residential use of septic tanks and the porosity of the soils, wells in this area are susceptible to contamination.

Associated with groundwater is the depth to water table. The most notable area of high water table is in the dune area immediately north of Waldport along U.S. Highway 101. Because fresh water is less dense than seawater, the fresh water remains above sea level and rises landward by hydraulic gradient to slightly below the surface, or emerges as ponds or lakes.

Other areas within the estuary subject to high water table, and exhibiting the problems associated with septic tank drain fields, occur where the steep slopes of the surrounding hills intersect the alluvial plain of the estuary. This condition is very pronounced in the Bayview area. On the south side of the bay, high groundwater is encountered from McKinney Slough upstream to Drift Creek.

Floodplains and Flood Frequency

Heavy rainfall, steep topography, low bedrock permeability, extensive floodplains and wind driven tides often combine to produce flooding several times each year. Flood hydrographs show that many of the area streams respond very quickly to heavy rainfall and runoff is usually rapid

with peaks of short duration. Stream flooding is most likely to occur during periods of heavy precipitation from November through February. Severe floods are most often experienced in December and January, with 9 of the 10 largest floods on record occurring during these two months.

TABLE 6

TEN LARGEST FLOODS OF RECORD, ALSEA RIVER (RIVER MILE 21)

<u>Order of Magnitude</u>	<u>Date of Crest</u>	<u>Elev. Ft. (msl)</u>	<u>Discharge (cfs)</u>
1	Dec. 22, 1964	76.2	41,800
2	Jan. 21, 1972	74.6	37,100
3	Dec. 21, 1955	72.6	32,200
4	Jan. 28, 1965	72.1	30,800
5	Jan. 20, 1964	71.0	28,200
6	Jan. 4, 1956	70.8	27,900
7	Jan. 7, 1948	70.7	27,800
8	Dec. 15, 1946	70.2	26,400
9	Feb. 17, 1949	70.2	26,400
10	Jan. 18, 1953	70.0	26,100

Source: U.S. Army Corps of Engineers, Special Floodplain Information, 1972.



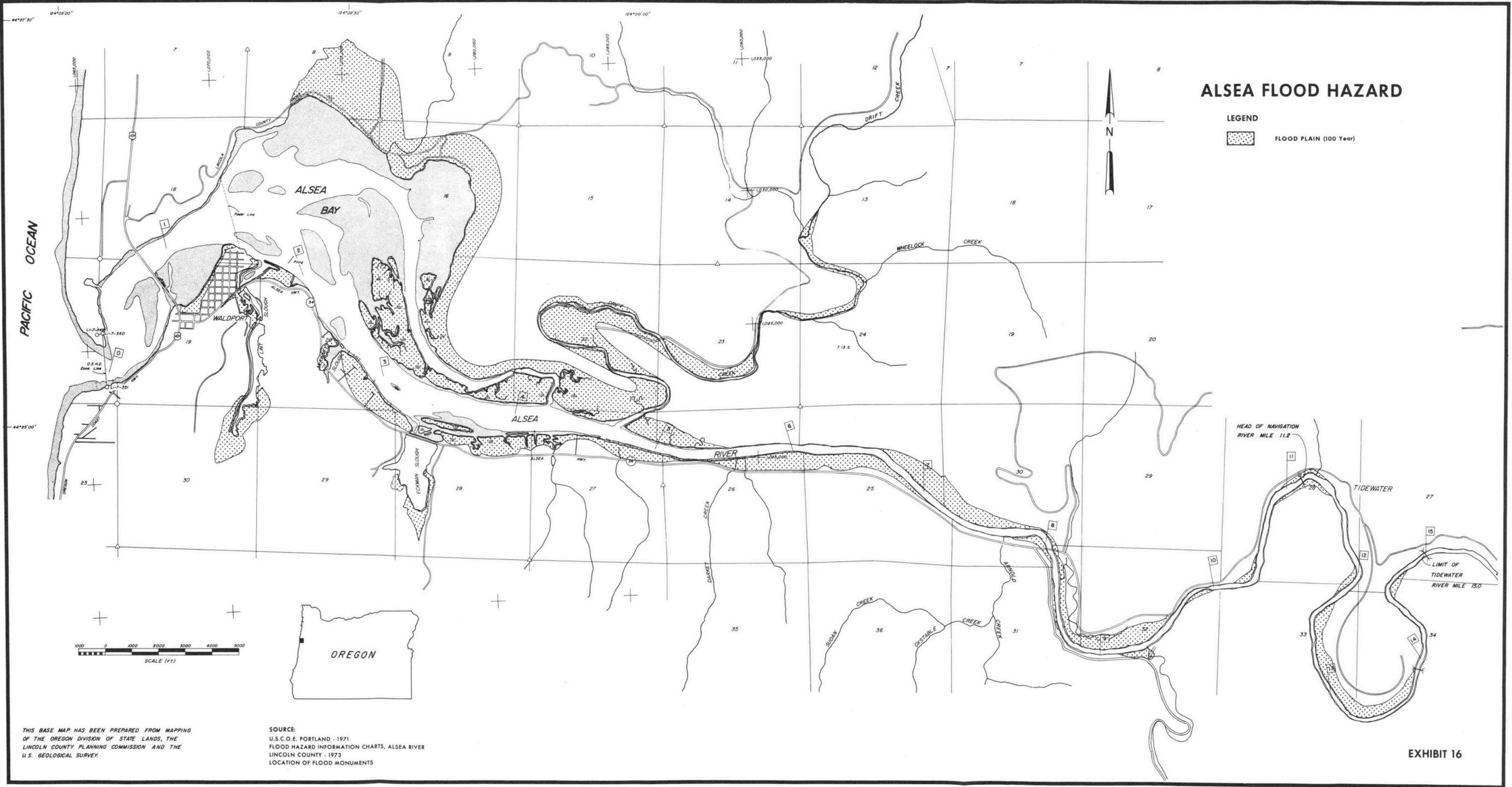
Approximately 2,100 acres of land in the Alsea basin are subject to flooding (Exhibit 16). Whenever westerly storm winds and high tides coincide with high river flows, upstream discharge of water is impeded and flooding follows. Damage is often widespread and severe because many homes and commercial structures are located on the floodplain. The floods of late 1964, early 1965 and late 1972 are examples of the damage which may accompany floods in this basin.

In December 1964 and January 1965, devastating winter storms caused flooding in many parts of the State. As a result, State and Federal officials declared the entire State a major disaster area. The Alsea basin was hard hit by the storms. Although coastal streams are rarely above flood stage for more than one or two days, the duration of the storm caused many streams to exceed flood stage for three to four days. At the peak of flooding, many coastal streams, some too small to warrant mapping, became rivers of mud, rocks and debris.

During the December 1964 storms, flood stages were exceeded on all coastal streams. The maximum flood stage of the Alsea River occurred on December 22 at 6:30 p.m., and was gaged at 41,800 cfs at river mile 21, the highest flow in 36 years of records. The floodwaters damaged many low-lying pasture lands and farms, forced closure of numerous schools and businesses, closed all major roads, downed communication lines and isolated much of the Alsea area. In addition, millions of tons of logs and other debris were swept out to sea by the streams and rivers, only to wash ashore on the ocean beaches.

Between Tidewater (river mile 11.2) and Waldport (river mile 1), 80 to 90 houses and cabins and 25 to 30 houseboats were damaged or destroyed by flooding. Resorts located on the floodplain were damaged, and at Little Albany (river mile 10) serious water supply and sewerage problems occurred. The Waldport waterfront sustained damage from the debris and high water levels.

In January 1965, the Alsea area was again subject to severe storms. On January 28, the Alsea River at river mile 21 crested at 30,800 cfs, the fourth largest flood on record. As a result of the January flood, numerous families were evacuated. Sediment transport was unusually heavy in the Alsea basin as shown by studies of three small streams in the headwater area of Drift Creek. During the flood period, January 27 to 29, the combined sediment load of Deer Creek, Flynn Creek and Needle Branch totaled 1,642 tons from a combined drainage area of 2.22 square miles. This volume represents more than 90 percent of the total suspended load of those branches for the preceding six-year period. Erosion of many



ALSEA FLOOD HAZARD

LEGEND
 [Dotted Pattern] FLOOD PLAIN (100 Year)



0 1000 2000 3000 4000 5000
 SCALE (FT)



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
 U.S.C.O.E. PORTLAND - 1971
 FLOOD HAZARD INFORMATION CHARTS, ALSEA RIVER
 LINCOLN COUNTY - 1973
 LOCATION OF FLOOD MONUMENTS

HEAD OF NAVIGATION
 RIVER MILE 11.2
 TIDEWATER
 LIMIT OF TIDEWATER
 RIVER MILE 15.0

stream banks and fields resulted in siltation of numerous channels, oyster beds and pasture lands. The forest products industry was particularly hard hit by the flood since many stored logs were lost. Dollar loss from the two floods was estimated at \$492,000 in the Alsea basin alone. (See Table 7.)

TABLE 7

FLOOD DAMAGE IN ALSEA RIVER DRAINAGE BASIN
DECEMBER 1964 AND JANUARY 1965

Agricultural	\$ 86,000
Residential	213,000
Commercial & Industrial	48,000
Transportation	123,000
Utilities	0
Public Works	20,000
Channel Improvement	0
Emergency Relief	<u>2,000</u>
TOTAL	\$492,000

Source: U.S. Geological Survey, W.S.P. 1866-A, 1971.

Two major floods also occurred during January 1972. On January 11, four inches of rain caused flooding on the Alsea River. Damage to the basin was equal to that of the 1964-1965 floods. One week later six inches of snow fell on the already saturated ground, followed by another storm. A nine-foot ocean tide accompanying the storm was blown even higher by strong winds. Extensive flooding occurred on January 20 and 21. Because of the major damage of earlier flooding that month, the financial loss directly attributable to the later flood was limited.

Large floods such as these have been designated "28-year floods" by the U.S. Geological Survey. Because floods occur erratically, this designation is more a measure of magnitude of a possible flood than a measure of expected time interval.

Another threat to areas near seacoasts and estuaries is ocean flooding, which can be caused by high tides, low barometric pressure, changes in ocean currents, storms or earthquakes.

As agricultural land in the study area floodplain is converted to residential uses, the chance of costly flood damage increases. In the event of floods, any development in the shaded areas of the floodplain shown on Exhibit 16 will be susceptible to damage unless sufficient floodproofing design techniques are employed. In the past, 60 percent of flood damage has occurred below river mile 14, largely because the major developed land areas fall within this reach.¹

Levee protection, individual floodproofing and channel stabilization are methods sometimes considered to reduce flood damage. However, because most flood damage occurs in the tidal reach where relatively small increases in water levels are expected, channel clearing and enlargement would provide only slight reduction in flood heights.

Floodproofing of existing homes can be accomplished in most cases by elevating the foundations from 3 to 5 feet. Levee protection is much more expensive than floodproofing and would require a structure 7 to 10 feet high, thereby limiting accessibility and obstructing views. From the information presented on Exhibit 16, the ground elevation of a proposed project and the flood profile, it is possible to determine the height of foundation required to elevate a structure above the floodplain.

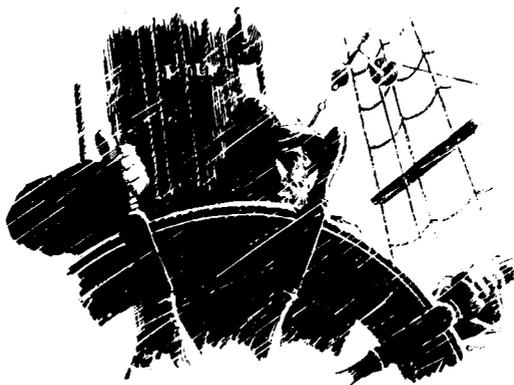
Flood protection in the Alsea basin is minimal. Although levees and dikes have been built in some areas for local flood control, there are no flood-control storage reservoirs to retard floodwaters. It is unlikely that such protective measures will be considered for the Alsea area,

at least in the near future, because of cost and environmental considerations. The demand for such measures may grow as the number of homes and commercial structures increases near the area waterways. Major flood protection presently depends upon floodplain zoning.

Sloughs

Two major sloughs on the south shore of Alsea Bay have been impounded and their use controlled. Lint Slough, immediately east of Waldport, was impounded prior to 1964 to regulate its salinity. It is now used by the State of Oregon as an experimental salmon rearing pond. A tide gate on the downstream end allows the intrusion of salt water during high tide. Middle and upstream gates provide for the entrance of fresh water. Below the slough and immediately upstream from the U.S. Highway 101 Bridge is the outfall from Waldport's sewage treatment plant.

Eckman Slough, near river mile 3.5, was impounded prior to 1962 and is used for recreational purposes.



Navigation Data

Alsea Bay is a natural, unimproved inlet generally suitable for navigation only by small boats of very shallow draft.

Prior to 1948, the river flowed through a north and a main channel between river mile 1 and the mouth of Drift Creek. In 1948, a channel was blasted along the south shore upstream from river mile 1.5 to meet the main channel near river mile 2.5. Prior to 1962, the North Channel was blocked off by dams in three places. Two of the dams blocked shallow, high tide connections between the north and main channels downstream from the mouth of Drift Creek. The third dam is in the North Channel itself, 1.2 miles downstream from the mouth of Drift Creek. Recent studies of the North Channel indicate that the upstream portion is deeper than the main channel adjacent to it.⁴ Water downstream of the channel blockage is resupplied by tidal action.

At its widest point the bay is approximately 7,500 feet. The width of the present channel varies from roughly 500 feet near the bay entrance to 1,400 feet near Waldport, and is approximately 500 feet wide at the confluence of Drift Creek.

The bay is shallow in most areas, including the channels. The deepest point occurs just inside the outer bar of the inlet where depths in excess of 35 feet have been measured. Once inside the mouth of the bay, the depth rapidly decreases. Most of the stretch between the mouth and river mile 2.5 is shallow; depths are limited by a shifting self-maintaining channel with a controlling depth of six to seven feet. During low tide, much of this section is exposed. The section near river mile 3 can become quite shallow and even impassable in small boats during low tide and periods of low river flow. Local citizens report that docks are rapidly being silted in. However, current data on depths in this area are

not available. Upstream of river mile 3.8, the depth ranges from 6 to 14 feet, making boat passage considerably easier until rapids are encountered at the head of tide at approximately river mile 15.⁴

Sedimentation

The deposition of sediment is a problem common to all estuaries. Although the origin and types of the estuarine sediments may vary from one area to another, in general all are supplied by four primary sources; surface water runoff, the ocean, shore erosion (by wind and water), and biological activity (including organic waste).

In general, most sediment enters estuaries with the freshwater flow. The bedload material is primarily sand-size or larger and is transported along the bottom. The suspended load consists of fine clays and silts held in suspension by the turbulence of the water. The particle sizes and volumes of the transported material depend on the magnitude of the river flow and the composition of stream beds in the drainage basin. In order to transport this material, the current must maintain a minimum entrainment velocity.

Another major source of sediment is the ocean. The intruding seawater transports marine sediments in and out of the lower reaches of the estuary. The amount of material and the distance it travels upstream depend on the flow ratio of the fresh water and salt water and estuarine geometry.

Shoreline erosion by wind and waves is a third source of estuarine sediment. The action of waves on the beaches and of wind over adjacent land often introduces large amounts of sediment into the estuarine waters.

A fourth source of sediment is biological activity of plant and animal life, which produces organic wastes and materials. While this is of minor importance with respect to volumes of sediment, organic sediment is essential for life in and about the estuary.

Deposition Pattern

Circulation and mixing patterns in an estuary determine how sediments are transported and deposited. When river flows are high (3,000 cfs) in a stratified estuary such as Alsea, the seaward movement of the surface water and the upstream movement of the bottom water create a mixing pattern which results in a well defined area of sediment deposition. As the flow of river water decreases in the lower reaches of the estuary, particles suspended within it settle into the wedge of intruding sea water below and are transported upstream. Near the limit of saltwater intrusion, a combination of low water velocity and electro-chemical processes causes those particles to flocculate and settle to the bottom. The settling of sediment at this location combines with the deposition of bedload to form shoals near the limit of seawater intrusion.

In a partially-mixed estuary enough turbulence is generated to weaken the



ALSEA BOTTOM TYPES

- LEGEND:**
-  MUD
 -  SAND
 -  MUD AND SAND
 -  OTHER (Shell, Bedrock, Gravel, Debris)

0 1000 2000 3000 4000 5000
SCALE (FT)



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
FISH COMMISSION OF OREGON - 1973-74
RENDERED BY HNTB

saltwater wedge near the limit of seawater intrusion. A general upstream movement of bottom water is still evident, but the velocity of this water is greatly reduced. Sedimentation occurs just as in a stratified condition, but because of the greater diffusion and lower velocities, shoaling is spread between the flood and ebb positions of the seawater intrusion limit.

If a well-mixed condition exists in an estuary, there is a slow, net seaward movement of water at all depths. In this case, sedimentation generally occurs throughout the estuary, with the most rapid settling occurring where the flow is interrupted by natural and man-made obstacles. (Exhibit 17.)

In the Alsea River estuary, fresh water and salt water are often partially or well-mixed and the location of extreme saltwater intrusion varies widely. Thus the severe shoaling associated with a well-defined salt wedge at a single location does not occur. However, shoaling across from the mouth of Drift Creek (river mile 5) is probably related to this.

The manner and the degree to which the primary sources provide sediments to the estuary are decided largely by meteorologic conditions which may vary seasonally. In addition to climatic influences, tidal range affects mixing and circulation patterns, and plays a major role in determining how sediments are deposited.

Marine

The supply of marine sediments entering the bay is influenced by littoral drift, the flow of ocean sediment material parallel to the ocean shoreline. Littoral drift is caused by wave-induced currents parallel to the shore. The direction of littoral drift is determined by the direction from which the waves approach the shore. The direction of this wave advance is, in turn, determined by the prevailing winds. Along the Oregon coast, the net littoral drift is northward between November and March and southward from April to October.

Near the Alsea area, an ample supply of sand from the ocean beaches supports a large sediment flow past the estuary entrance. As this sediment flows across the mouth, it is brought into the estuary by intruding salt water. The greatest amount of material thus enters the bay during the flood tide; some material may enter during the ebb tide if an upstream bottom current persists throughout the entire tidal cycle. The amount of material brought in by the tide depends, in part, upon the flow of the flood tide, which is proportional to the tidal range.

Riverborne

The amount of riverborne sediment carried into the estuary depends upon the fresh water flow which in turn depends upon precipitation in the drainage basin. Thus, the Alsea River transports a greater sediment load downstream during the rainy period between November and March.

Jefferson reports 226,000 metric tons of sediment are transported by the Alsea River each year.²⁷ The nature of riverborne sediments is determined by the geological characteristics and use of the watershed. A heavily forested drainage basin provides less sediment than one in which most of the land is devoted to agriculture. The Alsea basin has been clearcut.

Since no large sand dunes are found in the immediate vicinity of Alsea Bay, it is felt that windborne particles constitute no more than a minor portion of the estuary's sediments. Undoubtedly, some sediment is blown by onshore winds from the sandspit into the bay.

Natural variations can have long term effects on estuarine sedimentation. Seasonal variations in climatic conditions have an important effect on the supply and deposition of sediments. Precipitation, which can vary considerably during a year, determines river discharge. Discharge, in turn, affects river velocity and estuarine mixing characteristics, which influence sedimentation.

Current Status

There is some concern that the lower portion of the Alsea estuary may be filling in. Some concern has been expressed that damming of the North Channel, may have sufficiently reduced flow through the northern side of the embayment to allow sediment accumulation in that part of the estuary. The severity of such sedimentation, if it is occurring at all, is uncertain. However, a 90-year-old description made shortly after the Alsea area was opened to settlement by the white man describes the bay much as it is today and a recent study concludes that the shallow depths in the bay are natural.⁴

The most recent sediment analysis of Alsea Bay was done in 1973. The main channel sediments were found to have a medium grain size in the fine sand category. These sediments were uniform and well sorted, with a low volatile solids content. Because volatile solids consist of organic materials which are lighter than the minerals found in sediments, the volatile solids are washed out of the bottom sediments in the main channel of the river. It was shown that the North Channel has a noticeably higher volatile solid content due to the low velocities of the water at the upstream end near the stream blockages. Sediment size in the North Channel decreased with distance upstream. Generally, sediment size and composition were consistent with tidal flushing and the low flow velocities in that portion of the bay.

While no mineralogical analysis of the sediments was made, it was estimated that between the river's mouth and river mile 1.6 the sediments were predominately of marine origin. From river mile 2.5 upstream, the sediments were primarily of river basin origin. The bay itself serves as a transition zone between the two types of sediments.



Water Quality

The Alsea River and Bay are clean and unpolluted compared to other Oregon estuarine systems. The healthy clam and salmon populations in the Alsea are indications of the water quality conditions of the estuary. However, the quality of Alsea's water can be reduced by the addition of pollutants or the withdrawal of water by upstream users or dams. Removing water from the river lowers its dilution capacity. The fresh water demand from the upper Alsea already occasionally exceeds summer flow. If pollution increased in the estuary during one of these periods, the low summer flow could concentrate the problem in the bay. Particularly in areas of poor flushing this could create water quality problems.

Siltation from logging has the most perceptible effect on the water quality of Alsea. In comparison with other Oregon watersheds, Alsea is the least silt-polluted due to public ownership and U.S. Forest Service timber management of the Siuslaw National Forest. Problems from toxins and inorganics have not yet plagued Alsea as they have many other coastal estuaries.

Extensive water quality surveys of Alsea were completed in 1972⁵ and in 1975.⁴ Currently, six water surveillance stations to river mile 9.7 on the Alsea are maintained by the Oregon Department of Environmental Quality. However, data from these stations are insufficient for water quality analysis due to inconsistent methods, sampling times and collectors. Most frequent measurements were for salinity, temperature, dissolved oxygen, turbidity and pH. Standards for these parameters are regulated by the State and by the Federal Environmental Protection Agency (EPA). While both sets of standards apply in Alsea Bay, EPA standards are adhered to more closely by the Corps. Whenever the State standards are stricter, however, this stricter standard will apply to Alsea to help maintain the current high water quality.

On the east coast and in metropolitan areas such as Portland, Seattle or San Francisco, water regulations are established to protect human health. On the Alsea, however, the principal concern over water quality in the estuary has been the effect on fishing and spawning. Reduced water quality can lessen the number of fish in the estuary, which in turn can lessen fishing success and the demand for sport fishing in the area. Changes in certain parameters such as dissolved oxygen, temperature and toxicity can be lethal if drastic enough to exceed fish tolerance levels.

Other more subtle or minor changes over a long term may have sub-lethal effects on fish behavior, growth, reproduction, evolution or mobility. For example, salmon return to rivers to spawn based on a particular chemical combination of dissolved oxygen, temperature, salinity, water volume and dissolved organic compounds. Some fish will avoid areas which have a low oxygen level or contain certain toxins. An "oxygen block" will actually prevent salmon from entering the stream.

Another subtle change in the estuary which may prove to influence growth, survival and reproduction is noise. A 1973 report stated that shallow underwater ambient noise levels in excess of -30dB per microbar have altered growth and survival rates of certain estuarine fish in a laboratory setting.

Minimum limits have been set on other more common water quality parameters. In 1938, Oregon established a State Sanitary Authority which set out a water quality enforcement program. New general water quality standards (41-025 Chapter 340, Oregon Administrative Rules) (Table 8) have been set for dissolved oxygen, pH, gases, temperature, radiation, nitrogen and other qualitative factors. The 1973 EPA requirements set standards for toxic substances and biocides. New water quality guidelines are expected from EPA in 1975.

Salinity

The concentration of salt water in the estuary varies by season, depth, river flow, rainfall, tides and distance from the ocean. A natural balance is established between the saline tidal cycle and the freshwater river flushing action. However, the salinity at a given point may fluctuate almost continually. Seasonal changes in the river flow and tidal force are principal contributors to the constant fluctuation of salinity in the estuary. The maximum recorded intrusion of saline water up the Alsea River was to river mile 13.8⁴ in August 1967 at high tide when the stream flow was a very low 63 cfs.⁴ Seasonal salinity profiles for the Alsea estuary are shown on Exhibits 18 through 21.

The concentration of salts in fresh water is usually less than 0.5 ppt.* In slightly brackish water the concentration ranges from 0.5 to 3.5 ppt; in moderately brackish water from 3.5 to 13.5 ppt; and in strongly brackish water from 13.5 ppt to marine, which varies from 28 to 33 ppt along the Oregon coast. McKenzie's data (1975) show considerable variation in saltwater concentrations. There are sampling variations due to the difference between lab and field measurements, and the different sampling stations and depths. Natural variations from layering, upwelling, freshwater floods, seasons and depths cause further variance in levels of salt water concentration which can range from extremes of 30 ppt at the inlet to 0 ppt only a few miles upriver. The mouth of the estuary is generally marine to strongly brackish, as is the lower estuary,

* Parts of salts by weight per 1,000 parts water.

TABLE 8

OREGON GENERAL WATER QUALITY STANDARDS

The following General Water Quality Standards shall apply to all waters of the state except where they are clearly superseded by Special Water Quality Standards applicable to specifically designated waters of the state. No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in any waters of the state:

1. The dissolved oxygen content of surface waters to be less than six (6) milligrams per liter unless specified otherwise by special standard.
2. The hydrogen ion concentration (pH) of the waters to be outside the range of 6.5 to 8.5 unless specified otherwise by special standard.
3. The liberation of dissolved gases, such as carbon dioxide, hydrogen sulfide or any other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, navigation, recreation or other reasonable uses made of such waters.
4. The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or which are injurious to health, recreation or industry.
5. The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish.
6. The formation of appreciable bottom or sludge deposits or the formation of any organic deposits deleterious to fish or other aquatic life or injurious to public health, recreation or industry.
7. Objectionable discoloration, scum, oily slick or floating solids, or coat the aquatic life with oil films.
8. Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or shellfish propagation, or be otherwise injurious to public health.
9. Any measurable increase in temperature when the receiving water temperatures are 64°F. or above, or more than 2°F. increase when receiving water temperatures are 62°F. or less.

TABLE 8 (continued)

10. Aesthetic conditions offensive to the human senses of sight, taste, smell or touch.
11. Radioisotope concentrations to exceed Maximum Permissible Concentrations (MPC's) in drinking water, edible fishes or shellfishes, wildlife, irrigated crops, livestock and dairy products or pose an external radiation hazard.
12. The dissolved nitrogen concentration (DN) relative to the water surface to exceed 105 percent of saturation.

Source: Oregon Department of Environmental Quality, amended April 5, 1972.

Exhibit 18

**SALINITY CHARACTERISTICS
FEBRUARY 1973**

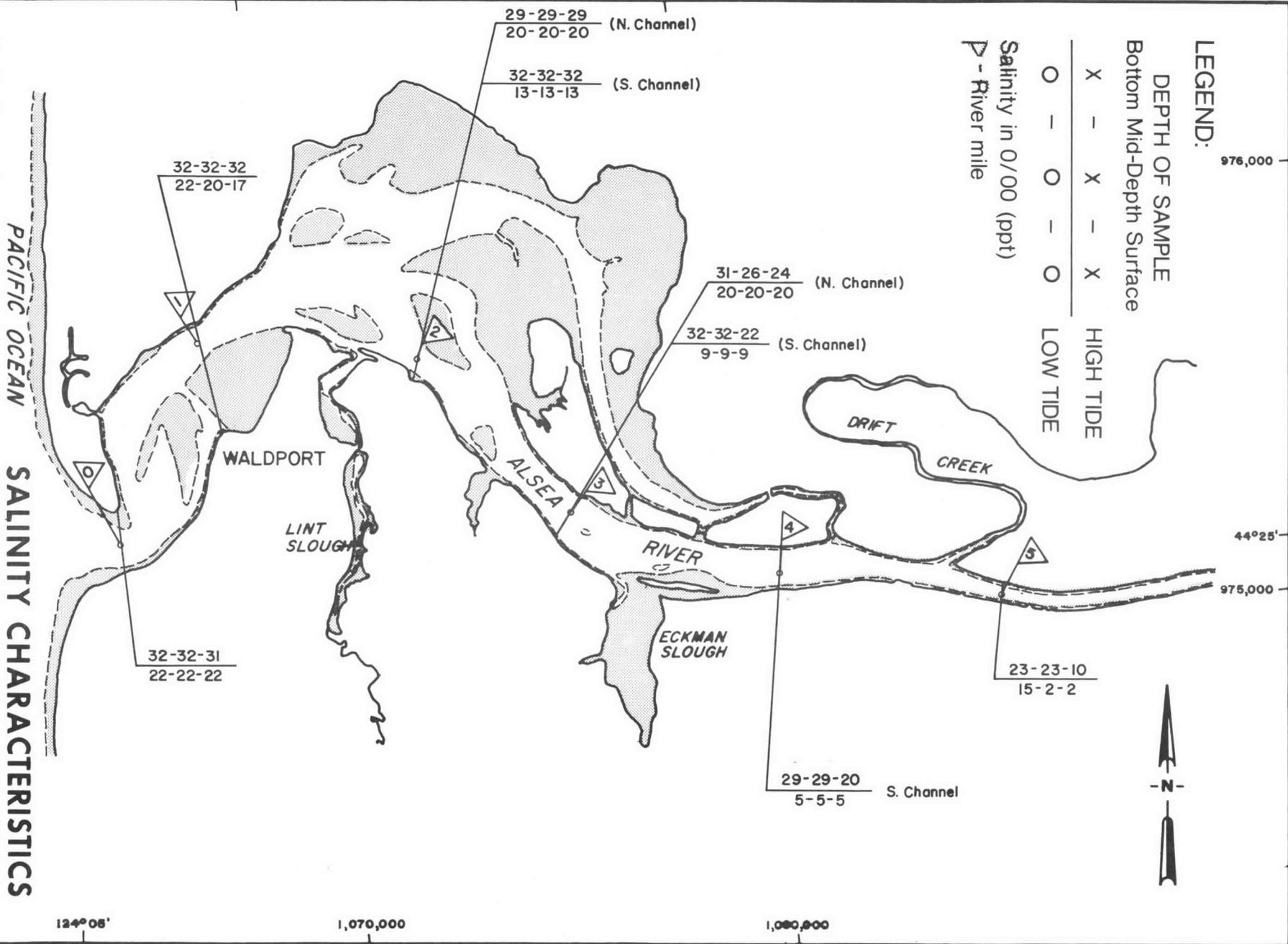
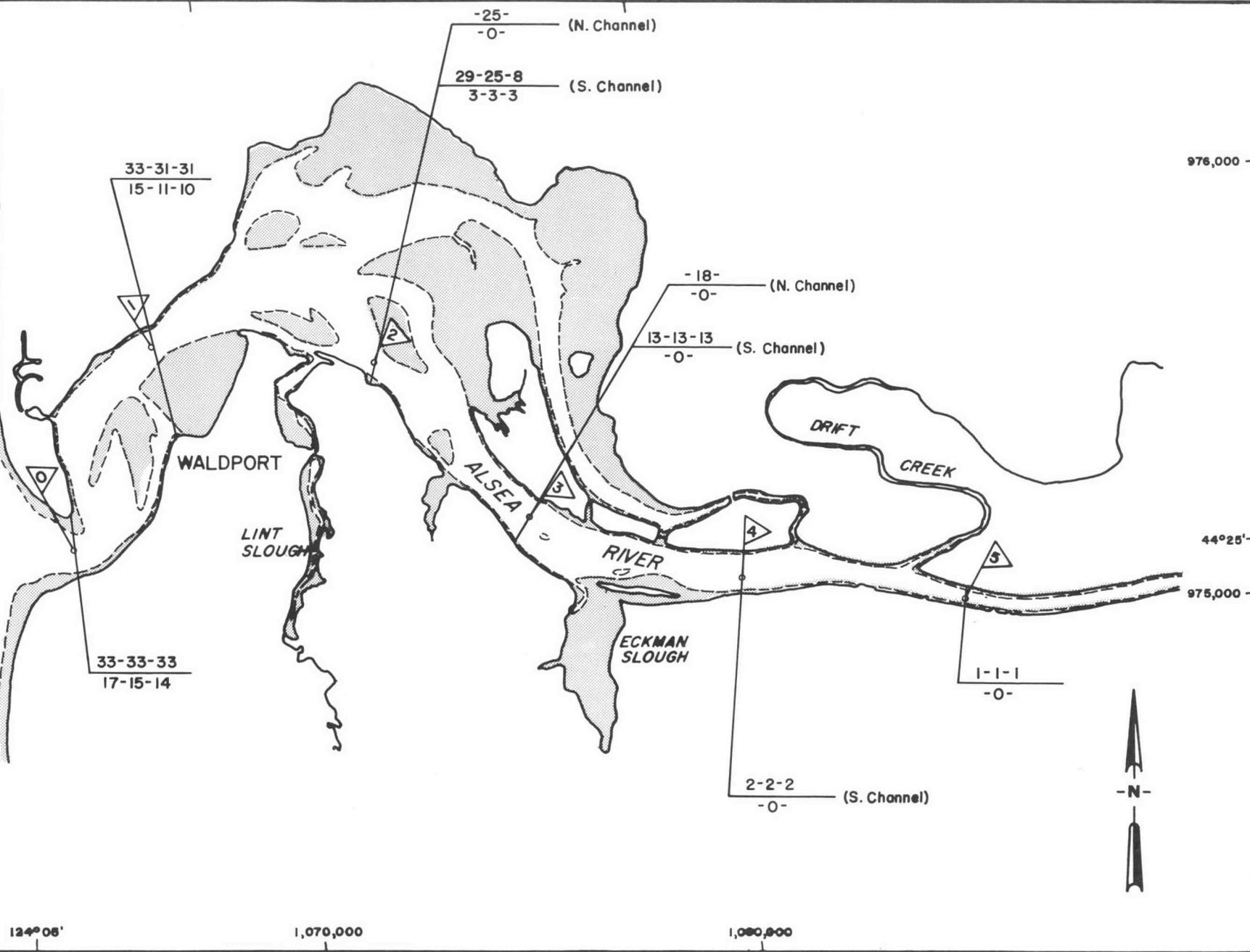


Exhibit 19

SALINITY CHARACTERISTICS
APRIL 1973

PACIFIC OCEAN



976,000

44°25'

975,000

Exhibit 20

PACIFIC OCEAN

SALINITY CHARACTERISTICS
JULY 1973

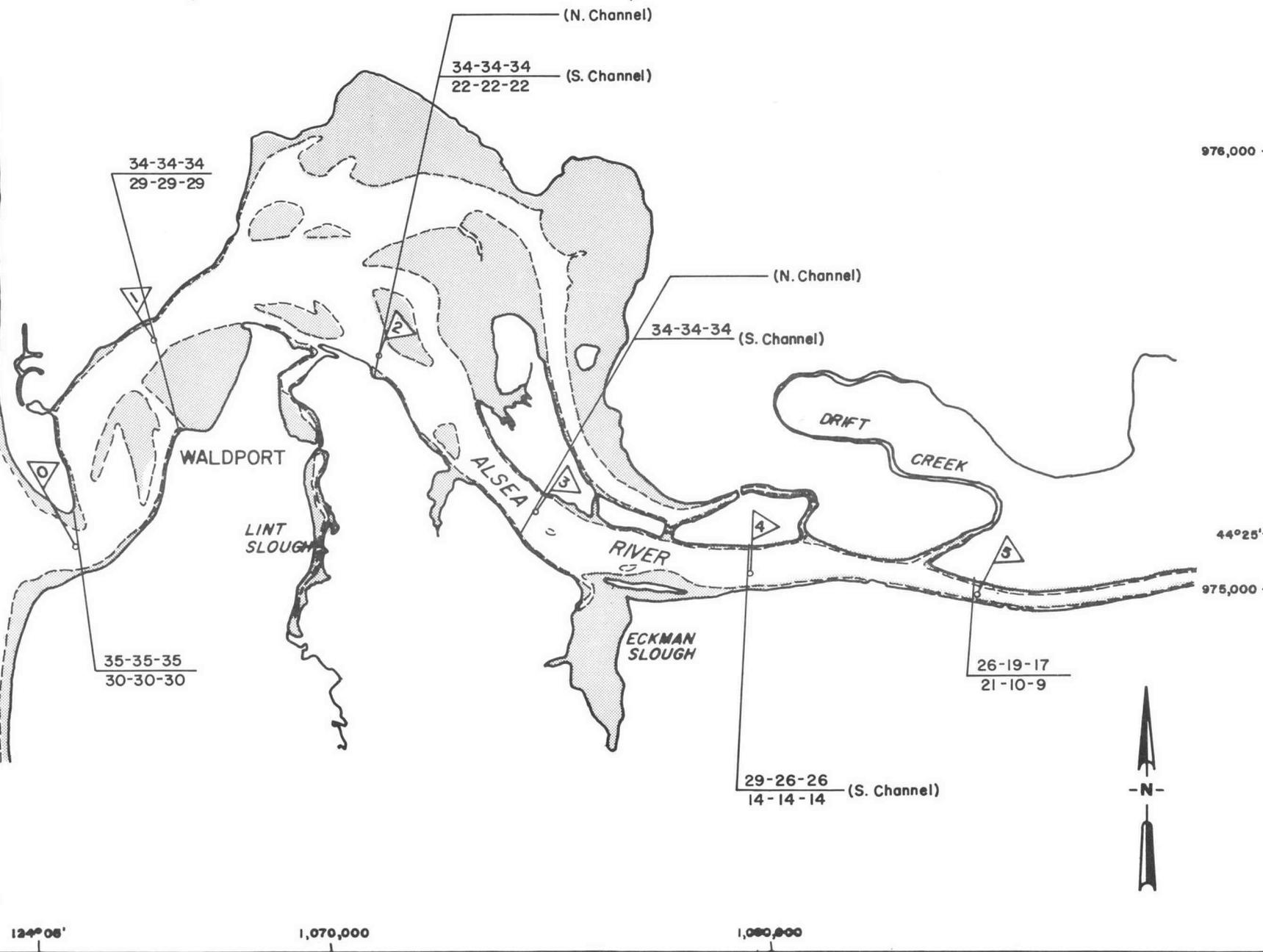
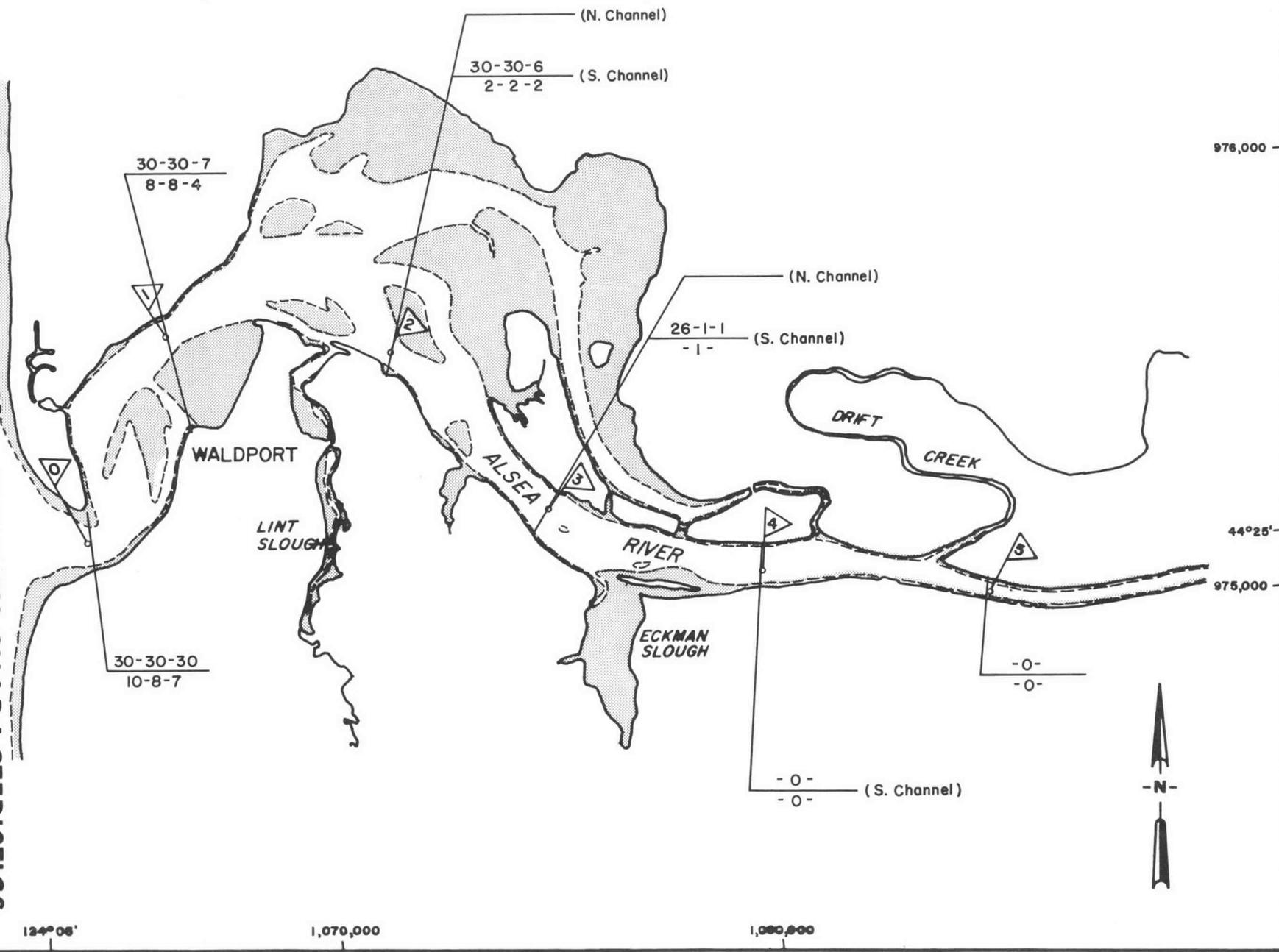


Exhibit 21

SALINITY CHARACTERISTICS
DECEMBER 1973

PACIFIC OCEAN



976,000

44°25'

975,000

124°08'

1,070,000

1,080,000

the mouth of Lint Slough and the North Channel. According to McKenzie, "the shallow depth at the downstream end and the dam at the upstream end are ample reasons for the poor flushing characteristics of the North Channel. The fall data indicate some fresh water does get into the North Channel during high tide."⁴ This is probably from precipitation or runoff. The main channel varies from fresh to marine at river mile 3.47, and from fresh to strongly brackish a mile further upstream. Each mile upstream shows an increasingly fresh reading, particularly during winter and spring. The lowest portions of Drift Creek may vary from fresh during winter and spring to strongly brackish in the summer. In addition, McKenzie's data verify that there is a salt water lens in the main channel just above the mouth of Drift Creek at river mile 5.1.

Measurements indicate considerable variation in the distance of salt intrusion, due to the effects of seasonal changes. For example, winter and summer profiles generally indicate saline water dominates over river flows. Well mixed brackish water extends from the mouth of the bay up to river mile 5.34 during both high and low tides. Partial mixing occurs after river mile 5.34.⁴ In fall and spring when the river has a heavier flow, the profiles show a reverse condition with the river flow dominating the tidal flow, especially after heavy rainfalls on the Coastal Range. During fall and spring high tides, salt water only intrudes to river mile 5, and waters are well mixed only at the mouth, becoming stratified between river mile 1 and 2. At low tide, partial mixing occurs only at the mouth.

Estuarine species have adapted to this continual salt-fresh-salt pattern in Alsea Bay. Some species show a wide range in tolerance of salt concentration, while others have a more limited range. Among estuarine organisms highly sensitive to the maintenance of a certain salinity level, productivity is generally greater in higher salt concentrations. Eelgrass distribution and reproduction of striped bass and flounder are examples of organisms whose level of productivity is very dependent on the salinity of the water. According to Wagner's (1963) preliminary conclusions on salt water tolerances of juvenile salmonids, steelhead and cutthroat young have a very narrow salinity tolerance when compared to the more adjustable chinook and coho.⁹ Young steelhead and cutthroat trout have been shown to tolerate 18 to 22 ppt for a period up to 96 hours, while juvenile coho salmon could withstand 26 to 28 ppt for the same period. However, most species with narrow ranges in salinity tolerance¹⁰ can withstand short exposures to higher or lower salt concentrations.

Salinity is an important factor in considering commercial oyster production in Alsea Bay. Each oyster species has a different salinity tolerance. The growth, survival and reproduction of oysters are dependent on parasites, temperatures and salinity, but salinity is the most limiting factor. The Atlantic oyster cannot tolerate the extremes of salinity (0 ppt to 30 ppt) in Alsea Bay, and although the Japanese, European or Pacific oysters may have a wider tolerance, they have been

shown to be less desirable commercial species.

EPA criteria recommend that no alteration of channels, basin geometry or freshwater inflow be allowed which would cause a permanent change of 10 percent in the salinity level. It is difficult to predict the impacts to the salinity level from dredging, removing water upstream, or modification of shoreline or bottom level. Temporary increases or decreases in salinity for one day (24 hours) are tolerable for estuarine species.

Temperature

Temperature is closely related to tidal and river influences on the estuary. Surface waters of the Pacific are much more stable than the fresh flow of the Alsea River. The ocean's range is from a low mean of 48.7°F.*¹¹ The river temperature range is much more extreme, colder in winter and warmer in summer. The low mean in February at river mile 0 is 39.2°F, ranging to a high of 68°F in summer at river mile 5. Table 9 shows the range of temperatures for high and low tides in 1973, and the maximum allowable ranges by EPA standards. Bottom temperatures measured at the mouth of the Alsea during high tide approximate ocean surface temperatures. Low tide temperatures near river mile 5 are assumed to approximate freshwater temperatures. The summer profile exhibits the greatest amount of vertical stratification beginning at river mile 3.5, with surface temperatures higher than bottom temperatures. Fall profiles show the influence of cold fresh water in reducing the vertical stratification, while winter and spring show an even smaller range of temperatures from the bottom to the surface.

Temperature can be a limiting factor to growth, survival and behavior such as migration. An increase in water temperature is a greater threat than a decrease. High summer temperatures have been reported for stagnant unflushed portions of the bay such as Lint Slough¹² and the North Channel.⁴ Extremely high temperatures can kill directly, but more often the effects are subtle. Warmer water could increase the virulence of diseases. Species composition of the estuary could change, if the temperature increases. Coldwater fish like salmon and trout could be replaced by suckers and other less desirable types of fish. However, colder water could be a limiting factor for oyster culture. Other factors such as food availability and feeding behavior of fish may be altered by changes in temperatures. Migrations also may be temperature dependent. Cutthroat trout congregate in schools for several months in the fall waiting for fall rains and lower temperatures to stimulate migration.¹³ Spawning and survival of the young require a favorable temperature range. Most spawning of salmon and trout occurs between 42° and 55°F, and most young fish cannot survive temperatures greater than 65°F.⁶ The summer temperatures at river mile 5 of Alsea (occasionally above 65°F) are already too

*Temperature measurements taken off the coast near Newport, Oregon, 15 miles north of Alsea Bay.

TABLE 9

1973 TEMPERATURE RANGES IN ALSEA BAY

Season and Tide	Temperature				EPA Allowable Change in °F
	River Mile		River Mile		
	°C	°F	°C	°F	
Winter (February)					
High tide	8	46.4	12	53.6	50.4 - 57.6
Low tide	4	39.2	10	50.0	43.2 - 54.0
Spring (April)					
High tide	10	50.0	13	55.4	54.0 - 59.4
Low tide	13	55.4	13	55.4	59.4
Summer (July)					
High tide	10	50.0	19	66.2	48.5 - 67.7
Low tide	14	57.2	20	68.0	55.7 - 69.5
Fall (December)					
High tide	10	50.0	6	42.8	54.0 - 46.8
Low tide	7	44.6	6	42.8	48.6 - 46.8

Source: McKenzie, 1975.

Howard, Needles, Tammen and Bergendoff, 1975.

warm for some species, which must remain upstream in cooler waters until lower fall temperatures allow them to move down the river.

According to State standards, summer temperatures recorded at river mile 5 cannot be increased, although EPA standards would allow a slight increase of temperature (1.5°F) from June through August. The rest of the estuary has cooler waters, and probably would not be seriously harmed by a slight temperature increase. State standards allow a 2°F change in waters 62°F or less, and EPA standards allow a 4°F change during spring, fall and winter; however, upstream activities should not be approved if they alter the shading of river banks and raise summer water temperatures. In addition, no thermal pollution should be allowed upstream. Although the bay itself is cooled mainly by cold ocean upwelling, only a 2°F rise is allowable in the estuary within State standards. Any greater increase could present serious problems to the coldwater estuarine fish and vegetation.

Dissolved Oxygen (DO)

Dissolved oxygen (DO) is introduced into the aquatic system from the atmosphere and through photosynthetic activities of plankton, algae and larger plants. It is inversely related to temperature with lower temperatures having higher DO levels. DO is reduced by biological respiration and reduction from organic wastes. Therefore, DO is also mathematically related to biological oxygen demand (BOD). The extent to which oxygen is used depends upon the amount and potency of the organic material and its BOD. If the amount of organic material is high, as in the silty tide-flats or sloughs, the DO may be critically reduced during the warm weather when water temperatures are highest. Disturbing the sediments could result in severe oxygen depletion. Frankenbury and Westerfield (1968) estimate marsh sediments in certain estuaries contain enough organic material, that if disturbed by dredging, "enough oxygen demand could be liberated to remove all of the oxygen from a volume of water 16 to 27 percent as great as the total low tide volume of the estuary."^{14*} The authors warned against large scale oxygen depletion. Although Atlantic estuaries are warmer than Pacific estuaries, the danger of oxygen depletion does exist in Pacific ones as well, particularly when warm summer temperatures combine with poor flushing, and low tide conditions.

Surface values of DO in the Pacific off the Oregon coast generally range from 8.5 to 10 mg/l.^{**15} This is just slightly less than the saturation point which is between 10 and 11 mg/l. Occasional upwellings of deep ocean water carried in by summer tides may drop the DO level to less than 5 mg/l. The DO levels within the Alsea estuary are dependent on season, temperature, aeration, photosynthesis, oxidation, decomposition, tides, river flow, salinity level and air pressure. Surface DO in Alsea Bay ranges from 6 to 12 mg/l, with high DO's ranging generally from 7.7 to

* Data apply to Georgia and has not been verified for Oregon's estuaries.

** Milligrams per liter = parts per million in water (ppm).

11.5 at river mile 0, 8.6 to 12.3 at river mile 3, and 9.7 to 11.9 at river mile 5.⁴ (See Table 10.) All are almost at the saturation level. At a summer high temperature of 68°F, saturation level will be up to 9 mg/l. There are natural occurrences of low DO (5 to 6 mg/l) created by benthic and floating organisms and organics using oxygen faster than it can be replenished. However, areas where bottoms of shallow tideflats are poorly flushed, water stagnates and oxygen levels are low, should be areas of concern for future management. Low oxygen levels have been reported in the summer at Lint Slough¹² and during both spring and summer in the North Channel.⁴ In these areas which are poorly flushed and rich in detritus or organic sediments, efforts should be made to raise DO and encourage water inflow and circulation.

TABLE 10

ALSEA SURFACE DISSOLVED OXYGEN LEVELS^a

Season	Tide	River	River	River
		Mile	Mile	Mile
		0	3	5
February	high	9.4	10.2	10.3
	low	10.1	11.3	11.7
April	high	8.1	9.7	9.8
	low	9.0	9.9	9.7
July	high	7.7	9.0	11.2
	low	8.2	8.6	9.7
December	high	10.7	12.3	11.9
	low	11.5	11.5	11.5

^aMeasured in milligrams per liter.

Source: McKenzie, 1975.

Matson (1972) reports low bottom DO (from 3.5 to 4.9) at the entrance of the bay, 5,000 feet upstream at the 101 Bridge and as far as 4 miles upstream during a few fall and summer samples (less than 3 percent). He states that "from the data one might conclude that low oxygen values are in the bottom waters of Alsea Bay because of respiration and decomposition, interaction with sediments, density difference with surface water, and the presence of recently upwelled coastal waters."⁵



Warmwater fish can withstand low levels (5 mg/l) of oxygen, but the cold-water trout and salmon upstream are highly sensitive to reductions in oxygen. Phillips (1963) reports that DO is the most important factor for coho and steelhead reproduction.¹⁶ High oxygen levels are needed to filter through gravel to eggs for hatching, emergence and survival of the young. In laboratory studies by the Oregon Department of Fish and Wildlife, there was a decrease of hatching emergence and survival at 5 mg/l DO. In actual field studies, only 50 percent of embryonic steelhead survived at DO of 7 to 8 mg/l. Smith and Lauman (1972) report that at least 8 mg/l is needed for egg survival.⁶ Young coho show stress under low DO conditions; a minimum of 5 mg/l is required for the survival of young fish. These biological limits are well established for the upriver portions of the Alsea.

Oxygen requirements for estuarine animals are not as well documented. Until these parameters are known, any reduction in DO or increases in BOD from organic wastes should be prohibited. The State DO standard for surface waters is a minimum of 6 mg/l. This is the same DO level set by EPA 1973 criteria. However, new EPA regulations will require DO levels be based on existing natural conditions.¹⁷ Therefore, there should be no activity which would lower DO levels in any part of the Alsea by slowing water flow, warming water through retention measures or increasing turbidity.

Turbidity

Turbidity is a determinant of water clarity showing the relative density of suspended particles such as clay, silt, organic matter, plankton and other microscopic floating organisms. It is relatively easy to measure by Jackson Turbidity Units (JTU) or Secchi Disk, but is the hardest water quality parameter to control. Sources of high turbidity are usually far upriver. The principal source of high turbidity in the estuary is from the Alsea River which carries silts and nutrients from a large timbered watershed. Clearcuts, roads and shoreline development without erosion control are the main contributors of silt and sediments. Turbulence from tides, river flows, wind and speeding boats suspend fine clays and organics from the bottom and increase turbidity. Ocean tides contribute some suspended matter, mostly plankton. Salt water is responsible for settling clay and colloidal particles, thus helping to decrease turbidity overall.

High turbidity has negative esthetic and biological impacts. Heavy temporary silts will settle out and smother bottom fauna, clambeds and plant life, lowering productivity; or the continued suspension of particles can lower primary productivity by cutting down light penetration. Fish feeding and behavior may be altered as the visibility range is decreased. In stressed harbors, secondary turbidity impacts from boats which stir up sediments can be more biologically harmful to fish and vegetation than primary impacts from maintenance dredging.¹⁸ The esthetic or visual aspects of the bay and river are decreased as turbidity increases. It is reported by Lantz (1971) that winter steelhead fishermen quit coastal rivers in disgust between 25 and 30 JTU.¹⁹ The quality of the fishing experience is affected by high turbidity both visually and by the decreasing quantity of the catch. For example, cutthroat trout are very sensitive to high silt loads.

Turbidity measured in JTU by McKenzie (1975) shows an average range of 0.8 at river mile 1, 1.4 to 6.0 at river mile 3, and 1.0 to 5.9 at river mile 5.⁴ (See Table 11.) Usually Alsea JTU measurements are 5 or less, with higher readings between 6 and 15 found during low tide, low river flow in July and on other rare occasions. However, in the North Channel some turbidity levels as high as 43 and 48 JTU were reported. In spring and fall more turbid river water dominated the estuary during low tide. During high tides, salt water diluted silty waters and caused flocculation of colloidal particles, reducing turbidity. McKenzie reports seeing a distinctive plume of very turbid water from Alsea in March 1974. He predicts that high water flows over 5,000⁴cfs will result in much higher turbidity levels than previously reported.

TABLE 11

ALSEA SURFACE TURBIDITIES^a

<u>Season</u>	<u>Tide</u>	<u>River Mile 0</u>	<u>River Mile 3</u>	<u>River Mile 5</u>
April	high	3.7	1.4	1.0
	low	.8	1.4	2.0
July	high	2.0	2.0	4.0
	low	8.0	6.0	3.0
December	high	2.3	3.0	5.2
	low	5.0	5.2	5.9

^aMeasured in JTU (Jackson Turbidity Units).

Source: McKenzie, 1975.

The Public Health Service has established a maximum permissible JTU value of 5 for public water supplies. Since no State or EPA limits have been set on turbidity levels yet, ambient levels should be regularly monitored. An average of 5 JTU should be set as the acceptable level to maintain clarity in Alsea. Temporary high turbidity levels for a day or two are allowable. Chemical or physical controls should be used at construction sites to confine turbid waters to the immediate site. No activities should be allowed in the North Channel which would increase turbidity, and an attempt should be made to improve flushing. However, the removal of tide gates may affect the scouring of the existing main south channel. Less drastic action could be explored such as more effective tide gate regulation or other tide gate modifications, such as replacement with a wing dam.

pH

The hydrogen ion concentration and activity are measured by pH. A pH of 7.0 indicates neutrality. Acid-generating salts and free carbon dioxide lower pH and cause an acidic condition. Carbonates, bicarbonates, hydroxides, phosphates, silicates and borates usually raise pH levels creating a "basic" condition. Algal productivity can have a significant effect on pH by using up carbon dioxide. Seasonal variations in river flow and tidal force cause changes in pH values, since fresh water is slightly acidic and salt water slightly basic.

The corrosiveness of water increases upstream where the water is more acidic. The strong alkaline waters of the ocean will also corrode metals. Toxicity of NH_3 (ammonia from sewage and certain types of runoff) to aquatic life increases with higher pH levels.²⁰ Most estuarine species are adapted to neutral levels of pH. A highly acidic or basic condition will kill or alter a significant number of organisms.

The open ocean is slightly basic with a pH range of 7.5 to 8.4. High tide measurements at the mouth of Alsea were usually near 8.0, with low tides near 7.0. In Alsea Bay pH values range from 8.1 to 7.9 between river mile 0 and river mile 5.34 during winter high tides, and from 8.1 to 7.6 during low tides.⁴ Almost all pH measurements show the Alsea estuary to be slightly basic. However, in December 1973 between river mile 4.44 and 5.34 (high tide) and river mile 1.8 and 5.34 (low tide), the pH did show acidic levels down to 5. In general, a slight decreasing trend in pH value is shown in the upstream direction.

The State pH standards are set between 6.5 and 8.5. EPA standards for toxins apply to waters with the same pH range. Until implementation of new EPA standards or definitive research establishing pH tolerances for estuarine fish, the 6.5 to 8.5 standard should be set for Alsea Bay. Natural lower pH levels in the 5.0 to 6.0 range have been reported up-river of river mile 2.45 during low tides in December, when river flow was high.⁴ Significant change in natural levels of pH should not be allowed by the addition of acids or by the reduction of basic ocean waters entering the estuarine systems or segments of it.

Volatile Solids and Organics

Volatile solids are a measurement of the amount of organic material present in bottom sediments. Organics may include detritus, biological wastes, dead organisms, wood chips or any biotic debris. McKenzie (1975) sampled volatile solids in Alsea during winter and summer of 1973.⁴ Bottoms in the south or main channel usually averaged less than 3 percent

* This is⁴ according to field measurements (hydrolab) from the McKenzie thesis, which are quite different from laboratory measurements of samples and are somewhat questionable data.

by weight. Volatile solids in the North Channel, however, ranged from 1.9 percent to a high 13.4 percent in the black, mushy silt near the diked upstream end where flushing is poor. In general, sand bottoms had very low organics of about 2 percent. Slightly higher amounts of organics were reported at the inlet and in samples containing wood chips. The only "polluted" sediments of 12 to 13 percent volatile solids were reported from the upper end of the North Channel. A bottom sample that exceeds 6 percent volatile solids (dry weight) can be characterized as polluted and unacceptable for dredge disposal in open water.²¹ According to Slotta et al. (1973), if an average volatile solids content of natural sediment exceeds the 6 percent level established by the EPA, it may be identified as polluted sediment. Therefore, a 6 percent volatile solids maximum should be set for Alsea.



If the polluted sediments of the North Channel are dredged, there are several dangers to biota. First, the smaller organics would stay in suspension and be carried far into the bay unless physically trapped in the closed channel. Dredging organic silts creates a potential for freeing sulfides, releasing hydrogen sulfide in the air and toxic sulfides into the aquatic environment. Releasing the organics would also increase BOD and could create a potentially large scale oxygen depletion. Floating organics would also increase turbidity and possibly lower plant productivity. Excess amounts of nutrients such as phosphorus, potassium and nitrogen might overburden the estuarine waste absorption capabilities. Too many such nutrients cause eutrophication.

The buildup of organics in the North Channel is induced by man-caused changes (the dam at the eastern end of the channel) and is reducing water quality. Addition of organics such as those from aquaculture and fish hatcheries creates water quality problems in such poorly flushed areas. The impounded portion of Lint Slough is eutrophic due to high organic levels from the fish hatchery and poor flushing. Lower estuarine portions of Lint Slough have also had sewage organics from Waldport's treatment plant added in the past. Any overenrichment above natural levels from such sources as sewage, aquaculture, hatcheries, logging debris or fertilizers should be discouraged. EPA criteria from 1968 recommended prevention of any releases causing enrichment which would lead to a major change in natural levels of flora.¹⁰ State standards for organics are rather vague: "the formation of appreciable bottom or sludge deposits or the formation of any organic (or inorganic) deposits deleterious to fish or other aquatic life or injurious to public health, recreation or industry" is forbidden. Since productivity in coastal¹⁰ waters is assumed to be governed by the amount of available nitrogen, Oregon has also set dissolved nitrogen limits not to exceed 105 percent saturation.

Pathogens

Pathogens are disease-causing organisms including bacteria and viruses. Fecal coliforms derived from the gut of warm blooded animals are aerobic



or facultative anaerobic, gram-negative bacteria found in sewage and farm runoff. Fecal streptococcal bacteria are another group of fecal indicators. Disease causing viruses such as polio, coxsacki, ECHO, hepatitis, adenovirus, reovirus and 100 different types of virus are present in some estuarine waters. 1973 EPA standards for swimming waters prohibit concentrations of fecal coliforms greater than a log mean of 200 coliforms per 100 ml of water. In nonswimming waters up to 2,000/100 ml is acceptable. State standards prohibit bacterial pollution deleterious to waters or injurious to health. No virus standards or measurements are known for Alsea.

Alsea Bay is heavily used for recreational clam gathering. Oyster culturing has also been proposed for Alsea. There are stricter coliform standards set for "shellfish" waters by both State DEQ and the U.S. Public Health Service. These standards are 70/100 ml for total coliforms and 14/100 ml for fecal coliforms.²² These standards are far exceeded at all six sampling stations on the Alsea. Even the lower EPA standards of 200/100 ml for swimming waters are exceeded at all stations. DEQ data show that total coliform counts of 460/100 ml are common in the bay. In 1974, fecal coliforms were recorded as high as 240/100 ml. The mouths of Drift Creek and Canal Creek have extremely high total coliform counts of 1,100 and fecal coliforms in the range of 90-120. These data indicate either poor water quality measurements, or the possibility of shellfish with an extremely high level of coliform concentration that would make them of questionable quality for human consumption. Common sources of fecal coliforms are inadequately treated sewage discharges, seepage from septic tanks, and animal and agricultural runoffs.

Waldport sewage is treated and discharged into Lint Slough. In 1972, total coliforms were 240. In 1974, they increased to 460, with fecal coliforms a very high 240. Waldport's new secondary sewage treatment plant, with an average volume discharge of .07 MGD, was opened in 1974. This is assumed to have improved discharges, but no data are available. Instead of discharging the outfall from this treatment plant into Lint Slough, however, discharge into the open bay or main channel where flushing is better should be proposed.

There are zoning and State controls on septic tanks along river flood zones, limiting their location to a minimum of 100 feet above the Mean High Water Mark. No estimate can be made on the leaching from faulty septic tanks on the floodplain. However, high coliform counts upstream do indicate severe leaching from septic tank overflow into the river.

Other Pollutants

No other pollutants or toxic materials are known to be present in the estuary. Slotta *et al.* (1973), however, place great emphasis on potential toxic effects of free sulfides released from bottom sediments.¹⁸ In other estuaries nationwide, there is concern over toxic metals such as cadmium, arsenic and beryllium. (See Table 12.) Food organisms such as



TABLE 12

COASTAL WATER QUALITY CRITERIA FOR TOXIC SUBSTANCES OTHER THAN BIOCIDES,
U.S. ENVIRONMENTAL PROTECTION AGENCY AND NATIONAL ACADEMY OF SCIENCES

	Maximum Acceptable Concentrations (96 hr. LC ₅₀) ^{a,b}	Maximum Acceptable Concentrations (Milligrams or Micrograms/liter) ^b	Minimum Risk Threshold (Milligrams or Micrograms/liter) ^c
Antimony	1/50	0.2 mg/l.	N.A. ^d
Arsenic	1/100	0.05 mg/l.	0.01 mg/l.
Barium	1/20	1.0 mg/l.	0.5 mg/l.
Beryllium	1/100	1.5 mg/l.	0.1 mg/l.
Boron	1/10	N.A.	5.0 mg/l.
Cadmium	1/100	0.01 mg/l.	0.2 ug/l.
Chromium	1/100	0.1 mg/l.	0.05 mg/l.
Copper	1/100	0.05 mg/l.	0.01 mg/l.
Fluorides	1/10	1.5 mg/l.	0.5 mg/l.
Iron	N.A.	0.3 mg/l.	0.05 mg/l.
Lead	1/50	0.05 mg/l.	0.01 mg/l.
Manganese	1/50	0.1 mg/l.	0.02 mg/l.
Mercury	1/100	1.0 ug/l.	N.A.
Nickel	1/50	0.1 mg/l.	0.002 mg/l.
Phosphorus	1/100	0.1 mg/l.	N.A.
Zinc	1/100	0.1 mg/l.	0.02 mg/l.
Cyanides	1/10	0.01 mg/l.	0.005 gm/l.
Detergents	1/20	0.2 mg/l.	N.A.
Phenolics	1/20	0.1 mg/l.	N.A.
Phthalate			
Esters	N.A.	0.3 ug/l.	N.A.
PCBs	N.A.	0.002 ug/l.	N.A.
Sulfides	1/10	0.01 mg/l.	0.005 mg/l.

^aThe maximum acceptable concentration figures in this column are expressed as fractions of the 96 hr. LC₅₀ for the most sensitive species in a given area. The 96 LC₅₀ is that concentration of a substance which kills 50 percent of the test species within 96 hours under standard bioassay conditions.

^bData are Environmental Protection Agency official criteria where available; National Academy of Sciences data used where EPA data not available.

^cNational Academy of Sciences data, for concentrations "below which there is a minimal risk of deleterious effects."

^dN.A.- Not applicable.

Source: Clark, 1974.

fish, oysters or clams concentrate lead, mercury and many chlorinated hydrocarbons, causing ecological and human health problems. Synthetic chemicals (PCBs) and oil spills may be pollution problems of the future as industry and offshore oil facilities are built on the West Coast.

Logging practices in the watershed are responsible for much of the sediment in the Alsea, and sediment may be the largest water pollution problem in the Alsea today. It is impossible to assess specifically the effects of possible future industries in the Alsea Bay area. However, future water quality problems could be worse if the forest industry established pulp and paper mills on or near the Alsea River and Bay. Mill effluent, sulfur dioxide, oxygen depletion, Sphaerotilus growth, soluble leachates from logs, bark and wood chips could all be problems. Mill effluent could reduce salmon populations and clam digging by 75 percent. Seafood processing, now absent at Alsea, could add colloidal solids, phenol and oil. Landfills could leach sodium, potassium chloride, sulfate, calcium, magnesium and bicarbonates into the estuarine system. The Water Resources Research Institute (1971) had discussed these and other potential threats to Oregon's coastal waters in more detail.

From all past research of the State, Federal and university publications, it can be concluded that Alsea is one of the healthiest, if not the healthiest, estuary on the Oregon Coast. Biological data support this conclusion. Alsea has more fish management such as fish ladders and hatcheries than any other coastal river. Alsea is very valuable for crabs, clams and anadromous fish, and is the most important of all Mid-Coast Basin rivers for chinook and coho, with cutthroat and steelhead also ranking high. Alsea has only indirect value for commercial fishing, but is important for production of salmon and trout for sport fishing. It takes a high water quality to maintain this successful fishing environment.

Other than silt, the principle problem areas appear to be Lint Slough, the North Channel below the dike and possibly Eckman Lake. Lint Slough reservoir suffers from high temperatures, low oxygen, overenrichment and eutrophication in the summer and fall. The mouth of Lint Slough revealed coliforms and overenrichment from sewage disposal and a decreased circulation due to fill. It is reported that Lint Slough's clamming was closed due to sewage pollution. The sewage outfall should be extended to an area of greater flushing action. The North Channel is a victim of poor flushing and little freshwater inflow due to several side dams and a dam across the upper end. The north channel suffers from summer and fall high temperatures, as much as 5°C greater than the main channel. Volatile solids, as high as 13.4 percent, indicate polluted, highly organic silts trapped in the North Channel. Dissolved oxygen levels are low here and turbidity very high at times. Migrating fish are also trapped in the North Channel. As a result, the water quality and biological values in the North Channel are very poor. To improve this problem and restore the natural flushing and productivity of this estuary, the man-made dams should be subject to a hydrologic study to improve the water quality while minimizing siltation damages to the main south channel.

Dr. Howard Horton, Oregon State University (1974), believes this will also aid in the building of marshes.²⁴

Serious future pollution problems cannot be projected realistically. Only human sewage from the growth of Waldport or increased leaching from septic tanks at residential/recreation homes along the floodplain would increase phosphorus, potassium, nitrogen and coliforms in the estuary. There are reportedly local plans for relocating the existing outfall to a well flushed portion of the estuary, possibly near Eckman Lake. If sewage continues to be treated to a secondary level, the natural marshes can handle the wastes, purifying the remaining nutrients (not pathogens). It is estimated that Alsea's marshes could remove 4,100 pounds of phosphorus and 8,400 pounds of nitrogen per day.²⁵ Clark (1974) estimates a 1,000-acre marsh can purify nitrogenous wastes from a town with a population of 20,000.¹⁰ To protect this resource, all marshes should be set aside in a marsh bank.

Water Quality Criteria

Based upon the foregoing examination of Alsea River environmental conditions, water quality recommendations have been deduced that will provide adequate protection from water quality-related deterioration. These may be summarized as follows:

1. Long term, regular monitoring should be established. Monitoring should include field testing for temperature, dissolved oxygen, pH, salinity, volatile solids and coliforms. Satellite imagery might be used in the future for measuring turbidity and eutrophication (algae).
2. No alteration of channels, basin geometry or freshwater withdrawal should be allowed which would cause a permanent 10 percent change in present salinity averages and ranges. One-day (24-hour) increases to 20 percent are tolerable by estuarine species.
3. Summer temperatures cannot be raised above 65°F beyond river mile 4.
4. A 2°F change is allowable below river mile 4 or in waters 62°F or colder. A 4°F raise is allowable temporarily above spring, fall and winter temperatures.
4. Dissolved oxygen levels should not be lowered significantly below current ambient DO.
 - o Areas of low DO, such as Lint Slough and North Channel, should be managed to increase the DO level to at least 6 mg/l.
 - o DO levels tolerated by estuarine organisms should be researched.

- o Increased BOD is unacceptable.
 - o Where ambient DO is unknown, 6 mg/l should be set as a minimum.
5. Maximum permissible turbidity levels should be set at 5 JTU.
 - o Temporary turbidity levels above this are acceptable for a day or two.
 - o Chemical or physical controls should be used at construction sites to limit turbid conditions.
 - o High turbidity and poor flushing in the North Channel should be improved.
 6. No significant change in pH from natural levels is acceptable. pH levels should be kept within the State stipulated pH range of 6.5 to 8.5.
 7. No increase in volatile solids above 6 percent (dry weight) should be allowed in bottom sediments.
 8. No overenrichment of nutrients such as phosphorus or potassium which would cause algal blooms or eutrophication, nor any increase in dissolved nitrogen above 105 percent saturation should be allowed.
 9. Concentrations of fecal coliforms greater than a log mean of 200 coliforms per 100 ml of water should be prohibited. Any sewage outfalls should extend into areas of maximum flushing.

BIOLOGICAL FACTORS

Alsea estuary is unique among Oregon coastal estuaries. It is relatively undisturbed and unpolluted.^{26,27,4} Of the coastal rivers of Oregon, Alsea River is first in importance for the spawning of coho salmon, fourth in importance for chinook and cutthroat, and sixth for steelhead.²⁸ In contrast to all of Oregon's estuaries with marsh areas, Alsea is the only estuary in Oregon where marsh areas are not appreciably expanding.^{27,29} Finally, the Alsea River basin is an important study area for forestry, salmon life history and propagation, water quality and ocean engineering research being conducted by Oregon State University, the University of Oregon and State Department of Fish and Wildlife.

For the purposes of this report, the study area has been treated in terms of its major biotic communities. This simplifies description and categorization of ecosystems, but implies that functional boundaries separate components of the ecosystem. On the contrary, the Alsea River, the estuary and its tributaries, and the surrounding terrestrial habitat are linked by physical and biological interactions. Alterations in land and

water use throughout the watershed are major determinants of the productivity of the estuarine ecosystem.

Biological data were extracted from available literature; new inventories of organisms and their distribution by field investigations were not undertaken. However, the many published and unpublished investigations of Alsea Bay have provided reliable data sufficient for the purposes of this review.

An important step in determining impacts of activities requiring Corps of Engineers permits on an ecosystem is the assessment of the relative importance of each habitat type. Unavoidable biological disturbance can then be confined to those areas judged least critical to ecosystem maintenance. Among the standards by which components of the ecosystem may be compared are the following:

Diversity	Uniqueness
Biotic Productivity	Habitat Value
Disturbance and Sensitivity to Disturbance	

Each of these factors was considered in recommending "wetlands of importance to the public interest," displayed on Exhibit 4.

Diversity

Diversity in an estuarine ecosystem is associated with stability and adaptability, or the checks and balances among components. High diversity usually reduces the vulnerability of the system to external stress. A diverse system often is able to recover more swiftly from such natural disturbances as fire, infestation and disease. Furthermore, high diversity within an ecosystem will provide more ecological niches for fish and wildlife. A system which exhibits high species diversity maintains a richer genetic pool, important in permitting the system to adapt to the changing environmental conditions. Thus, a measurement of the extent of diversity inherent in each component of an ecosystem can provide a useful indication of the stability of the system as a whole.

Diversity can be expressed in several ways. Indices of species diversity, such as those used by the Shannon and Weaver³⁰, Pielou³¹, MacArthur et al.,^{32,33} McIntosh,³⁴ Slotta et al.,¹⁸ or Abele³⁵ can be calculated for all habitats provided sufficient field data are available. Simpson's index and Margalef's index have been calculated by McIntire and Overton³⁶ for species diversity of diatoms in Yaquina Bay. To use these methods for the Alsea, field sampling would be required over a period of years to determine the number of species within each habitat during each season, and the number of individuals in each species.

Such data were not available to the study team, so other less precise methods were considered. One method bases a determination of diversity on the known numbers of all plant and animal species, as well as their

physical distribution. This method also takes into consideration such spatial relationships as ecotones, stratifications, etc. ³⁷A method, recently employed in a survey of Oregon coastal resources ³⁷ considers economically and recreationally important species. This method does not account for abundance or distribution, and it omits species which may be important to man for other reasons. For example, the bald eagle is important to society as a rare and endangered species, and is biologically valuable as an indicator species for pesticide levels. Despite its shortcomings, the Thompson and Snow method was adopted for this study, principally because their data are most complete and specific. The diversity of areas within the Alsea is mapped on Exhibit 22 as extremely high, high, moderate and low.

Productivity

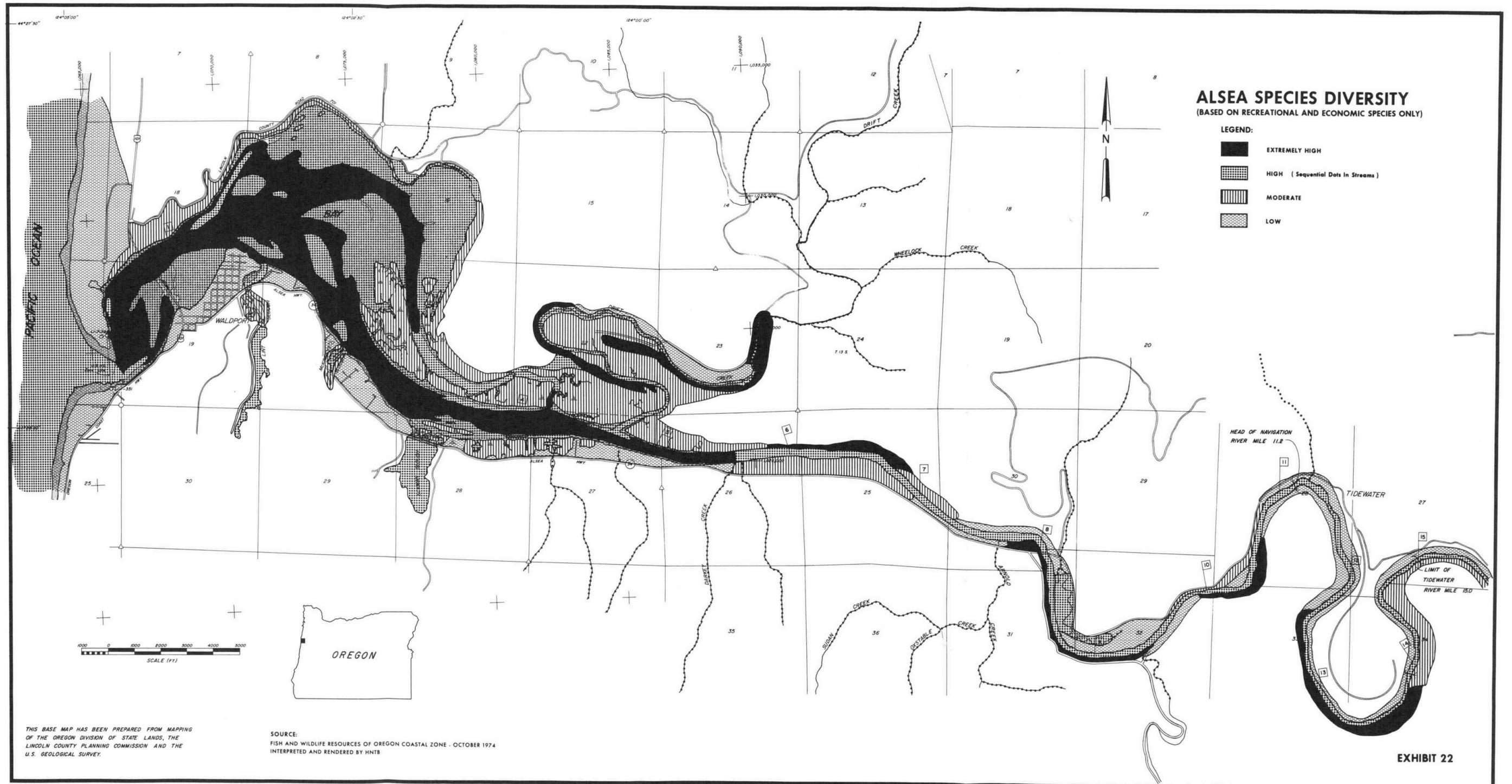
Two important food chains operate in Alsea Bay: the green plant-grazing food chain and the detrital food chain. Specific information on productivity as it relates to these food chains is generally lacking for Oregon estuaries. Curl presented data on ocean phytoplankton productivity. ³⁸ Primary productivity has been measured in Lint Slough by Lyford ³⁹ and secondary productivity by Coche. ¹² Franklin and Dyrness estimated primary productivity of the upland forests. ⁴⁰ Odum discussed general productivity of the ⁴¹estuarine ecosystem, but most data were drawn from Atlantic estuaries. Anderson ⁴² measured primary productivity at the mouth of the Columbia River. Eihler has obtained more recent data on primary production in Oregon estuaries

The eelgrass and salt marsh communities are probably the greatest net producers of organic material in Alsea Bay. These communities probably contribute most to the detrital food chain, and less to the food of grazing ⁴⁴species. Odum et al. discuss the role of detritus in an Atlantic estuary. ⁴⁴ No similar studies are known for Oregon ⁴⁵estuaries. Gregory has performed detritus studies in upstream areas. ⁴⁵ Research is needed to determine the following information about detritus:

1. The amount produced
2. Breakdown rates
3. Amounts used in the bay or washed out to ocean
4. Species dependent on detritus
5. Role of recycling organisms

Measurements of biomass by Eihler, ⁴³ Curl, ³⁸ and Franklin and Dyrness ⁴⁰ give some information on primary productivity. Specific measurements of net and gross primary productivity in Oregon estuaries are needed. Knowledge of secondary consumption and amounts of energy stored in marshes would be useful to calculate total community energy budgets.

Productivity may be measured by a number of techniques. ⁴¹ These include:



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE: FISH AND WILDLIFE RESOURCES OF OREGON COASTAL ZONE - OCTOBER 1974 INTERPRETED AND RENDERED BY HNTB

1. Harvest method
2. Oxygen measurement
3. Carbon dioxide methods
4. pH method
5. Disappearance of raw materials
6. Use of radioactive materials (C^{14})
7. Chlorophyll method

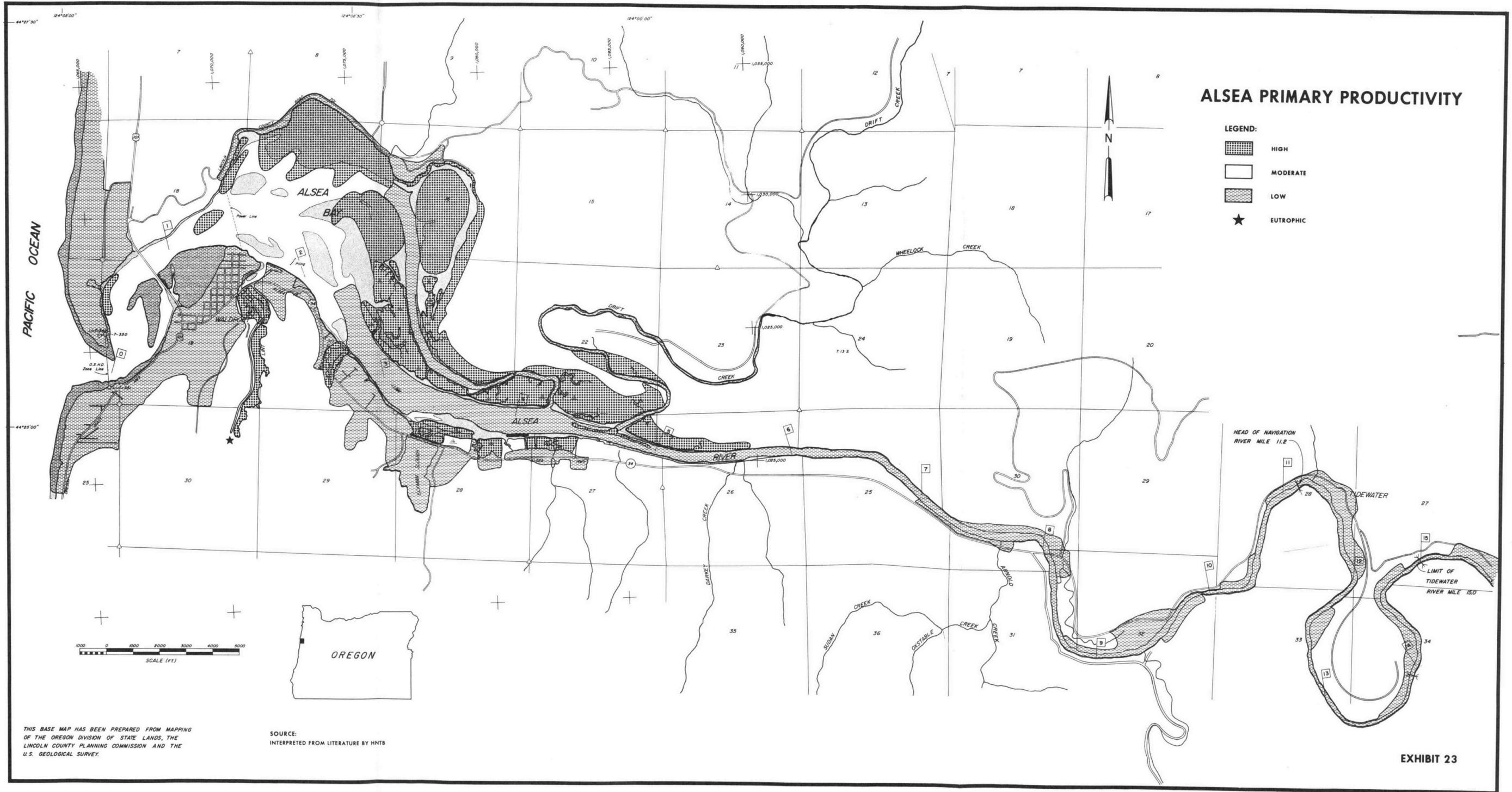
Oxygen measurement is best suited for measurement of productivity in the waters of Oregon estuaries, and carbon dioxide methods are suitable for terrestrial habitat. McIntire and Wulff are currently performing field sampling and laboratory studies of mudflat productivity, in Yaquina Bay, using a respirometer chamber to measure chlorophyll.^{46,47} All of these methods are familiar to the scientific community, but methods where results can be expressed in energy units (such as kilocalories) are usually preferred.

Without comparable data for the habitats of the Alsea watershed, the study team has been required to estimate relative productivity as high, moderate and low. (See Exhibit 23.) The marshes and eelgrass beds are believed to be the most productive areas in the estuary. They have the highest biomass and turnover rate, and contribute significantly to the detrital system. Lint Slough is also very productive, especially in summer months when algal blooms appear. The habitats of highest standing biomass are upland forests. Tidel flats support a low biomass of very productive algae throughout the year. Considered over a period of time, the rapid turnover of algal communities makes the tidelflat a highly productive system, especially if the secondary production of clams and shrimp, (epifauna enfusch), is included. Moderate productivity is achieved in diked marshes and agricultural areas, where estuarine conditions have been altered but productivity has been artificially sustained by man. Areas of lower relative biotic productivity are the open ocean, river channel, beach/dune habitats, tidelflats consisting primarily of sand, and the urbanized area of Waldport.

Disturbance and Sensitivity to Disruption

Disturbance of an ecosystem results when functional components of the system are eliminated. The sensitivity of a system to disturbance, and its ability to recover from disturbance depends on such factors as species diversity, proximity to similar habitat for reseeding, barriers to reintroduction of species, size of disturbance, and type of disturbance. A system's resilience, or ability to recover, cannot be measured statistically, but can be estimated through analysis of precedent situations. Habitats with the least resilience are the tidelands, marsh, wet meadows and reservoirs.³⁷ Those with fair resilience are the submerged lands of the Alsea Bay and River. Other habitats can usually recover from temporary disturbances.

There are important exceptions to this classification.



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE: INTERPRETED FROM LITERATURE BY HNTB

A reservoir can be drained and restocked, increasing the rate of its recovery from disturbance. Also, the classification seems to have underestimated the fragility of eelgrass beds. The degree of disturbance within the study area is mapped on Exhibit 24 with the nature of disturbances shown in Table 1 .

Very severe disturbance characterizes landfills and improved roads; if left alone, total recovery of the environment to its original condition would never occur in these areas. Severe disturbance refers to areas that have been extensively developed, such as reservoirs and areas of habitation, where recovery may occur over hundreds of years. Moderate disturbance characterizes those environments where recovery could occur within a person's lifetime. Low disturbance areas have only minor signs of development (Exhibit 24). In all cases, the base for judgment was pristine wilderness and the length of time which would be needed for the ecosystem to return to that stage if left alone. Such estimates are based on inspection and interpretation of aerial photography and experiences of past disturbances and their recovery.

Uniqueness

Certain ecotypes including eelgrass, wet meadows, reservoirs, beaches, and salt marshes are relatively rare in the coastal zone, and are therefore considered more critical than the more common agricultural, forest and ocean areas. (See Exhibit 25.) Low marsh is an extremely limited resource, with only 37 acres known to exist in the study area. Wet meadow is limited as well. There are only 184 acres of beach and dune within the study area. Riparian alder is limited to 225 acres. High marsh (503 acres) and eelgrass (471 acres) are relatively abundant in the Alsea estuary, but are often uncommon elsewhere on the Oregon coast. The most common habitat types within the study area are the man-dominated or urban zones (1,258 acres), and the mixed woodland zones (820+ acres). Mixed woodland associations are common on the site of clearcuts throughout the uplands of the watershed; vast areas are contiguous to the study area. Still, the Douglas-fir/trailing blackberry association remains the most common ecotype in the uplands adjacent to the study area.

Some habitats have been categorized as unique because of a significant biological feature. Of particular interest are the potential habitats of rare or endangered species. Local species classified as rare by the state include the osprey, Caspian tern, and white footed vole.⁶¹ The Northern spotted owl, Western snowy plover, and sea otter are termed threatened, and the Northern bald eagle and California brown pelican are given endangered status.* Only the last bird is presently on the national list of endangered species by the Department of the Interior. The Forest Service (1974) has identified⁴⁸ habitat for the osprey, bald eagle, snowy plover and spotted owl. Such areas are important to the continued survival of these species, considered rare or endangered in Oregon. Lint Slough has unique educational value, as it has been used for intensive fisheries research for many years. The mouth of Eckman Slough is also important as a herring spawning site.^{27,50} A band-tailed pigeon

* Working list of threatened and endangered wildlife, Oregon Wildlife Commission, Jan 1975.

TABLE 13
AREAS OF ECOLOGICAL DISTURBANCE
ALSEA BAY^a

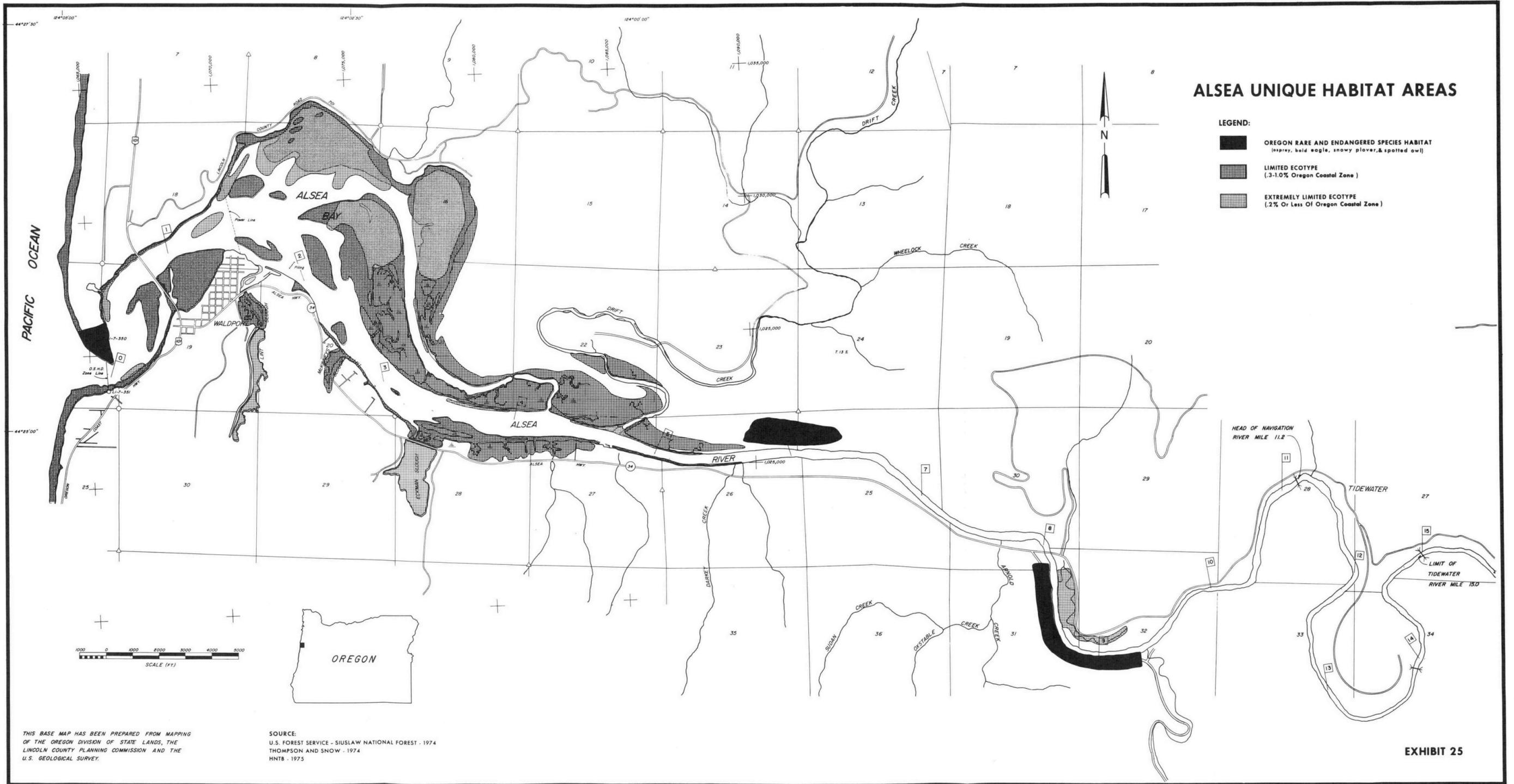
DESIGNATION	ACRES OF EACH DEGREE OF DISTURBANCE ^b		
	Very Severe	Severe	Moderate
Agriculture			341
Agriculture/Housing			92
Cleared for Development		48	
Developed		558	173
Diked Pasture			671
Disturbed Marsh		49	
Dredged			11
Fill	125		
Fill/Development	27		
Orchard			11
Reservoir		97	
Unflushed Channel			59
TOTAL	152	752	1,358

^aAs mapped on Exhibit 24.

^bLow was not calculable.

Source: Howard, Needles, Tammen and Bergendoff, 1975.





THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
U.S. FOREST SERVICE - SIUSLAH NATIONAL FOREST - 1974
THOMPSON AND SNOW - 1974
HN78 - 1975

nesting and watering area near the dike on the North Channel of the Alsea River is also considered unique. The largest known concentration of this species in Oregon has been reported in this location.³¹ Other features of limited distribution within the study area include the rock oyster beds in the inlet and the seal resting areas in marsh and on tidelands in the middle of Alsea Bay. Eckman Lake is considered unique since it is one of the few fresh water reservoirs on the coast, and is used by wintering canvasbacks. Areas representing various levels of uniqueness are mapped on Exhibit 25. Only those areas within the limit of Corps of Engineers permit jurisdiction are shown.

Habitat Value

In examining the relative importance of regional wildlife habitats, the study has concentrated on those elements which make an area valuable to wildlife. These include the nature of food, shelter, and water resources, in relation to the animal's mobility. Limiting factors within habitats are considered for each species.

Examples are the inhibition of salmon reproduction by dissolved oxygen levels below certain limits, and the dependence of the spotted owl population upon the availability of mature conifers as nesting places.

Some wildlife species are dependent upon a certain set of environmental conditions during a specific season or stage in their life cycle (Table 14). Permit activities can in some cases have deleterious effects on seasonal use patterns; and thus can substantially affect wildlife. For example, activities which would interfere with the seasonal use of estuary tideflats by the Dungeness crab would inhibit the reproduction of that species and upset the molting process.

Wildlife habitat is mapped on Exhibit 26; fish and shellfish areas are mapped on Exhibit 27; vegetation types, which have been used to determine upland habitat, are mapped on Exhibit 28. Fauna and flora are shown on Exhibit 29.

Locations of the upland wildlife habitats shown on Exhibit 26 are based on the types of vegetation featured on Exhibit 28. For example, mature conifer areas are habitats for deep forest species such as bear, grouse and spotted owl. Other forested areas such as mixed woodland, shrubs and riparian alder serve as range for big game, providing browse for elk and deer. Agricultural, field and pasture areas support open land and grazing animals which seek cover along the edges of the woods. Habitats for waterfowl and wading birds are in shallow water, eelgrass and marsh areas. Shorebirds, gulls and band tailed pigeons are more often found in tideflat areas. Specific areas, such as nests of endangered species, pigeon watering areas or seal haulouts, are shown where these sites have been documented on U. S. Forest Service and Oregon Game Commission maps.

The fish and shellfish habitats shown on Exhibit 27 are not based on the vegetation map. The only exception is the "fish food production" area which represents an overlay of the marsh and eelgrass areas featured on Exhibit 28; these areas are known to make significant contributions to the detrital food chain. The locations of specific habitats for clams, shrimp

TABLE 14

SEASONAL USE OF THE ESTUARY AND RIVER

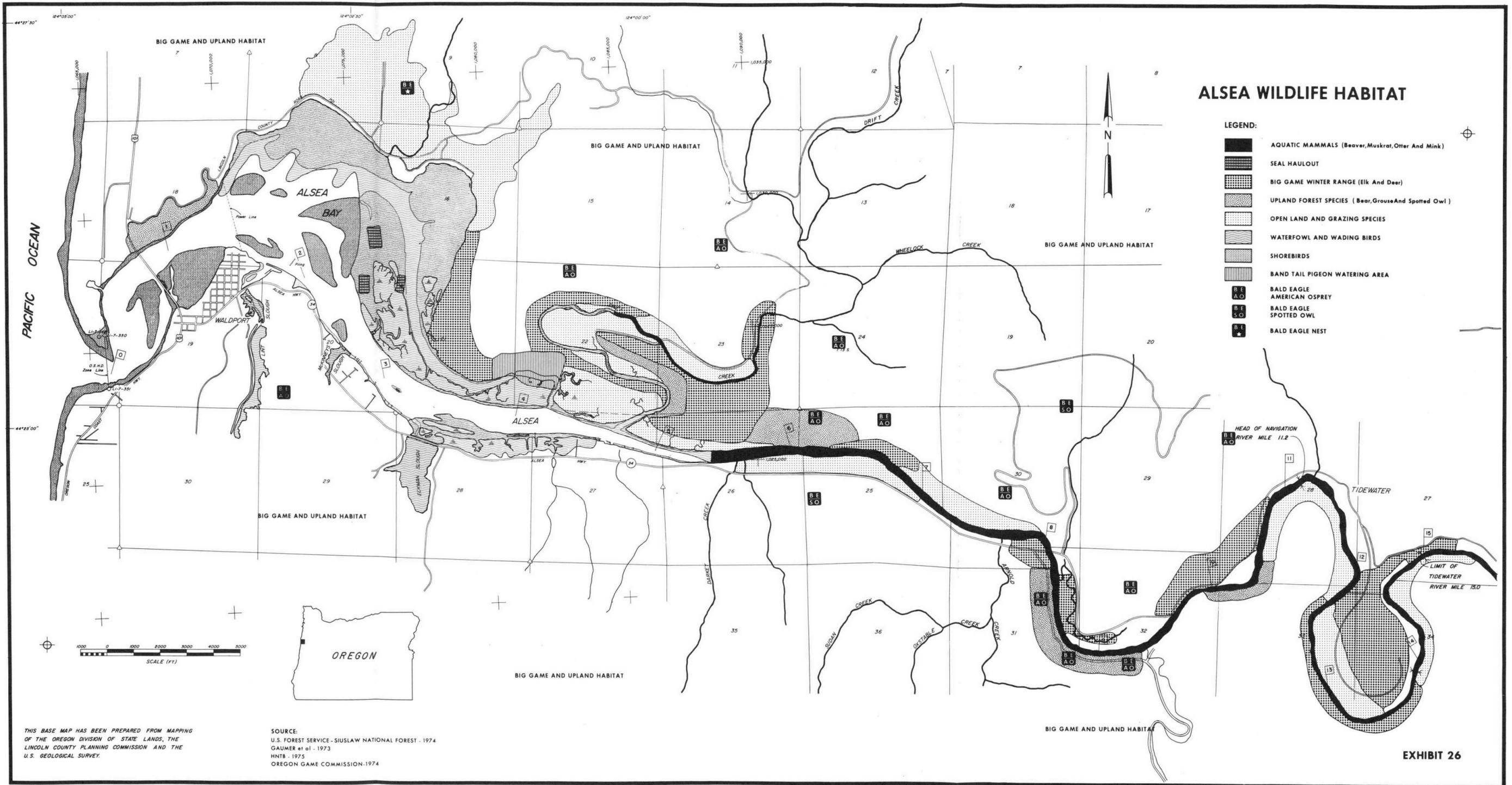
Species	January	February	March	April	May	June	July	August	September	October	November	December
Wigeon	////	-----								#####	#####	#####
Pintail	////	-----								#####	#####	#####
Mallard	////	-----								#####	#####	#####
Pigeon									#####			
Crab					#####	#####	#####	#####	#####	#####	#####	#####
Cutthroat ^a	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chinook ^a						-----	-----	-----	-----	-----	-----	-----
Coho ^a							-----	-----	-----	-----	-----	-----
Steelhead ^a												-----
Flounder					#####	#####	#####	#####	#####	#####	#####	#####
Shrimp					#####	#####	#####	#####	#####	#####	#####	#####
Shad ^a												
Surfperch					#####	#####	#####	#####	#####	#####	#####	#####
Sculpin						#####	#####	#####	#####	#####	#####	#####
Chum ^b												-----
Perch						#####	#####	#####	#####	#####	#####	#####

Low Population -----
 Moderate Population -----
 High Population -----
 Harvest Season ////
 Spawning

^aSpawn in tributaries and upriver.

^bSpawn in tributaries and upriver, but not recorded on river.

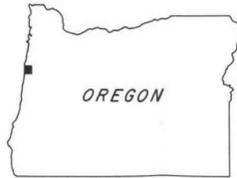
Source: Gaumer *et. al.* 1973; Giger 1972; Skeesick 1974; Smith & Lauman 1972.



ALSEA WILDLIFE HABITAT

- LEGEND:**
- AQUATIC MAMMALS (Beaver, Muskrat, Otter And Mink)
 - SEAL HAULOUT
 - BIG GAME WINTER RANGE (Elk And Deer)
 - UPLAND FOREST SPECIES (Bear, Grouse And Spotted Owl)
 - OPEN LAND AND GRAZING SPECIES
 - WATERFOWL AND WADING BIRDS
 - SHOREBIRDS
 - BAND TAIL PIGEON WATERING AREA
 - BALD EAGLE AMERICAN OSPREY
 - BALD EAGLE SPOTTED OWL
 - BALD EAGLE NEST

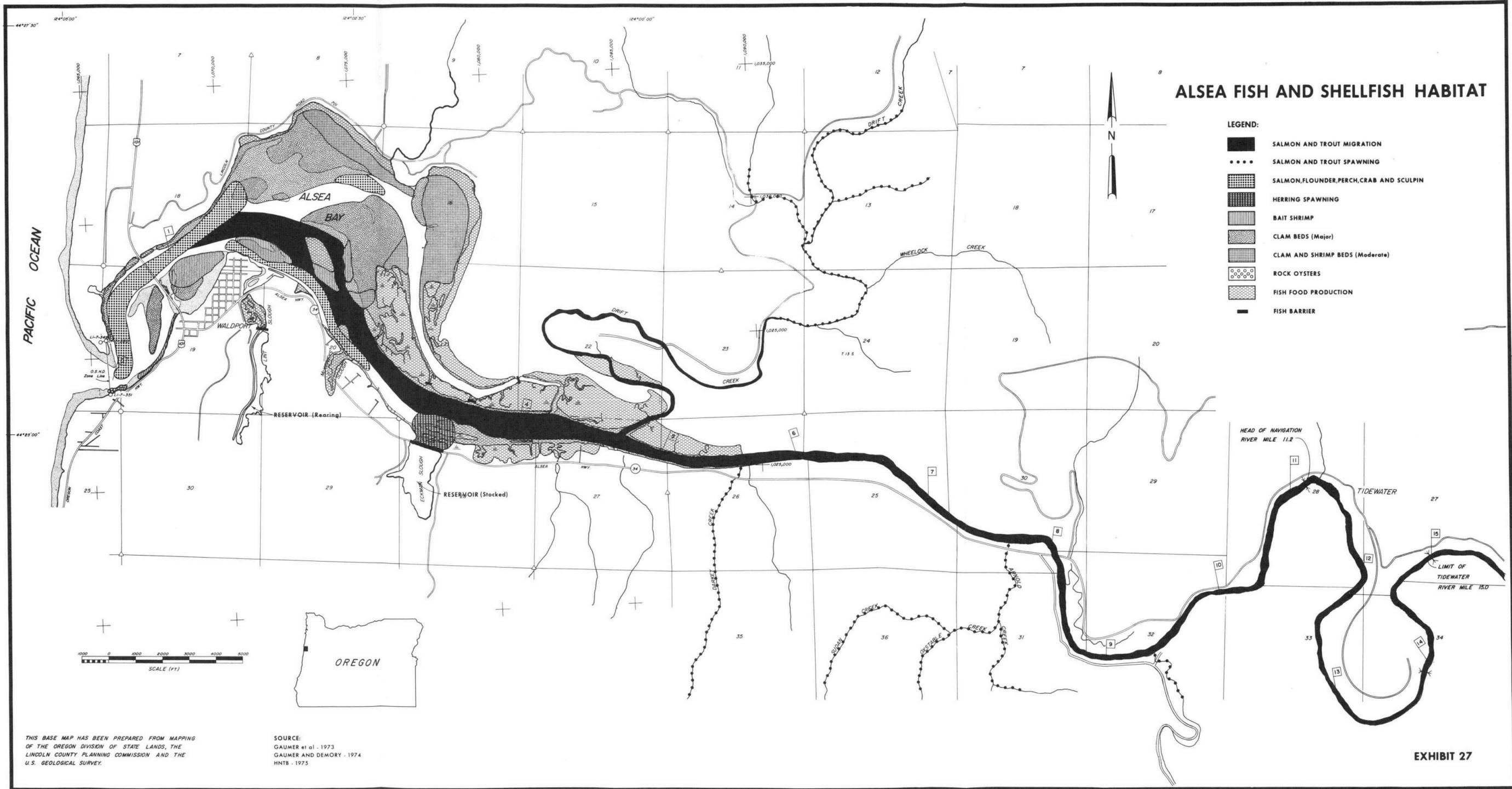
SCALE (FT)
0 1000 2000 3000 4000 5000



THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
U.S. FOREST SERVICE - SIUSLAH NATIONAL FOREST - 1974
GAUMER et al - 1973
HNFB - 1975
OREGON GAME COMMISSION - 1974

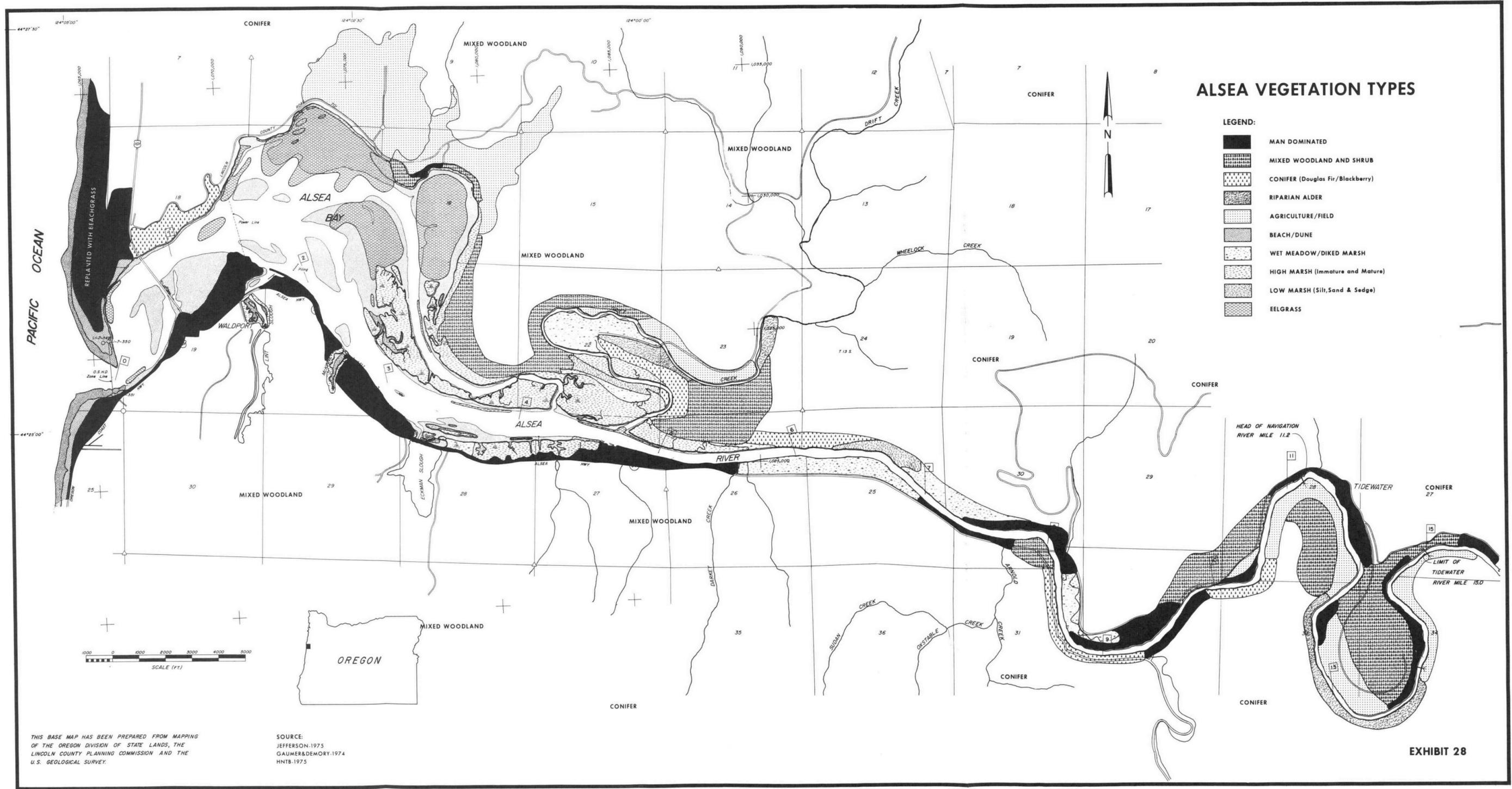
ALSEA FISH AND SHELLFISH HABITAT



- LEGEND:**
- SALMON AND TROUT MIGRATION
 - SALMON AND TROUT SPAWNING
 - SALMON, FLOUNDER, PERCH, CRAB AND SCULPIN
 - HERRING SPAWNING
 - BAIT SHRIMP
 - CLAM BEDS (Major)
 - CLAM AND SHRIMP BEDS (Moderate)
 - ROCK OYSTERS
 - FISH FOOD PRODUCTION
 - FISH BARRIER

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
GAUMER et al. 1973
GAUMER AND DEMORY. 1974
HN78 - 1975

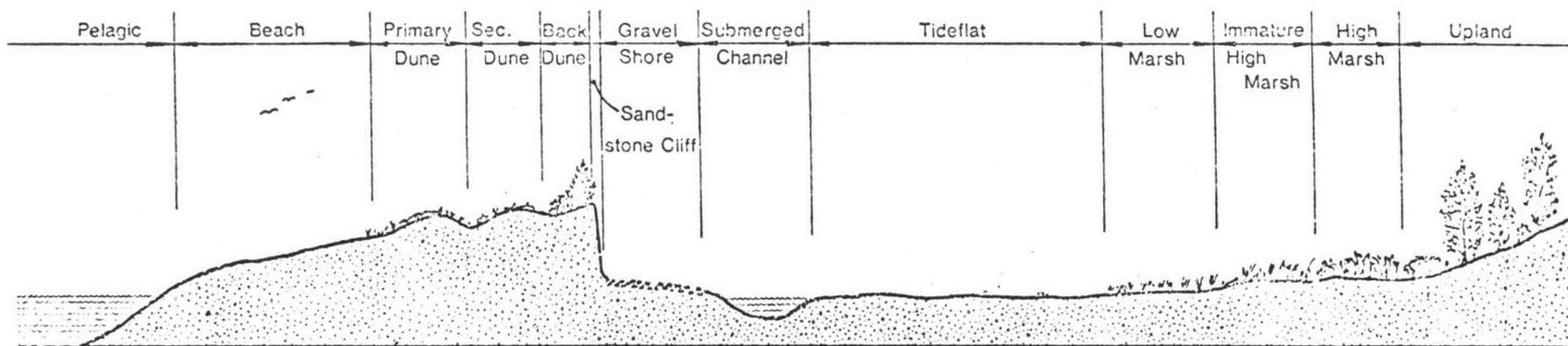


ALSEA VEGETATION TYPES

- LEGEND:**
- MAN DOMINATED
 - MIXED WOODLAND AND SHRUB
 - CONIFER (Douglas Fir/Blackberry)
 - RIPARIAN ALDER
 - AGRICULTURE/FIELD
 - BEACH/DUNE
 - WET MEADOW/DIKED MARSH
 - HIGH MARSH (Immature and Mature)
 - LOW MARSH (Silt, Sand & Sedge)
 - EELGRASS

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
JEFFERSON-1975
GAUMER&DEMORY-1974
HNTB-1975



Kelp Plankton	Beachgrass Annuals Clover Red fescue Bearberry	Coastal pine Salal Myrtle Brackenfern Huckleberry	Fir Spruce Pine Cedar	Diatoms Algae	Plankton	Diatoms Algae	Eelgrass Algae	Seaside arrow Sand spurry Three-square rush Salt grass Sedge	Tufted hair grass Salt grass Rush Creeping bent Marsh clover Glasswort	Alder Fir Blackberry
Salmon Cutthroat Tuna Herring Anchovy Snad Sole Shrimp Whale Seal Gull Scoter Auklet Murre	Plover Gull Sand crab Pill bug Sandpiper Smelt Perch	Beetle Spider Mice Sparrow hawk Ants California quail Sparrow Goldfinch	Chickaree Blue heron Pigeon Shrew Coast mole Chipmunk	Cockle Turnstone Softshell Shrimp Shorebirds	Seal Herring Clams Ducks Coho Chinook Steelhead Crab Sculpin Surfperch Flounder Cutthroat	Crab Seal Flounder Ghost shrimp Clams Mussel Blue heron Plover Killdeer Sandpiper Gull Whimbrel Dunlin Sole Sculpin Pigeon	Limpet Snail Crab Shrimp Clams Brant Ducks Geese Swans Blue heron Shorebirds Herring Smelt	Muskrat Nutria Mink Otter Mallard Pintail Coot Wigeon Blue heron Shorebirds Young fish Crabs	Pigeon Deer Mink Muskrat Raccoon Otter Nutria Shrew Vole Seal Ducks Blue heron Sparrow	Deer Elk Owl Bear Grouse Pigeon Warbler Coyote Bobcat Mountain quail Woodpecker Goshawk

and spawning herring were obtained from Department of Fish and Wildlife records. Habitats for other fish are not restricted to one area and often overlap. Salmon and trout migrate up the main river channel to spawn, but this does not mean that other species are excluded from the channels. Flounder, perch, crab and sculpin exist throughout the bay, but are more commonly found in the shallower zones. Determination of the locations of upstream anadromous spawning streams was based on interviews with Department of Fish and Wildlife biologists.

DESCRIPTION OF HABITATS

Ocean

The ocean contributes salt water, nutrients and plankton to the estuary, and serves to moderate river temperature. The estuary in turn provides fresh water, sediment and nutrients from both upland sites and marshes to the pelagic zone.

The pelagic habitat supports most of the valuable commercial fish species for at least part of their life cycles. Among these are salmon, tuna, herring, anchovies, and seagoing cutthroat and steelhead trout. The ocean bottoms provide habitat for sole, shrimp, and Dungeness crab. In addition, the ocean supports whales, seals, otters, and birds. A detailed description of the flora and fauna of the pelagic zone is beyond



the scope of this report.

The ocean resources most important to Alsea Bay are the anadromous fish species. There are about 14 species of importance to the sport and commercial fisheries of the adjacent coastal areas.³⁷ The Alsea River is the most important of all mid-coast streams in terms of contribution to the fall chinook, coho salmon and winter steelhead fisheries.²⁸ During 1973, 3,980,000 pounds of chinook and 5,907,000 pounds of coho were taken by commercial fishermen.⁵² Other fish found both in the ocean and estuary include pink salmon, chum, American shad, smelt, sturgeon, Dolly Vardin, sculpin, flounder, sole, greenling, lingcod, rockfish, perch, albacore, and halibut. Each fish species occupies a specific niche. Sole and shrimp are found on mud bottoms; lingcod and rockfish are found in rocky areas. Salmon and other anadromous species mature in the open ocean off the Pacific Coast and return to the tributary streams of the Alsea and other freshwater streams to breed.

Marine mammals play significant roles in the pelagic ecosystem. Some, like seals, function at the highest trophic levels, while others, including whales, consume plankton. Whale species reported to utilize the coastal waters of the Pacific Northwest include species which are rare and endangered.³³ No permit activity is expected to influence these whales directly, although all marine life is affected indirectly by human activities in estuaries. Whales, porpoises and harbor seals are an esthetic resource of the coastal zone. Some visitors come specifically to Alsea Bay and to nearby Seal Rocks to watch seals. Seals have competed with fishermen for fish over centuries of time; however, consumption of about 10 pounds per seal per day does not constitute excessive predation, or a threat to the fishing industry. Young seals are often seen upriver, beyond the Seven Mile Bridge. Adults enter the estuary to feed along the Alsea Bay bottoms. There is one major haulout area in the bay, on the northwest corner of the high marsh island off the North Channel.²⁶ Two other haulouts shown on the tidelands (Exhibit 26) are used only during low tides for resting.

Certain of man's activities in the bay might alter the seal habitat. Properly designed jetties or groins with no recreational access might provide more seal resting areas. However, dredging or filling of the marshes and tideflats would adversely affect seals by lowering productivity and reducing fish abundance. Haulout areas are limited and should be protected from development and disturbance.

The pelagic zone adjacent to the study area is the primary habitat of 30 common species of birds which are significant components of the esthetic character of the coast. (See Table 15.) Birds off the Oregon coast include colorful sea ducks such as the rare harlequin and scoter, gull species, phalaropes, jaegers, kittiwakes, guillemot and auklets. A murre rookery has been reported on the coast just north of Alsea Bay.

TABLE 15

COMMON BIRDS OF ALSEA

Common Name	Habitats											
	Ocean	Shore/ Beach	Bay	River/ Stream	Reservoir	Mudflat	Marsh/Wet Meadow	Riparian	Agriculture/ Open Field	Dunes	Mixed Wood/ Shrub	Man- Conifer Dominated
Common loon	X		X		X							
Arctic loon	X		X									
Red-throated loon	X		X									
Horned grebe			X	X	X							
Western grebe	X		X		X							
Black-footed albatross	X											
Fulmar	X											
Sooty shearwater	X											
Fork-tailed pgtrel	X											
Brown pelican	X		X									
Double-crested cormorant	X		X		X							
Brandt's cormorant	X		X									
Pelagic cormorant	X		X									
Great blue heron			X	X	X	X	X	X				
Green heron			X	X	X	X	X					
Whistling swan			X	X	X							
Canada goose			X	X	X				X			
Black brant			X				X					
White-fronted goose			X		X							
Snow goose			X		X		X					
Mallard			X	X	X		X					
Gadwall			X		X		X					
Pintail			X		X		X					
Green-winged teal			X				X					
Blue-winged teal			X				X					
Cinnamon teal			X				X					
European wigeon			X		X		X		X			
American wigeon			X		X		X					
Shoveler			X		X		X					
Wood duck				X	X							
Redhead			X		X				X			
Ring-necked duck			X		X							
Canvasback			X				X					
Greater scaup			X		X							
Lesser scaup			X		X							
Common goldeneye			X		X							
Bufflehead			X		X							
Harlequin duck *	X		X	X								
White-winged scoter	X		X		X							
Surf scoter	X		X									
Ruddy duck			X		X							
Red-breasted merganser			X	X								
Turkey vulture								X		X		
Cooper's hawk										X		
Red-tailed hawk										X	X	
Bald eagle *			X	X	X			X		X		
American osprey *			X	X								X

TABLE 15 (continued)

COMMON BIRDS OF ALSLA

Common Name	Habitats												
	Ocean	Shore/ Beach	Bay	River/ Stream	Reservoir	Mudflat	Marsh/Wet Meadow	Riparian	Agriculture/ Open Field	Dunes	Mixed Wood/ Shrub	Conifer	Man- Dominated
Marsh hawk							X		X				
Sparrow hawk									X				
Blue grouse												X	
Ruffed grouse												X	
California quail											X		
Ring-necked pheasant									X				
American coot			X	X	X	X	X						
Killdeer						X			X				
Black-bellied plover		X				X							
Surfbird		X					X						
Ruddy turnstone		X											
Black turnstone		X											
Common snipe													
Whimbrel		X					X						
Wandering tattler		X				X							
Least sandpiper		X											
Dunlin		X				X		X					
Short-billed dowitcher						X		X					
Long-billed dowitcher						X							
Western sandpiper		X				X							
Sanderling		X				X							
Red phalarope	X												
Northern phalarope	X												
Glaucous-winged gull		X	X										
Western gull	X	X	X		X								X
California gull		X	X	X	X								
Ring-billed gull	X	X	X		X								
Mew gull	X	X	X		X								
Bonaparte's gull	X	X	X	X									
Hecrman's gull	X	X	X										
Black-legged kittiwake	X		X										
Common murre	X		X										
Pigeon guillemot	X		X										
Cassin's auklet	X												
Rhinoceros auklet	X	X											
Band-tailed pigeon						X	X			X		X	
Rock dove													
Mourning dove													X
Barn owl									X				X
Screech owl									X				X
Great horned owl											X	X	
Pygmy owl *											X	X	
Spotted owl											X	X	
Common nighthawk												X	
Vaux's swift									X				X
Rufous hummingbird											X		
Belted kingfisher			X	X					X		X		
Red-shafted flicker											X		X

TABLE 15 (continued)

COMMON BIRDS OF ALSEA

Common Name	Habitats												
	Ocean	Shore/ Beach	Bay	River/ Stream	Reservoir	Mudflat	Marsh/Wet Meadow	Riparian	Agriculture/ Open Field	Dunes	Mixed Wood/ Shrub	Conifer	Man- Dominated
Pileated woodpecker												X	
Hairy woodpecker												X	
Western wood peewee											X	X	
Horned lark											X	X	
Violet-green swallow									X				
Tree swallow								X					
Bank swallow								X					
Barn swallow							X						
Cliff swallow								X					X
Gray jay								X					X
Steller's jay												X	
Scrub jay											X	X	
Common crow											X		X
Black-capped chickadee									X		X		X
Chestnut-backed chickadee								X			X		v
Common bushtit											X	X	
White-breasted nuthatch											X		
Red-breasted nuthatch											X		
Brown creeper											X	X	
Wrentit				X							X		
Dipper											X		
Winter wren								X				X	
Bewick's wren													
Robin											X		
Varied thrush									X		X		X
Hermit thrush											X	X	
Swainson's thrush											X	X	
Golden-crowned kinglet											X	X	
Ruby-crowned kinglet											X	X	
Water pipit					X						X		
Cedar waxwing								X	X				X
Starling								X			X		
Warbling vireo									X				X
Orange-crowned warbler											X		
Yellow warbler											X		
Myrtle warbler								X					
Audubon's warbler				X				X					
MacGillivray's warbler				X				X					
Yellowthroat											X		
Wilson's warbler							X						
Western meadowlark											X		
Red-winged blackbird									X				
Brewer's blackbird							X	X					
Brown-headed cowbird									X				
Western tanager									X			X	

TABLE 15 (continued)

COMMON BIRDS OF ALSEA

Common Name	Habitats												
	Ocean	Shore/ Beach	Bay	River/ Stream	Reservoir	Mudflat	Marsh/Wet Meadow	Riparian	Agriculture/ Open Field	Dunes	Mixed Wood/ Shrub	Conifer	Man- Dominated
Black-headed grosbeak											X		
Evening grosbeak											X		
House finch									X			X	
Pine siskin													X
American goldfinch									X	X	X	X	
Rufous-sided towhee											X		
Savannah sparrow									X	X			X
Oregon junco											X		X
Chipping sparrow									X	X			X
White-crowned sparrow											X		X
Golden-crowned sparrow									X				
Fox sparrow									X		X		
Song sparrow									X		X		
Snowy owl			X										
Sabine's gull	X							X					
Black oystercatchers	X												
Pink-footed shearwater	X												
New Zealand shearwater	X												
Jaeger	X												
Snowy plover*		X											

* Rare or endangered in Oregon.

Source: Bertrand and Scott, 1973.
Audubon Society, 1974.
Marshall, 1969.
Howard, Needles, Tammen and Bergendoff, 1974.

The open ocean has relatively low primary productivity per unit of area. Phytoplankton production averages only 50 grams of carbon per square meter, compared to annual production within the shallow shelf area of 300 grams per square meter.³⁸ It has been estimated that annual productivity of the Pacific Ocean averages 4,500 pounds per acre,⁵⁵ or 504 gm/m². Other estimates place ocean productivity at 152 grams of carbon per square meter per year.⁴² In terms of biomass, secondary productivity is much lower than primary production. Fish are produced on the continental shelf at a rate of 168 pounds per acre per year.⁵⁶ Biomass of bottom fauna has never actually been measured, but has been estimated to be greater than total fish catch.⁵⁵ Any action of man which either directly or secondarily reduces this productivity threatens the energy relationships of the ocean environment.

To the human eye the pelagic environment is relatively uniform, but the reefs and continental shelf support a wide variety of economically important species. The resilience of the ocean ecosystem is high, although particular resources, such as herring, otter or whales can be depleted through systematic exploitation.³⁷

Beach and Shore

This zone, which forms an interface between the ocean and land environments, may be divided into four subzones: uppermost beach, high intertidal, mid-intertidal and low intertidal.⁵⁵ The uppermost beach lies between mean high tide and the highest reach of storm waves (high high tide). The high intertidal zone lies between mean high tide and a line just below mean sea level. The mid-intertidal zone is the wave zone from mean high to mean low tides. The low intertidal zone is exposed only during "minus" tides (low low tide), and may be considered an aquatic habitat.

The flora of the beach and shore zone is limited to kelp left by the tides and algae living among the sand particles. Sandy beaches are not a stable substrate for rooted vascular plants, but dune grasses may occasionally extend into the highest reaches of the beach.

Primary productivity is very low in this zone. Standing crops of kelp washed up on Pacific coast beaches have been estimated between 1.86 and 2.49 kilograms wet weight per 10 meters of beach frontage.⁵⁷

Animal life is limited in the intertidal zone due to the harshness of the environment and lack of food and cover. Diversity is low. The most socially important species which might be found here are the snowy plover on the north sandspit, razor clams on the beach and spawning smelt. Most animals in this zone are invertebrates, including worms, sand crabs, isopods, periwinkles, molecrabs and opossum shrimp which burrow for protection. In the drier upper beaches, spiders, beach hoppers, ants and beetles may be found among the driftwood. Shorebirds such as sea gulls, sandpipers, dunlins, sanderlings, and an occasional

plover feed along the wave zone. The snowy plover is endangered in Oregon, due to dune stabilization projects and⁴⁹ other human disturbances. There are only 50 breeding pairs in Oregon.

Another endangered bird species which may be found in this zone is the brown pelican. This marine species occasionally strays north after breeding in California, and may be found just offshore in the low intertidal zone, diving for fish. Also present is the rare harlequin duck.

Several species of fish are found in this shallow zone. Striped bass are found just offshore from the breakers. In 1879, 150 of these fish were introduced into San Francisco Bay; now they are common along the west coast. However, they are not yet an important commercial or sport species in the Alsea region. The livebearing surfperch and smelt spawn near or within the breakers. (See Table 16 for numbers of surfperch and smelt caught in Alsea.)

The combined zones of intertidal shore and beach are not critical biologically, but have high social value for esthetics and recreation. The beach zone is considered a renewable and resilient³⁷ habitat, assuming the source of sand replenishment is not altered. The few species found in this zone, particularly the snowy plover, are highly adapted and cannot readily move to a different zone. The sandy beach habitat is³⁷ very limited, representing only 1.2 percent of Oregon's coastal zone.

Recreational uses of this zone do little harm, but permanent alterations such as homes, roads, groins, or jetties cause damage through vegetation removal, dune alterations and changes in natural patterns of sand movements. Physical changes in the shore zone often have impacts reaching miles away from the site of disturbance. For example, a sand trapping device might benefit the Dungeness crab, English sole and razor clams. However, sand trapped in one area is withheld from other areas, permitting them to deteriorate. Dams built upstream in tributaries can prevent beach replenishment hundred of miles away. Such interrelationships demonstrate clearly why the coast of Oregon cannot be treated on a unit by unit basis, but must be viewed as a unified physical and biological system.

Estuary

The estuary is defined as the zone where fresh water from the land meets and mixes with the salt water from the sea in a semi-enclosed bay. The estuarine environment of Oregon has been classified as submerged lands or open bay (.6 percent of Oregon's coastal zone); tidelands or mudflats (.4 percent of the coastal zone); eelgrass (.08 percent of³⁷ the coastal zone); and salt marshes (.3 percent of the coastal zone).

Of the 17 estuaries in Oregon, Alsea is about average in size; it contains 979 acres of tideland, 1,168 acres of bay, and 640 acres of marsh.²⁸ Exhibit 28 shows 889 acres of tideflats and 521 acres^{27,58} of marsh, based on Jefferson's (1975) and Division of State Land maps.

TABLE 16

ALSEA FISHERIES

Number of Fish Caught from Each Habitat
March 1 through October 31, 1971

<u>Common Name</u>		<u>Open Bay Fishing /Boat</u>	<u>Shore Fishing Beach/Banks</u>	<u>Tideflat</u>
<u>Fish</u>				
American shad	AE	72	9	
Buffalo sculpin			184	
Cabezon			6	
Chinook salmon	AE	110	9	
Coho salmon	AE	278	128	
Cutthroat trout	AE	33	58	
Kelp greenling		8	28	
Northern anchovy	E	552	60	
Pacific herring	E	217	19	
Pacific staghorn sculpin		4,164	7,301	
Pile perch		120	119	
Rainbow trout		8		
Redtail surfperch	E	3,721	1,503	
Rock greenling		48		
Shiner perch		225	3,025	
Silver surfperch		353		12
Starry flounder	E	2,126	3,764	
Striped seaperch	E	66	251	
Surf smelt	E	151	832	
Walleye surfperch		685	394	
White seaperch	E	96	394	
<u>Crabs</u>				
Dungeness crab		20,548	956	2,138
<u>Clams</u>				
Bodega tellen clam				47
Butter clam				40
Cockle clam				13,834
Horseneck				94
Native littleneck clam				79
Piddock clam				531
Rock clam				
Softshell clam				8,797
<u>Miscellaneous Invertebrates</u>				
Bay mussel				64
Ghost shrimp				51,110
Mud shrimp				4,787
Purple snail				85

A - Anadromous

E - Estuarine Dependent

Source: Gaumer, et al., 1973.

Howard, Needles, Tammen & Bergendoff, 1975.

Estuarine ecosystems are among the most limited and yet most productive of the world's ecological associations. Ocean ecosystems interact heavily with estuarine ecosystems. It is estimated, for example, that two-thirds of the commercial fisheries are estuary-dependent.⁵⁶ According to Odum the estuarine zone is normally more productive than either the ocean or the river systems which feed the estuary.⁴¹ Measures of phytoplankton off the coast of Oregon show that ocean upwelling (152 grams of carbon per square meter) contributes almost twice as much carbon as the mouth of the river (88 g/C/m²).⁴² Other forms of estuarine primary production, such as seagrass or sedges may account for the additional products on which would show the estuary greatly. The Alsea estuary is significant for:

1. Trapping nutrients and silt.
2. Diversity of fish and wildlife habitats.
3. Diversity of plants which produce food year-round.
4. Commercial and sport fish dependent upon the estuary for food and migration, and as a nursery or spawning area.
5. Waste removal and flushing.
6. Recreational and esthetic uses.
7. Research and education.
8. Uniqueness on the Oregon coast.

Tidelands

Tidelands are those areas covered at mean high tide and exposed at mean low tide. Tideland substrates may be mud, sand, mud/sand or gravel-covered (Exhibit 17). Mud/sand substrates account for approximately two-thirds of Alsea Bay tidelands, with sand of marine origin found predominantly on the flats between Waldport and the inlet. Some gravel-covered tidelands are found on the northern edges of the bay. Upland sites are the source of silt for tidelands. These silts are transported into the estuary by the Alsea River, and have high organic content. Important physical factors regulating biological functions of the tideflats include wide variations in temperature and salinity.

Each type of tideflat has a slightly different flora and fauna. Sandflats are least productive, with little plant life except diatoms. Animals present are mostly burrowers (sand dollars, snails, shrimp, sandflat clams, mole crabs, several species of worms and a small fish, the sand goby). The lower zones of sandy tidelands have a higher density of organisms than the upper, sparsely populated zones. These sandflats are also important feeding and resting sites for shore and wading birds.

The gravel shores on the north margin of Alsea Bay support barnacles, snails, periwinkles, limpets and other animals that cling to or hide under small rocks. Edible mussels (used primarily as bait) are found in areas with gravel and silty bottoms. The mussels form a crust on gravel-covered tidelands, creating a protective shield over bait worms. The purple shore crab and hermit crab may be found on gravel flats as well. The turnstone is seen feeding along this zone. The gravel flats are a useful substrate, supporting a moderate level of algal and diatom

productivity. Between the Highway 101 Bridge and the man-made channel at Bayshore (north margin of Channel), cockles are accessible to recreational clambers. Cockles are the most abundant bivalves in Alsea Bay. Between the Highway 101 Bridge and the powerline, the softshell clam is found in abundance.

Silty tideflats are highly productive. In this respect they are second only to eelgrass and vascular marsh plants. The chief producers within the upper few centimeters of the mudflats are the blue-green algae and diatoms. Some productivity occurs as deep as eight centimeters.⁵⁹ Few animals live on the surface of silty flats because of poor attachment surfaces and anaerobic conditions. However, some sponges, hydra and snails may be found there. The most important resource associated with the silty tideflat is the Dungeness crab. It is a significant catch, important to local citizens for food and recreation. In 1971, 20,500 crabs were taken from the tidelands and shore (Table 16). The Dungeness crab enters the estuary in summer and molts in preparation for mating. Aquatic vertebrates such as the starry flounder utilize tideland resources at high tide. Starry flounder are caught in great numbers in the Alsea estuary. Shorebirds and waders such as the great blue and little green herons, plovers, killdeer, whimbrel, western and least sandpipers, dunlins, dowitchers and several species of gulls feed along the mud exposed at low tide.

Beneath the mud's surface, shellfish find habitat. Clams and shrimp are widely distributed in Alsea Bay (Exhibit 27). Large concentrations of clams are found in the northeastern third and central tideflats of the bay. Bait shrimp are taken in the central tideflats and on the southern tideflats near Waldport. Ghost shrimp are the most utilized of bay crustaceans; 51,100 were taken in 1971 from mud up to one foot deep.⁵⁰ Mud shrimp are taken in lesser numbers. Transects performed by the Oregon Fish Commission indicate that clam density in the tidelands of the north shore west of the cross-water transmission line average three individuals per square foot; on the productive mudflats of the north bay east of the transmission line, concentrations of soft-shell clams frequently exceed ten per square foot.⁶⁰ Cockles* are the most frequently taken, with softshells and piddock clams also ranking high. A few large geoduck clams are taken from bay tidelands. These clams, also called gapers or horseneck, may weigh up to 10 pounds each. Also found in Alsea are the tellen, butter, native littleneck, rock clams and the bay mussel. (See Tables 16 and 17.)

In summary, tideflat species which are harvested include crabs; clams; and such fish as the English sole, starry flounder and sculpin. The mudflats at the mouth of Eckman Slough are a major spawning area for herring. Juvenile chinook salmon spend several months along the estuarine tideflats before moving into the ocean.³⁷ Waterfowl concentrate seasonal-

* Sport limits have been set for these species.

TABLE 17
 TAXONOMIC LIST OF SPECIES HARVESTED
 By Estuarine Resource Users, Alsea River Estuary
 March 1 through October 31, 1971

Common Name	Local Names	Scientific Name
<u>Fish</u>		
American shad	Shad	<u>Alosa sapidissima</u>
Buffalo sculpin	Bullhead	<u>Enophrys bison</u>
Cabezon	Rock cod, bullhead	<u>Scorpaenichthys marmoratus</u>
Chinook salmon	King salmon, salmon	<u>Oncorhynchus tshawytscha</u>
Coho salmon	Silver salmon	<u>Oncorhynchus kisutch</u>
Cutthroat trout	Blueback, harvest trout, Sea run	<u>Salmo clarki</u>
Kelp greenling	Seatrout	<u>Hexagrammos decagrammus</u>
Northern anchovy		<u>Engraulis mordax</u>
Pacific herring		<u>Clupea harengus pallasii</u>
Pacific staghorn sculpin	Bullhead	<u>Leptocottus armatus</u>
Pile perch		<u>Rhacochilus vacca</u>
Rainbow trout		<u>Salmo gairdneri</u>
Redtail surfperch		<u>Amphistichus rhodoterus</u>
Rock greenling	Seatrout	<u>Hexagrammos lagocephalus</u>
Shiner perch	Shiner	<u>Cymatogaster aggregata</u>
Silver surfperch		<u>Hyperprosopon ellipticum</u>
Starry flounder		<u>Platichthys stellatus</u>
Striped seaperch	Rainbow perch	<u>Embiotoca lateralis</u>
Surf smelt		<u>Hypomesus pretiosus</u>
Walleye surfperch		<u>Hyperprosopon argenteum</u>
White seaperch		<u>Phanerodon furcatus</u>
<u>Crabs</u>		
Dungeness crab	Market crab	<u>Cancer magister</u>
<u>Clams</u>		
Bodega tellen clam		<u>Tellina bodegensis</u>
Butter clam	Beef steak, Coney Island, giant Oregon clam, quahog, Washington clam	<u>Saxidomus giganteus</u>
Cockle clam	Basket cockle, steamer	<u>Clinocardium nuttallii</u>
Gaper clam	Blue clam, blueneck, Empire clam, horse clam, horseneck clam	<u>Tresus capax</u>
Native littleneck clam	Steamer clam, butter clam	<u>Venerupis staminea</u>
Piddock clam	Rock oyster	<u>Zirfaea pilsbryi</u>
Softshell clam	Bay clam, mud clam	<u>Penitella penita</u>
<u>Miscellaneous Invertebrates</u>		
Bay mussel		<u>Mytilus edulis</u>
Ghost shrimp	Sand shrimp	<u>Callianassa californiensis</u>
Mud shrimp	Sand shrimp	<u>Upogebia pugettensis</u>
Purple snail		<u>Thais lamellosa</u>

Source: Gaumer, 1973.

ly in the tideflats. The tideflats and marshes on Drift Creek, particularly around the dike of the North Channel, serve as a watering place for between 800₅₁ and 1,000 band-tailed pigeons, the largest known concentration in Oregon.

An important but unmeasurable function of the estuary is waste assimilation. Gosselink, Odum and Pope point out that the estuaries can "treat" wastewater to the equivalent of the tertiary stage.²⁵ It has been estimated that an acre of estuarine salt marsh is able to remove phosphate and nitrogen compounds from wastewater to a degree that would cost \$280,000 annually to achieve by conventional treatment methods. The marsh soils and mudflats show a loss of inorganic nitrogen by denitrification in the anaerobic zone. Grant and Patrick show that one acre of estuary can reduce 6.4 pounds of phosphorus and 13.1 pounds of nitrogen per day, as well as produce 78 pounds of oxygen.

Tidelands are considered a nonrenewable resource of very limited distribution in Oregon. Diversity and density of species is very high in a natural undisturbed tideflat, and the ability of an undisturbed tideflat to recover from disturbance is very poor. A study in Coos Bay showed that polluted or stressed bottoms had a biotic community which had adapted to continual stress.¹⁸ Recovery in this type of community was more rapid after dredging. Natural bottom communities, however, cannot recover as quickly from the stress of dredging. All undisturbed tideflats should be considered critical.

Dredging will lower water quality in both the short and long term. A great potential threat is associated with release of free sulfides and ammonia from settled organic matter by resuspension. Sulfides and ammonia are toxic to fish, shellfish and bottom fauna. Stirring up organic matter also would raise BOD to levels which may inhibit reproduction; particularly in poorly flushed areas, where cold water influx is limited and temperature inclined to rise. Fish in the shallow sloughs (McKinney, the mouth of Lint and Eckman Sloughs and the North Channel) would be harmed by a reduction in dissolved oxygen level.

Dredging directly destroys tideland fauna. After dredging, species diversity, productivity and population size of all organisms are lowered. Increased turbidity reduces available sunlight, lowering plant production. Dredging typically alters particle size distribution on a site, which alters the fundamental character of tidal habitats. Slotta *et al.* found lower initial diversity and lower population levels in stressed bottom fauna in Coos Bay, but relatively short-term disruption associated with dredging.¹⁸ There is great pressure to develop tideflat areas, particularly as boat channels or marinas.³⁷

Filling with dredge materials can have many of the same or worse negative impacts on the tideflats. Some organisms are smothered under dredged material. Current patterns may be altered. Resuspended sulfides and organic

materials are oxidized, reducing available oxygen in the water. There is a loss of habitat, and a reduction of nutrients available to the system. It must be noted that landfill and dredge disposal sites could provide some animals, like birds and seals, with habitat.

Eelgrass

Efforts to initiate reestablishment of eelgrass have not been successful. The rooted, tape-leaved plant grows in dense stands on shallow areas that are well flushed and very saline. Eelgrass grows on mud, gravel or sand bottoms, where it can be partially submerged at all times, and is the dominant organism in a very specialized community. It provides extremely limited and valuable habitat within the estuary. Distribution is patchy, occupying only 436 acres in Lincoln County.³⁷ Eelgrass has been reported to be found in 47 acres of Alsea Bay.⁸⁰ (See Exhibit 28.) There is a small patch of eelgrass near the inlet, and another patch on the inside curve on the sandspit. Other small eelgrass beds occur across the channel from Waldport; in the North Channel near the high marsh; on northern shores within the mouth of Drift Creek; and along the edges of the central marsh island. The largest areas of eelgrass found are located along the tideflats of the northeastern quarter of Alsea Bay and in the centrally located flats separating the north and main channels.

Plant diversity in the eelgrass community is very low, but fauna diversity is high, largely because eelgrass provides attachment surface and protective cover. Clinging invertebrates include limpets, snails, bryozoans, hydroids, jellyfish and nudibranchs. Dungeness crabs, shrimp and clams are found in eelgrass beds. Black brant favor this habitat, eating the floating leaves and stems. Eelgrass is also favored by wigeon, scoter and canvasback. In all, 25 species of ducks, 3 species of geese, and whistling swans use eelgrass habitat. Great blue herons hunt there as well. Herring and smelt use the eelgrass habitat for spawning and rearing.³⁷

The most significant ecological function of eelgrass is trapping water-borne sediments to continue the process of marsh succession. The greatest threat to eelgrass is over-sedimentation caused by erosion, dredging, filling and riparian construction. Changes in salinity affect eelgrass as well.

Low Marsh

Low marsh generally succeeds eelgrass communities as trapped sediments gradually provide drier footing. Three major types of low marsh²⁷ are reported from mean high tide to an elevation of one foot. These are the low silt marshes, low sand marshes and sedge marshes. Jefferson describes the two types of succession to the sedge or intermediate stage. She also estimates that low silt marshes accrete at a rate of 0.5 to 1.7 cm/year.²⁷ (See Exhibits 30 and 31 and Tables 18, 19 and 20.)

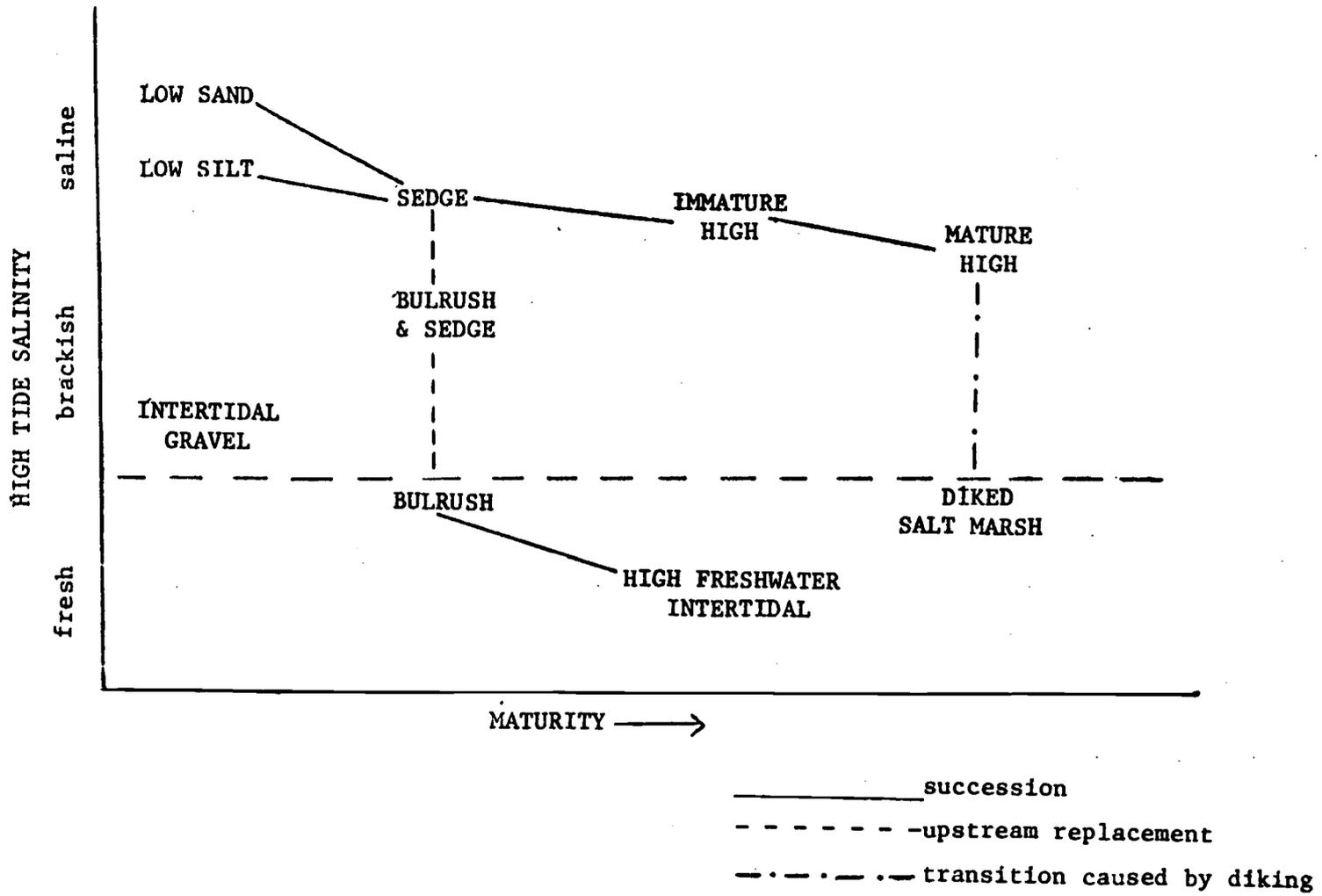
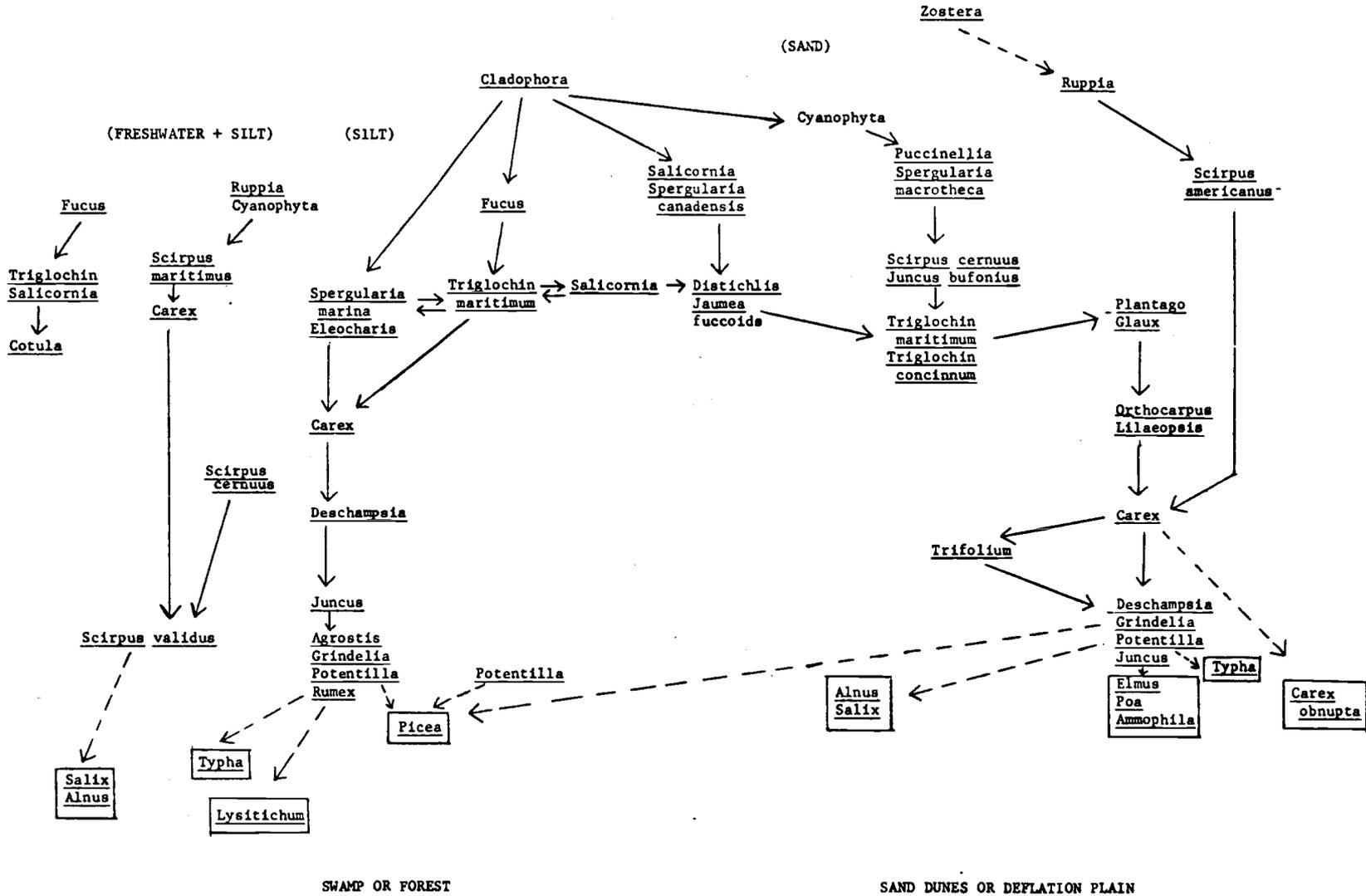


EXHIBIT 30. SUCCESSIONAL AND GEOGRAPHIC RELATIONSHIPS OF TIDAL MARSH VEGETATION TYPES

Source: Jefferson, 1975.



SWAMP OR FOREST

SAND DUNES OR DEFLATION PLAIN

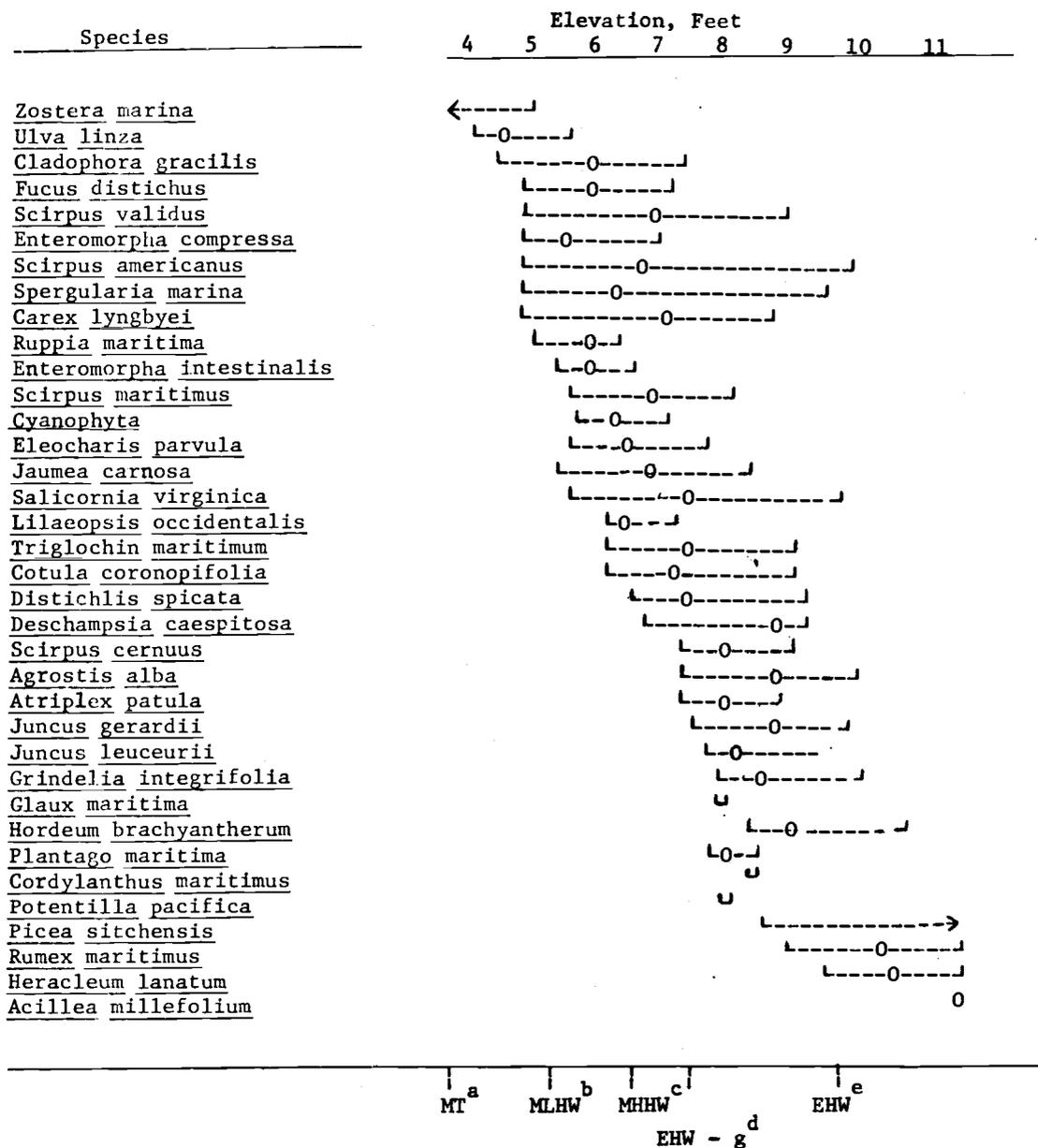
EXHIBIT 31

SPECIES SUCCESSION, OREGON COASTAL SALT MARSHES

Source: Jefferson, 1975.

TABLE 18

RANGES OF SALT MARSH PLANTS, RELATIVE TO MEAN LOWER LOW WATER

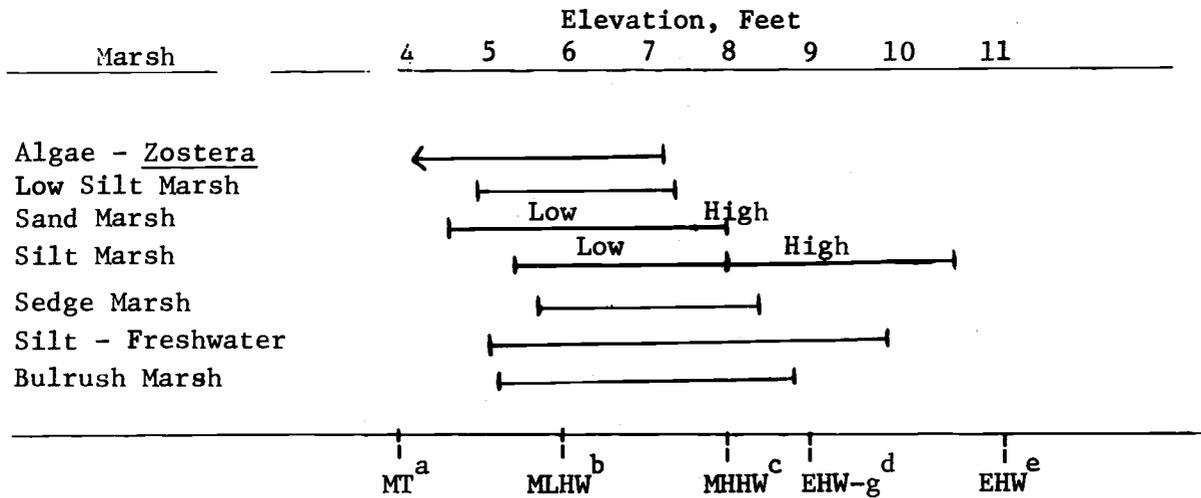


- ^a Mean tide.
- ^b Mean lower high water.
- ^c Mean higher high water.
- ^d Extreme high water, growing season 1971.
- ^e Extreme high water.

Source: Jefferson, 1975.

TABLE 19

RANGES OF TYPES OF SALT MARSH, RELATIVE TO MEAN LOWER LOW WATER



- ^a Mean tide.
- ^b Mean lower high water.
- ^c Mean higher high water.
- ^d Extreme high water, growing season 1971.
- ^e Extreme high water.

Source: Jefferson, 1975.

TABLE 20

SALT MARSH PLANT SPECIES OF THE OREGON COAST

- *Agrostis alba L. var. stolonifera (L.) Smith
Atriplex patula L. var. hastata (L.) Gray
 *Atriplex patula L. var. littoralis (L.) Gray
Atriplex patula L. var. obtusata (Cham.) Hitch.
Carex lyngbyei Hornem. var. robusta (Bailey) Cronq.
Cladophora gracilis (Griffiths) Harvey
Cordylanthus maritimus Nutt.
- *Cotula coronopifolia L.
Cascuta salina Engelm.
Deschampsia caespitosa (L.) Beauv. var. longiflora Beal
Distichlis spicata (L.) Greene
Eleocharis palustris (L.) R. & S.
Eleocharis parvula (R. & S.) Link var. parvula
Enteromorpha compressa (L.) Greville
Enteromorpha intestinalis (L.) Link
Eurhynchium stokesii (Turn.) B.S.G.
Fucus distichus L.
Glaux maritima L.
Grindelia integrifolia DC var. macrophylla (Greene)
 Cronq.
Hordeum brachyantherum Nevski
Hordeum jubatum L.
Jaumea carnosa (Less.) Gray
Juncus bufonius L.
- **Juncus gerardii Loisel
Juncus lesueurii Boland.
Lilaeopsis occidentalis Coult. & Rose.
Monostroma oxyspermum (Kützting) Doty
Orthocarpus castillejoides Benth.
Plantago maritima L. ssp. juncooides (Lam.) Hult.
Polygonum aviculare L. var. littorale (Link.) Mort & Koch
- *Polypogon monspeliensis (L.) Desf.
Polysiphonia pacifica Hollenberg
Potentilla pacifica Howell
Puccinellia pumila (Vasey) Hitchc.
Rhizoclonium implexum (Dillwyn) Kützting
Rumex maritimus L.
Ruppia maritima L.
Salicornia virginica L.
Scirpus acutus Muhl.
Scirpus acutus Muhl. x validus Vahl
Scirpus americanus Pers.
Scirpus cernuus Vahl
Scirpus maritimus L.

TABLE 20 (continued)

Scirpus validus Vahl
Spergularia canadensis (Pers.) G. Don var. occidentalis Rossbach
Spergularia macrotheca (Hornem.) Heynh.
Spergularia marina (L.) Griseb.
Trifolium wormskjoldii Lehm.
Triglochin concinnum Davy var. concinnum
Triglochin maritimum L.
Typha latifolia L.
Ulva linza L.
Zostera marina L.

*Introduced Species

**Uncertain Identification

Source: Jefferson, 1975.



McKinney Slough looking north. Note the immature marsh fringe.



McKinney Slough looking south. Recommended as "wetlands of importance."

Low silt marshes are first dominated by seaside arrow grass, which is later replaced by sand spurry and three-square rush. Both types of low marsh are followed by a salt grass and sedge sere. Subdominants at this stage are jaumea, sea plantain, sand spurry, alkali grass and milkwort. At one foot elevation the low marsh is almost all sedge (*Carex* spp). Low silt marshes are flooded at high tides. Diffuse channels drain them, as may be observed at the mouth of Eckman Slough and on the southern riverbank near river mile 4. Low sand marshes, present in the early 1970's have now been replaced by sedge marsh.²⁷ Low sand marshes are now found on sand spits and island edges near the mouth of Eckman Slough. Sedge marshes are a little higher than low sand and silt marshes, but are nonetheless flooded by most high tides. Very limited patches are found in the mouths of Lint, McKinney and Eckman Sloughs. (See the following photos of McKinney Slough.) The largest patch of low marsh grows in an old channel on the high marsh island across from McKinney's Slough. Very small low marsh islands on the north edge of the bay indicate that minor marsh expansion may be occurring here.

As pointed out previously, it is believed that the marshes of the Alsea estuary are generally diminishing in area.^{63,29} Before 1957, Eckman Slough was the largest of the sloughs. In 1957 the road fill for Route 34 and tidegates were put in, converting the salt marsh to a freshwater impoundment. The mouth of Eckman Slough has the greatest diversity of marsh types in the Alsea Bay study area. Examples may be found of tideflats, low sand, sedge, immature and mature high marsh, as well as a diked marsh. (See the following photos of Eckman Slough.) For this reason Jefferson recommended that 30 acres be set aside for study.²⁷ This is an ideal study area, suitable for student field trips because it is easily accessible. It is presently owned by the State. The mouth of Eckman Slough is the only known herring spawning area in the bay; Alsea Bay is one of seven estuaries in the state where these fish are known to spawn.

Low marsh is an ecotone between aquatic and terrestrial habitats, and supports an appropriate fauna. Since the low marshes are inundated frequently, animals must either be able to escape to dry land during high tides or tolerate water. Aquatic species found here must be able to survive regular exposure to air. Very few species can tolerate these extremes. The low marsh supports some of the aquatic invertebrates found in tidelands and eelgrass habitats. It is a good substrate for clinging species. A few burrowing animals and mammals use this habitat. Muskrat, nutria, raccoon, mink and otter may be found here. Waterfowl species such as mallard, pintail, coot, widgeon and canvasback feed and rest on low marshes. Great blue herons and other waders and shorebirds, including snipe, whimbrel, sandpipers, and dowitchers, are seen here.



Eckman Slough looking northwest from Highway 34. Recommended as "wetlands of importance."

The low marsh displays very high primary productivity. A large proportion of vegetable matter escapes grazing by herbivores, and plays a significant role in the detrital food chain. Nutrients and organic matter produced in the low marsh are flushed into the bay with each turn of the tide, contributing to the biological importance of low marsh. Low marshes buffer high marsh against wave action. The submerged rooted plants provide habitat for young fish and crabs. Although they are only moderately diverse, the low marsh plays a vital role in the estuary.

High Marsh

For purposes of this report, high marsh includes both immature and mature stages of this climax community. Thus defined, high marsh is the most abundant plant association within Alsea Bay. It includes all the brackish marshes from above one foot elevation (MHHW) to the three-foot high mature marshes, which appear as "prairies" and rising well above the normal water line of the bay. These prairies include 70 species of true marsh plants and a few invading land plants.²⁷ The high marsh is poorly



Eckman Slough looking northeast. Recommended as "wetlands of importance." Areas in the southeast such as the orchard on the right side are under intense pressure to landfill for marine residential purposes.

drained by deep channels which meander through it. Shallow depressions in the marsh act as evaporation basins, retaining water after exceptionally high tides and resulting in salt pans which are used as "licks" by wildlife. The soils are richly organic and poorly drained.

Within Alsea Bay, high marsh is concentrated from river mile 2.5 to a point just above the confluence of Drift Creek; the greatest area of undisturbed high marsh is located on the central island separating the north and main channels. The entire north shore of the main channel is high marsh. Some undisturbed mature marshes are found east of Eckman Slough, between Highway 34 and Alsea River. Small patches of high marsh are found in the mouths of the three principal sloughs and along the northern fringes of the bay. The mouth area and some upstream portions of Drift Creek are high marsh. (Exhibit 28.)

High marsh vegetation communities are much more diverse than low marsh communities. Low marsh vegetation, like salt grass and sedge, cause silt to accumulate around the periphery of the marsh, progressively reducing the vulnerability of central areas to tidal effects. As the marsh accretes to elevations greater than one foot, tufted hair grass becomes established, marking the inception of high marsh, which is dominated by

tufted hair grass, glasswort and sedges on the lower fringes. Deposition of silts and organic matter steadily increases the height of marshes to three feet or more above tideflats. Hummocks of more xeric rushes become established, and other species characteristic of the mature high marsh appear. Dominants include tufted hair grass, rush and the lower creeping bent grasses. Subdominants are marsh clover, glasswort and seaside plantain. Bullrushes grow along freshwater drainages and sedges along the tidal (saline) drainages. Some of the 70 species of plants found in Alsea Bay marshes extend to the borders of terrestrial zones, and may be used to define the boundaries of wetlands.

Diked marshes often cannot be distinguished by any examination of vegetation. They are best revealed by old aerial photos and by inspection of altered drainage patterns. About 60 percent of the marshes between the river and Highway 34 between river mile 3.5 and river mile 5.5 have been filled and converted to residential or recreational use. North of Drift Creek, diked marshes are maintained as pasture by grazing. The diked marshes in the major bend of Drift Creek are undergoing terrestrial succession, with shrubs and young alder invading.

The fauna of the high marshes resembles that of terrestrial habitats. Mammals and birds find diverse niches in high marshes. Deer use the evaporated salt accumulations as "licks" and graze marsh grass. Mink, muskrat, nutria, otter, raccoon, marsh shrews and Oregon voles are found in high marshes. Harbor seals use the high marsh island off the main channel as a resting area. Waterfowl and wading birds, particularly great blue herons, and open grassland species such as sparrows and swallows are common in the high marshes. Gulls and shorebirds feed along fringes. (See Tables 14, 21 and 22.)

Clay buildup in the marsh prevents infiltration of brackish water into fresh groundwater aquifers. Air quality is also positively affected as the marshes produce oxygen and act as airshed. An average acre of marsh can produce 78 pounds of oxygen per day.

Marshes also provide excellent wildlife habitat and benefit the fishing industry through a complex food web. Man obtains many recreational benefits from the marsh. Hunting for both waterfowl and band tailed pigeons is a significant use. Birdwatching and nature photography constitute other uses. Field trips from Waldport schools to the Lint Slough marshes testify to their educational value. Oregon State University graduate students and students from the University of Oregon, as well as Fish Commission biologists, conduct long term research projects in Alsea Bay marshes and Lint Slough. (See the following photo.) There is thought to be a potential for aquaculture and oyster culturing in the mouths of the sloughs. However, salinity and temperature ranges plus coliforms may limit success.

TABLE 21

AMPHIBIANS AND REPTILES OF THE STUDY REGION

Common Name	Habitats							
	Riparian	Agriculture	Mixed Shrub	Conifer	Disturbed	Wet Meadow	Marsh	River
Oregon newt	X						X	X
Northwestern or Oregon salamander	X		X				X	X
Tiger salamander	X					X	X	
Marbled or giant salamander	X		X	X				X
Olympic salamander	X							
Green-backed salamander	X							
Red-backed salamander	X		X	X		X		
Red salamander	X			X		X		
Clouded salamander	X			X		X		
Bell toad	X							X
Pacific tree frog	X	X	X	X	X	X	X	X
Western wood frog	X		X	X				
Western spotted frog	X					X	X	X
Pacific blue-bellied lizard			X	X				
Oregon alligator lizard	X		X	X				
Shasta alligator lizard	X		X	X				
Rubber snake	X		X	X				
Sharp-tailed snake	X	X		X				
Puget garter or common snake	X	X		X		X	X	X
Northwestern garter snake	X	X	X	X	X	X	X	X
Pacific rattlesnake	X		X	X				
Rough-skinned newt	X		X	X		X		
Red-legged frog	X		X			X		
Long-toed salamander	X							
Southern alligator lizard	X							
Spadefoot toad	X							
Woodhouse toad	X							
Pacific gopher snake	X							
Dunn salamander			X					
Tailed frog	X							

Source: Kenneth Gordon, 1939.
James Tabor, 1974.
Maser and Franklin, 1974.

TABLE 22

MAMMALS AND THEIR HABITATS

Common Name	Bay/Marsh	Conifer	Mixed Wood/ Shrub	Riparian Alder/ Stream	Wet Meadow	Agriculture/ Field	Man Dominated/ Urban	Beach/Dune
Dusky shrew		X						
Pacific shrew		X						
Masked shrew		X						
Vagrant shrew						X		
Yaquina shrew			X	X	X			
Marsh shrew	X			X	X			
Trowbridge shrew		X	X	X	X			
Shrew-mole		X	X	X	X			
Townsend mole						X		X
Coast mole		X	X	X	X			X
Little brown bat			X			X	X	
Yuma bat						X		
Townsend bat						X		
Long-eared bat						X		
Fringed bat						X		
Long-legged bat			X					
California bat						X		
Silver-haired bat			X					
Hairy-winged bat		X						
Big brown bat			X			X		
Hoary bat						X		
Snowshoe hare		X	X	X	X			
Mountain beaver		X	X	X	X			
Townsend chipmunk		X	X	X	X		X	
California ground squirrel			X			X	X	X
Chickaree		X	X					
Northern flying squirrel			X					
Beaver				X	X			
Deer mouse	X	X	X	X	X	X	X	X
Bushy-tailed woodrat		X	X	X	X		X	
California red-backed vole		X	X					X
White-footed vole		X	X	X	X	X	X	X
Red tree vole		X	X					
Townsend vole						X		X
Long-tailed vole				X				
Oregon vole	X	X	X					X
Pacific jumping mouse			X	X				X
Coyote		X	X			X		X
Bobcat		X	X	X	X			X
Raccoon	X	X	X	X	X	X	X	X
Long-tailed weasel		X	X	X	X			
Mink	X		X	X				
Spotted skunk		X	X	X	X	X		
Striped skunk	X	X	X	X	X	X	X	X
River otter	X			X				
Muskrat	X			X				
Mule deer	X	X	X	X	X	X		
Pocket gopher						X		
Black bear		X	X					
Harbor seal	X							
Elk		X	X	X	X	X		
Nutria	X							
POSSIBLE:								
Martin		X						
Fisher		X						
Ermine ?		X						
Mountain lion		X						

Source: Ingles, 1965.

Maser and Franklin, 1974.

Howard, Needles, Tammen and Bergendoff, 1974.



Middle Lint Slough. Located adjacent to Waldport High School. Recommended as "wetlands of importance."

The marshes are extremely vulnerable to diking, filling or dredging. The ability of the marshes to recover from disturbance is very poor. All marshes are considered to be critically important. Filling converts marsh to less productive and diverse upland habitat. Alteration of drainage patterns through construction of dikes, dams, bulkheads or channels, which divert normal water influx, alters the marsh greatly. Further reduction of marsh in Alsea Bay will result eventually in lower fish productivity in the estuary and ocean, as has occurred in other coastal areas. In reducing marsh habitat man thus effects a tradeoff, where benefits are accrued by a single group or individual, while the loss is incurred by the public at large.

Open Bay/Submerged Lands

In Alsea Bay there are 1,168 acres of submerged lands.²⁸ The water environment is obviously critical to the important fisheries resource of Alsea Bay. The main channels of the bay are vital for fish and wildlife. It is believed that the clams in this zone may be the larval seed source for all the intertidal clam beds. Channel areas are extremely valuable during critical low water periods.

One of Alsea Bay's primary critical economic resources is the anadromous fishery. The mixing of fresh and salt waters within the estuary permits fish to adjust to the change in salinity and temperatures as they pass to and from the ocean. Of all coastal rivers in the State, excluding the Columbia River, Alsea is the most important for coho salmon spawning, fourth for fall chinook and cutthroat, and sixth for winter steelhead spawning. In 1972,²⁸ the following numbers of adult fish were estimated to spawn in the Alsea:

Spring chinook	300	
Fall chinook	20,000	(August - September)
Coho salmon	58,000	(September - October)
Winter steelhead	13,600	(November - December)
Cutthroat trout	28,600	(July - November)

In 1973, 4,650 salmon and 12,500 steelhead were caught for sport in Alsea River and Bay. In both river and bay, salmon and cutthroat were most important in terms of dollars spent by sportsmen. It takes an average of 40 hours to catch a large salmon in the bay, as fish are more interested in migration than feeding. In terms of numbers of fish actually caught, fish other than salmon are most important.⁶⁴

In numbers taken, Dungeness crab and 19 different species of fish are important for sport bay fishing. More crab are taken than all other species combined. Other significant bay sport fish, mostly taken from boats, are staghorn sculpin, redbait surfperch and starry flounder. Shore fishing is secondary, mostly for sculpin, shiner perch, flounder and 14 other species. Over half of all shore fishing is done near or from the Highway 101 Bridge, and is primarily for crab. Commercial fisheries are permitted limited harvest of ghost and mud shrimp for bait, and some Dungeness crab.

Alsea Bay is also a significant bird habitat. Alsea supports waterfowl all winter because of its protected channel and abundant vegetation. The bay supports 27 species of shorebirds, 19 species of waders, 25 species of ducks, plus geese and swans (Table 19).⁶⁵ The channel habitat supports the diving ducks including redhead, scaup, canvasback, ruddy duck and bufflehead. Shallow areas and tidelands, particularly along Drift Creek, support dabblers, waders and pigeons. Pigeons are hunted in September; waterfowl season is later. In 1972, hunters took 5,410 ducks in Lincoln County, about one percent of the state waterfowl harvest.⁵¹ Although difficult to measure in economic terms, bird hunting is an important recreational attraction.

Besides the species of obvious economic importance, Alsea Bay supports many animal species which provide food for larger creatures. In the center of the estuary, the zooplankton Acartia clausi makes up 40 percent of the suspended biota. Downstream, Pseudocalanus spp. are more common.

Barnacle nauplii comprise 11 percent of zooplankton, and are equally distributed throughout the bay.⁵ In addition to floating organisms, bottom fauna are a stable and significant source of food to fish. They are mostly polychaetes, annelids, nematodes, and oligochaetes, amphipods, copepods, ostracods, and several species of bivalves. These small creatures range in abundance, up to 2,000 organisms per cubic centimeter of sediment. Some fauna can serve as indicators of pollution. Bottom fauna considered indicators of an unhealthy environment include Streblospio benedict, Capitella capitata, Neris spp., Polydora ligni, Scoloplos armigera, and Mya arenaria.¹⁸ Bottom fauna of the bay recycle nutrients, utilizing the energy contained in detritus and aerating the mud. They are distributed throughout the bay in accordance with substrate distribution; organic silts support the most productive communities.

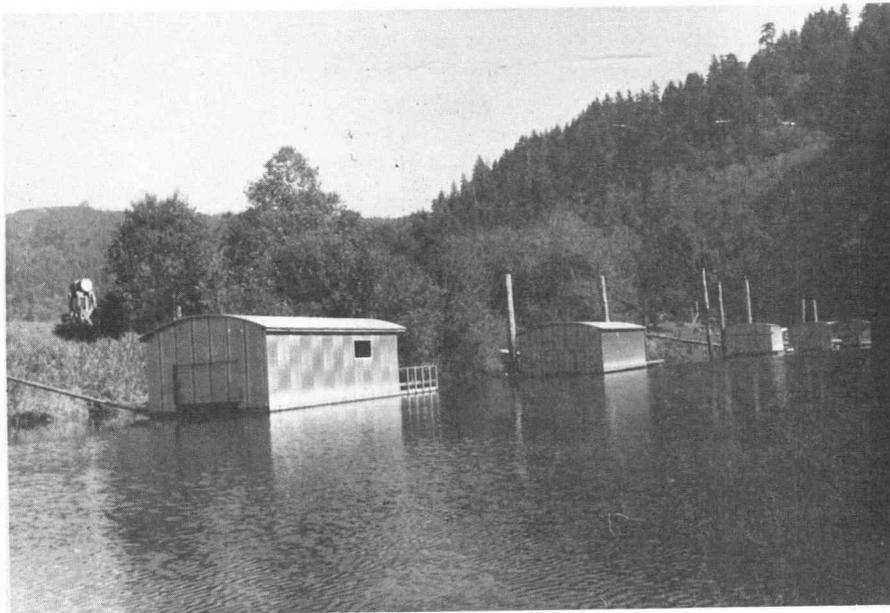
The open bay and channel habitat is not as productive as the shallow tide-flats or marshes. Greater depths, lower light levels and faster currents limit plant life. Saline areas are more productive than freshwater areas. In addition, the channel is constantly changing, the redeposition of silt making it a relatively unstable habitat. Therefore both bottom fauna and plant diversity are low. Yet species diversity and density of economically important species are very high in the channel. The submerged lands are nonrenewable with only fair resilience.³⁷ Thus, they are considered a critical habitat.

River

The aquatic ecosystem changes gradually upstream of the bay. However, changes in the fish and bottom fauna are greatest in the first mile above the bay, as estuarine species are replaced by river types. Rivers and streams account for 5,135 acres in Lincoln County.³⁷ The Division of State Lands defines the boundary between river and estuary at river mile 6 in the Alsea.

The headwaters are intermittent, mountain streams. In the past, tree harvesting activities filled them with silt and logging debris. Such damage is theoretically controlled now, through U.S. Forest Service management practices and the Oregon Timber Practices Act, which require protection of streamside vegetation to maintain water quality and low temperatures.

Upstream of Tidewater the Alsea is a shallow, clear, fast flowing river. The water tumbles over rocks in riffles, with occasional quiet pools. The riparian character is generally natural and undisturbed. Fishermen line the banks during the salmon runs.



Good construction practice leaves shoreline vegetation intact. The opposite bank is riparian alder that preserves streambanks for water quality purposes. Overstory provides shade and keeps the water cool and also provides good protective overhang for fish migration, particularly trout.

The Alsea has many fish ladders built to assist anadromous fish. They are located at Five Rivers, Cascade Creek Falls, Fall Creek, South Fork at Henning Dam, Bohannon Falls on Drift Creek, Scott Creek and on Grant Creek. Two fish hatcheries contribute to the sport and commercial ocean fisheries. One hatchery, located on Fall Creek, raises coho salmon. The other on the North Fork near Alsea raises steelhead. In the Alsea River study area, steelhead fishing is the most important in terms of effort and dollars spent.²⁸ In 1973, 12,500 steelhead and cutthroat trout, as well as shad, sturgeon, striped bass, smelt and lamprey were caught in the Alsea River. There are also native rainbow and Dolly Varden trout present in the Alsea. Brown and golden trout and striped bass are introduced species.

In 1973 the Fish Commission released 750,000 salmon and trout fingerlings into the Alsea River. Stocked salmon and trout are replacing the native fish.⁹ In the 1973 fall creel census, 4,650 salmon were caught in the Alsea River.³⁷ Half the fish were caught in the estuary and two-thirds of the river catch were hatchery fish. In Fall Creek, 98 percent of the salmon

catch were hatchery fish. In Fall Creek, 98 percent of the salmon catch are fish returning to the hatchery where they were released three or four years earlier.⁵² Sport fishermen only take 10 percent of the run. For every fish managing to return upriver, three to four adults are taken from the ocean by commercial fishermen.⁶⁴

Fishing pressure is increasing, while fishing success is decreasing. The commercial catches of coho reached a low in the 1920's, recovered in the 1930's⁶⁵ and reached a high in 1943. They then continuously declined until 1950. Although data are scarce, it is believed that this trend has continued through to the present. The coho is a hardy fish, compared to the more fragile chinook, being little influenced by silt and higher temperatures. Coho are gradually replacing the chinook, which have been decreasing along the Oregon coast since the turn of the century. At one time a dam of the Alsea River prevented salmon runs.⁶⁵ When the dam was removed in 1928 the salmon began to increase again. The dike on the North Channel of Alsea now blocks many salmon returning upstream. The Alsea River also has a potential for aquaculture of trout and salmon. This "catch your own" trend has started in other bays, but has not yet been approved for Alsea.

Many factors influence fish production in the study area. State fishing regulations and hatchery rearing significantly influence the population, both in number and in species composition. Logging, particularly large clearcuts, road building, and removal of streamside vegetation have substantially altered fish reproduction areas. The Oregon Fish and Game Commissions and a number of other government agencies have conducted a long-term study on the effects of logging on aquatic resources, specifically coho and steelhead populations in the Alsea.^{16, 66, 19} Dissolved oxygen was shown to be most critical for salmon and trout reproduction; 5 milligrams per liter is a minimum survival level for coho. Unregulated logging was shown to lower dissolved oxygen and raise water temperatures, as trees shading tributary streams were removed. Tons of sediment and organic debris were released into the streams during winter rains, eventually reaching Alsea Bay. Jefferson reports that 226,000 metric tons of sediment are transported by the Alsea River each year.²⁷ Upstream, this silt settles over redds, smothering eggs and juveniles.

Though fish are the major recreational resource on the Alsea, other vertebrates contribute to the esthetic qualities of the river. Some furbearers are trapped on the Alsea and there is some hunting along the river. The river and feeder streams are habitat for beaver, river otter, mink, muskrat; harbor seals and the introduced nutria are found in the lower reaches. Many species of birds and mammals depend on the riparian habitat for drinking water and food and cover (Tables 19 and 26). Raccoon, bobcat, coyote, red fox, deer, elk, turkey and grouse are found along the Alsea. The endangered spotted owl prefers mature conifers within 200 feet of a stream, with at least 300 undisturbed acres surrounding.⁶⁷

The primary productivity of the river proper is generally low; floating plankton and algae on banks and rocks are the producers. An unknown red algae, not the "red tide" of the bay, blooms each fall upriver. Swift waterflow limits the attached plant life. However, algae and diatom production along banks is locally very high. The standing crop of algae at any one time is low due to "grazing," but annual production is high due to rapid growth and nutrient turnover. Most nutrients, such as nitrogen, enter the system through leaf litter and land runoff. During the summer nutrient levels are low in shaded streams. Clearcuts actually increase short-term productivity in streams by providing light and nutrients. Leaf litter in riffles and pools has a high recycle rate and supports a high stream insect fauna important at the base of fish food chains. Between 66 and 70 percent of leaf litter is used by microorganisms in the streams. Only large winter freshets carry these nutrients from litter directly to the estuary.⁴²

Alsea River and its tributaries support a high diversity of economic and recreational species as defined by Thompson and Snow.³⁷ Bottom types dictate bottom faunal distribution. Sand and silt bottoms support little species diversity in streams. Clay bottoms support moderate vulnerability and fair resilience. The fish are very vulnerable to human fishing pressures, but populations have a high recovery rate. The greatest threats to the existing system are reductions in fish movements, increased sedimentation rates, lowered water flows, destruction of spawning areas and channel alterations. Channelization and riprap alter bank character. Habitat is lost through removal of natural riparian vegetation which overhangs the river. This overhang provides hiding places and attracts food species. Riparian vegetation helps maintain low water temperatures in summer. Cutthroat trout migrate along this brushy edge when possible.

Impoundments

Alsea River has two unique man-made impoundments which are a significant resource. One is 80-acre Eckman Slough, a freshwater recreational reservoir, which is stocked for sport fishing. Reservoir habitat is extremely limited, comprising only 0.15 percent of Lincoln County,³⁷ and it is valuable to both fish and waterfowl. Osprey occasionally fish over the reservoir; canvasback winter there; and muskrat, mink and otter are common.

The reservoir is considered a nonrenewable resource by some, yet other reservoirs can always be built. The diversity and vulnerability of reservoirs are high, while ability to recover is poor unless they are drained and restocked. Lowered water quality, sedimentation and eutrophication are the greatest threats. Eckman Lake is separated from the main river by tidegates and Highway 34 fill, and is owned by the Alsea Port Authority.

Lint Slough, owned by the Oregon Game and Fish Commission, is a long, narrow, highly eutrophic impoundment. It was formerly a long winding mudflat, submerged at high tides by brackish waters. In 1963 a low dam was built to hold water five to six feet deep as a saltwater fish rearing pond. Tides over six feet bring in fresh seawater. Otherwise, flows are regulated by a tidegate and outlet trap in the dam. Lint Creek flows in a by pass canal on the west side of the impoundment.

Lint Slough has been used as a fish hatchery for juvenile steelhead, cutthroat, chinook, and coho, and used extensively for long-term research by Department of Fish and Wildlife and Oregon State University. Work has been conducted on productivity, salinity tolerances and growth rates of salmon. Currently, research is being conducted on fish diseases.

Lint Slough is very productive and highly diverse. Herons and egrets hunt along its margins. The most abundant aquatic insects are chironomid fly larvae and crustacean zooplankton. Secondary insect production has been estimated as 385 kilograms per hectare (dry weight).¹² Net productivity of juvenile steelhead was 53 kg per hectare. Primary productivity is also very high, as Lint Slough is green with algae in the warm summer months. Lyford (1970) measured the productivity of brackish and fresh environs by the diurnal oxygen curve method.³⁹ The high standing crop was dominated by filamentous green algae (Enteromorpha and Spirogyra) and diatoms and algae (Melosira, Rhizoclonium and Synedra). The impoundment averaged a photosynthesis/respiration ration of 1.02. The research on this impoundment can be used to predict long-term impacts of damming estuarine sloughs. Impoundments have potential ecological problems. Once a system is artificially created by man, its functional balance should be maintained. With the dam comes an unnatural balance of salt and fresh water which must be carefully regulated. The natural flushing action of daily tides does not operate. There are high summer temperatures and critically low dissolved oxygen levels. The gene pool of the slough becomes isolated from others downstream. Overcrowding of fish may cause stunted growth. Any pollutant or nutrient can easily become overconcentrated, fostering eutrophication.

Dune Lakes

Five freshwater lakes and a few small ponds are located west of Highway 101 and north of the Bayshore road in the deflation plain of the Bayshore backdunes. Such depressions are formed in the backdune by gradual removal of sand until the water table is reached. The formation of these pocket wetlands is described by Akins and Jefferson.⁶³

There is a high diversity of animals in this lake area including up to 61 species of birds, 17 mammals, 5 amphibians and 2 reptiles. The lake edges are dominated by plants such as slough sedge, silverweed, bog St. Johnswort, creeping buttercup, and willows. Surrounding these lakes is an ecotone dominated by shore pine and spruce, with an understory of salal, salmonberry, rhododendron, huckleberry, Labrador tea and thimbleberry.

Further upland are alder, Douglas-fir and western redcedar. No productivity measurements are known for this ecosystem. The lakes serve an important biological role in the dry dune area by providing a freshwater drinking supply for fauna and a high water table for moisture loving plants. As lakes and reservoirs are a very limited habitat of the coastal zone, and the Alsea region dune lakes are basically undisturbed, they are considered unique natural areas. The lowermost lake drains through Bayshore and joins Alsea Bay at the Highway 101 Bridge, creating another small unique natural area.

Uplands

Three major upland systems are found in the vicinity of Alsea Bay, along with many seral stages of sub-units for each. From ocean to coastal dune, the shore pine-spruce association stretches east from the ocean to the inland limits of the coastal dune system. From river edge up the steep slopes of the watershed into Douglas-fir/trailing blackberry and up into Sitka spruce/hemlock/redcedar climax associations is another major successional sere. The third major upland system is the man-dominated ecosystem: urban, road disturbance, filled, modified by clearcut, and agricultural use of diked pasture. For purposes of this study, uplands will be described according to the following habitat units: beach/dune; riparian alder; agriculture/field (includes diked pasture); mixed wood (includes later stages of recovery from clearcuts); and conifer, specifically, the dominant association of Douglas-fir/trailing blackberry with other conifers. (Exhibit 28.)

Beach/Dune

The beach is bare, lacking stable vegetation on lower wave-washed sands. The end of Bayshore spit is an example of this habitat. Above this wet zone, beaches support bunchgrasses in protected areas where log snags are strewn. Early colonizers like seashore bluegrass, large headed sedge, beach pea, beach silver top and beach morning glory trap and stabilize sands of the upper beach. The foredune is the first line of continuous vegetation, occasionally disrupted by houses or footpaths. Before 1930 this primary duneline did not occur commonly as a natural landform. European beach grass has since been introduced, stabilizing and augmenting the duneline. Behind the primary duneline on Bayshore there once was a more stable mid-dune shrub community, composed mostly of salal and salmonberry. This community has almost disappeared from the Alsea study area, but is gradually reasserting itself on Bayshore. Currently the undeveloped Bayshore spit supports mostly grasses and annuals.

Behind the mid-dune zone is a steep backdune supporting shore pine. This backdune is interrupted by subdivision clearing. Scattered remnants of the native coastal shore pine/spruce association are found in the areas bordering Highway 101 and the dune lakes. This overstory of scrubby forest is shore pine and Sitka spruce, with an understory of salmonberry, salal, blackberry, red elderberry and thimbleberry. Once the shore pine community has stabilized, Douglas-fir becomes established on higher backdunes. A climax association of western redcedar and Sitka spruce develops on drier uplands. (See Table 23.)

TABLE 23
DUNE SUCCESSIONAL SEQUENCE¹

Ecological Unit	
Common Name	Scientific Name
Dune (grass)	
European beach grass	<u>Ammophila arenaria</u>
Seashore bluegrass	<u>Poa macrantha</u>
Large-headed sedge	<u>Carex macrocephala</u>
Gray beach pea	<u>Lathyrus littoralis</u>
Beach silver-top	<u>Glehnia leiocarpa</u>
Beach morning glory	<u>Convolvulus soldanella</u>
(Shrub)	
Red fescue	<u>Festuca rubra</u>
Brackenfern	<u>Pteridium aquilinum</u>
Pearly everlasting	<u>Anaphalis margaritacea</u>
Salal	<u>Gaultheria shallon</u>
Huckleberry	<u>Vaccinium ovatum</u>
Bearberry	<u>Arctostaphylos uva-ursi</u>
Western rhododendron	<u>Rhododendron macrophyllum</u>
(Forest)	
Coast pine	<u>Pinus contorta</u>
Sitka spruce	<u>Picea sitchensis</u>
Western redcedar	<u>Thuja plicata</u>
Labrador tea	<u>Ledum groenlandicum</u>
Western hemlock	<u>Tsuga heterophylla</u>
Douglas-fir	<u>Pseudotsuga menziesii</u>

¹Succession is read from top to bottom, i.e. grass to shrub to forest.

Source: Franklin and Dryness, 1973.

The backdune is a very harsh physical environment, with high winds, storms and salt spray. The wind contorts pines and dessicates plants. Blowing sands make revegetation difficult. Stable sites are vegetated by red fescue, moss and bearberry mats. The active dune areas are dominated by salal, brackenfern, pearly everlasting, huckleberry and western rhododendron. Attempts to revegetate disturbed areas in Bayshore have failed in some places where bare ground and dead grass plantings are seen.

The fauna varies from a very impoverished community on the beach and dune to rich, highly diverse communities around dune lakes. The beach fauna is limited mainly to insects, razor clams, many isopods and shorebirds. The foredune supports burrowing insects, spiders, flies, isopods, ants and grasshoppers. Small mammals of the dune areas are townsend and coast moles, deer mouse, redback vole, Oregon meadow mouse and the beechey ground squirrel. An occasional raccoon or fox may scavenge over the beach and dunes.

Birds are more common than mammals in the beach/dune habitat. Field species such as California quail, orange crowned warbler, western meadowlark, goldfinch, savannah sparrow, chipping sparrow, golden crowned sparrow, fox and song sparrows are found on the grassy foredunes and shrubby mid-dunes. Predators include the sparrow hawk, and on rare occasion a snowy or pygmy owl. Band-tailed pigeons are commonly found in the shore pine habitat. The shore pine forest also supports such small mammals as the trowbridge shrew, shrew mole, coast mole, Townsend chipmunk and the chickaree. Great blue herons rest in the tall conifers on the north terrace above the Highway 101 Bridge overlooking Alsea Bay.

The diversity and productivity of the beach/dune system is low, grading to moderate toward the backdune areas. The ecological relationship of this beach/dune system to the estuary is not strong, but the physical protection the spit affords the estuary is vital. The spit helps to maintain high productivity within Alsea Bay. It absorbs storm wave shock, reduces erosion of marsh, and provides a sand supply to the sandy tideflats around Waldport. As the sand spit grows, it may reduce the size of the inlet, influencing the pattern of saltwater flow into the bay. Any change of salt and nutrients flushed into the bay may alter the bay ecosystem.

Coastal beaches and dunes are linked geologically through the process of littoral drift. Any action which alters the natural sand erosion and deposition process on one segment of the coast probably will have far reaching impacts. Commercial sand removal removes the organisms living in that habitat. However, the beach/dune ecosystem is very resilient, and can recover quickly³⁷ if the sources of sand are not removed. Stabilizing the dunes and beaches with groins, jetties, riprap or plantings may increase the available beach/dune habitat. Such primary impacts of man's actions are obvious on the site. However, negative impacts, like beach erosion may occur elsewhere on the coast.

Agriculture/Field

This terrestrial habitat is one of the most common along the river. Included in this category are pastures and croplands converted from forests and from marsh. Also included is the modified wet meadow of Bain Slough. All these modified habitats are "open" in character, unforested, usually with high water tables. Often there is shrubby growth along the river banks. The major use is pasturage of livestock.

Diked marsh is found north of County Road 701 on the north margin of Alsea Bay, on the inside bend of Drift Creek, and on both sides of the Alsea River upstream of Drift Creek. Floodplain hayfields and grazed pastures are found in the alluvial soils adjacent to the river. The only known wet meadow habitat is Bain Slough, just north of the 7-Mile Bridge.

The vegetation in these open field ecosystems is maintained artificially in early successional stages by mowing or grazing. Cultivation of crops is almost nonexistent in the study area, limited only to small vegetable gardens and berry patches. Grazed pastures are vegetated by native grasses or perennial hay crops. Cattle grazing compacts the soils and encourages weeds.²⁷ Diked pastures often retain marsh plants, in addition to the invading upland plants field surveys would be needed to determine the exact extent of remnant marsh. Grasses are the most common vegetation type. Wet meadows have skunk cabbage, monkey flower and sedges. Blackberries, willow, young alder, and salal are found along edges. Woody vegetation usually indicates older diking or more mature successional stages.

The dominant animals in the open field habitat are domestic livestock. Black-tailed deer and elk also find pastures to be ideal grazing areas, particularly as winter range. Small mammals, particularly deer mouse, townsend vole, spotted skunk and bats are found in this more open habitat. Most of the sparrow species, swallows, and rufous hummingbirds are common over fields. Predators include the sparrow hawk, other hawks and owls, as well as coyotes, foxes and occasionally weasels.

The wet meadow habitat supports more amphibians than do open fields. These include the rough-skinned newt, tree frog and red-legged frog. Birds found in this habitat are the steller's jay, chestnut backed chickadee, winter wren, varied thrush and sparrows. Common mammals are shrews, moles, the snowshoe hare, mountain beaver, townsend chipmunk, deer mouse, wood rat, skunk, and deer and elk. Wet meadows provide summer and fall forage for big game and are used as wallows for elk and bear. The streams of the wet meadow are watering areas for many species. Headwaters of Risely Creek may have contained native cutthroat trout at one time.

Only 0.06 percent of Lincoln County is wet meadow.³⁷ It is the most limited habitat type in the study area and is highly vulnerable; of the wet meadow within the study area half has already been destroyed by filling. The resiliency of wet meadows is poor.

TABLE 24

RIPARIAN SUCCESSION

<u>Common Name</u>	<u>Ecological Unit</u>	<u>Scientific Name</u>
<u>Alder/Riparian Seral Stages</u>		
Red alder		<u>Alnus rubra</u>
Salmonberry		<u>Rubus spectabilis</u>
Red elderberry		<u>Sambucus racemosa</u>
Vine maple		<u>Acer circinatum</u>
Thimbleberry		<u>Rubus parviflorus</u>
Swordfern		<u>Polystichum munitum</u>
Lily of the Valley (false)		<u>Maianthemum dilatatum</u>
Spring beauty		<u>Montia sibirica</u>
Velvetgrass		<u>Halcus lanatus</u>
Chickweed		<u>Stellaria media</u>
Foxglove		<u>Digitalis purpurea</u>
Trailing blackberry		<u>Rubus ursinus</u>
Hedge nettle		<u>Stachys mexicana</u>
Ladyfern		<u>Athyrium filix-femina</u>
Oregon oxalis		<u>Oxalis oregana</u>
Sweetscent bedstraw		<u>Galium triflorum</u>
<u>Riparian Climax</u>		
Sitka spruce		<u>Picea sitchensis</u>
Redcedar		<u>Thuja plicata</u>
Hemlock		<u>Tsuga heterophylla</u>
Black Cottonwood		<u>Populus trichocarpa</u>
Big leaf maple		<u>Acer macrophyllum</u>

Source: Franklin and Dyrness, 1973.
Maser and Franklin, 1974.

The wet meadow habitat is more valuable than such other open field habitat types as diked marshes or pastureland. However, all the floodplain fields and agricultural lands have an important ecological role on the Alsea. Productivity is only moderately high, and this habitat is maintained artificially at an early successional stage. This primary productivity benefits livestock, big game, turkey and quail, all eventually used by man. Open lands are important for winter range, particularly along interfaces with woodland. Soils are productive, with a high water table and high organic content.

Riparian Alder

Alder stands are very common in the study area both in and out of the floodplains. The alder community grows in two basic situations. One is an almost pure stand following severe disturbance such as a clearcut, where alder quickly outcompetes and suppresses young conifers. This type of community is normally short-lived. A pure alder upland stand is low in diversity, and dominates clearcut areas for 60 to 70 years. The other is riparian. Alder can tolerate a high water table, and readily replaces wet meadow and diked marsh vegetation. Riparian stands have a well developed shrub and herb layer, and are more diverse than upland alder stands. (See Table 24 and the following photo.)

Upland alder establishes quickly on a disturbed site. Grasses and herbs such as velvet grass, chickweed, foxglove, trailing blackberry and hedge nettle constitute initial ground cover. Eventually the understory is dominated by salmonberry, swordfern, red elderberry, blackberry, oxalis and bedstraw. On higher sites, alder is associated with vine maple. Upland alder is typically replaced by Douglas-fir, and then Sitka spruce, red cedar and hemlock. Riparian alder is also associated with willow, cedar and cottonwood. The final successional sere of riparian alder is believed to be black cottonwood and big leaf maple.

The red alder/salmonberry/swordfern association provides the best habitat for the greatest variety of wildlife.⁶⁹ Twenty-five species³⁷ of economic or recreational value are found in the riparian vegetation. It is generally agreed that riparian alder provides the best winter browse for elk and deer. Small mammals are abundant. Maser and Franklin report 20 mammalian species in upland alder and 21 species in riparian alder.⁶⁹ Tabor has found 35⁷⁰ riparian species of small mammals, mostly deer mice and vagrant shrews. Beaver, mink, river otter, raccoon and muskrat are common along the riverbanks, as well as 28 species of amphibians and reptiles, including long-toed salamanders, newts, Pacific tree frogs, toads, alligator lizards and garter snakes along wet riparian edges. Bird species composition varies. Upland alder supports ruffed grouse, dove, screech and pygmy owls, hummingbirds and woodpeckers. Riparian alder harbors forest loving species, plus those birds dependent on water edges, including green and great blue herons, kingfisher, tree ducks, dippers, winter wren and the varied thrush. The rare spotted owl nests within 200 feet of streams; osprey and wood ducks nest in this zone. (See Table 19.)

The riparian alder is locally the most valuable upland habitat, providing food, cover and water. Alder is noted for soil improvement through nitrogen fixation, nutrient cycling, soil chemical and microbiology improvement.⁴⁰ Alder adds organic matter and nutrients to the river and alder overhangs cool waters by shading. The riparian habitat stabilizes banks, prevents erosion and improves fish cover on river edges. Low summer temperatures and cover provided by shoreline vegetation are essential for fish spawning and survival of young.

Mixed Woodland

This broad upland grouping covers about half the study area, excluding the bay and river. It includes mixtures of hardwoods with Douglas-fir and most of the seral stages between alder and climax coniferous. Second growth forests of mixed alder and Douglas-fir are classified in this report as mixed woodland.

Several extensive successional studies have been described for the Oregon coastal forest. Fonda showed forest succession in relation to river terrace development.⁶⁸ Franklin and Dyrness described Alsea vegetation by soils and elevation.⁴⁰ Corliss and Dyrness published a detailed vegetation survey based on Alsea soils.² Hines discussed plant communities with respect to moisture gradients,⁷¹ and Bailey described forest associations and succession by slope and aspect.⁷² The Forest Service has just completed a forest type inventory of the Siuslaw National Forest (1974) and detailed maps are available for uplands.⁴⁸

The general sequence of upland vegetational succession on the Alsea watershed may be summarized as follows. Secondary succession is initiated by clearcut or catastrophic destruction of a forest stand. One of several possible shrub stages is likely to become established on the site. At lower elevations, thimbleberry and starflower are likely to invade. At higher elevations brackenfern and lotus are more likely to become established. Later seral stages include alder reproduction.

Huckleberry/salal, salmonberry/swordfern and salal swordfern are common shrub combinations. Blackberry is a common dominant shrub. Low dense growth forms dominate for the first 10 to 15 years. Alder is likely to dominate an additional 50 years. Other intermediate seral stages⁷³ are vine maple/salal (on basalt) and vine maple/swordfern (on sandstone). Alder/vine maple associations are found on higher elevations and north slopes. Vine maple/hazel associations are more common near wet areas on all slopes except north. Big leaf maple/snowberry associations are found on steep talus slopes. (See Table 25.)

Mixed woodlands scattered among the dense forests of fir and the shrubby stages following a clearcut provide a varied habitat for wildlife. A great variety of berries and leaves is available as wildlife food during younger successional stages. The first ten years of secondary succession provide the best browse for elk and deer, particularly in winter.⁶⁹ At least 17 species of mammals are reported in the mixed woodlands. Among

TABLE 25

UPLAND SUCCESSIONAL SEQUENCE

<u>Common Name</u>	<u>Ecological Unit</u>	<u>Scientific Name</u>
	Shrub	
Thimbleberry		<u>Rubus parviflorus</u>
Starflower		<u>Trientalis latifolia</u>
Brackenfern		<u>Pteridium aquilinum</u>
Thickleaf lotus		<u>Lotus crassifolius</u>
Red huckleberry		<u>Vaccinium parvifolium</u>
Salal		<u>Gaultheria shallon</u>
Red alder		<u>Alnus rubra</u>
Salmonberry		<u>Rubus spectabilis</u>
Swordfern		<u>Polystichum munitum</u>
Snowberry		<u>Symphoricarpos mallis</u>
	Mixed Hardwood/Woodland	
Red alder		<u>Alnus rubra</u>
Bigleaf maple		<u>Acer macrophyllum</u>
Vine maple		<u>A. circinatum</u>
Sitka spruce		<u>Picea sitchensis</u>
Douglas-fir		<u>Pseudotsuga menziesii</u>
Hemlock		<u>Tsuga heterophylla</u>
Redcedar		<u>Thuja plicata</u>
California hazel		<u>Corylus cornuta</u>

Source: Corliss, 1973.
Bailey, 1966.

TABLE 26
CONIFEROUS CLIMAX

Ecological Unit	
<u>Common Name</u>	<u>Scientific Name</u>
Climax Conifer	
Pacific silver fir	<u>Abies amabilis</u>
Grand fir	<u>A. grandis</u>
Subalpine fir	<u>A. lasiocarpa</u>
Noble fir	<u>A. procera</u>
Sitka spruce	<u>Picea sitchensis</u>
Western white pine	<u>Pinus monticola</u>
Lodgepole pine	<u>P. contorta</u>
Douglas-fir	<u>Pseudotsuga menziesii</u>
Associated Vegetation	
Western hemlock	<u>Tsuga heterophylla</u>
Red alder	<u>Alnus rubra</u>
Western redcedar	<u>Thuja plicata</u>
Red elderberry	<u>Sambucus racemosa</u>
Salmonberry	<u>Rubus spectabilis</u>
Salal	<u>Gaultheria shallon</u>
Swordfern	<u>Polystichum munitum</u>
Oregon oxalis	<u>Oxalis oregonia</u>
Maidenhair fern	<u>Adiantum pedatum</u>
Ovalleaf huckleberry	<u>Vaccinium ovalifolium</u>
Oregon grape	<u>Berberis nervosa</u>
Starflower	<u>Trientalis latifolia</u>
Turkey beard	<u>Xerophyllum sp.</u>
Oceanspray (rock spirea)	<u>Holodiscus sp.</u>
White inside out flower	<u>Vancouveria hexandra</u>
Deerfoot vanillaleaf	<u>Achlys triphylla</u>
Wild ginger	<u>Asarum caudatum</u>
Deerfern	<u>Blechnum spicant</u>

Source: Franklin and Dyrness, 1973.

the reptiles and amphibians are the rough-skinned newt, several species of salamanders, tree frogs and the red-legged frog. Also common are game birds like grouse and smaller birds such as the pygmy owl, rufous hummingbird, red-shafted flicker, Steller's jay, chestnut-backed chickadee, winter wren and junco. These feed on seeds and insects.

Conifer

The Douglas-fir/trailing blackberry association is most common in the study area. It is mixed with other coniferous associations dominated by Sitka spruce, redcedar, hemlock, pine or fir. The coastal forest is in the Sitka spruce zone and the upper watershed in the western hemlock zone. No virgin timber survives in the Alsea region; it is mostly second growth in areas logged before 1920 or burned in the Umqua Fire. Douglas-fir is considered to be a seral stage, not a true climax. (See Table 26.)

Much of the Alsea watershed is managed by the Forest Service. The primary management objective is production of Douglas-fir; wildlife, water and recreation receive secondary attention. In the past clearcuts were very large, often a whole mountain slope. Today clearcuts are smaller, usually 40 acres or less. Logging slash is burned, and the site reseeded or planted with Douglas-fir seedlings. Protecting young conifers from wildlife use is a major problem. The young conifer stands are very dense with almost no understory. Thus, wildlife habitat is poor. More mature fir stands have a lower stratum of shrubs and herbs. Mature Sitka spruce and western hemlock have few shrubs but a good herb strata. An excellent organic mulch layer develops, contributing nutrients to the river and estuary.

The distribution of the coniferous forest is vast, embracing about 80 percent of the coastal zone,³⁷ with a more mixed appearance approaching the ocean. In general a spruce/hemlock association surrounds the bay itself. Second growth, mixed timber and alder appear in scattered patches everywhere, but are more prevalent north of the river because of⁷⁸ previous fires. Douglas-fir/western hemlock prevails south of the river.

Lower elevations are usually dominated by western hemlock with swordfern a common understory. Also in the lower strata are salal, oxalis,² as well as⁷¹ maidenhair fern, ovalleaf and huckleberry, turkey beard and starflower. Higher, drier sites generally exhibit the Douglas-fir subclimax with understories of trailing blackberry, rock spirea and salal. In the Sitka spruce forest, Douglas-fir, western hemlock, red alder and western redcedar share dominance with the spruce. In the western hemlock forest, Sitka spruce is absent. The herbaceous layer is mostly mosses, ferns and flowers such as the insideout, deerfoot vanillaleaf, wild ginger, deerfern and western springbeauty.

The coniferous forest is the principle habitat of Roosevelt elk, blacktail deer and black bear. Smaller game such as mountain quail, blue and ruffed grouse and band-tailed pigeon are common. The immature stages of the coniferous forest are more valuable as browse for deer and elk. Mature

Douglas-fir is most important to the piliated woodpecker, goshawk and the endangered spotted owl. The Douglas-fir/Sitka spruce association supports 38 species³³ of mammals, and the western hemlock/spruce association slightly fewer. Songbirds are found near the ground and in shrub and tree strata.

This forest community is most important to man for its commercial wood value. Trees grow fast in the wet mild climate; and grow very tall, up to 50 to 75 meters. According to Franklin and Dryness, the coniferous coastal forest "produced the greatest biomass accumulations of any plant formation in the temperate zone and possibly the world."⁴⁰ The standing crop was estimated to be 3,437 metric tons of biomass per hectare in the Douglas-fir forest, and 800 to 900 metric tons in the Sitka spruce and western hemlock forests. Diversity is also high. The forest plays a major ecological role in maintaining water quality in the Alsea, and by shading the river and streams, maintains low water temperatures in the summer. Recreational use of the Siuslaw National Forest is receiving considerable attention. The forest may be considered a renewable resource with good resilience able to recover for man's future uses. A forest can rebuild itself naturally within a person's lifetime, although the species present usually will not be of importance to man's need for wood fiber.

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"Like love, the Coastal Zone is a many splendored thing. Its ecosystem is a splendid relationship between ocean and beach, between marshland and uplands, and between man and his environment."

Honorable Ernest F. Hollings
U.S. Senate
Chairman, National Ocean Policy Study¹

CHAPTER 3 ESTHETIC PROFILE

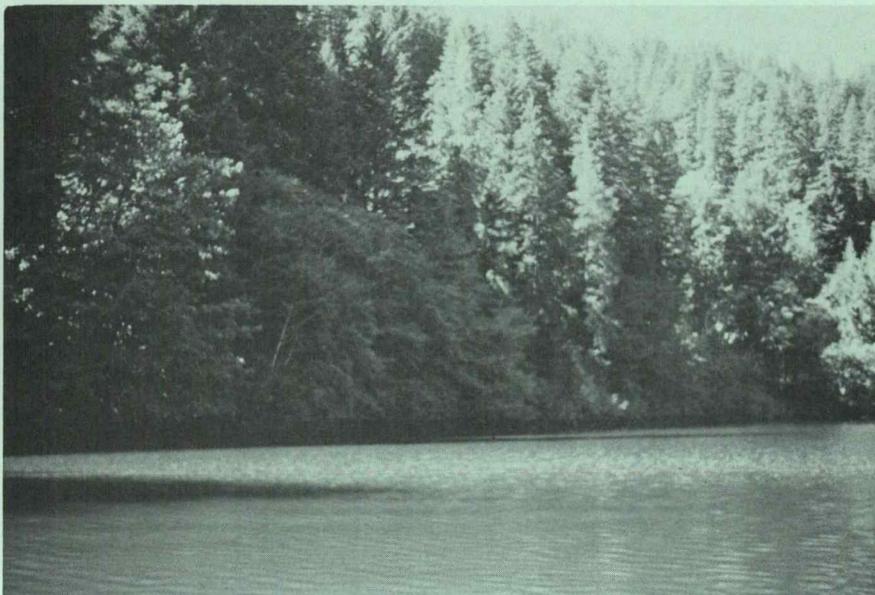
Summary of Findings

Public interest in the esthetics of the Alsea study area is extremely high. This interest is expressed in two contexts: 1) resources offering opportunities for esthetic experiences that are of statewide and regional significance as well as important locally and 2) those that are primarily local.

The first are exemplified by such environmental elements as the ocean beach, sandspit, marine terrace, tideflats, marshes and forested hills of the watershed as a whole. Activities and facilities requiring permits from the Corps of Engineers are likely to be esthetic intrusions to the extent that they occur in these undisturbed environments. Each such environment is identified and rated in this chapter.

Esthetic considerations that are primarily local include such environmental elements as the floodplains, areas of habitation, Eckman Lake and upper Lint Slough. Each is identified and rated. Permit activities in such areas may affect esthetic experiences by adding to or detracting from neighborhood characteristics and uses, resident lifestyles, property values, income, or local goals and aspirations.

Finally, permit activities are classified according to their potential esthetic impact.



Typical steep wooded banks upstream on the Alsea River. Areas like this are recommended for retention in their natural state. They not only serve as highly scenic backdrops for human habitation but provide habitat for wildlife and shade for migrating fish.



Alsea's high marsh bank and relatively undisturbed north shore (right). The dam on the north channel diverts the flow of the river to the main channel but unfortunately creates a water quality problem. Note Eckman Lake at the upper left of the photo, created by diking a former slough for Route 34.

INTRODUCTION

How to measure "splendor?" More important how to hold onto the fading images of a splended past? From pilings and driftwood, marshes and rifled tideflats, one strains to experience a former, wilder Coast. Within the past 100 years, the environment of the Alsea has been transformed from "wilderness" to a setting that has become "park-like." It parallels a description offered by William M. Roth, past Chairman, San Francisco Planning and Urban Renewal Association:

. . . I would surmise that a park is a place where man meets nature in one or more of its many facets. The meeting, however, is not necessarily a natural one; it is more likely to be contrived. The early pioneers pushing over the Rockies into the upper valleys of the Coastal Range confronted nature, but as the Donner Party attested, they met on nature's terms - not theirs. In a park experience, on the other hand, the odds should be more even. Neither should nature overwhelm man to the extent that he loses, in desperation and terror, a sense of his own being, nor can man, in an excess of himself so overwhelm nature that it is entirely transformed.

I do not mean to imply that a park is nature defanged, torn from its own heritage, abstracted. Rather that it is, in a way, a vision of the natural world as seen through human eyes and ears Thus, the human imagination creates the conceptual reality: in the oceans of Melville, the forests of Cooper, or the prairies of Parkman, the wilderness observed is related to the psychic wilderness within²

For visitors and residents alike the "psychic wilderness within" is still evoked by the force of the ocean, the expanse of beaches, the inlet and the continuity of tideflats, marshes, riparian banks and forested hills on the north side of Alsea Bay upstream to Drift Creek. Drift Creek, a highly scenic tributary reflecting the character of the main stem of the Alsea prior to modern habitation 50 years ago, is also relatively undeveloped. In order to protect its wilderness characteristics local citizens have resisted development encroachments on Drift Creek and have recommended that the area be publicly acquired.³ Upstream of Drift Creek, wilderness along the Alsea River is still suggested by the steep forested banks on the south bank from Taylor's Landing to the head of tide.



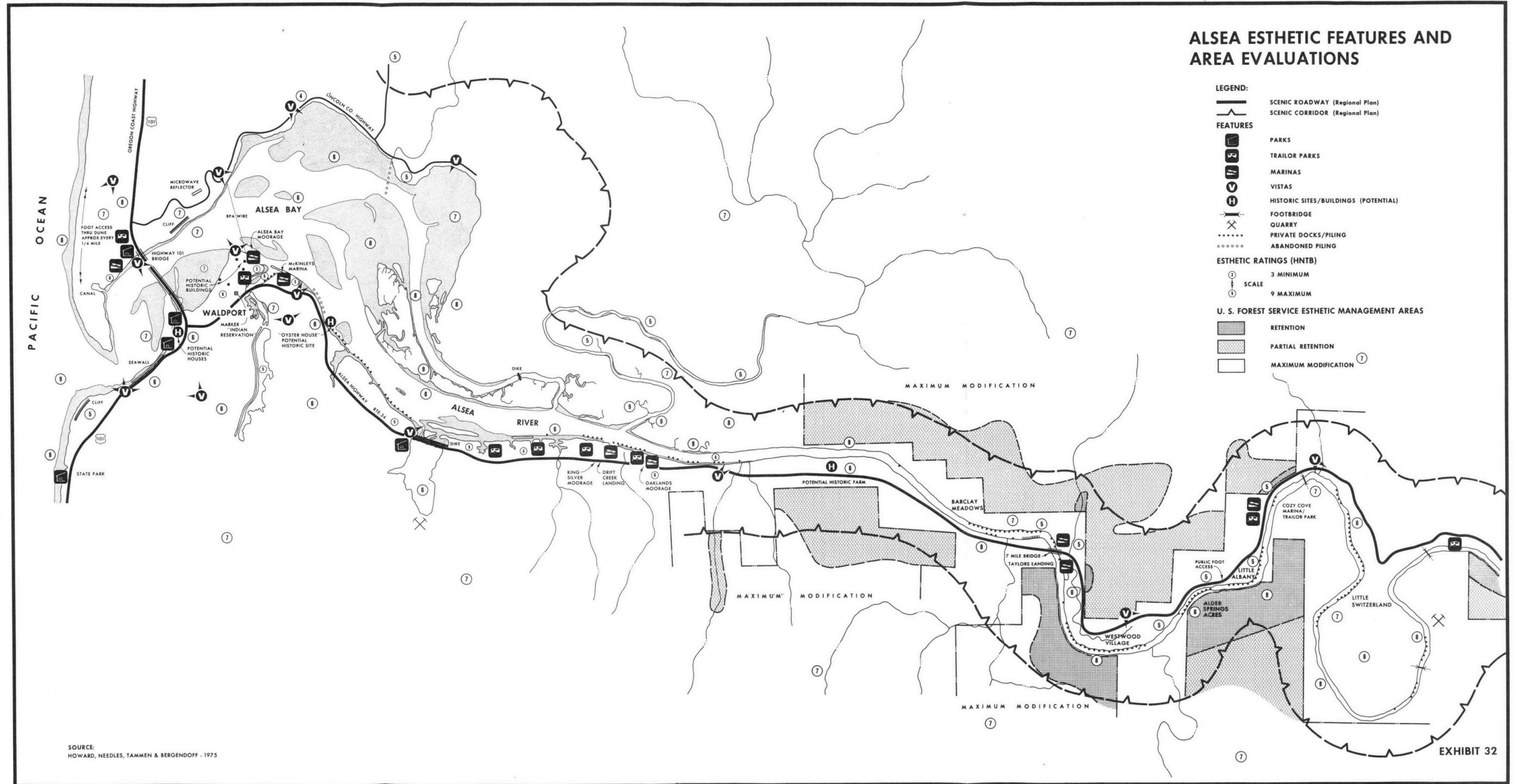
Alsea's wilderness-like Drift Creek. Local citizens have recommended that it be publicly acquired to protect its sense of isolation and recreational and wildlife values.

All of these areas, relatively undeveloped because of soil and slope limitations, ownership patterns, zoning restrictions and inaccessibility, have the following esthetic functions:

1. They provide open space and a naturalistic backdrop for human habitation within the study area.
2. They tend to keep developments clustered at Waldport, Bayshore, along the south bank of the bay to the 7 Mile Bridge, and at the recreational subdivisions on the north side of the Alsea River from Taylor's Landing to the head of tide; they are a natural deterrent to unsightly "sprawl."
3. They provide the most scenic vistas that protect the integrity of the landscape as a whole.

All of the areas described above are subject to various levels of esthetic protection. (See Exhibit 32.) The upriver area has been designated as a scenic corridor and roadway in Lincoln County's zoning ordinance;⁴ acres within the Siuslaw National Forest are identified by the U.S. Forest

ALSEA ESTHETIC FEATURES AND AREA EVALUATIONS



SOURCE:
HOWARD, NEEDLES, TAMMEN & BERGENDOFF - 1975

Service for various levels of esthetic management;^{*5} and the Oregon Coastal Conservation and Development Commission has singled out the sandspit as providing an "exceptional coastal experience."^{**6} (See Table 27.)



Alsea Bay looking southeast over the Bayshore Spit. Note the inlet and subdivision activity on the spit itself, described by OCC&DC as providing an "exceptional coastal experience." The town of Waldport is located just below the hills on the south side of the bay (center of photo).

*According to the Visual Management System, U.S. Forest Service,⁷ areas identified on Exhibit 32 are to be managed for various visual quality objectives. Retention provides for management activities which are not visually evident; partial retention refers to management activities that remain visually subordinate to the characteristics of the landscape; and maximum modification refers to activities of vegetative and land form alterations that dominate the characteristic landscape. No areas within the Alsea study area are recommended for preservation, an objective that allows ecological changes only as in designated wilderness or primitive areas.

**OCC&DC's description is mitigated somewhat by current development of the sandspit. The Bayshore Motel and approximately 40 homes tend to blend in with the modified landscape. This would change dramatically, however, should the sandspit and dune be developed to the maximum planned density of 700 units. In that case, the spit and dune would almost be obliterated as a unique environment offering or "an exceptional coastal experience."

TABLE 27

OCC&DC LAND USE PRESCRIPTIONS AND DESIGN CONSIDERATIONS

		LAND USE PRESCRIPTIONS			
Exceptional Coastal Experience		Image Region 1 Obvious and Strong Coastal Experience	Image Region 2 Less Obvious Coastal Association	Image Region 3 Subtle Coastal Experience	Image Region 4 Weak Coastal Association
D E F I N I T I O N S	<p>Delineates combinations of representative landscapes plus features. Included are areas along coast that warrant special attention because of a unique representative landscape, combinations of representative landscapes with a high degree of diversity in a small area or an accumulation of value due to unique or dense features.</p>	<p>Midcoast beach Grassy dunes Active dunes Deflation plain Timbered headland Meadowed headland Lakes in dune Open ocean Sand spit</p>	<p>Estuary Marsh Slough Tideflat Fill Terrace w/cropland Terrace w/trees and meadows Dune complex</p>	<p>Pastoral dunes with trees</p>	<p>Timbered upland Meadowed upland Coastal lakes Gently rolling bottomland</p>

L A N D U S E I M P L I C A T I O N S	<p>"Landscapes of statewide or national concern from point of view of experiential quality. Any land use considered in these areas should be carefully weighed against value and meaning of unit to public at large. Landscapes within this area are prime for public acquisition and preservation."</p>	<p>"Only those land uses with strongest relationship to ocean and coastal processes should be allowed. Uses allowed should provide participant the greatest amount of exposure to coastal processes consistent with safety. Examples of possible uses include lighthouses, public recreational facilities, Coast Guard Stations, environmental and historical interpretation centers, jetties, tent camping (seasonal use), temporary commercial activities serving peaks of use and small scale roadways with limited capital requirements. Since this region is very dynamic, emphasis should be on temporary or moveable uses, thus allowing the landscape to evolve and avoiding the necessity of stabilizing the landscape to protect further capital investment."</p>	<p>"Land uses should relate directly to coastal environment. Uses of the terrace can be less temporary since the landscape is less dynamic. Filling and diking of estuarine environments should be discouraged for experiential loss as well as biological reasons. Examples of possible land uses include all of the above plus commercial coastal residences and private recreation homes, agriculture, auto camping, marinas, harbors, export industries, and small scale roads."</p>	<p>"Land use should draw on special character of the tidal rivers and fit into forested dunes. Land uses could include all of the above plus intensive agriculture, boatyards, and local highways as examples."</p>	<p>"Important to consider from perspective of the overall effect on the representative landscapes which comprise the image region and of their effect when perceived from other image regions. Development on coastal character could be placed here, subject to Design Implications in the manner in which it fits into the landscape. Potential land uses include as examples service areas, trunk highways, salvage yards, and all above uses."</p>

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Source: Oregon Coastal Conservation and Development Commission, 1974.

TABLE 27

OCC&DC DESIGN CONSIDERATIONS

Domination

Care and wise judgement must be exercised so as not to disturb or destroy altogether the inherent qualities of the Representative Landscapes, especially if the Representative Landscape in question is relatively scarce. For instance, a headland may be heavily developed without disturbing its basic geologic formation. On the other hand, heavy development in dune areas may alter the process of dune formation to such an extent that the experiential quality of the sand dunes is completely destroyed.

Experiential Quality

Those activities of man which do not relate directly to the experiential qualities of the coastal environment should be relegated to a lesser position and one that does not diminish the potential for experience. Parking lots and service areas in housing projects, as an example, do not add to or draw from the environment for their existence.

Recovery Time

Whenever construction occurs that may affect the natural environment, consideration must be made as to the length of time nature may take to recover from the disturbance. Every effort should be made to design with as little disturbance as possible and to help speed up nature's own process of accepting disturbances. For example, a disturbed area could be replanted with appropriate materials (native where justified) and graded in a sensitive manner to ensure integrity of existing drainage systems.

Access

It is clear that the potential for experience is greater as one moves toward the edge of the ocean. To protect the opportunities for everyone to gain access to the ocean and provide the greatest potential for experience, every effort should be made to provide access through public and private developments to the ocean. The mode of access (e.g., pedestrian, auto, bicycle) should be consistent with the character of the Representative Landscape through which it is passing and with a determination of the number and type of facilities required for people of all physical capabilities.

Materials

Construction materials used within the coastal environment should be those which manifest and celebrate the effects of nature's forces, i.e., natural wood, stone, and native plant materials. The choice of appropriate materials will enhance the imagery and strengthen the relationship of man and nature. For example, signs should be constructed of wood rather than aluminum or plastic and allowed to weather and grow moss.

Contrast

In most situations the color, texture, form and line of a specific project, if not related to the characteristics of the Representative Landscapes, will tend to diminish the potential for experiencing the natural environment. However, some kinds of development, such as lighthouses, may in fact enhance the potential for experience because of the strong and direct contrasting relationships they express about the forces of nature, the ocean, and man's use of the sea.

Configuration

The form or configuration of a proposed development should relate directly to the inherent qualities of the Representative Landscape it will affect. For instance, sand dunes are constantly changing, moving, and are rolling in form. Construction within the dune area may be designed in a flexible or temporary way and loose in configuration to accommodate the instability of the sand rather than resist it. Stabilization denies the inherent and special qualities of active sand dunes.

Scenic Corridors and Roadways

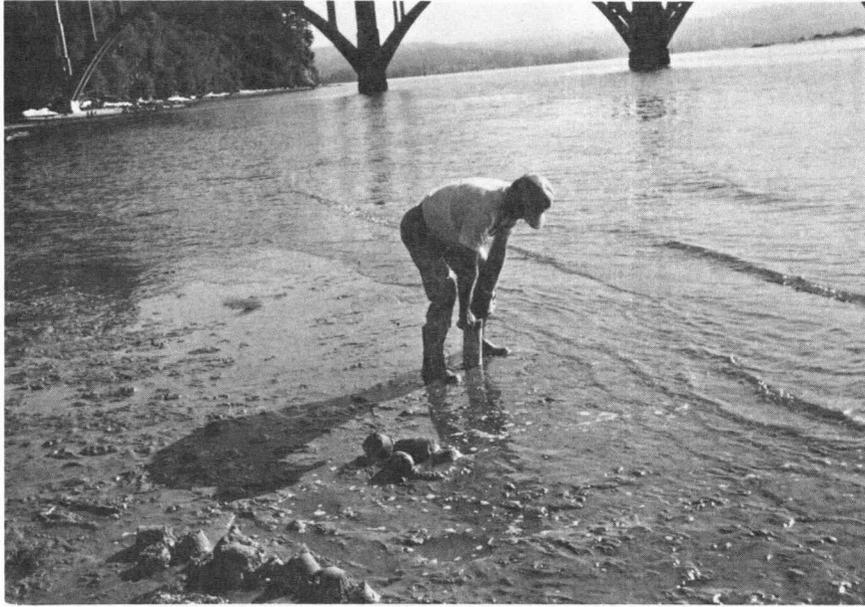
Lincoln County's Scenic Roadways and Scenic Corridors Development Guidelines exist to protect the visual attractiveness of Lincoln County. Principal areas of concern are certain areas immediately adjacent to the main highways designated as scenic roadways, and other areas of important visual significance designated as scenic corridors. In developing within a scenic corridor or adjacent to a scenic roadway, the following measures may be considered: maintaining natural vegetation when possible; landscaping where vegetation has been removed; screening unsightly land uses; limiting right-of-way widths and the number of roads intersecting scenic roadways; controlling size and design of signs; using materials which complement the beauty of the coast; siting developments to be compatible with surrounding natural characteristics; limiting excavation and filling; protecting wildlife and water quality; recognizing the importance of scenic views and protecting these vistas; and concentrating commercial development to discourage strip development.

Anyone wishing to use or reclassify a scenic roadway or a location designated as having visual significance in county land use plans must first show how the proposed activity takes into account each applicable visual consideration.

OCC&DC Recommendations

Lincoln County guidelines for scenic corridors and roadways reflect a policy statement adopted by the Oregon Coastal Conservation and Development Commission that "State and local governments shall protect, maintain and enhance the visual attractiveness and character of the Oregon Coast in such a way as to maximize the net social benefits."⁸ The Commission, among other actions, urged the establishment of appropriate criteria by State and local government. In addition, county governments are encouraged to establish a design review process "to consider development proposals in areas of exceptional or high visual significance, and then should assure that this design review process is consistent with and incorporated into the system of preferences established for coastal zone management." (See Table 27.)

If implemented in Lincoln County, the review process now handled primarily by the County Planning Commission may be expanded to include people knowledgeable in community goals, esthetics and history, as well as professional designers such as architects, landscape architects and engineers. Such a process would provide the Portland District with primary input on the esthetic desirability of specific activities requiring a permit, particularly if it were integrated with the development of comprehensive estuary plans comparable to Lincoln County's comprehensive land use plan. The Portland District, however, would still be required to exercise its independent judgment on esthetic considerations as provided by Federal law. The considerations discussed in the following section on methodology should serve as the basis for that judgment.



Shrimping on the north end of the bay just inside the Spit. Esthetic appreciation is not only visual but experiential, as in this tideflat recommended as a "wetland of importance."

METHODOLOGY

Esthetic appreciation is more than visual. As suggested by OCC&DC, "when information from several of the senses is combined and is free of conflicts (such as an exposed, windy vista without billboards, noise or litter) the quality of the experience is high."⁶ Moreover,

All landscapes have importance and meaning to man . . . the landscape is comprehensible in a multitude of ways and a plurality of meanings . . . No environments are more important than others; however, some become more significant by human values . . . People relate to the landscape at a variety of scales . . . The greater the natural variety, the greater the potential for experience . . . All sites are unique.^{*6}

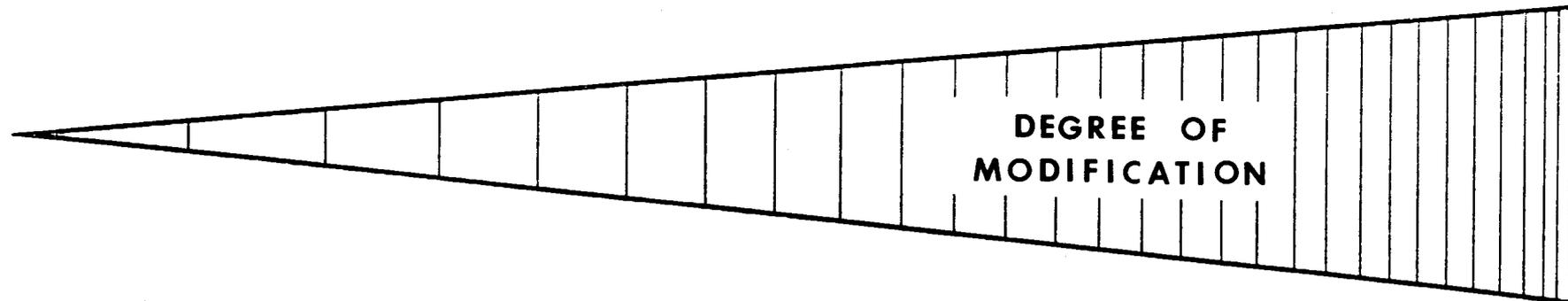
In order to account for the broadest range of potential esthetic experiences in view of the innumerable variables suggested in the above assumptions, distinct environments within the Alsea study area were subjectively rated by three criteria.

*Study assumptions quoted from the OCC&DC report have been reorganized to illustrate their application to the Alsea study area.

1. The extent to which an environment has been modified. Natural, unstructured environments offer more opportunities for esthetic experiences than those which have been altered. This is not to imply that an unmodified environment is necessarily more desirable, but only that it offers opportunities for a greater variety of experiences, including the option of changing a natural environment to provide a more structured esthetic experience. For example, the marshlands on the north side of Alsea Bay in their natural state hold the potential for an infinitely large variety of esthetic experiences. If filled for recreational subdivisions, for example, the number of esthetic options would be reduced (i.e., loss of isolation, hunting, scientific investigation). Exhibit 33 shows this inverse relationship between degree of modification and the range of esthetic options retained by a landscape. (The esthetic experiences listed are representative only.) Since cultural landscape modification is generally irreversible, intensification of human activity in a landscape gradually precludes the relatively rare natural esthetic experience, while retaining for the future only relatively commonplace structured experiences.

Environments that have been judged to be least modified by man have been given a rating of 3 (they offer the most esthetic options); those judged to be somewhat modified by man have been given a rating of 2 (partial options); and those that have been most modified by man have been rated as 1 (fewest options). The standard of modification is a naturalistic one--pristine wilderness. While pristine wilderness is not necessarily greater than other human values, its use as a standard can be justified. Of all environmental conditions along the Oregon Coast, "wilderness" is the most rare; intrusions on it tend to be irreversible; and it is the most practicable index of an ecological condition prior to the introduction of man.

2. The extent to which an environment is sensitive to change. Environments can be classified according to their ability or inability to withstand modification and still maintain opportunities for esthetic experiences. This is the analog of the biological principle of "resilience." Because of physical characteristics (soils, slope, geological substrate, exposure to the elements and so forth), certain environments would require a greater degree of modification to convert them to more structured uses. The spit, marine terraces and tideflats, for example, are more sensitive than filled land, gently rolling uplands or even the floodplains. Ratings have been applied on a declining scale from 3 to 1: fragile = 3; sensitive = 2; and relatively insensitive = 1. Relatively insensitive environments offer the greatest opportunity for man-made improvement or restoration, including revegetation, landscaping, restoration of buildings, etc. (For example, the historic flavor of "Old" Waldport could be partially reestablished by the use of piling and docks instead of fill, and the maintenance of abandoned pilings in lieu of their removal or replacement by incongruous structures.)



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Unmodified

- *Sense of wildness
- *Sighting native animals
- *Sensing human insignificance
- *Studying natural patterns

Few and Slight Changes

- *Sighting waterfowl
- *Sensing early history
- *Sensing solitude
- *Sensing power of nature over human efforts

Cabins and Marinas

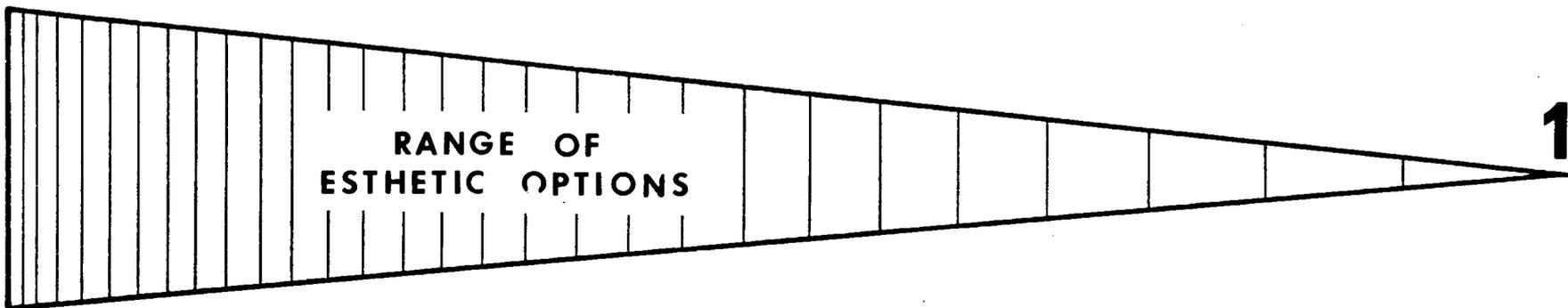
- *Contrasting natural and man-made patterns
- *Sensing how design can fit nature
- *Sensing power of the elements by a warm fire
- *Feeling kinship with early settlers

Residential Development

- *Sensing security from force of nature
- *Enjoying nature reshaped in "natural" patterns
- *Sensing regret that the wild past is lost forever.
- *Sensing social cohesion

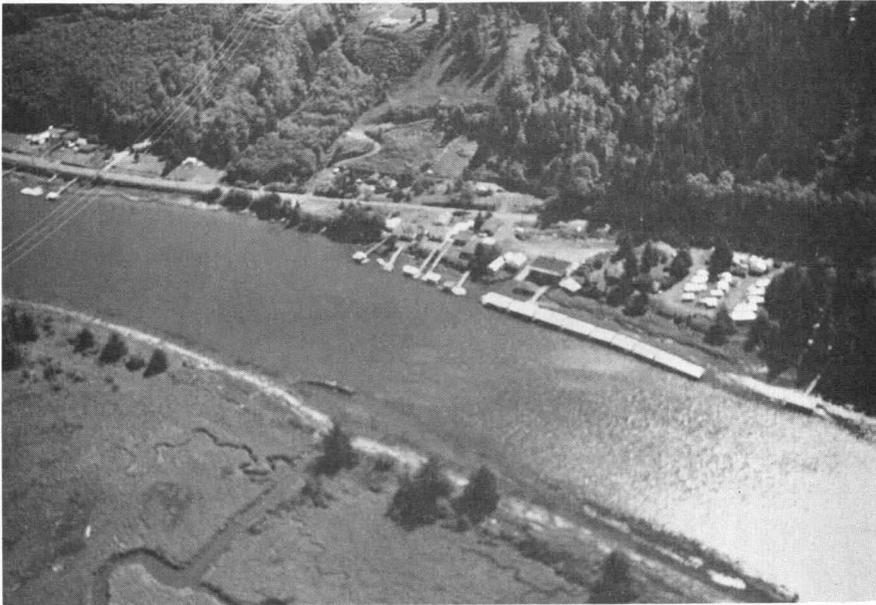
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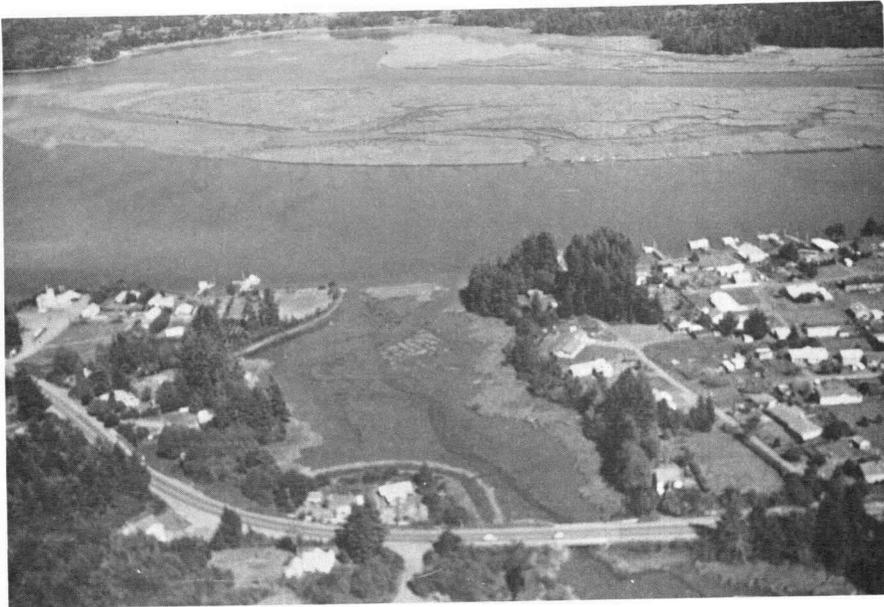
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Exhibit 33. RELATIONSHIP OF LANDSCAPE MODIFICATIONS TO RANGE OF ESTHETIC OPTIONS. The normally irreversible process of landscape modification progressively reduces the residual esthetic options of a landscape. Residual options possessed by a modified landscape are readily available in modern society; experiences related to unmodified environments are relatively unavailable.



Marinas and shoreline housing at river mile 5 opposite the mouth of Drift Creek. An important economic and recreational resource for the area. Similar development is rapidly using up the floodplain in upstream areas where the river becomes narrow and gorge-like.

3. The extent to which esthetic opportunities are valuable to people. Because of history, tradition, accessibility, educational or social considerations, certain locations offer opportunities for appreciation by more people than others. Upper Lint Slough is not only the site of scientific investigation near the Waldport High School, but also serves as a park-like setting for the Ray Cox Senior Citizens Center. The peninsula at Sheppards Point, while having some historic interest, is virtually inaccessible. Sites have been rated according to this principle as 3 (most valuable), 2 (valuable) and 1 (least valuable).



McKinney's Slough looking north from Route 34. Recommended as a "wetland of importance," the slough also provides amenities for surrounding neighborhood development.

The overall numerical rating applied to distinct environments of the Alsea study area is derived by adding the scores given to each of the three criteria. The following are examples.

The Inlet

Degree of options	-- 3
Degree of sensitivity	-- 3
Socially valuable	-- $\frac{3}{9}$
Score	

Tideflats at Waldport

Degree of options	-- 2*
Degree of sensitivity	-- 3
Socially valuable	-- $\frac{2}{7}$
Score	

*The configuration of the tideflats at Waldport is changing because of the influence of the U.S. 101 Bridge pilings, which reduce the area's wilderness character somewhat. While the area's social value is high, loss of some of the tideflats for recreational facilities may be acceptable to at least some local residents.

Eckman Lake *

Degree of options	-- 1
Degree of sensitivity	-- 2
Socially valuable	-- 3
Score	$\frac{6}{6}$

EVALUATION

Using the above methodology, the study concludes that environments with high ratings (7 to 9) tend to be those of regional and statewide esthetic significance in addition to being important locally. Potential activities and facilities requiring a permit from the Corps of Engineers in such areas involve a major question with respect to the esthetic suitability of the location.

Design considerations tend to become secondary and are important only to the extent that design features can successfully mitigate one or more of the following adverse effects:

- o Loss of "wildness"
- o Proliferation of activity throughout the watershed (clutter or sprawl)
- o Loss of unique or irreplaceable recreational opportunities, (i.e., duck hunting, clamming, bird watching)
- o Loss of isolation or solitude
- o Intrusions on a highly scenic background
- o Interference with viewpoints and vistas
- o Loss of irreplaceable features, i.e., rock outcropping
- o Interruption of public accessibility

Moreover, in highly esthetic environments there will be a greater number of activities requiring permits that are likely to have major esthetic effects of the type just described.

Environments with ratings of 4 to 6 (no environment in the Alsea study area has actually been rated 3) tend to have esthetic significance that is primarily local. Factors to be considered include:

- o Compatibility with local zoning, master plans or development standards
- o Interference with resident lifestyles, habits, income or property values

* Eckman Lake has been totally converted from slough to reservoir, decreasing the options to 1. It is partially sensitive to change (the dike could conceivably be removed); but its social value as a reservoir is extremely high.

- o Nuisance (noise, air emissions, water pollutants, etc.)
- o Incongruity with surrounding neighborhoods
- o Incompatibility with features or sites of historical value
- o Crowding, i.e., concentrations of excessive boat traffic

Questions of scale and design are also important in areas rated between 4 and 6. Permit activities need to be evaluated in terms of material, color, form, texture, line, acreage, height, width, linear feet, volume and other physical parameters. Local zoning and development standards in Lincoln County which relate to permit actions can generally be accepted as indicative of local esthetic interest unless information to the contrary is forthcoming.

Despite the limitless number of variables involved in esthetic considerations, it is possible to generalize about the magnitude of potential effects from certain types of activities because of their inherent nature, basic characteristics or purpose. It is important to note that an activity that would ordinarily be considered moderate could amount to a major activity in areas rated 7 to 9, while minor activity may have a moderate effect if permitted in environments with high ratings. Representative activities are grouped as follows:

ESTHETIC EFFECTS OF
ACTIVITIES/FACILITIES BY AREA

	<u>Areas Rated 7 to 9</u>	<u>Areas Rated 3 to 6</u>
Bank Stabilization (see specific type--bulkhead, groins, riprap, etc.)		
Bridge (new)	Major	Moderate
Bridge (replacement/expansion)	Moderate	Minor
Bridge (maintenance/repair)	Minor	-----
Boardwalk (on pilings)	Moderate	Minor
Boardwalk (on fill)	Major	Major
Breakwaters	Moderate	-----
Bulkheads (seawalls and ripraps)	Moderate	Minor
Causeway (new)	Major	Moderate
Causeway (replacement/expansion)	Moderate	Minor
Causeway (maintenance/repair)	Minor	-----
Dikes (new)	Major	Moderate
Dikes (repair)	Moderate	Minor
Dams (main stream)	Major	Major
Dams (wing)	Major	Moderate
Docks (single)	Moderate	Minor

- ^b Except in existing and approved diked disposal areas.
- ^c Depending on volumes and substances.
- ^d Unless screened from view.

	Areas Rated 7 to 9	Areas Rated 3 to 6
Docks (multiple and scattered)	Major	Moderate
Docks (multiple and clustered)	Moderate	Minor
Dredging (more than 50 cubic yards)	Major	Moderate
Dredging (less than 50 cubic yards)	Moderate	Minor
Dredged Disposal (more than 50 cubic yards)	Major	Moderate ^h
Dredged Disposal (less than 50 cubic yards)	Moderate	Minor
Earthen Banks (vegetated and unvegetated)	Moderate	Minor
Fill (creation of fast land from aquatic environments)	Major	Major ^h
Groins	Major	Moderate ^c
Industrial Waste Disposal	Major	Moderate
Jetties	Major	-----
Log rafting	Moderate	Minor
Marinas	Moderate	Minor
Marina Parking, Storage, etc., and Land-based Support facilities	Major	Moderate ^d
Overhead Lines	Major	Moderate ^d
Pilings (installation)	Moderate	Minor
Pilings (removal)	Minor	-----
Pilings (replacement)	Minor	-----
Power Plant Siting	Major	Major
Riprap (stone)	Moderate	Minor
Revetment (steel sheeting)	Major	Moderate
Revetment (wood)	Major	Moderate
Roads (new)	Major	Major
Roads (expansion)	Major	Moderate
Roads (maintenance/repair)	Moderate	Minor
Shoreline Developments ^e		
o Removal of Shoreline Vegetation	Moderate	Moderate
o Managed Timbering ^f	Moderate	Minor
o Clearcutting	Major	Moderate
o Agricultural Structures ^g	Moderate	Minor
o Single Family Housing ^g (low density)	Moderate	Minor
o Single Family Housing (high density)	Major	Moderate
o Multiple Family Housing (low density)	Major	Moderate
o Multiple Family Housing (high density)	Major	Major
o Recreational Housing (cottages, trailers) (low density)	Moderate	Minor

^b Except in existing and approved diked disposal areas.

^c Depending on volumes and substances.

^d Unless screened from view.

^e Depends on scale, height, densities and other design features.

^f According to Visual Management System, U.S. Forest Service.

^g Without screening or setbacks.

	<u>Areas Rated 7 to 9</u>	<u>Areas Rated 3 to 6</u>
o Recreational Housing (cottages, trailers) (high density)	Major	Moderate
o Trailer Parks (seasonal/temporary)	Major	Moderate
o Commercial Structures (marine oriented)	Moderate	Minor
o Commercial Structures (non-marine)	Major	Moderate
o Industrial (marine oriented)	Major	Moderate
o Industrial (non-marine)	Major	Major
o Public Service Buildings (schools, treatment plants, hospitals, etc.)	Major	Moderate
o Developed Parkland	Moderate	Minor
o Undeveloped Parkland	Minor	—
Structures on Pilings (floats) (see specific siting)		
Tidegates	Moderate ^h	Minor
Underwater Cables, Pipelines	Minor	—
Waste Disposal (solid) ⁱ	Major	Moderate
Waste Disposal (liquid)	Moderate	Minor

In Chapter 7 recommendations are made concerning the Portland District's appropriate response to specific permit applications for actions having major, moderate and minor esthetic effects in areas of varying esthetic importance.

^h May have major secondary effects in marshes and tideflats.
ⁱ Depends on composition, i.e., odors, smoke.

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- ¹ Committee on Commerce, National Oceans Policy Study, Warren G. Magnuson, Chairman, Coastal Zone Management Journal, (Washington, D. C.: U.S. Government Printing Office, 1974).
- ² William M. Roth, "Parks, National and Otherwise," in National Parks for the Future (Washington, D.C.: The Conservation Foundation, 1972) pp. 123-127.
- ³ Public Workshops, Ray Cox Center, Waldport, Oregon, April 18, 1975.
- ⁴ Lincoln County Zoning Ordinance, March 1974.
- ⁵ Siuslaw National Forest, U.S. Forest Service, Corvallis, Oregon, correspondence, April 15, 1975.
- ⁶ Oregon Coastal Conservation and Development Commission, Visual Resource Analysis of the Oregon Coastal Zone, prepared by Walker Havens and Erickson, Landscape architects, Eugene, Oregon, 1974.
- ⁷ National Forest Landscape Management, Volume 2, Chapter 1 "The Visual Management System," April 1974.
- ⁸ Oregon Coastal Conservation and Development Commission, Policy Recommendations to the Oregon State Legislature, 1975.

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Public Questionnaire, Wetlands Review Study, Portland District Corps of Engineers, Fall 1974.

U.S. Environmental Protection Agency, Aesthetics in Environmental Planning, November 1973.

Summary of Findings

This chapter discusses various social factors within the study area that are relevant to the use, regulation and preservation of resources of the Alsea Bay and River. Information is presented from three distinct but interrelated sources: 1) a chronology of historical events that have significance for present and future resource trends within the study area; 2) the result and brief analysis of a public opinion survey conducted by the Portland District in connection with the Wetlands Review Study; and 3) a summary of the program of community participation undertaken specifically for the Wetlands Review Study.

Overall findings are as follows:

1. The enthusiastic response to the public opinion questionnaire (21 percent of the distribution) and large attendance at community workshops indicate that public interest in the resources of the study area is extremely high and that local citizens, in particular, respond constructively to efforts by government agencies to involve the public in decision-making processes. In fact, opportunities for such involvement are expected by the public.
2. Public sentiment, including local opinion, indicates an overall concern for protection of recreation opportunities and the living and scenic values of the study area. Public consensus becomes less defined with respect to specific means and activities affecting these opportunities and values, but is nonetheless sufficiently clear to serve as a general guide to regulation of most types of anticipated activities.
3. Public opinions expressed both in writing and at the community workshops indicate that the Wetlands Review Study has raised existing local expectations that the Portland District will take a continuing and more direct interest in helping to resolve resource problems within the study area, in addition to regulating activities through its permit authority.

The answers given to the questionnaire should be considered in light of study findings and other attitudes which the study identified during the course of the community participation program. For example, in general, the Alsea is a far less modified area with more resource opportunities than other estuaries such as the Siletz and there is stronger support to

* It should be noted that the response is indicative of the concerns of those who participated and may not necessarily be representative of the views of the total community. Discussion of such concepts as the "silent majority" is beyond the scope of this review.

maintain the area as it exists, with full time residents and select interests more willing to make some judicious resource tradeoffs.

A willingness to accept tradeoffs does not indicate less appreciation of the area's resources by the permanent population. Rather, many citizens have informally expressed the opinion that some development for housing and marine-oriented uses is necessary to provide more local options to control speculative pressures perceived as emanating from California and the Willamette Valley. Moreover, full time residents generally are more knowledgeable about development and have a greater degree of control over it than visitors and part time residents, for whom the study area is primarily a place of recreation and retreat. This varying perspective leads to significant differences in attitudes.

Full time residents have often expressed the opinion that the village-like quality of such areas as the Alsea should be preserved and only the degree of development necessary to permit the area to become self-sufficient should be allowed. Some increase in the permanent population, particularly retirees, is recognized as a means of accomplishing these objectives. The introduction of larger numbers of part time residents and frequent visitors, however, would pose a dilemma. These individuals, who generally have more economic options than the local population, are a source of concern to some full time residents, who feel they are carrying a disproportionate economic burden in order to provide recreation for others.

It should also be noted in evaluating public sentiment that people are attracted to the Oregon coast for a variety of highly individualistic reasons and expectations.

HISTORICAL OVERVIEW

The history of the Alsea region divides naturally into six periods, each making distinct contributions to the development of current social relationships. These periods are summarized below.

25 B.C. - 1850 Indian Domination

Visiting the Alsea estuary during this period, one would see great forests of hemlock, spruce, cedar and fir stretching to the water's edge. Patches of grassland divide the forest. Some areas are littered with charred trees from a recent fire. If this is the summer season, a great fire rages in the distance, with clouds of dark smoke rising in the air.

Some foot trails have been worn into the earth, but evidence of human occupation is not readily visible. Small communities of Indians are located near the river. During these many years, Indian life does not change very much. The people hunt and gather their food which includes fish, clams, crabs, roots and game. Generally they are peaceful. Because of distance and rough terrain, visits among communities are infrequent. When they occur, slaves are purchased or sold and the trip ends in good will.

- | | |
|---------|--|
| 25 B.C. | Indian villages become established along the Oregon coast. |
| 1400's | Indians settle Netarts Sand Spit in Tillamook County. |
| 1750 | 6,000 Yakonan Indians live in the Alsea area. |
| 1770's | A series of Spanish expeditions explore the Oregon coast. |
| 1778 | James Cook observes the Oregon coast. |
| 1846 | The "Umpqua Fire," started by whites, sweeps through 450,000 acres including the present site of Waldport. |
| 1849 | Army Lt. Theodore Talbot explores the area on foot. According to an account given in this year, Alsea Bay is timbered down to the water's edge. North and inland from the bay, large grass-covered areas are found. Small enclaves of Indians have guns but are passive. |
| 1850 | Lt. Cdr. McArthur of the survey ship, "Ewing," examines Alsea. |

1850 - 1880 Early White Settlement

In white settlement areas along the river, trees are cleared and patches of furrowed farmland are visible. There are a few log cabin structures in this area; the number of Indian lodge homes has diminished. The river and bay provide access to other white settlements. People and goods are transported by raft. Once the rafts come downstream and serve their original purpose, they are used in the construction of homes. The earliest settlers depend upon several activities for subsistence including fishing, farming and logging.

Indians have no immunity to some European diseases. Increasing contact with white settlers results in a great number of deaths and a steady decline in native population. Surviving Indians must live on reservations where missionaries teach European tradition and technology.

- 1852 Settlers come to the area near the present site of the town of Alsea on the North Fork. They take up farming and logging and build several sawmills.
- 1855 An unratified treaty creates the "Coast Range Reservation," which extends from Cape Lookout to a point ten miles south of the Siuslaw River and inland 20 miles. The stated goal is to "civilize" the Indians by teaching them English, farming and Christianity.
- 1860 The first white settler, an Indian agent, comes to the lower Alsea.
- 1860's - 1870's Executive Orders open the "Coast Range Reservation" for settlement by whites.
- 1865 More settlers come. They are permitted to settle in an area north of Alsea Bay which is called "White Town" (now called Bayview). The area south of the bay is known as "Indian Town."
- 1872 The first settlers arrive in the Waldport area. People from Poland, Finland and northern Europe immigrate to the area through the 1880's. Upper Alsea residents make a trail downstream to Tidewater. There a hotel is built and boatworks are put into production. Indians at Yachats Agency are now using European tools and methods of agriculture.
- 1875 The Indian population in the Waldport area has decreased steadily since exposure to European diseases. Indians living south of the Alsea River and in Yachats are sent to Siletz.

1879 "Ownership" of the Waldport area is documented when Lint Starr sells his squatter's rights to David Ruble for \$300.

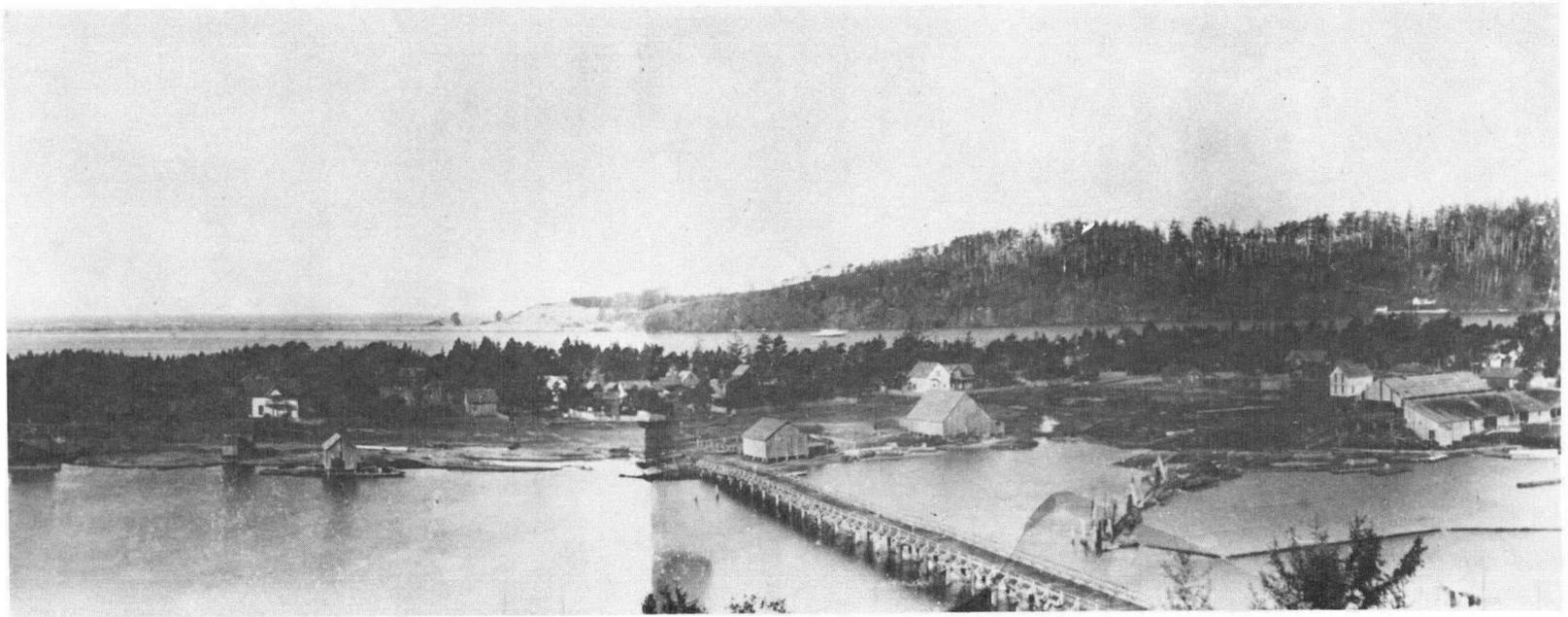
1880 - 1930 Early Community Growth and Establishment of an Economy

Forests surrounding settled areas recede and towns become more apparent; docks and groins extend into the water, and seawalls are constructed.

White population grows steadily, while Indian population continuously declines. Land surrounding the estuary, including much of the original Coast Range Reservation, is homesteaded. The increase in population promotes the establishment of stables, hotels, a church and a drug store. Cart roads are extensive, linking various communities.

Salmon fishing and a lumber industry gradually emerge as key economic activities. World War I initiates an increasing demand for Sitka spruce. A railroad and a wagon road are constructed to ease transport of logs to Toledo Mill. These transportation improvements permit the spread of residential development beyond the riverfront.

- 1880's Homesteaders occupy most of the "free land." 160 acres can be patented for \$25 to \$34. Docks and seawalls are built along the south shore of the bay at the site of "old town." Some filling accompanies growth of the settlement.
- 1881 The town of Waldport is first recognized by that name. It is believed that the name derives from the German word "wald," meaning forest, and the English word "port."
- 1884 Because demand for lumber in Waldport outgrows the incoming supply, the Baldwin Mill on Lint Slough is opened.
- 1887 300 Yakonan Indians now live on the "Coast Range Reservation."
- 1900 Along Mill Street by Lint Slough, one can see two stables, two hotels, a Presbyterian Church, a drug store and a long wooden bridge.
- 1910 29 Yakonan Indians still survive in the Alsea bay area.
- 1914 A wooden groin is constructed just upstream of Eckman Slough. It extends from the south shore two-thirds of the way across the bay.
- 1915 An almanac lists two salmon canneries, a creamery, planing mill and oar factory in Waldport. All are located near the waterfront.



Panoramic view of Waldport in 1897, looking across Lint Slough toward the inlet. (Photo courtesy of Pacific Studio, Newport, Oregon.)

- 1915 - A railroad is built through Waldport to transport logs to
1917 Toledo mill. World War I creates a demand for Sitka spruce for aircraft construction. In 1917, the 24-mile long Alsea Southern Railroad is constructed from South Beach to Waldport. A wooden trestle bridge is built across the bay at river mile 1.8.
- 1919 The first wagon road along the Alsea, linking the towns of Alsea and Waldport, is completed. This eliminates the need to travel by raft from Tidewater to Waldport.
- 1920's With the development of land transportation routes, community development begins inland from the river.
- 1930 9 Yakonan Indians survive in the Alsea bay area.

1930 - 1941 The Depression

W.P.A. projects, including Roosevelt Highway (now U.S. 101) and Alsea Bridge, draw activity away from the waterfront to areas along the highway.

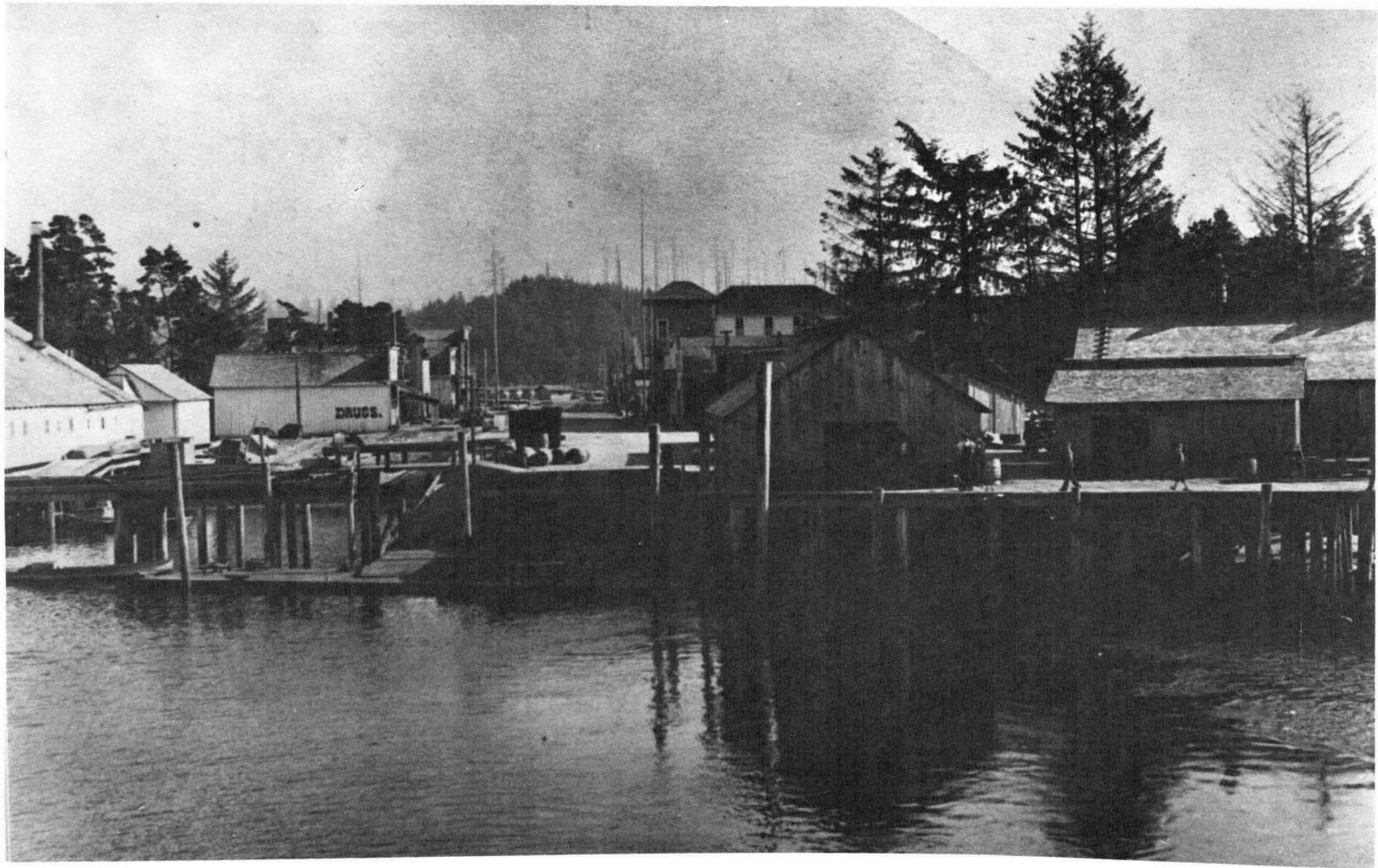
- 1931 - The salmon catch from the Alsea River increases after
1935 years of steady decline.
- 1936 - Roosevelt Highway (now U.S. 101) and Alsea Bridge are
1937 constructed as part of the W.P.A. program. This results in a shift of economic activity to areas along the highway. The Alsea Southern Railroad tracks are torn up.
- 1939 Numerous daffodil farms are visible in contemporary aerial photos.
- 1940 Beginning in 1940, attorneys for various Indian tribes press for settlement of claims against the government. The Oregon Highway 34 bridge, with 2 piers, is completed.

1941 - 1969 World War II and the Post War Period

Numerous dredge and fill operations alter the shoreline. Some areas of the river are dammed, while attempts are made to blast open channels in other areas. Numerous docks and jetties are built. Many homes are built along the river and in the hills south of Waldport overlooking the water.

The lumber and commercial fishing industries are gradually replaced by tourism and recreation as most important to the local economy.

- 1946 Beginning in this year and continuing through 1971, tideland areas around the mouth of Lint Slough are filled.
- 1948 An attempt is made to blast a channel along the south side of the estuary near the city docks.



Early view of Waldport's waterfront, showing use of pile supports that preceded extensive landfilling. Several of the structures visible in this photo are still in use. (Photo courtesy of Pacific Studio, Newport, Oregon.)

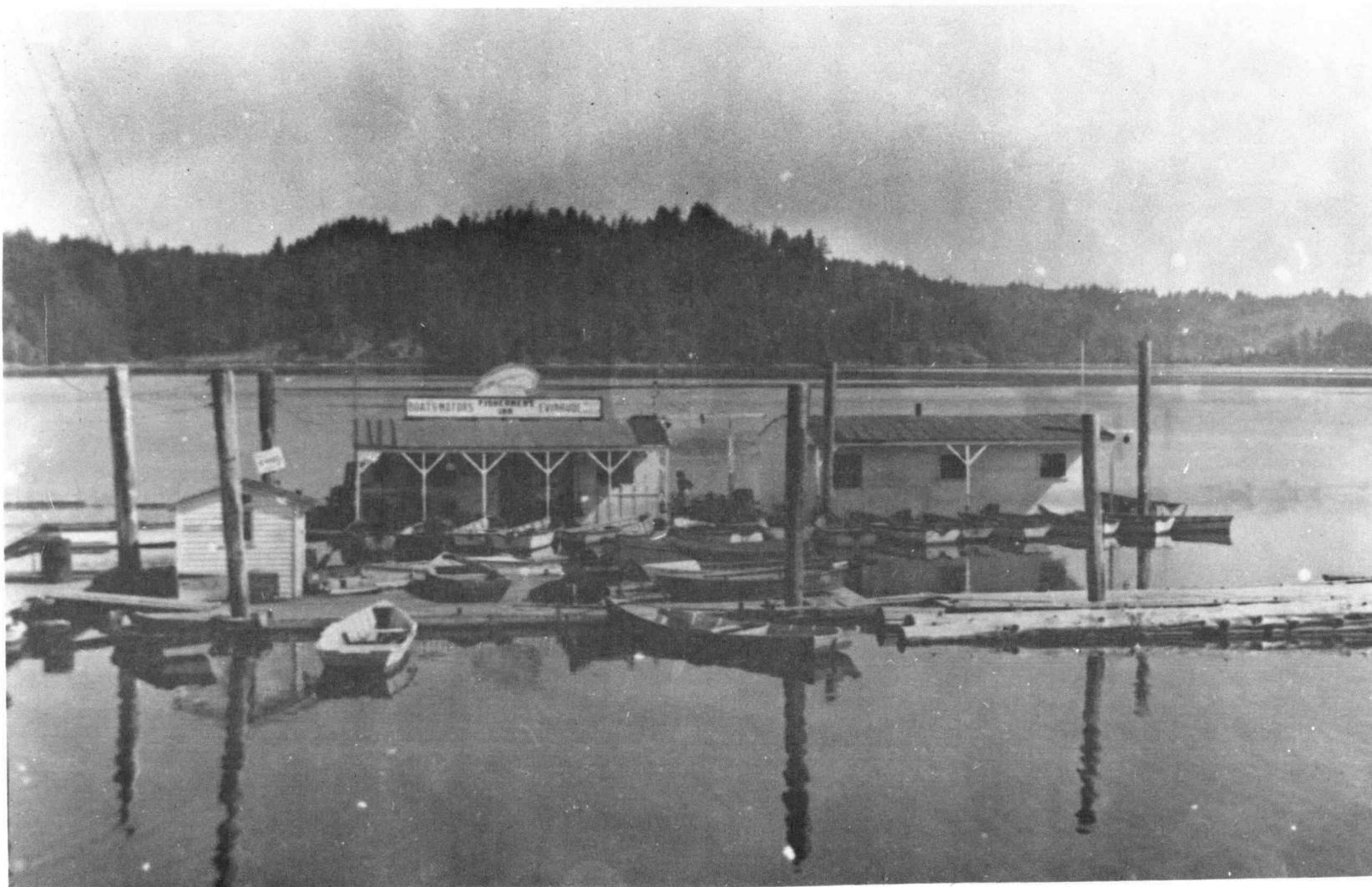
- 1949 Waldport's original sewage treatment plant, providing primary treatment only, is constructed.
- 1950 John Albert, last full-blooded Yakonan Indian in the Alsea area, dies.
- 1954 The sawmill at Waldport closes down.
- 1956 Commercial salmon fishing is outlawed in all streams south of the Columbia River by an Initiative Petition. The upstream end of the North Channel is dammed. This action, financed by the Port of Alsea, is intended to divert river flow through the South Channel.
- 1957 The wooden trestle bridge carrying Oregon 34 across the north of Eckman Slough is replaced by an earthen dike.
- 1960's Development begins south of Waldport in the hills overlooking the Alsea River and Pacific Ocean. Traffic, income and leisure time, and demand for recreational land increase. Area population is 3,413.
- 1963 A dam to impound waters for the Oregon State Game Commission Fish Hatchery is completed one-half mile up Lint Slough. The South Channel and several small boat channels are dredged.
- 1950 - Almost a two-fold increase in automobile traffic on U.S. 101
1970 and Oregon 34 is registered, reflecting increased public visitation in the 60's and 70's.
- 1968 A jetty to improve boat moorage at McKinley's Marina is built on the east side of the mouth of Lint Slough, parallel to the south shore of the bay.

1969 - 1975 Contemporary

The construction of recreation and tourism facilities such as trailer parks continues, but the rate of environmental modification decreases.

Coastal Oregon is recognized for its scenic beauty and environmental significance. Alsea residents and involved agencies attempt to establish sound development policies.

- 1970 Waldport population is 700. Area population, east and south to county lines, is 3,907. Most people live in beach and river areas. Approximately 944,000 tourists,



Fishermens Inn Moorage (no longer existing) opposite the present port of Alsea docks at Waldport, Oregon (date unknown).

vacationers and recreation enthusiasts pass through the Alsea Bay area.

- 1972 The entrance to Lint Slough between the Highway 34 bridge and McKinley's Marina is dredged, and material used to build up low-lying areas to the west for mobile home lots.
- 1973 Waldport's new sewage treatment plant begins providing secondary treatment.
- 1974 There is not much logging in the immediate vicinity of the bay, although 90 percent of the drainage basin is forested. Alsea is the most popular sport fishing stream within the Mid-Coast Basin. There are several motels, trailer parks and restaurants to accommodate tourists. Several commercial marinas, in addition to the port facility and numerous private boat docks, are located along the estuary from Waldport to Tidewater. Only 25 percent of the land in the county which is suitable for agriculture is being farmed. Much of the flood-plain supports recreational housing units. More than 200 Corps permits have been granted.
- 1985 It is projected by the State of Oregon that tourists may number 2,190,000 persons annually. Area population is projected to be 6,000.



The "7 Mile" Bridge at
Taylors Landing, Alsea River.

PUBLIC OPINION SURVEY

In October 1974 the Portland District, Corps of Engineers distributed by mail and hand delivery approximately 6,300 questionnaires to visitors and residents of the Alsea and Siletz study areas. (See Exhibit 34.) The primary distribution was a mailing to telephone subscribers in or near Lincoln County.* Telephone exchanges, the number of subscribers and the number of questionnaires mailed are on the following page.



Public opinion is a major input in the study.

* Non-telephone subscribers were thus automatically excluded but because of hand distribution of some questionnaires, the extent of the exclusion cannot be verified. According to a 1971 F.C.C. report, 10 percent of Oregon households are without telephone service.

<u>Exchange</u>	<u>Business Subscribers</u>	<u>Resident Subscribers</u>	<u>Total Subscribers</u>	<u>Total Mailing</u>
<u>Pioneer Cooperative System^a</u>				
Alsea (Town)	26	262	288	288
Blodgett (Burnt Woods)	9	90	99	99
Chitwood (Elk City, Eddyville)	15	152	167	167
Harlan	6	37	43	43
Lobster Valley	3	36	39	39
South Beach	70	323	393	393
Tidewater	13	190	203	203
Waldport	182	959	1,141	1,141
Yachats	92	462	554	554
<u>Bell System^b</u>				
Lincoln City (Kern- ville, Neotsu, Otis, Rose Lodge)	na ^c	na	3,600	1,200 ^d
Newport, Siletz, Toledo	na	na	3,900	1,300
Depoe Bay (Gleneden)	na	na	780	260
TOTAL DISTRIBUTION TO PHONE SUBSCRIBERS				5,687

^aThe entire billing list of the Pioneer Cooperative Telephone System was available and therefore used for the mailing to all subscribers of appropriate Pioneer exchanges.

^bThe mailing list for those portions of the study area served by the Bell Telephone System was derived from phone books. Addresses in the phone books and mailing addresses for subscribers are not necessarily the same, leading to a high percentage of undeliverable questionnaires, particularly in the Depoe Bay area and at Gleneden Beach. This was offset to some degree by a large hand distribution to residents of Gleneden Beach and general post office delivery through the Depoe Bay Post Office.

^cna - Not available.

^dBecause of the difficulty involved in transcribing addresses from the Bell Telephone system phone books, only every third subscriber was put on the mailing list. The total mailing of 2,760 to Bell subscribers was felt to be large enough to produce a statistically valid sample size. However, this did, as expected, lead to a disproportionately large number of responses on questions affecting the Alsea as opposed to the Siletz.

EXHIBIT 34

PUBLIC OPINION SURVEY
 "Wetlands Review Study"
 Alsea/Siletz Bays, Oregon

190

I. The Bay and River of most immediate concern to me is (check one):

- 1) the Alsea 451
- 2) the Siletz 309
- 3) both 107
- 4) the Coast generally 349

II. What length of time do you spend in the Siletz or Alsea area? Are you: (check one)

- 1) a full-time resident 977
(more than 6 months per year)
- 2) a part-time resident 174
(less than 6 months per year)
- 3) on one of a number of frequent visits 202
- 4) visiting for the first time 4

III. I think it would be best if the Bay and River were: (number in order of preference)

	Alsea		Siletz	
	Yes	No	Yes	No
1) kept pretty much the way they are	648	105	502	903
2) developed somewhat more to attract <u>tourists</u>	284	372	217	308
3) developed somewhat more as <u>residential</u> communities	343	307	231	279
4) developed somewhat more for <u>industrial</u> uses	152	483	120	395
5) developed somewhat more as <u>sea-going</u> commercial ports	292	402	193	344
6) managed primarily for fishing, hunting and other outdoor recreation	745	73	586	621
7) managed primarily as natural estuaries	654	90	556	632
8) no opinion	21	9	11	10

IV. Do you own or manage property on the immediate shoreline of:

- 1) Alsea Bay or River 219
- 2) Siletz Bay or River 100
- 3) the ocean 246
- 4) neither 717

V. Have you ever applied, or do you anticipate having to apply, for a permit for construction of a dock, piling, dredging, etc., in the rivers from the Corps of Engineers for work in the waters of the Alsea or Siletz estuaries?

- | | | | |
|------------------------|---------------|-----------------|---------------------|
| 1) have a permit | Yes <u>87</u> | No <u>1,055</u> | Possibly <u>19</u> |
| 2) anticipate a permit | Yes <u>27</u> | No <u>1,045</u> | Possibly <u>121</u> |

VI. What town or area do you consider home?

- | | | | |
|---|---|---|--|
| 1) Lincoln City <u>160</u> | 4) Alsea Bay except Waldport <u>65</u> | 7) Depoe Bay <u>43</u> | 10) Elsewhere on Oregon Coast <u>59</u> |
| 2) Siletz Bay except Lincoln City <u>39</u> | 5) Waldport <u>238</u> | 8) Yaquina Bay & River including Newport <u>247</u> | 11) Portland <u>66</u> |
| 3) Siletz River above U.S. 101 <u>28</u> | 6) Alsea River above Eckman Slough <u>158</u> | 9) Yachats River including Yachats <u>102</u> | 12) Willamette Valley <u>74</u> |
| | | | 13) Oregon east of the Cascades <u>6</u> |
| | | | 14) Elsewhere in Oregon <u>11</u> |
| | | | 15) Out of State <u>28</u> |

VII. Please indicate how you feel about the following statements for Siletz and Alsea Bays and Rivers:

	<u>Strongly Agree</u>	<u>Generally Agree</u>	<u>Generally Disagree</u>	<u>Strongly Disagree</u>	<u>Need More Information</u>	<u>No Opinion</u>
1) The immediate shorelines should be saved for marinas, parks, fishing sites, and other public purposes needing access to the water	<u>386</u>	<u>367</u>	<u>184</u>	<u>141</u>	<u>130</u>	<u>17</u>
2) Shorelines should be saved to keep the Bays and Rivers in a relatively natural state	<u>761</u>	<u>318</u>	<u>79</u>	<u>37</u>	<u>52</u>	<u>17</u>
3) If there were more marinas, public moorages or central docking facilities, people could be reasonably restricted from building so many private docks along the Bays and Rivers	<u>227</u>	<u>340</u>	<u>277</u>	<u>179</u>	<u>129</u>	<u>56</u>
4) People who locate or buy land along the Bays and Rivers should generally be willing to accept the area as it is (i.e., no filling of marshes or tidelands or major flood control projects)	<u>618</u>	<u>329</u>	<u>125</u>	<u>92</u>	<u>80</u>	<u>20</u>
5) People need more information and education about Oregon's estuaries in order to understand their regulation, use and preservation	<u>790</u>	<u>347</u>	<u>27</u>	<u>14</u>	<u>25</u>	<u>31</u>
6) Unless something is done soon about development pressures, the Rivers and Bays as we know them will be radically changed for the worse	<u>744</u>	<u>258</u>	<u>117</u>	<u>53</u>	<u>67</u>	<u>26</u>
7) Things along the Bays and Rivers are under control and progressing reasonably well	<u>57</u>	<u>264</u>	<u>352</u>	<u>262</u>	<u>178</u>	<u>64</u>
8) No further private development on the immediate shoreline of the Bays and Rivers	<u>414</u>	<u>243</u>	<u>236</u>	<u>145</u>	<u>152</u>	<u>50</u>

VIII. In setting standards for permits and in designating areas of the Siletz and Alsea estuaries for management, specifically as "wetlands", which of the following are needs that the Army Corps of Engineers should be most sensitive to, somewhat more responsive to, least concerned about (check 6 or less):

	<u>Most Sensitive To</u>	<u>Somewhat More Responsive To</u>	<u>Least Concerned About</u>
1) Protecting fish, shellfish and game animals and the natural ecology of the estuaries	<u>1,014</u>	<u>137</u>	<u>20</u>
2) Providing more local housing opportunities	<u>66</u>	<u>117</u>	<u>499</u>
3) Eliminating the filling of marshes, tidelands, and public waters for private development	<u>812</u>	<u>147</u>	<u>86</u>
4) Eliminating flooding of property and protecting people from flood hazards	<u>431</u>	<u>273</u>	<u>140</u>
5) Increasing the tax base	<u>110</u>	<u>128</u>	<u>399</u>
6) Controlling development pressure from outside the local area	<u>630</u>	<u>174</u>	<u>109</u>
7) Providing better services for tourists	<u>118</u>	<u>206</u>	<u>394</u>
8) Maintaining the residential character of communities	<u>305</u>	<u>219</u>	<u>130</u>
9) Stabilizing erosion of shorelines	<u>607</u>	<u>180</u>	<u>75</u>
10) Protecting scenic values	<u>718</u>	<u>156</u>	<u>25</u>
11) Economic and employment needs of residents	<u>267</u>	<u>228</u>	<u>192</u>
12) Deepening navigation channels in certain places	<u>465</u>	<u>193</u>	<u>154</u>
13) Enforcing environmental regulations	<u>570</u>	<u>146</u>	<u>78</u>
14) Keeping down manmade silt	<u>598</u>	<u>170</u>	<u>35</u>
15) Letting people live and let live	<u>279</u>	<u>156</u>	<u>200</u>

IX. Is your livelihood:

- 1) directly dependent 92 2) indirectly dependent 382 3) unaffected 827
on how the Alsea and/or Siletz estuary is managed?

X. My occupation is:

- | | | | |
|--|--|--|--|
| 1) retired <u>450</u> | 5) farmer or in agriculture related business <u>36</u> | 9) commercial fisherman <u>38</u> | 13) wholesaling <u>10</u> |
| 2) housewife <u>33</u> | 6) public employee <u>95</u> | 10) marine related business <u>25</u> | 14) tourist related business <u>39</u> |
| 3) student <u>71</u> | 7) professional <u>147</u> | 11) insurance/real estate or property management <u>55</u> | 15) other <u>108</u> |
| 4) in forestry or forestry related business <u>115</u> | 8) craftsman/artist <u>29</u> | 12) retail sales and service <u>78</u> | |

XI. Following are maps of the Alsea and Siletz estuaries. They have been roughly divided into circles to help identify general areas, and numbered for tabulation purposes. Please check the box that is most applicable to you and your family:

ALSEA BAY AND RIVER

SILETZ BAY AND RIVER

Circle #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13
1) This area(s) is most familiar to me (check 3 or less)	390	612	372	212	49	57	95	45	16	37	89	93	87	72	70	179	337	387	173	49	34	24	16	8	15	21	53	50
2) As a rule, I generally use this area(s) at some time or other for ... hunting	30	38	47	37	10	18	14	21	7	2	12	12	15	17	24	19	20	37	10	7	5	4	1	1	6	5	18	14
fishing	224	320	208	105	14	27	81	38	11	26	68	67	69	54	50	72	150	156	105	46	24	14	17	5	12	13	39	43
crabbing	224	319	176	49	4	3	7	3	0	3	2	0	2	2	1	37	132	126	22	1	3	0	1	0	2	0	0	0
shellfishing	97	121	103	39	1	4	7	9	2	1	2	5	2	2	4	14	39	43	11	3	1	0	1	0	0	0	0	2
other recreation	165	189	108	53	18	23	18	14	7	8	17	19	23	23	24	66	143	143	49	11	8	6	5	2	2	1	7	11
3) There are some things in this area that I would like to see changed or preserved.	120	125	96	55	6	11	19	10	6	6	10	15	13	13	4	49	107	122	35	8	5	3	1	2	2	3	7	10

Please indicate how: (See Appendix .)

XII. If you live in the Alsea or Siletz areas or along the Oregon Coast, do you feel that your economic needs are:

- 1) adequately met 638 2) being met with great difficulty 236 3) inadequately met 181

NAME AND ADDRESS ARE OPTIONAL.

XIII. Please send me more information concerning the "Wetlands Review" study and keep me informed of public notices regarding workshops and public meetings for the Alsea/Siletz Wetlands Review.

Name _____

Address _____

City _____ State _____

Zip Code _____

XIV. My opinion of this questionnaire is:

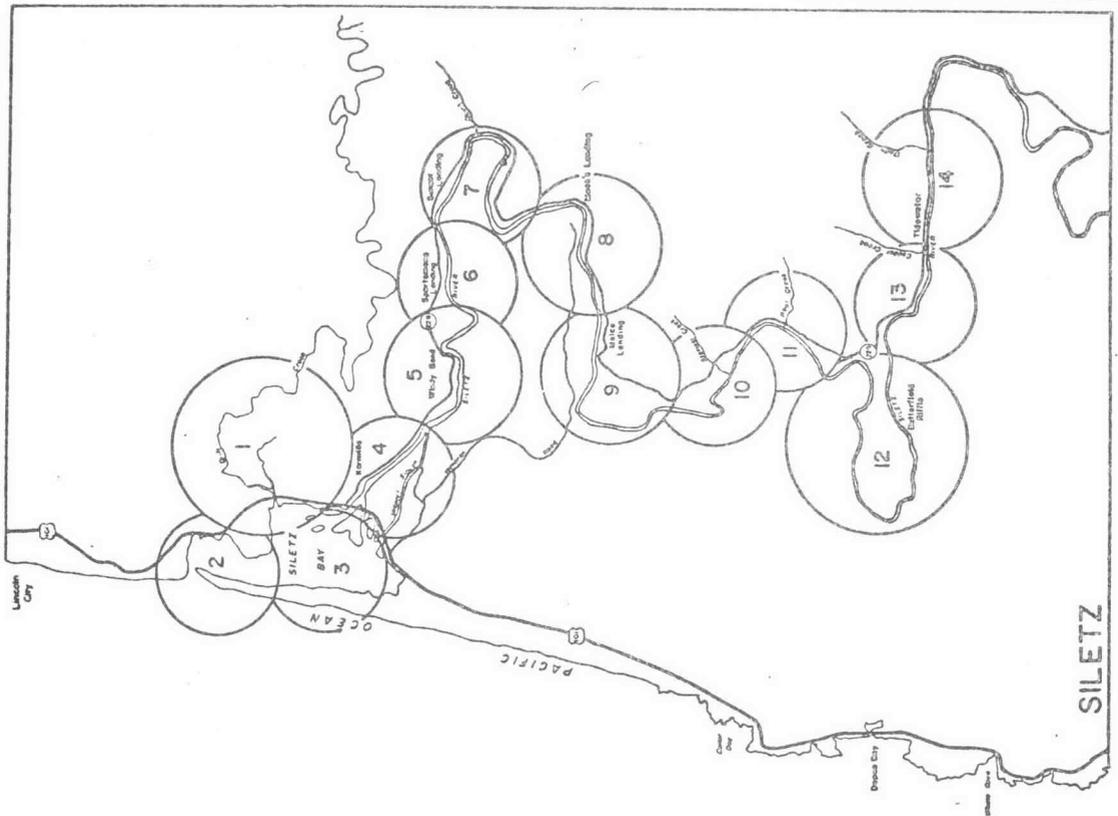
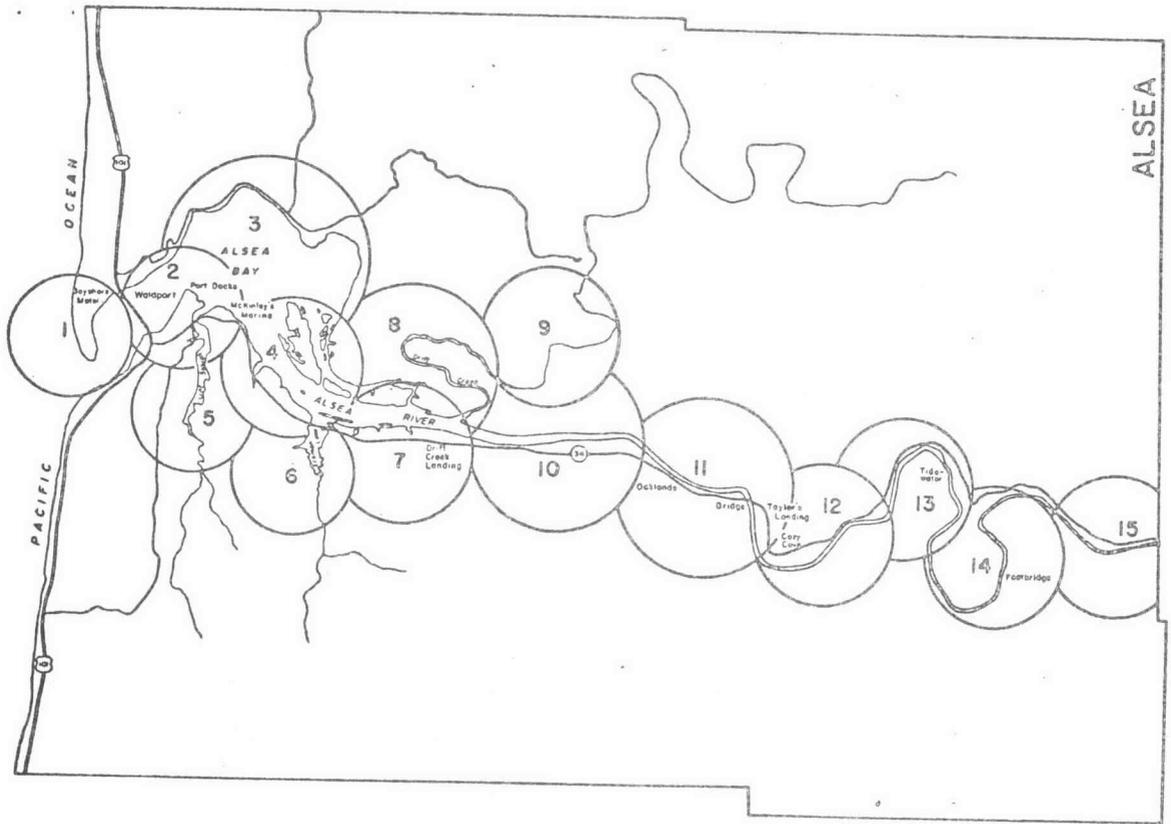
1) That it is a good idea 1,059

2) A waste of time 47

3) Could be improved 165

XV. Are there other comments or thoughts you would like to offer on the Alsea and Siletz estuaries and their management and use? Your ideas will be much appreciated.

(Reprinted in Appendix G.)



A secondary distribution was made by hand or in bulk at the request of organizations and individuals:

o Salishan Leaseholders	335
o Canyonway Center (Newport)	20
o Alsea River Recreation Association	20
o Waldport High School (Seniors)	100
o Citizen Request (Gleneden Beach)	40
o Citizen Request (Willamette Valley)	50
o Random Citizen Distribution	<u>45</u>
Total Secondary Distribution	610

These distributions were coded in case the returned sample proved to be a significant portion of the total number of questionnaire returns. Questionnaire responses received from such sources, however, were added to the total sample.

Approximately 1,300 questionnaires were returned to the Portland District out of a total of 6,300. Since not all respondents answered each question, the total number of responses to each question varies. (See Appendix G) The Appendix also shows the results in percentage. The total number of responses to each question are shown on Exhibit 34.

The survey was designed for both Alsea and Siletz Wetlands Reviews. Because of the similarity of the two studies and in order to determine the attitudes of the whole region on certain questions, the survey was conducted simultaneously in both areas.

Purpose

The primary purpose of the public opinion survey was not to poll the public on specific proposals or activities which might require a permit from the Corps of Engineers. Rather, its function was to obtain an approximation of overall public attitudes toward resources and resource uses within the study area. The broad nature of the choices presented in Question III is indicative of this approach, in contrast for example, to an approach where the public would have been polled on whether or not jetties should be provided at the inlet. The results were statistically analyzed but not tested against census and other data. Nonetheless, they tend to confirm study findings obtained from other sources, particularly through the program of community participation. Some of the questions were restated to provide some measure of verification as well.

The questionnaire had secondary purposes: 1) it informed the general public that the Wetlands Review Study was being undertaken; 2) it invited public input to the study; and 3) it stimulated general interest in the issues to be addressed by the study.

) A very large number of conclusions might be drawn solely from the results of the questionnaire. For those who are interested, the conclusions can be derived in a number of ways: 1) by comparing responses of a particular group to all responses received, 2) comparing the intensity of agreement or disagreement within the same group and 3) comparing the responses of the same group to a number of propositions stated in different questions. For the Wetlands Review, the overall questionnaire results are most useful as a general policy guide to the Portland District as it exercises its authority under Section 10 of the River and Harbor Act. (See Appendix E.)

Summary of Questionnaire

The survey made it possible to characterize the public of respondents and rank their preferences. The permanent address of 80 percent of respondents was Lincoln County or coastal areas. Seventy-two percent of these resided there for over 6 months/year, and 15 percent made frequent visits to the area. The individuals having their livelihood directly dependent upon the estuaries were in the minority (7%). Occupations of respondents were in greatest numbers for retirees (34%), forestry (9%), and professional (11%). Satisfaction in having one's economic needs being met was expressed as adequate by 60 percent, met with difficulty by 22 percent, and inadequately met by 17 percent of the respondents. This is viewed as a motivation index rather than a measure of economic well being.

Of the public surveyed, 37 percent had specific interests in the Alsea area, 25 percent in the Siletz, 9 percent in both areas, and 29 percent in the coast in general. Land ownership or management along the shoreline of the Siletz was found in only 8 percent of the respondents, and 75 percent of these land stewards had Corps permits.

Responses to all items were categorized according to total responses; residency; shoreline ownership; coastal or non-coastal residency; perception of economic needs; and select occupations, specifically, retirees, marine-oriented interests, real estate and property management, and tourist-related businesses. These responses can be evaluated in several ways: 1) by comparing the response of a particular group to the total of all responses, 2) comparing the degree of intensity of feeling between "agree" and "disagree" within the same group and 3) comparing the responses of the same group to each of the eight propositions presented.

An in-depth analysis of each question is found in Appendix G.

Siletz estuarine-use preferences were statistically ranked in favor of fishing, hunting, and recreation (10 to 1); as a natural estuary 7 to 1); and keep the same (6 to 1). Respondents were opposed to industrial uses (3 to 1) and inconclusive about tourism, residential and commercial port development. Part-time residents and frequent visitors were less willing than full-time residents to see commercial port development, though both groups were generally opposed.

The views of shoreline owners and managers were consistent with the majority of responses in question III except for the following: property owners and managers were more willing than the majority to see further residential development on the Alsea. This difference is related to the fact that opportunities for further residential development are great in the Alsea.

Over 80 percent of the respondents felt the Army Corps of Engineers should be most sensitive, or somewhat more responsive, to 1) protect fish and wildlife, 2) protect scenic values, 3) eliminate filling of marshes, 4) keep down man-made silt, 5) stabilize eroding shorelines, 6) enforce environmental regulations, 7) control development pressures, 8) deepen channels, 9) eliminate flood hazards, and 10) maintain the residential character (in that order of importance). There was less consensus and less concern about the other five items in question VIII.

Wetland areas of greatest familiarity in the Alsea to the respondents were the north part of the bay and the Waldport area, respectively. Areas of greatest use were the north part of the bay, Waldport area and the upper bay for fishing; Waldport area and the north part of the bay for crabbing; and north bay and Waldport area for other recreation. Areas of greatest concern for change, or preservation, were north bay and Waldport area. The coastal areas are much more accessible to the respondents and thusly more widely recognized. Drift Creek tends to be used for fishing and hunting, lending support to another study finding that the area is recognized as providing outstanding recreational opportunities that should, according to local sentiment, be publicly acquired.

Over 70 percent of the respondents strongly agree or generally agree that a) people need more information about Oregon's estuaries in order to understand their regulation, use, and preservation; b) shoreline should be saved to keep the Bays and Rivers in a relatively natural state; c) unless something is done soon about development pressures the Rivers and Bays as we know them will be radically changed for the worse; and d) people who locate or buy land along the Bays and Rivers should generally be willing to accept the area as it is. Less consensus was found in items 1, 3, 8 (more respondents agreeing) and 7 (with more respondents disagreeing), in question VII.

The questionnaire was viewed favorably by 83 percent of the respondents.

COMMUNITY PARTICIPATION

Community participation was a major element in the Wetlands Review Study; the program to involve the public in the study included the following:

- o The solicitation of views through the public opinion questionnaire.
- o Four months of personal interviews by study personnel temporarily residing in the study area.
- o Presentations to local organizations and press media.
- o Circulation of a summary of the preliminary draft report.
- o An informal briefing for State agencies, Federal agencies, local government and private organizations.
- o Public workshops in the study area.
- o Press announcements on significant study events, including radio interviews.

Each of the community participation program elements is described below. Overall, citizen and governmental input to the study was most constructive, enabling the study findings to be responsive to the various public interests involved in the Alsea study areas. Acknowledgements to particular groups, agencies and individuals who contributed to the study in significant ways are given in Appendix F. The major roles played by Lincoln County, the Oregon Coastal Conservation and Development Commission, and local citizens participating in local planning efforts described in Chapter 1.

The Public Opinion Questionnaire

In addition to structured questions, the questionnaire invited the public to provide "other comments or thoughts you would like to offer on the Alsea and Siletz estuaries and their management and use" (Question XV). Such comments were received by more than 130 respondents. Many of the ideas and suggestions are primarily directed toward government agencies other than the Corps of Engineers. Nonetheless, all were read and considered in the findings of the Wetlands Review Study. Overall, they not only confirm the views expressed in the questionnaire itself but offer specific suggestions and opinions on particular activities affecting the study areas.

Personal Interviews

The study coordinator resided in Lincoln County - at Waldport - from September to mid-December 1974 and conducted informal interviews with citizens and agencies throughout the area. Too numerous to list here, these interviews provided insights that could not have been obtained through other means. Moreover, the coordinator had regular opportuni-

ties to work closely with the local land use planning subconsultant at Newport, Oregon, and to acquire on-the-ground familiarity with the study area, its resources and people. The study's land use subconsultant worked closely with the staff of Lincoln County's planning commission throughout the study.

Presentations

The study coordinator and Corps personnel made public presentations on the Wetlands Review studies to numerous organizations and press media. Most significant among them are:

- o The Alsea River Recreation Association
- o The Port of Alsea
- o The Waldport Chamber of Commerce
- o The Yachats Chamber of Commerce
- o Senior Civics Class, Waldport High School
- o Save Our Siletz Committee
- o Oregon Shores Coastal Coalition
- o The Newport Times Newspaper
- o Lincoln City Newsguard
- o Mt. Angell Dredging Conference, Oregon State University
- o Geography Department, University of Oregon
- o Radio stations in Lincoln City and Toledo
- o Oregon Coastal Sportsman Newspaper

In addition, the study was often discussed at OCC&DC meetings. These gatherings provided opportunities for informal discussion on study issues and yielded suggestions and comments that formed the basis of many study findings.

Circulation of the Draft Report

By April 1975, a preliminary draft Wetlands Review report was prepared. Approximately 300 pages long, it was summarized by the Portland District and distributed to about 1,400 citizens and agencies. The distribution was derived from Portland District's regular mailing list and from the public opinion questionnaire. The summary, consisting of approximately 80 pages, highlighted the study's preliminary recommendations and served as a working paper for further citizen and agency input. For the community workshop a separate document, "Discussion Guide - Public Workshops," (see Appendix H), was prepared to organize study recommendations as a basis for discussion at the community workshops.

Agency Briefing/Community Workshops

Following distribution of the preliminary draft report, a briefing for Federal, State and local agencies was held in the Portland District's office on April 10, 1975.

In attendance were representatives of the following:

- o Oregon Wildlife Commission, Portland
- o Federal Highway Administration
- o Oregon Department of Transportation
- o Siuslaw National Forest, Corvallis, Oregon
- o Lincoln County Planning Department, Newport, Oregon
- o Port of Alsea, Waldport, Oregon
- o U. S. Environmental Protection Agency
- o Marine Advisory Program, Oregon State University
- o School of Oceanography, Oregon State University
- o Fish and Wildlife Service, U. S. Department of Interior
- o Division of State Lands
- o State Highway Division
- o Lynn D. Steiger and Associates - Land Use Planning Sub-consultants for the Wetlands Review Studies, Portland
- o Howard, Needles, Tammen and Bergendoff - Prime Consultant, Wetlands Review Study
- o Environmental Branch, Corps of Engineers

The discussion was generalized and informal and concentrated on the format, methodology and intent of the Wetlands Review Study rather than on specific recommendations. Participants were invited to provide additional informal comments by June 1, 1975. Letter responses were received from Oregon State University, the Siuslaw National Forest, and the Highway Division, Oregon Department of Transportation. To close up the paint jobs. In addition, informal notes were submitted by the Oregon Fish Commission. All were taken into account in revising the preliminary draft.

One week after the agency briefing in Portland, community workshops were scheduled in the study area (April 17 and 18). Public invitations were placed in local newspapers and mailed to respondents of the questionnaire. Morning and evening sessions of about three hours each were held in both the Alsea and Siletz study areas. Approximately 65 people attended the morning session for Alsea; there were approximately 200 people at the afternoon session.

Following a brief introduction about the study, small table discussion groups were led by local citizens. These individuals then reported the consensus of these discussions to the full group. All sessions were recorded on tape; these were subsequently reviewed during revision of the draft report. While a transcript would be too voluminous to be reprinted here, the following notes provide some insight into the nature of these discussions.

Table 28 Alsea Workshop Comments

Alsea Workshop - April 17 - AM Session - Attendance 65
Table Discussion #1

- o The description of biological habitats in the draft is fine.
- o Logging should be controlled.
- o Detrimental fills should be removed (editors note: the discussion had no specific suggestions).
- o Silt removal should be done only in accordance with an estuary plan.
- o Filling in the marshes should be avoided.
- o Permits should not contravene local plans. Permits should not be required for normal maintenance of docks and other facilities.
- o Master planning in the estuary should include local recreational development.
- o Areas such as Drift Creek should be purchased by the State and/or local government.

Table Discussion #2

- o The draft report is commended; an effort should be made to actually implement it.
- o Dams should be built upstream to control siltation.
- o Dredging should be accomplished to control siltation and avoid the death of the estuary.
- o Consider controlling increase in seal population by harvesting.
- o Build a breakwater on the south side of the inlet for navigation and control of ocean-borne sediments.
- o Can we prevent the death of the estuary? Will the Corps actually implement the Wetlands Review?

Table Discussion #3

- o Add additional areas to the listing of "wetlands of importance," specifically the critical area on the south side of Alsea Bay near the 101 Bridge.
- o Support establishment of a local estuarine clearinghouse.
- o Revive the Alsea Bay Task Force.
- o Improvements should be made to the North Channel based on the outcome of a separate hydraulic study.

Table Discussion #4

- o The draft is comprehensive, interesting and informative; residents are well represented.
- o The clearinghouse is a fine idea but it must work properly or it will slow rather than expedite progress.
- o An estuary plan is badly needed.
- o Develop a uniform permit application with other agencies.
- o Public education should be increased but not used as an excuse

Table 28

- o for empire-building.
- o Are there funds available for implementation of the recommendations?
- o There needs to be a statement on the economic effects of implementation (editors note: the economic profile was not summarized for public distribution).
- o Control the seal population by harvesting.
- o Discussion on the jetty proposal is needed.

Table Discussion #5

- o There should be closer communication between the Corps and local authorities.
- o The remains of the trestle between Lint Slough and Sheppard Point should be removed since it traps silt.
- o The permit authority needs to be revamped and simplified.
- o The Wetlands Review is an excellent pattern to follow.
- o Give us answers on how to preserve the fishing and resolve our serious siltation problem.

Table Discussion #6

- o We need answers on the rate and source of siltation and means to control it.
- o Tidelands and marshlands need protection by insuring proper flow of water without excessive siltation.
- o Jetties should be restudied for their effects on siltation.
- o The waterfront at Waldport needs to be improved with restrooms, fishing docks and access for the infirmed and handicapped (i.e., wheel chair ramps).
- o Public moorage and boat ramps need improvement generally.
- o The bay needs overall improvement for social, economic and recreational use.

Table Discussion #7

- o Siltation is the greatest problem in the estuary.
- o There should be public acquisition of critical shoreline frontage areas.
- o The Bay should be rehabilitated with better flushing, dredging and control of silt though we don't know where this should occur specifically.
- o Watershed runoff is the primary responsibility of timber harvesters.
- o The south side of the bay is the only location for acceptable disposal sites.
- o Sand intrusion from the ocean is a problem; the jetty may improve the situation.
- o There needs to be an estuary plan to show where activities are suitable.

Table 28

- o Lint Slough, McKinney Slough and Eckman Slough marshes are not as important as north side marshes and may be considered as areas where tradeoffs between development and preservation can occur.
- o More information is needed on the historical trend of the estuary to determine activities for the future.
- o Corps officers should be actively involved in estuarine studies.
- o Jetty improvement was discussed; improvement may bring about commercial port uses of the bay.

Table Discussion #8

- o Concern was expressed over siltation and the effects on fishing - a sandbar has been moving downriver over the years and should be removed. Where are the sites for disposal of dredged materials?
- o Is the estuary dying? Is silt accelerating its death?
- o The Corps has responsibility not to cater to subdividers.
- o The dike on the North Channel was discussed.
- o Remove remains of the trestle between Lint Slough and Sheppard Point.

Alsea Workshop - April 17 - PM Session - Attendance approximately 200

Table Discussion #1

- o The group was most concerned about Bayshore Spit; the Spit needs to be stabilized.
- o The commercial zone should be restricted to areas now planned along Highway 101 for commercial use; no expansion of commercial areas to the waterfront is anticipated.
- o The canal was meant for drainage purposes, not for marina use.
- o Improve existing boat launching facility near Bayshore Motel.

Table Discussion #2

- o Include tideflats near 101 Bridge as "wetlands of importance."
- o Remove remains of trestle to Sheppard Point as a hazard to navigation.
- o A local estuarine clearinghouse does not appear to be warranted for the immediate area.
- o Individual dock construction is acceptable in developed areas; control proliferation in undeveloped areas.
- o Bank erosion is accelerated by excessive boat speeds on the river.
- o The Portland District needs to broaden its scope of activities on the Alsea over and above the granting, denial or conditioning of permits.

Table 28

Table Discussion #3

- o A local estuarine clearinghouse may facilitate the issuance of permits.
- o Jetties at the inlet may not be the answer to our problems and may compound them.
- o Keep Waldport as it is - "village like;" do not allow high density developments.
- o Spoils from the quarry upstream of Eckman Lake are polluting the lake with tailings.
- o Siltation and the sewer outfall at Lint Slough are major problems for the Bay.

Table Discussion #4

- o The Portland District should not be involved in land use decisions. How can we plan for the estuary in 45 minutes when it took two years to do a land use plan?
- o People should think about whether they want the Corps involved.

Table Discussion #5

- o This group gave unanimous support for jetty construction.
- o Waldport should be planned for normal rates of growth.
- o Bayview and Sheppard Point should be developed.
- o There needs to be a study of the effects of putting a tidegate in the dam across the north channel.
- o Maintain the marshes and tideflats as they are.
- o Leave Drift Creek, Eckman, McKinney and Lint Slough as they are.
- o Develop the south bank of the river above Eckman Slough to the 7 Mile Bridge; develop Barclay Meadows; leave the north bank of the Bay in its natural state.
- o Dredge disposal sites along the river should be identified.

Table Discussion #6

- o The channel should be dredged selectively from the Port docks at Waldport upstream to remove obstruction to navigation based on recommendations of a separate study.
- o An historic perspective on conditions of the channel is needed to determine where dredging should be done. Before jetties are proposed, information is needed on the source and distribution of silt.
- o Overall, the bay should be planned for moderate development.
- o Private docks and moorage should not be a problem unless new areas are subdivided.
- o Leave Bayshore and Sheppard Point as they are in low density uses.
- o Remove pilings and other hazards to navigation.

Table 28

Table Discussion #7

- o This group supported establishment of a local estuarine clearinghouse and development of uniform permit applications.
- o Protect critical marshes east of the 101 Bridge and Drift Creek.

Table Discussion #8

- o Siltation in the river is the greatest problem; some dredging is necessary.
- o Permits should be simplified; the existing system is too costly and time consuming.
- o There are too many docks in the narrower portions of the river.
- o Clearcutting should be curtailed in the watershed and a buffer established between timbering and watercourse.
- o The group was divided on a local estuarine clearinghouse but felt that a comprehensive estuary plan is a good idea.
- o The Corps needs a greater presence at Alsea to keep in touch with citizen views.

Table Discussion #9

- o Jetties are not the way to go.
- o A greenway along the bay and river should be established to curtail effects of clearcutting.
- o Rather than Corps involvement in scientific studies, more funds should be channeled to such organizations as the Oregon State University.
- o More biological studies and analysis of bottom sediments are imperative.
- o Draft report is good but it needs work; biologically and economically, it did not go far enough (editors note: biological and economic data were not summarized in the working paper).
- o People who build on sand should not receive public subsidies to save their property.

Table Discussion #10

- o Report is fine; the group was somewhat confused but generally supported a local estuarine clearinghouse; uniform permit applications and upgrading of Corps field officers to perform other than regulatory functions needed.
- o Property owners should be allowed permits to protect their property from erosion, flooding and so forth.

- o The group predominantly favored jetties at the inlet.
- o Channel improvement from Lint Slough upstream is needed, particularly silt removal.
- o Fishing is on the decline.
- o Docks and developments should be allowed to continue where they now exist.

Other Comments

- o The value of the "oyster house" as a historic site was questioned.
- o What good will designating "wetlands of importance" be if the entire area is silted over, particularly the marshes and clam beds?
- o The Corps should be commended for this work and actually implement its findings.
- o Southwest winter storms bring much debris and sand into the estuary and are eroding Yaquina John Point; a jetty may help.

CONCLUSIONS

A number of conclusions can be drawn from the Social Profile. The summary points listed below are those which are of most direct importance to the Wetlands Review. They characterize current Lincoln County attitudes toward management of estuarine resources:

- o Coastal residents see themselves as distinct from their regional neighbors in the Willamette Valley or in California. This sense of distinction apparently parallels the long-standing economic relationship between the Coast as an exporter of resources (salmon - timber) and other non-coastal areas where the level of demand for coastal resources is determined. The conflict over coastal resources in Lincoln County is characterized less as a conflict over specific users of the estuary, i.e., recreationists versus preservationists versus developers, and more as a conflict between pressure perceived as emanating from outside and the level of resource trade-offs necessary to gain local independence and self-sufficiency. The feeling of separate identity was confirmed in the questionnaire results as well as through the community participation program. Respect for this identity is a condition of the coastal public's willingness to participate constructively in planning or regulatory efforts by those identified as non-coastal representatives.
- o Along with their sense of distinction from other non-coastal groups, Lincoln County residents have a direct interest in management of the coastal environment. The environment provides direct and substantial tangible and intangible benefits to local residents in the form of recreation, subsistence and amenity opportunities. It appears that these

benefits compensate in part for the many economic disadvantages suffered by coastal residents which are distinct from those which can ordinarily be attributed to urban life styles.

- o Public interest in management and regulation is manifest in concern over the acceptable rate of development in the estuary. It appears to be generally true that Lincoln County residents feel some level of development and growth is acceptable and necessary. Conversely, there is general acceptance of the proposition that preservation--no development in the estuary--would be environmentally counterproductive, as indicated for example, in public demands for selective dredging to prolong the estuary's life and improve fisheries in the face of heavy sedimentation. This attitude is not radically different from that held by previous generations of coastal residents whose development options were less limiting than today; the fundamental change in local opinion is that development should proceed more slowly and with greater attention to its overall

impact on lifestyles enjoyed by such distinct groups as retirees, artists and craftsmen, foresters, commercial fishermen and natives. It is not clear from either the questionnaire or the community participation program that overall limits to growth and development are perceived except to the extent that there is widespread support for preservation of marshes, tideflats and other areas unsuitable and unnecessary for development purposes at this point in time.

- o There appears to be a broad awareness of specific opportunities for local growth. These opportunities are discussed in greater detail in the Economic Profile.
- o Local residents look to public agencies at all levels of government to provide assistance in realizing a goal of carefully managed growth where estuarine resources would be involved. While there is a willingness to allow estuarine resources to be altered or lost in order to achieve increased economic security, there is also a reluctance to rely on the operation of local economic systems to place limits on the rate of development. Specifically, local residents perceive the Corps of Engineers as having a large measure of influence over development; further, there is a general expectation that the Corps should exercise this influence.
- o A specific concern of local residents is to avoid having future development place an unnecessary burden on local public services such as medical facilities, schools and public protection. Retirees with stable incomes and few demands on public services are considered welcome additions to the coastal population. The resultant tradeoff in shoreline developments is regarded as a necessary one.

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CHAPTER 5 ECONOMIC PROFILE

Summary of Findings

The Alsea area economy is dependent upon natural resources. Not all economic activities are dependent upon the estuary, but its role as a fundamental element in tourism, travel and sport fishing is important. In particular, local marina operations and the commercial trade that relies on sport and commercial fishing are closely linked to estuary management decisions. In addition, many local development activities are heavily influenced by estuary management, since much has occurred along the river or in conjunction with a "view property," where the bay or river provides the important vista.

Broadly stated, the economic priorities of the area relate to the low levels and uncertainty of employment and income. The most desirable economic expansion in light of these priorities would be one that provides highly productive basic sector employment with minimal seasonal fluctuations. Such employment exists in many basic manufacturing sectors, but these sectors are not generally active on the coast because of transportation and distance to market areas, materials, supplies and distribution centers. Skills and experience also are not sufficiently available in the Alsea area labor force to attract industry. Another major deterrent to sizable industrial growth in the Alsea area is the lack of land and a utility infrastructure suitable for such development. For the most part, the growth of the area will continue to rely upon a relatively narrow range of economic opportunities closely related to the local natural and esthetic resources.

Local growth opportunities in the short run appear to be in the following areas:

1. Continued public and private marina improvement to serve local and outside sport and recreational fishing demand.
2. Rejuvenation of "Old" Waldport in association with marina expansion in Lint Slough and improvements to Port Authority property as a tourist-related commercial center.
3. Opening the inlet for all-weather ocean access and improving the channel and local marina facilities to serve shallow-draft sport or commercial fishing vessels.
4. Development, particularly of second homes, upriver and on Bayshore Spit.

Long-term potential may exist for aquaculture in the estuary or upstream. A proposal has been made to seed the tideflats adjacent to Sheppard's Point for clams and oysters, but the tidal range in the bay, particularly extremes in temperature and salinity, are not favorable. Also, water quality problems operate as a further constraint. Moreover, there are administrative questions concerning State ownership of bottomlands and the problem of restricting open water areas to a single use.

Each of these growth possibilities is recognized locally. This analysis makes no attempt to determine the financial feasibility or attractiveness of any of them. However, since each is potentially viable under favorable circumstances, each should be evaluated on its own merits within the broader context of local and county plans. The potential tradeoffs in each case are similar: loss of estuarine area and a possible alteration in the character and ambiance of the bay in exchange for expanded or stabilized local employment and income.

The growth opportunities also characterize the degree to which the local economy is influenced by Corps permit decisions. In the short run, construction of new marina facilities, development of second homes and actions drastically altering the recreation opportunities in the estuary are the areas where permit decisions would have the greatest impact on local economic conditions.

In the long run, the influence of permit decisions on the economy will be based on preservation of the Alsea's primary value as a recreation resource and a scenic area.

On a large scale, if recreation demand grows, the estuary's economic growth will be curtailed if permit decisions prevent a concurrent expansion of second homes or local recreational services and developments. If recreation demand does not increase, permit decisions will be less critical to the local economy. On a small scale, the economic effects of permit decisions regarding private, residentially oriented dock construction are not likely to be perceptible.

It should also be noted that for a number of the residents of the Alsea area, relatively low incomes are part of a lifestyle adopted as a matter of personal preference. Similarly, a majority of the retired element in the population is not part of the labor force. Although these groups are characterized by low incomes, an expansion of employment opportunities might provide no direct increase in their well-being. On the contrary, these individuals may resent any loss of natural resource value suffered in realizing overall employment or income gains in the estuary. (The Wetlands Review questionnaire discussed in Chapter 4 "Social Profile" sheds additional light on local attitudes toward growth.)

In addition, the economic and social value of the estuary in its present state should not be overlooked. As a productive and natural resource,

the estuary contributes to the welfare of the coastal region, the State and the Nation. While certain aspects of this value are extremely difficult to measure, a few of the values which accrue outside the estuary area are clear, such as its support of offshore fishing as a spawning site for anadromous fish or its value in a larger sense to travelers and visitors as a natural and scenic experience. Another but unmeasured function of the estuary is waste assimilation. It has been determined that estuaries can "treat" wastewater to the equivalent of the tertiary stage. Approximately one acre of estuarine salt marsh is able to remove a quantity of phosphate and nitrogen compounds from wastewater which would cost \$280,000 by conventional treatment methods.¹ While this value is only an estimate, it points out the vital role played by estuarine areas in their natural state. The use of values such as these in wetlands management is currently the subject of a continuing debate among scientists and professionals in wetlands protection.*

INTRODUCTION

The fundamental and unrelenting pressure on the natural resources of the Alsea River area is economic; to a great extent growth, development and local livelihoods depend upon resource availability. In the Alsea study area, the linkage between resource base and economic activity is fairly direct. Moreover, in this small area, the effects of individual resource management decisions may be felt by a significant portion of the population. Sharp conflicts between competing resource uses occur. Careful consideration of local economic interests will be necessary in developing and implementing a resource management policy which will help to resolve these conflicts.

The purpose of this analysis is to identify and discuss the implications of the Wetlands Review in relation to local economic goals and priorities. Limitations on existing data have restricted the scope of analysis to Lincoln County, supplemented by more specific local data whenever possible. Economic conditions are described in terms of population, labor force, employment and income, and in terms of the dominant economic activities in the area. In addition, specific economic trends and conditions of the Alsea River area are discussed and the analysis concludes with a discussion of economic considerations for the Wetlands Review.

Present conditions, past trends and future projections are examined to the degree that data exist to support them. No new data were developed

* For an interesting discussion see the Coastal Zone Management Journal.²

in support of this profile, but the information and impressions gained during study of the area were included as appropriate in building an understanding of the local economy.

OVERVIEW

The Alsea study area and Lincoln County are part of the larger economic region made up of Oregon's coastal counties, including western Douglas and Lane Counties. Lincoln County and its subareas reflect the region's dominant economic characteristics:

1. Heavy reliance on natural resources and economic activities sensitive to outside demand.
2. A recent history of economic growth, but at a rate lower than Oregon and the United States.
3. Generally lower and more seasonally fluctuating incomes than in the rest of Oregon or the United States.
4. A gradual shift away from forest products in favor of government, fish, fish processing and tourist-related economic activities.
5. A growing retired element in the population.

Population

Population in Lincoln County and in Waldport has grown at varying rates since 1920.* Between 1920 and 1950, the population of both the county and Waldport increased 250 percent (Table 29). Since 1950, however, a growth of 22 percent has occurred in the county, as the trend of in-migration was reversed and fewer people moved into Lincoln County. During this same period, a growth of only 4.5 percent occurred in Waldport, where population has not changed substantially since 1950. From 1960 to 1970, the growth in Lincoln County's population was solely from natural increase (a larger number of births than deaths), since by 1970 a net migration of people out of the county was occurring.

Four additional characteristics provide insight into the population of the study area and Lincoln County. They are as follows:

1. Lincoln County's 1970 population was 97 percent Caucasian, with persons of Indian extraction comprising the bulk of other racial groups.

*This date was chosen for the first U.S. Census conducted subsequent to the incorporation of Waldport in 1911.

TABLE 29

POPULATION CHARACTERISTICS OF OREGON, LINCOLN COUNTY AND WALDPOR

<u>Population</u>	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD^a</u>
1920	783,389	6,084	181
1930	953,786	9,903	367
1940	1,089,684	14,459	630
1950	1,521,341	21,308	689
1960	1,768,687	24,635	667
1970 ^b	2,091,385	25,755	700
1971 ^b	2,143,010	25,840	710
1972 ^b	2,183,270	26,100	720
<u>Age (1970)</u>			
Median Age	28.9 yrs.	38.2 yrs.	43.0 yrs.
16 - 64 years	59.8%	57.4%	55.9%
Over 65 years	10.9%	16.1%	21.7%
<u>Education (1970)</u>			
Did not complete high school	40.0%	46.1%	52.0%
Completed high school	60.0%	53.9%	48.0%
Post-high school education	11.3%	7.4%	7.9%

^a CCD stands for Census County Division, the basic unit for U.S. Census enumeration in rural areas. There are five CCD's in Lincoln County. The Waldport CCD includes incorporated Waldport and a relatively large rural area east and south of the town.

^b Estimates by the Center for Population Research and Census, Portland State University.

Source: Oregon District 4 Council of Governments, Statistical Data Base (Corvallis, Oregon, Fall 1973).
U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

2. Urban population has increased in the last 20 years, while rural population has decreased. As of 1970, the population was 47 percent urban and 53 percent rural.

3. The median age of the population is higher for smaller, less urbanized areas. The population in the Waldport Census County Division (CCD) is significantly older than that of the county or the State (Table 29).

4. Years of education completed are less in the smaller Waldport study area than in the county or the State.

These characteristics are indicative of the strong rural nature of the Alsea study area. While some development has taken place upriver and on the Bayshore Spit, it appears that the year-round population of the area has remained relatively stable.

Labor Force

Lincoln County's labor force is a key to its potential for continued growth; the characteristics of the labor force are also indicators of present economic conditions. In 1973, the county labor force averaged 12,050 persons. Occupations in the labor force differ from Statewide averages in several categories, generally reflecting the nature of the jobs available on the coast. As Table 30 shows, there are fewer professionals, clerical workers, transport equipment operators and farm workers in Lincoln County, but more nonfarm managers, nontransport equipment operators, nonfarm laborers and service workers. In 1970, 25 percent of the total Lincoln County labor force was employed in occupations classified as low pay or low status, compared with 16 percent Statewide. It can be seen also from the occupation breakdown that the Alsea study area differs from both the Statewide and the county characteristics in some respects, as would be expected for such a relatively small area. Compared with Lincoln County, the Waldport Census County Division (CCD) shows fewer nonfarm managers, clerical workers and nontransport equipment operators and a greater proportion of craftsmen, nonfarm laborers and service workers. Table 31 shows an occupational breakdown by larger, more general categories and indicates the larger proportion of lower-skilled occupations in the study area. In the Waldport CCD, 36.5 percent of the occupations in 1970 were classed as low pay or low status.

Less than half the population in the Waldport CCD is counted in the local labor force, compared to 56.9 percent Statewide. (Table 32) This holds true for both males and females.

TABLE 30

OCCUPATIONAL CHARACTERISTICS OF THE LABOR FORCE
OREGON AND LINCOLN COUNTY, 1970

<u>Employment Category</u>	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Professional, technical and related	14.5%	9.5%	9.0%
Nonfarm managers and administrators	9.7	12.1	8.9
Sales workers	7.5	7.4	7.5
Clerical workers	16.6	12.3	7.3
Craftsmen, foremen and related	13.2	12.2	14.3
Operators, except transport	10.6	12.3	8.5
Transport equipment operators	4.4	3.6	3.8
Nonfarm laborers	6.1	9.8	15.3
Service workers, except private household	12.4	18.0	21.5
Private household workers	1.0	0.9	0.6
Farm workers	4.0	1.9	3.3
TOTAL	100.0%	100.0%	100.0%
Low pay and low status occupations	16.5%	25.6%	36.5%

Source: U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

TABLE 31

GENERAL OCCUPATIONAL GROUPINGS, 1970

<u>Occupational Grouping</u>	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
White collar workers	48.3%	41.3%	32.6%
Blue collar workers	34.3	38.0	42.0
Service workers	13.5	18.8	22.1
Farm workers	4.0	1.9	3.3

Source: U. S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

TABLE 32

LABOR FORCE PARTICIPATION,^a 1970

	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Both Sexes	56.9%	52.2%	45.2%
Male	74.6	67.2	58.2
Female	40.5	37.9	32.0

^aThe Labor Force Participation is a ratio which compares the number employed and unemployed but seeking work to the total population.

Source: U. S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

Characteristics of those not included in the labor force also differ significantly among the State, Lincoln County and the study area. It can be seen from Table 33 that a smaller porportion of persons in the Lincoln County and Waldport CCD is out of the labor force due to school enrollment, and that more of those not seeking work are over 65 years old and presumably disabled or retired. The growth of Lincoln County's retired population has been cited in numerous publications.

TABLE 33

CHARACTERISTICS OF POPULATION 16 YEARS AND OVER NOT IN LABOR FORCE, 1970

	<u>Oregon</u>		<u>Lincoln County</u>		<u>Waldport CCD</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Not in labor force	636,205	100.0	9,041	100.0	1,662	100.0
Institutionalized	22,428	3.5	107	1.2	0	0
Enrolled in school	110,109	17.3	775	8.6	149	9.0
Other under 65 years	325,322	51.1	4,729	52.3	782	47.0
Disabled	68,636	10.8	1,466	16.2	144	8.7
Other over 65 years	178,446	28.0	3,430	37.9	731	44.0

Source: U. S. Census of Population, Summary Manpower Indicators for Oregon, 1970

Several factors have contributed to this employment growth. In recent years, there have been several major construction projects in the county, including the Kernville Bridge on U. S. Highway 101; approximately

entity. They do not add to the local labor resource, but do bring a significant and steady flow of outside income into the area in the form of pensions and retirement annuities. In that regard, they have been characterized by the OCC&DC report as a "basic sector" of the local economy, i.e., a sector that generates income flows from outside the local economy.

Employment

Recent and complete employment statistics are available only for Lincoln County as a whole; corresponding information on the Alsea Bay area is limited to 1970 Census data. Thus, this discussion necessarily focuses on the county. General distinctions drawn for the Alsea area are based upon the 1970 information.

Lincoln County employment has grown steadily in recent years. A general reduction in the unemployment rate has accompanied growth in total employment (Table 34). This trend was interrupted by the oil embargo, inflation and the nation-wide credit shortage from 1970 to 1974. The county's employment growth trend has been slower than the rest of Oregon and roughly at the same rate as the United States. Between 1958 and 1973, employment grew by 33.9 percent in the United States, 45.6 percent in Oregon and 33.3 percent in Lincoln County. For the coast as a whole,*employment grew by only 23.3 percent during the same period, indicating that Lincoln County is progressing relatively faster than the coastal economic region.

TABLE 34

EMPLOYMENT AND UNEMPLOYMENT IN LINCOLN COUNTY, 1970 - 1974

<u>Year</u>	<u>Average Employment</u>	<u>Percent Annual Change</u>	<u>Average Unemployment</u>
1970	9,940	-	7.2%
1971	10,120	+1.8%	7.1
1972	10,660	+5.3	6.2
1973	11,390	+6.8	5.5
1974 ^a	11,674	+2.5	6.9

^aAverage of January through September 1974.

Source: Lincoln County Labor Force and Unemployment, State of Oregon Employment Division, April 1974. Jeff Hannum, Manpower Economist, Oregon Employment Division, personal communication, November 1974.

*Defined throughout this Profile as Coos, Curry, Lincoln, Tillamook, Clatsop, Western Lane and Douglas Counties.

Several factors have contributed to this employment growth.* In recent years, there have been several major construction projects in the county, including the Kernville Bridge on U. S. Highway 101; approximately 80 miles of powerline construction; jetty work at Yaquina Bay; and condominium construction such as the Inn at Otter Crest, the Embarcadero and the Inn at Spanish Head. During 1972 and 1973, foreign and domestic demand for forest products was also high, reflecting high levels of housing construction in the U.S. and Japan. In addition, the fishing industry generally did well during this period, except for the crab catch which was poor in 1972 and 1973. Because local construction work and domestic demand for forest products in housing construction are highly sensitive to the availability of credit, present economic conditions do not appear favorable for steady growth of these two sectors.

In the longer term, growth in the tourist and recreation industries has contributed significantly to employment growth. Lincoln County is the largest employer in these sectors of all the coastal counties, with 45 percent of all coastal employment. Lincoln County also ranks first in the State for second homes⁴ and is the location of a large share (30 percent in 1971) of all pleasure boating in the coastal counties.⁵

Tables 35 and 36 show a comparison of employment in Oregon, Lincoln County and the Alsea area for major industry groups in 1970.

Some significant differences in the local importance of various economic sectors are evident from the percentage breakdowns in Table 36. These differences are in the following industry groups:

1. Agriculture, Forestry and Fisheries. The Waldport CCD has a much larger proportion of employment in this sector than either Oregon or Lincoln County. Agriculture employs only 19 percent of the 233 persons included in this broad category; the remaining 81 percent are in forestry or fisheries. A lack of more specific employment data precludes an estimate of the proportion in the latter two groups.

2. Manufacturing. The smaller, less urbanized Waldport CCD shows a predictably lower proportion in manufacturing.

3. Wholesale and Retail Trade. These sectors are more dominant in both Lincoln County and the Waldport CCD than in the State, reflecting the relatively greater importance of trade in connection with recreation and tourism on the coast.

4. Services. The Waldport CCD has a lower proportion in education and other professional services than the State and Lincoln County. The share for personal services is higher, but the net is a smaller overall service sector in the Waldport CCD.

*This information is derived from the analyses published semi-annually by the Oregon Employment Division, discussing the Toledo/Lincoln County labor market area.

TABLE 35

EMPLOYMENT BY MAJOR INDUSTRY GROUP, 1970

<u>Industry Group</u>	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Total Employed, All Industries	778,745	9,030	1,193
Agriculture, Forestry and Fisheries	42,465	563	233
Mining	1,379	50	11
Construction	45,324	534	101
Manufacturing	167,035	1,983	174
Durable Goods	122,803	996	107
Nondurable Goods	44,232	987	67
Transportation	31,850	253	20
Communications and Public Utilities	23,811	265	26
Wholesale Trade	40,550	145	41
Retail Trade	131,325	1,937	245
Finance, Insurance, and Real Estate Services	39,894	349	40
	217,217	2,514	248
Business and Repair	23,133	173	17
Personal	33,967	954	141
Medical and Health	46,041	360	34
Educational	75,498	587	40
Schools and Colleges	71,204	530	35
Government	57,075	501	35
Private	14,129	29	0
Other Educational and Related	4,294	57	5
Other Professional and Related	38,578	440	16
Public Administration	37,895	437	54

Source: U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

Unemployment and underemployment are chronic problems in Lincoln County, owing in part to the seasonality of work in the major economic sectors and in part to long-term trends of declining employment in such major sectors as forestry and fisheries. In recent years, unemployment has been relieved somewhat, but the economy of the coast is such that a downturn in national economic activity is felt sharply and quickly.

During 1973 and 1974, persons formerly employed in the construction, lumber and logging, trade and services sectors received the bulk of the State unemployment benefits paid from the Toledo office of the State Employment Division.* Among those registered for unemployment benefits as of June 1973, about 59 percent were male, 35 percent were under 22 years, and about 49 percent were "poor". Those classified as poor include many Food Stamp recipients, who may be required as a condition for receipt of Food Stamps to be registered as job-seekers. (Many of the county's Food Stamp recipients are aged, and are not included in the unemployed work force.)

*Jeff Hannum, Manpower Economist, Oregon Employment Division, personal communication, November 1974.

TABLE 36

PERCENT OF TOTAL EMPLOYMENT BY MAJOR INDUSTRY GROUP, 1970

<u>Industry Group</u>	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Agriculture, Forestry and Fisheries	5.4%	6.2%	19.5%
Mining	0.2	0.6	0.9
Construction	5.8	5.9	8.5
Manufacturing	21.4	22.0	14.6
Durable Goods	15.8	11.0	9.0
Nondurable Goods	5.7	10.9	5.6
Transportation	4.1	2.8	1.7
Communications and Public Utilities	3.1	4.0	2.2
Wholesale Trade	1.4	1.6	3.4
Retail Trade	16.9	21.4	20.5
Finance, Insurance and Real Estate	5.1	3.9	3.4
Services	27.9	27.8	20.8
Business and Repair	3.0	1.9	1.4
Personal	4.4	10.6	11.8
Medical and Health	2.1	4.0	2.8
Educational	9.7	6.5	3.4
Schools and Colleges	9.1	5.9	2.9
Government	7.3	5.6	2.9
Private	1.8	0.3	0
Other Educational and Related	0.6	0.6	0.4
Other Professional and Related	5.0	4.9	1.3
Public Administration	4.9	4.8	4.5

Source: U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

A number of occupations are traditionally in short supply in Lincoln County, including mechanics, health services, boat maintenance and direct sales. In addition, the seasonal demand runs high for motel/hotel staff, part-time commercial fishermen, building trades, production workers and food service workers. A number of these high turnover occupations are low-paying and low-skill.

Seasonality in employment is a characteristic of Lincoln County and the coast, where lumber, fishing and tourist-related work fluctuates between winter and summer. The significance of the seasonal change is increased by the coincidence of the fishing and tourist seasons. The peak and low in unemployment for the county may vary by as much as 60 percent, so that winter unemployment can be as much as twice the peak season unemployment.

An important determinant of a county's continued economic well-being is the proportion of economic activity in basic versus nonbasic sectors. The basic sectors are those whose level of activity and employment are determined by demand forces outside the county. Nonbasic sectors, on the other hand, are those whose activity and employment are determined primarily by the level of activity in the county's basic sectors. The major basic and nonbasic sectors for Lincoln County, as well as for the coastal region, were defined in the OCC&DC Economic Report as follows:⁴

<u>Basic Sectors</u>	<u>Nonbasic Sectors</u>
Agriculture and Food Processing	Local Government
Fish and Fish Processing	Trade and Services
Forestry and Wood Products	Other nonbasic, including
Water Transportation (Ports)	Mining, Construction,
Federal and State Government	Nonbasic Manufacturing
Retirement	and Transportation and
	Utilities

The basic sectors energize the local economy by bringing income into the county. The nonbasic sectors are also very important, since as they grow they allow greater amounts of the outside income brought in by basic sector activity to remain in the area.

Estimates made by the OCC&DC Special Economic Team show that approximately 37 percent of Lincoln County's 1972 employment was in the basic sectors listed above, while 63 percent was in nonbasic sectors.⁴ Data were not available to permit an accurate estimate of the breakdown for the Alsea area, but the general lack of extensive trade and service facilities in the area and the concentration of local government activities in Newport would tend to reduce the proportion of local nonbasic employment. If there is a distinction between the Alsea area and the county as a whole, it is that the smaller area is relatively more dependent on its natural resources for local employment opportunities.

Income

As Table 37 shows, average incomes in Lincoln County are generally lower than in Oregon, and average incomes in the Waldport CCD are generally lower than for Lincoln County. This finding is consistent with the

TABLE 37

MEAN AND MEDIAN FAMILY INCOME, 1969

	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport</u>
Mean	\$8,694	\$7,450	\$6,294
Median	7,575	6,243	4,586

Source: U. S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

relatively lower labor force participation rates in the study area and the higher proportion of retirees in the study area, compared to the coast or to the State. Median incomes by major occupational group, shown in Table 38, also reflect the study area's lower income characteristics. While specific data on seasonality of employment in the Alsea study area are not available, it is likely that the basic pattern of seasonality for the county holds, which would also contribute to low average annual incomes.

TABLE 38

MEDIAN^a INCOME (DOLLARS) BY MAJOR OCCUPATIONAL CATEGORY, 1969

	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Professional, Managerial and Kindred			
Median	\$10,100	\$8,506	\$7,099
Average	11,687	9,653	7,885
Craftsmen, Foremen and Kindred			
Median	8,401	7,725	6,750
Average	8,264	7,363	6,231
Operatives, including Transport			
Median	7,361	7,229	6,227
Average	7,101	7,133	7,203
Laborers, except farm			
Median	5,923	5,776	2,733
Average	5,746	6,715	6,441
Farmers and Farm Managers			
Median	4,868	5,000	5,857
Average	6,272	4,602	5,466
Farm Laborers, except Unpaid and Foremen			
Median	2,346	875	2,187
Average	3,169	2,817	4,094

^aMedian income divides the labor force into two equal parts. Fifty percent earn more than the median and fifty percent earn less.

Source: U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

A relatively large percentage of residents in Lincoln County and almost half the families and unrelated individuals in the Waldport CCD were receiving Social Security income in 1970. These data are shown in Table 39. This income, while relatively steady, is low, less than \$2,000 annually in 1973 for all areas under consideration. The number of public assistance recipients in the study area is relatively low.

TABLE 39

TYPE OF INCOME OF FAMILIES AND UNRELATED INDIVIDUALS, 1969

	<u>Oregon</u>		<u>Lincoln County</u>		<u>Waldport CCD</u>	
	<u>Percent</u>	<u>Average Income</u>	<u>Percent</u>	<u>Average Income</u>	<u>Percent</u>	<u>Average Income</u>
<u>Families</u>						
With earnings ^a	104.8	\$8,986	99.1	\$7,368	87.2	\$6,898
With Social Security	20.5	1,731	31.2	1,792	45.9	1,805
With Public Assistance	4.6	1,197	4.8	1,000	4.2	1,050
With other income	42.7	2,035	48.2	2,321	55.6	2,269
<u>Individuals</u>						
With earnings ^a	66.5	3,932	57.4	3,695	53.8	2,330
With Social Security	33.7	1,099	46.6	1,022	45.8	1,006
With Public Assistance	4.7	806	6.5	727	6.0	615
With other income	38.4	1,614	42.3	1,393	44.1	1,364

^aSome families and individuals may have more than one type of income. Thus, the total percentage may exceed 100 percent.

Source: U.S. Census of Population, Summary Manpower Indicators for Oregon, 1970.

1970 U. S. Census data indicate that 143 families in the Waldport CCD had incomes below the poverty level.* These families represented 459 individuals, of which about one-third were over 65 years old. The majority of the families below poverty level were receiving retirement annuities from Social Security or railroad pensions. However, many local residents take advantage of part-time farming or the available supplies of fresh seafood, so that the standard of poverty level income may be misleading.

Economic Activity

The primary reference source for economic activity is the OCC&DC Economic Report, which contains relatively recent and comprehensive data on each of the basic and major nonbasic economic sectors in the coastal economy.⁴ For the economic profile, each of these sectors is dealt with only in general terms, with data available to indicate their importance in the study area. The primary sectors of concern are the basic ones: forestry, fishing, travel and recreation. Other sectors, including agriculture and nonbasic activities, are discussed in a single section.

Forest Products

The forest products sector presents a mixed picture. Historically, this has been a dominant industry, but in recent years its importance has changed. Reflecting mechanization and increased efficiency, employment has declined overall on the coast and particularly in Lincoln County even though log production has remained relatively stable. To some degree, increases in income have compensated for the decline in forest products employment. In addition, employment in paper and allied products has more than doubled since 1958.** Overall, Lincoln County has declined in both employment and total income, as Table 40 shows. However, with the reduction in overall employment and the increase in paper and allied products employment, seasonal fluctuations in employment have been reduced.

*Poverty level was defined by the 1970 census on a variable scale which depended upon size of family and whether the family was a farm or a nonfarm resident. For a family of four, the poverty level for farm residence was \$3,195; for nonfarm residence the poverty level was \$3,743. Income was measured in 1969.

**Due to confidentiality restrictions, county employment statistics are not available for the paper and allied products sector. For the coast, employment in this sector has more than tripled since 1960. In Lincoln County, the Georgia Pacific Kraft mill at Toledo is a strong force in this sector, having recently completed a \$16,000,000 expansion which created 20 to 30 jobs.

TABLE 40

LINCOLN COUNTY FOREST PRODUCTS SECTOR EMPLOYMENT, SELECTED YEARS
(not including paper and allied products^a)

<u>Year</u>	<u>Employment</u>	<u>Lumber and Wood Products and Forestry Employment</u>		<u>Annual Payrolls (1967 dollars^d)</u>
		<u>Number</u>	<u>Share of Total</u>	
1960	7,540	2,019	26.8%	\$12,327,000
1965	7,880	1,476	18.7	\$ 9,984,000
1970	9,940	924	9.3	\$ 6,738,000
1971	10,120	766	7.6	\$ 5,289,000
1972	10,660	766	7.2	\$ 5,510,000
1973	11,390	809	7.1	\$ 5,529,000

^aDisclosure restrictions prevent the release of employment data for the county in this sector.

^bThese payroll amounts have been deflated to account for inflation since 1967 in order to show comparable purchasing power.

Source: Oregon Coastal Conservation and Development Commission Report and Oregon Employment Division.

The OCC&DC Economic Report, in reviewing U. S. Forest Service projections of forest products demand and supply, concludes that demand will be adequate in the future to allow coastal forest producers to sell all they can reasonably produce at existing prices. But, the report also concludes that available supply will be inadequate to meet the expected demand. Two fundamental causes are cited for this supply shortfall: a continuing conversion of forest lands to other uses, such as parks, wilderness roads and powerlines; and a decrease in timber harvest from available forest lands. A number of solutions are available to work toward altering this future projection, but the report concludes that coastal employment in lumber and wood products will continue to decline, while employment in paper and allied products will continue to grow, but at a slower rate than in the past. For the study area, this implies a continued reliance on other basic sectors for local employment opportunities.

Commercial Fishing and Related Activities

Fishing is an important part of the coastal economy. For Lincoln County, commercial fishing and fish processing constitute a significant source of income as well as of full and part-time employment. Commercial fish

landings in 1973 totaled 16,445,000 pounds and were valued at \$6,038,000. This was 20 percent of the total coastal Oregon catch and accounted for 23 percent of the total catch value.⁴ Approximately 270 persons are employed in fishing and fish processing in the county. Even though these activities are concentrated at Newport and Depoe Bay, the labor market which they support takes in a relatively large area and influences both the Alsea and the Siletz estuary areas. In addition, there is a commercial Dungeness crab catch in the Alsea Bay and a few shrimp are taken commercially from the Siletz Bay. Table 41 shows the size and value of the 1973 catch for selected areas in Lincoln County.

In addition to commercial fishing, there is a sizable sport and recreational fishing activity. The Alsea River is an important sport fishery. With no ocean access and with heavy seasonal salmon runs in the estuary, there is significant local activity in marinas, boat rental, bait sales and commercial trade related to bay and river fishing. The economic value of sport fishing in the Alsea estuary is discussed in the following section.

A third important aspect of fishing activity in the study area is local dependence on this resource as a supplemental food supply. No data are available to estimate the degree to which local residents are able to rely on fish or shell fish for food supply, but the study observations indicate that this is a key element in local lifestyle and an important factor in reducing the impact of seasonal incomes.

Travel and Recreation

The importance of travel and recreation is growing in Lincoln County, where a fourfold increase in travel-related employment has occurred since 1960. Employment in this sector, as estimated by OCC&DC, has grown from 291 in 1960 to over 1,200 in 1970, when this sector accounted for 10.6 percent of total county employment (Table 42). In-state and out-of-state travelers were present in approximately equal numbers in the county in 1969, but in-state travelers are relatively more important, since they appear to spend more per visitor-day. According to an estimate included in the OCC&DC economic report, out-of-state travelers spent approximately \$38 million in the county in 1972. In-state expenditures are not available for 1972, but if the same general proportions held between 1969 and 1972, then total 1972 travel expenditures were in the range of \$75 to \$80 million.

An estimate of out-of-state traveler spending by category in 1972 indicates that about 60 percent of the \$38 million went for recreation, groceries, restaurant and lodging expenses, as shown in Table 43. The Lincoln County share of travel expenditures is similar for all categories except recreation and groceries, where the county received a disproportionately large share of the spending. This finding is indicative of the county's particular recreation offerings, which include excellent sport fishing; attractive, accessible beaches; and well-developed park

TABLE 41
 LINCOLN COUNTY COMMERCIAL FISH AND SHELLFISH CATCH, 1973
 (POUNDS ROUND WEIGHT AND DOLLARS)

	<u>Chinook</u>	<u>Coho</u>	<u>Sturgeon</u>			<u>Crabs</u>	<u>Clams</u>	<u>Oysters</u>	<u>Shrimp</u>	<u>Albacore Tuna</u>	<u>Groundfish</u>	<u>Sand^a Shrimp</u>	<u>Total Catch</u>	<u>Total Value</u>
			<u>White</u>	<u>Green</u>	<u>Pinks</u>									
Alsea Bay (Waldport)	-	-	-	-	-	1,413	-	-	-	-	-	6,858	8,271	\$6,000
Siletz Bay	-	-	-	-	-	-	-	-	-	-	-	1,928	1,928	\$1,000
Yaquina Bay (Newport)	952,493	1,712,495	171	6,148	108	327,355	-	58,776	6,500,542	2,667,723	3,531,150	-	15,756,961	\$5,402,000
Depoe Bay	132,962	381,355	-	-	17	46,968	949	-	-	76,011	37,364	1,307	676,933	\$453,000

^aIncludes 60 pounds of crayfish at Siletz Bay.

Source: Fish Commission of Oregon, unpublished data, April 10, 1974.

TABLE 42

LINCOLN COUNTY EMPLOYMENT IN RECREATION AND TRAVEL, SELECTED YEARS^a

<u>Year</u>	<u>Total Employment</u>	<u>Recreation and Travel</u>	
		<u>Number</u>	<u>Share of Total</u>
1960	7,540	291	3.9%
1965	7,880	524	6.6
1970	9,940	850	8.6
1971	10,120	879	8.7
1972	10,660	1,023	9.6
1973	11,390	1,207	10.6

^aThere have been other estimates made of employment in this sector. These estimates vary widely, from 3,318 persons in 1969 (Oregon State University, 1972) to 5,100 in 1972 (Battelle Laboratories, 1973). Analysis of this sector is very difficult, due to a shortage of data.

Source: OCC&DC Economic Report, Oregon Employment Division.

TABLE 43

1972 ANNUAL ESTIMATED EXPENDITURES BY
OUT-OF-STATE TRAVELERS, LINCOLN COUNTY AND THE COAST^a
(In Thousands of Dollars)

<u>Expenditure</u>	<u>Lincoln County</u>		<u>Coast^a</u>		<u>Lincoln County's Share of Category Total</u>
	<u>Amount</u>	<u>Percent of Total</u>	<u>Amount</u>	<u>Percent of Total</u>	
Recreation	\$8,178	21.6	\$12,815	9.8	63.8%
Groceries	8,061	21.3	20,581	15.7	39.2
Restaurant	6,593	17.4	30,115	23.0	21.9
Lodging	4,889	12.9	23,375	17.8	20.9
Gas & Oil	2,755	7.3	9,595	7.3	28.7
All other expenditures	7,419	19.6	34,705	26.4	21.4

^aCoos, Curry, Lincoln, Tillamook, Clatsop, Western Lane and Douglas Counties.

Source: Battelle, in OCC&DC F-17.

and camping facilities. Lincoln County also has the largest number of second homes of all the coastal counties (1,768 homes in 1970), which generate a different mix of expenditures than an area dependent upon through-travelers.

The income generated by coastal travelers in 1972 averaged about \$2,000 per coastal resident. This amount is influenced by an increasing trend toward use of campgrounds instead of motels or hotels for overnight lodging. Nevertheless, the average expenditure per visitor day is increasing; overall the total value of tourist income is rising.

Data from a 1972 Oregon State Game Commission study⁶ indicate that the bulk of the recreation spending in Lincoln County is in all likelihood related to the area's excellent sport fishing. Total annual expenditure for salmon, steelhead and cutthroat angling in the major Lincoln County fishing areas is estimated at \$9,671,820 (Tables 44, 45, 46 and 47). Of this total an estimated 83 percent was spent on salmon fishing, mostly in the ocean from Newport and Depoe Bay. The remainder, for steelhead and cutthroat angling, was spent largely in the Alsea and Siletz areas. However, by all counts, sport fishing is an important element in recreation spending in the Lincoln County area and an equally important element in the local economy of the Alsea study area.

There are eight marinas on the Alsea River, including the Port Authority docks. These operations provide moorage, boat and tackle rentals, bait

TABLE 44

TOTAL ANNUAL SPORT FISHING IN SELECTED LINCOLN COUNTY AREAS

ANGLER-DAYS AND GROSS EXPENDITURES

<u>Stream</u>	<u>Angler-days</u>	<u>Gross Expenditure</u>	
		<u>Amount</u>	<u>Percent of Total</u>
Siletz River	68,470	\$1,337,200	13.8
Yaquina River	77,340	3,350,350	34.6
Alsea River	69,020	1,276,870	13.2
Yachats River	3,600	81,400	0.8
Other:			
Depoe Bay	39,800	2,812,000	29.1
Florence	14,000	814,000	8.4
TOTAL	272,230	\$9,671,820	

Source: Oregon State Game Commission, 1972.

TABLE 45

ESTIMATED ANNUAL HARVEST, ANGLER-DAYS AND GROSS EXPENDITURES
FOR SALMON ANGLING IN SELECTED LINCOLN COUNTY AREAS

<u>Stream</u>	<u>Harvest</u>	<u>Angler-days</u>	<u>Gross Expenditures</u>
Siletz			
Ocean	40	50	\$ 2,960
Estuary	4,400	17,600	325,600
River	<u>1,550</u>	<u>6,200</u>	<u>114,700</u>
Subtotal	5,990	23,850	\$ 443,260
Yaquina			
Ocean (Newport)	41,600	61,800	\$3,078,400
Estuary	2,240	9,000	165,760
River	<u>560</u>	<u>2,240</u>	<u>41,440</u>
Subtotal	44,400	73,040	\$3,285,600
Alsea			
Estuary	6,900	27,600	\$ 510,600
River	<u>1,730</u>	<u>6,920</u>	<u>128,020</u>
Subtotal	8,630	34,520	\$ 638,620
Other			
Ocean: Depoe Bay	38,000	39,800	\$2,812,000
Florence	11,000	14,000	814,000
River (Yachats River)	<u>400</u>	<u>1,600</u>	<u>29,600</u>
Subtotal	49,400	55,400	\$3,655,600
TOTAL	108,420	186,810	\$8,023,080

Source: Oregon State Game Commission, 1972.

TABLE 46

ESTIMATED ANNUAL HARVEST, ANGLER-DAYS AND GROSS EXPENDITURES
FOR STEELHEAD ANGLING IN SELECTED LINCOLN COUNTY AREAS

<u>Stream</u>	<u>Harvest</u>	<u>Angler-days</u>	<u>Gross Expenditures</u>
Siletz River	7,155	28,620	\$ 529,470
Yaquina River	200	1,600	14,800
Alsea River	6,000	24,000	444,000
Yachats River	<u>400</u>	<u>1,600</u>	<u>29,600</u>
TOTAL	13,755	55,820	\$1,017,870

Source: Oregon State Game Commission, 1972.

TABLE 47

ESTIMATED ANNUAL HARVEST, ANGLER-DAYS AND GROSS EXPENDITURES
FOR SEA-RUN CUTTHROAT ANGLING IN SELECTED LINCOLN COUNTY AREAS

<u>Stream</u>	<u>Harvest</u>		<u>Angler-days</u>	<u>Gross Expenditures</u>
	<u>Estuary</u>	<u>River</u>		
Siletz River	3,440	1,475	16,000	\$296,000
Yaquina River	540	540	2,700	49,950
Alsea River	4,550	650	10,500	194,250
Yachats River	-	400	1,200	22,200
TOTAL	8,530	3,065	30,400	\$562,400

Source: Oregon State Game Commission, 1972.

and ice, parking and small boat launching facilities. They account directly for a very small part of local employment, but they are the primary element in attracting fishermen from outside the study area to take advantage of the local sport fishing.

Port of Alsea

The Port of Alsea has responsibility for promotion of bay and river recreational uses. Its budget, derived mainly from a percentage of timber sales within the Port's regional boundary, is roughly \$7,000 per year. Tourist and development generated revenues, while accruing to the benefit of the region as a whole, are not directly translated into operating funds that can be used for Port-sponsored improvements. Private investments in marine-related developments and facilities far exceed public expenditures for the same purposes. In the case of reconstruction of Lint Slough, private activity adjacent to the existing Port docks has been able to be far more aggressive.

Thus far, the Port's attention has primarily been focused on:

1. Opening the ocean inlet.
2. Removal of old pilings, especially the abandoned railroad trestle from Lint Slough to Bayview and other navigation obstructions near Waldport.
3. Positioning of navigational aids in the main channel of the bay to approximately river mile 4.
4. Installation and maintenance of the dikes in the North Channel.
5. Filling and stabilizing the bank line at Waldport's historic waterfront.

6. Participation in the Alsea Bay Regional Land and Water Use Plan.
7. Maintenance of existing Port facilities.
8. Location and expansion of future Port facilities.

Future expansion of existing Port facilities is physically limited by geography. A large tideflat west of the Port bulkhead and staging area would require major dredging. To the north facing Alsea Bay, expansion is limited by the relatively narrow main navigation channel between the existing docks and a large tidal island. Lint Slough to the east is regarded as the most suitable area for marina development near Waldport, but private ownership of the slough and shoreline properties east and west of the slough on a 99-year lease precludes public management by the Port Authority of tidelands. Other port-owned properties elsewhere in Alsea Bay are not subject to wholesale sale or disposal under the common law principle of the "public trust" nor are they readily convertible to either capital or operating revenues.

Unless major revenue-producing assets are available to the Port in the future, the Port of Alsea may, by necessity, have to shift the emphasis of its role in the region from that of owner and manager of major facilities to promotion, planning, and local regulation.

In a December 18, 1974 letter to the Oregon Coastal Ports Federation at Florence, the Port of Alsea reaffirmed its goals for "optimum development of waterways for navigation on Alsea Bay." The Port's plans for development include the following:

1. Construction and maintenance of jetties at the bay entrance, each approximately 2,800 feet in length.
2. Establishment and maintenance of a 14-foot navigational channel at mean lower low water from the entrance to Lint Slough east of Waldport.
3. Development of a small boat basin (210 vessels) on Lint Slough.
4. Establishment of pile dikes above Waldport to control the flow of the river.

The 1969 feasibility study by the Corps of Engineers indicated that the Port's development proposal justified Federal financing of 50.5%, with 49.5% matching funds by the Port of Alsea. (The estimated costs for the jetty and channel only are \$5 million and \$375,000, respectively.) However, no State financial assistance is available to the Port of Alsea to meet matching fund requirements. The Port of Alsea letter is part of a recent appeal by the Oregon Coastal Ports Federation to obtain State financial assistance for Oregon's ports from the State Legislature.

Marinas

Marinas, landings and trailer parks are a major economic activity on the Alsea Bay and River, providing boat rentals, launching facilities, marine repairs and supplies, fuel, bait, fishing tackle and other services essential for recreational use. All are physically located adjacent to Route 34. From Waldport east they include the following.

1. Alsea Moorage. Owned by the Port of Alsea; foot of Mill Street at Old Town; boat launching and rentals; berths for approximately 60 vessels; private and leased bait shops; rentals of crab rings and tackle; heavy shore fishing and crabbing; public parking spaces and lavatories and services are considered inadequate for a large number of tourist visitations.
2. McKinley's Marina. East and west side of Lint Slough; extensive reconstruction at mouth of slough to berth approximately 100 private and rental boats with potential for 100 additional; bait, tackles and crab rings; trailer park with water, sewer and electrical hookups; public lavatories; privately owned but operated under 99-year lease; services expanding into primary marina facility near Waldport.
3. Tideland Trailer Park. East of Eckman Slough at river mile 4.
4. Chinook Trailer Park. At river mile 4; space and hookups for approximately 20 mobile homes and trailers; new dock but no boat rentals or facilities; dock area silted in.
5. King Silver Moorage. River mile 4.5; trailer hookups and boat rentals.
6. Drift Creek Landing. River mile 5; trailer hookups; boat launching and rentals; bait and supplies; public lavatories; adequate parking and dock facilities; lunch and coffee shop; full range of services.
7. Fishing Hole. River mile 5; trailer hookups; boat launching and rentals.
8. Oaklands Fish Camp. River mile 5.5; extensive boat launching and marine repair/sales facilities.
9. Alsea/Silver Landing. At 7 Mile Bridge; facility closed.
10. Taylor's Landing. At 7 Mile Bridge; major mid-river facility; boat launchings; trailer hookups; public lavatories; bait and tackle sales; lunch and coffee shop; full range of services.
11. Kozy Kove. At river mile 11; major upstream facility; boat launching and rentals; bait and tackle; guided tours; lunch and coffee shop; trailer hookups; full range of services.

Other potential marina locations are recommended in the Alsea Bay Regional Land and Water Use Plan particularly at McKinney Slough, Lint Slough and at the 7 Mile Bridge. (See Exhibit 5 in Chapter 1).

Marina owners and operators and others with ancillary interests have formed the Alsea River Recreation Association to work on common problems and opportunities. Some association members are also members of the Board of Commissioners of the Port of Alsea. Recreationally-oriented needs most frequently cited by association members are:

1. Navigation access over the sandbar to offshore salmon fisheries.
2. Control of upstream erosion.
3. Identification and removal of snags representing "Hazards to Navigation".
4. Removal of silt deposition on the south bank between river mile 4 and 5.
5. Room for expansion of marine-related facilities and trailer parks in the remaining marshes and floodplain between river mile 3.5 and 5.
6. Adequate publicity and signing to attract tourists from U. S. 101.
7. Simplification of Federal and State permit procedures for repair and maintenance of facilities.

Retirement

Lincoln County and the Alsea area have a growing population of retired persons and families whose retirement annuity is their primary income source. In many respects, these persons are analogous to a basic economic sector. Their income is derived from sources outside the local economy and a certain amount of local basic and non-basic employment is generated by their expenditures for housing, food and services. Their income does not fluctuate seasonally and tends to damp oscillations of local income from fishing, recreation and forestry. Retirement incomes, particularly Social Security, are low, and elderly retired persons have a unique set of social and health care needs which may be met only with difficulty in certain areas.

U. S. Census statistics indicate the median age of the county population is increasing, as is the percentage of the population over 65 years of age. In 1960, the county median age was 33.7 years, while in 1970 it was 38.2 years. In 1960, 12.3 percent of the county population (3,030 persons) was age 65 or older, compared with 16.1 percent (4,147 persons) in 1970. Table 48 shows these 1970 age characteristics for the State, the county and the Waldport CCD. The Waldport CCD shows a higher median age and a larger percentage of the population age 65 or older.

TABLE 48

SELECTED AGE CHARACTERISTICS OF THE POPULATION, 1970

	<u>Oregon</u>	<u>Lincoln County</u>	<u>Waldport CCD</u>
Median Age (years)	28.9	38.2	43.0
65 years or older			
Percent	10.9	16.1	21.7
Number	22,796	4,147	152
16 - 24 years			
Percent	59.8	54.4	55.9
Number	1,250,648	14,783	391

Source: 1970 U.S. Census of Population: 1960 and 1970 General Population Characteristics, Final Report PC(1)-B39, Oregon. (Washington, D.C.: U. S. Government Printing Office, 1961 and 1971).

Agriculture

Agriculture has declined in the coastal zone for several decades. Land suitable for farming is confined to river valleys and the coastal plain and is being steadily converted to other uses. Between 1959 and 1969 land in farms in Lincoln County, declined 39 percent, and the number of farms declined 49 percent. Along with this declining trend, a large proportion (57 percent) of Lincoln County farmers are part-time, indicating that for many, farming is an adjunct to seasonal earnings from other work. Less than 10 percent of the county's rural population was living on farms in 1970. As an industry, agriculture is not of major importance in Lincoln County, but it is significant as an element in local lifestyles, chiefly in supplementing local incomes.

The importance of agriculture as a land use in the Alsea estuary increases upriver from the coast. Approximately 1,000 acres within the study area are devoted to agriculture, including 671 acres of diked pastureland. This land is available for urbanization, except for those areas where flood hazard, slide hazard or difficult access is a constraining influence. Development in this area is less than one dwelling unit per acre.

REFERENCES

- ¹ J. G. Gosselink, E. P. Odum and R. M. Pope, The Value of the Tidal Marsh, Working Paper #3, Louisiana State University: (Center for Wetland Resources, LSU-SG-74-03, 1973).
- ² Richard A. Walker, "Wetlands Preservation and Management on Chesapeake Bay: The Role of Science in Natural Resource Policy," Coastal Zone Management Journal, Vol. 1, No. 1, Fall 1973 (New York: Crane, Russak & Company, Inc.).
- ³ Oregon State University Extension Service, Resource Atlas, Corvallis, Oregon, 1975.
- ⁴ Special Economic Study Team of the Oregon Coastal Conservation and Development Commission, Economic Analysis and Profile of the Oregon Coastal Zone, November 1974.
- ⁵ Bureau of Governmental Research and Services (1972), Pleasure Boating in Oregon 1972, prepared for Oregon State Marine Board, University of Oregon, Eugene.
- ⁶ Oregon State Game Commission, Environmental Investigations, Middle Coast Basin, 1972.
- ⁷ 1969 U. S. Census of Agriculture, quoted in Oregon District Four Council of Governments Statistical Data Base, Fall 1973.
Pacific Planning Associates, An Identification of Areas Suitable for Urbanization in the Coastal Zone, Draft Report to OCC&DC, Newport, Oregon, 1974.

CHAPTER 6 LAND AND WATER USE SETTING

Summary of Findings

Overall, the relationship between permits and land and water uses can be expressed in the following ways:

1. Instances where land uses are likely to induce developments that would require a permit from the Corps of Engineers (shown by circles on Exhibit 35).

2. Instances where permit activities authorized by the Corps would induce major land use changes (shown by squares on Exhibit 35).

In addition, there are instances where land uses and new permits tend to complement one other (Diamonds within circles on Exhibit 35). In developing this exhibit, consideration was given to Lincoln County zoning ordinances; recommendations of the Alsea Bay Regional Land and Water Use Plan; Forest Service plans for the Canal Creek Road; the Lincoln County Comprehensive Plan for Water, Sewer and Solid Waste; OCC&DC's coastal zone recommendations; and other considerations internal to the study area. A realistic limit on the range of factors had to be established. Therefore, external forces such as tourism, and fluctuations in the prime interest rate affecting the availability of mortgages and bonds, were not included in this land use evaluation. What the exhibit shows essentially is the cause and effect relationship between Corps permits and land use resulting in some modification of the environment.

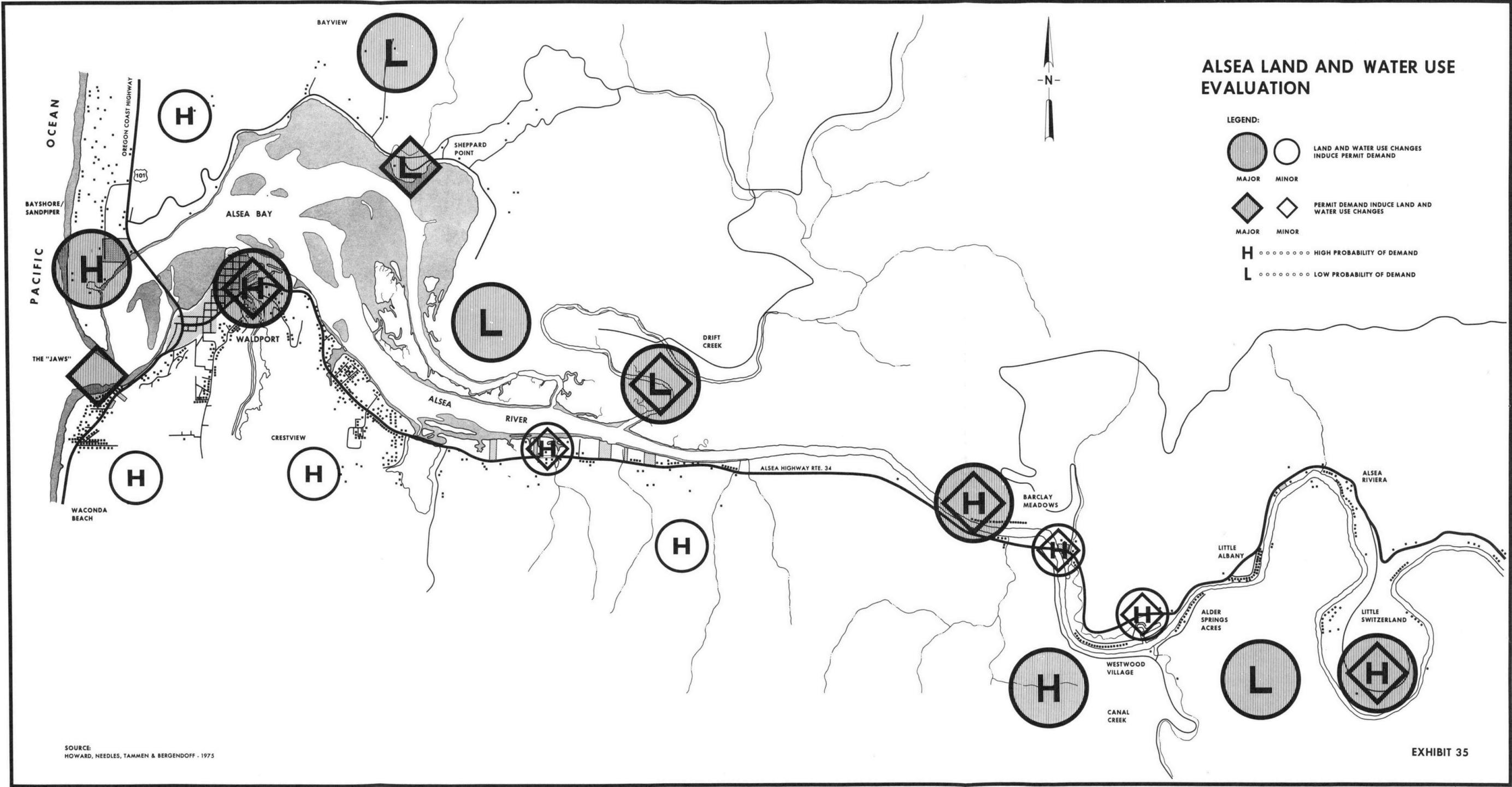
Example 1: Land Use as Cause - Permits as Effect = Environmental Modification as Result

Example 2: Permits as Cause - Land Use as Effect = Environmental Modification as Result

Example 3: Land Use **X** Permits = Environmental Modification as Result

Potential impacts in the form of environmental modifications were evaluated as being major or minor depending on:

- o the range of effects (i.e., biology and esthetics; biology alone; biology, esthetics and social effects; etc.);
- o the magnitude of the impacts (i.e., impacts on small areas vs. large areas, irreversible vs. short-term commitments, etc.);
- o mitigating influences (i.e., zoning, planning recommendations, etc).



ALSEA LAND AND WATER USE EVALUATION

- LEGEND:
- LAND AND WATER USE CHANGES INDUCE PERMIT DEMAND
 - MAJOR
 MINOR
 - PERMIT DEMAND INDUCE LAND AND WATER USE CHANGES
 - MAJOR
 MINOR
 - H** ○ ○ ○ ○ ○ HIGH PROBABILITY OF DEMAND
 - L** ○ ○ ○ ○ ○ LOW PROBABILITY OF DEMAND

SOURCE:
HOWARD, NEEDLES, TAMMEN & BERGENDOFF - 1975

Future demand for both land use changes and permits was classified as being high or low depending on:

- o the availability of water and sewer service;
- o the adequacy of transportation facilities;
- o zoning and master plan support;
- o current land uses and trends;
- o the attractiveness of an area for marine-related facilities;
- o regulatory restrictions;
- o ownership.

Example 1: As shown on Exhibit 35, there is a likelihood that land uses in the following areas will induce additional demands for various types of permits.

1. Bayshore Dune and Spit. It is highly probable that the Bayshore and Sandpiper subdivisions will continue their developments because of planned water and sewer services, creating a potential demand for moorage, stabilization of the spit and possibly for groins and jetties at the inlet. At anticipated densities, impacts would be major.

2. North Terrace east of the U.S. 101 Bridge. It is highly probable that the terrace will be developed for either housing, parkland or both, creating a high demand for moorage. At anticipated densities impacts would be minor; however, unless developments are adequately set back from the cliff overlooking Alsea Bay, erosion of the cliff would probably create demand for stabilization measures. Without such set-backs, the impacts on the cliff and tideflats below would be major.

3. Bayview. Now planned for continued low density uses, a major change in existing land uses would create a high demand for moorage, and possibly for filling and dredging in the marshes and tideflats on the north side of the bay. Present uses keep such a demand low. The same evaluation applies to the north side of Alsea Bay below Bayview and east of Sheppard Point to Drift Creek.

4. Waconda Beach. Planned developments would create a high demand for increased moorage and for discharge of treated sewage into Alsea Bay. At anticipated densities and with new treatment facilities planned, impacts are likely to be minor. The same evaluation applies to Crestview and residential developments on the terraces east of Waldport and south of Route 34.

5. Canal Creek area. Changes in existing low density land uses would create a high demand for moorage and have a major impact on the area around Taylor's Landing. Existing low density habitation in the Canal Creek drainage area creates a need to upgrade dangerous road access. Improved access may trigger further development at holdings within the Siuslaw National Forest.

6. South Bank Alsea River from Taylors Landing to Little Switzerland. Now in farm, forest and recreation uses, this area has a low demand for activities requiring permits from the Corps of Engineers, particularly for bank stabilization and moorage. Changes in existing uses would create a high demand with major impacts.

Example 2: It is probable that permit activities in the following areas would induce unplanned land use changes:

1. At the inlet and in Alsea Bay southwest of the U.S. 101 Bridge. Docks, piers, groins, jetties and other public works would create a major impact on land use patterns within Waldport. Existing demand for such work is now uncertain except to the extent that such undertakings by private enterprises would likely be opposed by public agencies. The private demand is therefore low; publicly, the Wetlands Review Study has not been able to determine whether a clear consensus among citizens exists with respect to such activities.

2. Sheppard Point. Strategically located near the North Channel of Alsea Bay, Sheppard Point has a potential for marina development. Existing demand is low because of low density land uses in the area; marina development is likely to trigger higher density uses at Bayview and would have a major impact on the north side of the bay.

Example 3: At other areas within the study area, the cause and effect relationship between land uses and permit activities is more complex. Generally, the two tend to be mutually supportive since permits are often required to make a particular area suitable for development through dredging or filling, or attractive for development through the provision of docks, bank stabilization and other recreational facilities. Impacts are major or minor depending on the magnitude of the change which could be expected, while demand is high or low depending on such mitigating factors as zoning, the availability of water and sewer services, and current uses.

1. Waldport. High density uses such as condominiums would result in major changes near the old waterfront and create a high demand for groins, jetties, dredging, moorage and other activities requiring permits from the Corps of Engineers. On the other hand, higher density uses are not likely to occur in the absence of marine-oriented facilities, such as a boat basin, and fishing access to the ocean. The entire relationship should be subject to detailed analysis in the event that permit applica-

tions serving higher density developments are received by the Portland District or similarly, in the event that the proposal for groins and jetties at the inlet becomes economically feasible.

2. South bank of Alsea Bay. Further upstream from Lint Slough to the 7 Mile Bridge, existing and future land uses create a high demand for moorage, dredging, bank stabilization and other activities requiring a permit from the Portland District. Since this area is planned for residential, marine commercial and marine residential uses, the impact is minor. Exceptions are McKinney Slough and Eckman Slough, which are recommended as "wetlands of importance," and the undeveloped floodplain from river mile 6 to river mile 8 that is now primarily in agricultural use. Permit activities are likely to be required to make the floodplain suitable for higher density uses which, in turn, would have a major impact on existing land use patterns. The area is one where a major tradeoff may be required between local goals and the need to protect this narrower stretch of the river from being overcrowded with docks and other shoreline developments.

3. Drift Creek. Alsea's "mini-wilderness" is planned for low density uses and its inaccessibility now creates a low demand for permit activities. Docks, public marinas or similar facilities, however, are likely to lead to greater density uses resulting in major impacts.

4. Barclay Meadows. Subdivision of Barclay Meadows and activities requiring permits from the Portland District have gone hand and hand. Docks and bank stabilization measures have been the primary activities. Since the area is planned but not zoned for recreation residential purposes, continuation of permits in the western non-subdivided portions of Barclay Meadows would result in a land use change with major impacts. The demand for both permits and further subdivision in this area is very high.

5. Taylor's Landing upstream to Little Switzerland. Existing subdivisions and marinas create a high demand for permits from the Corps of Engineers. Permits for docks, bank stabilization and similar measures to serve recreational uses in this upriver area have a minor impact in this area because of the extent of existing developments. Also, the area is planned and zoned for such purposes and water and sewer services are likely in the far distant future.

6. Little Switzerland. Little Switzerland has created a high demand for activities requiring permits from the Corps of Engineers. Further developments in the unsubdivided portions would not only continue this demand but have major impacts, since this highly scenic and narrow stretch of the river is planned for rural residential uses.

Marshes and tidelflats have not been discussed in terms of potential impacts since local zoning and master planning are supportive of retaining

such areas in their existing uses. Undoubtedly, major permit activities such as landfilling in the marshes and tideflats would have major impacts; however at this time demand is exceedingly low.

The implications for the handling of permit applications by the Portland District are as follows:

1. Permit applications in areas represented by either large circles or large squares, or both, (Exhibit 35) are likely to result in major environmental impacts or in land use changes that are inconsistent with local planning goals and zoning requirements.

2. Permit applications in areas represented by either small circles or small squares, or both, (Exhibit 35) are likely to be consistent with locally-adopted environmental goals, planning goals, and zoning requirements.

3. Numerous permit applications in areas represented by Low Demand ("L" on Exhibit 35) are likely to be signals that land use changes may be about to occur, with major impacts both on the environment and on local goals and objectives;

4. Numerous permit applications in areas represented by High Demand ("H" on Exhibit 35) can be anticipated.

GENERAL DISCUSSION

The Alsea Bay and River are the region's central and unifying resources, but how they have been used reflects outside demand as well as local priorities and needs.

Indian village life was displaced by homesteading during the mid 1850's. One of the few reminders of the Indian society that once flourished around Alsea Bay is a plaque at the site of the Siletz Indian Reservation in "Old" Waldport. Agriculture was replaced in importance by timbering and commercial fishing in the early 1900's. Remnants of docks and trestle bridges at Bayview mark their passing. With the completion of the U.S. 101 Bridge in 1936, land and water uses began to reflect the demands of tourism, recreation; and more recently, of settlement by seasonal residents, retirees, craftsmen, and others looking for a coastal, non-urban life style.

Ninety percent of Lincoln County is steep and forested. Consequently, land development has been concentrated along the coastal fringe and upstream floodplains. At Alsea, the coastal fringe includes Bayshore and Sandpiper Village; the City of Waldport, which is the primary service and population center within the study area; and Yaquina John Point and Waconda Beach south along U.S. 101. Upstream, development has occurred

along Route 34 east of Waldport and is concentrated within the floodplain between Waldport and the mouth of Drift Creek, at Barclay Meadows and on the north bank from Taylor's Landing east to the Town of Tidewater. This includes Westwood Village, Little Albany, Alsea Riviera and Little Switzerland. Alder Springs Acres near the Canal Creek drainage is the only area of concentrated development on the south bank from the Seven Mile Bridge east to the river bend at Tidewater (Exhibit 35).

All of the study area is used extensively for recreation, but certain activities tend to be favored at distinct sites. Fishing and crabbing are generally heaviest from the inlet east to McKinley's Marina; clamming and waterfowl hunting are dominant in the tidal flats, marshes and shoreline fringes on the north side of the bay and at Drift Creek. Trolling for salmon and cutthroat trout is common between Drift Creek and Little Switzerland upriver. Bank fishing and crabbing are especially popular at the north and south footings of the U.S. 101 Bridge and from the docks at Waldport.

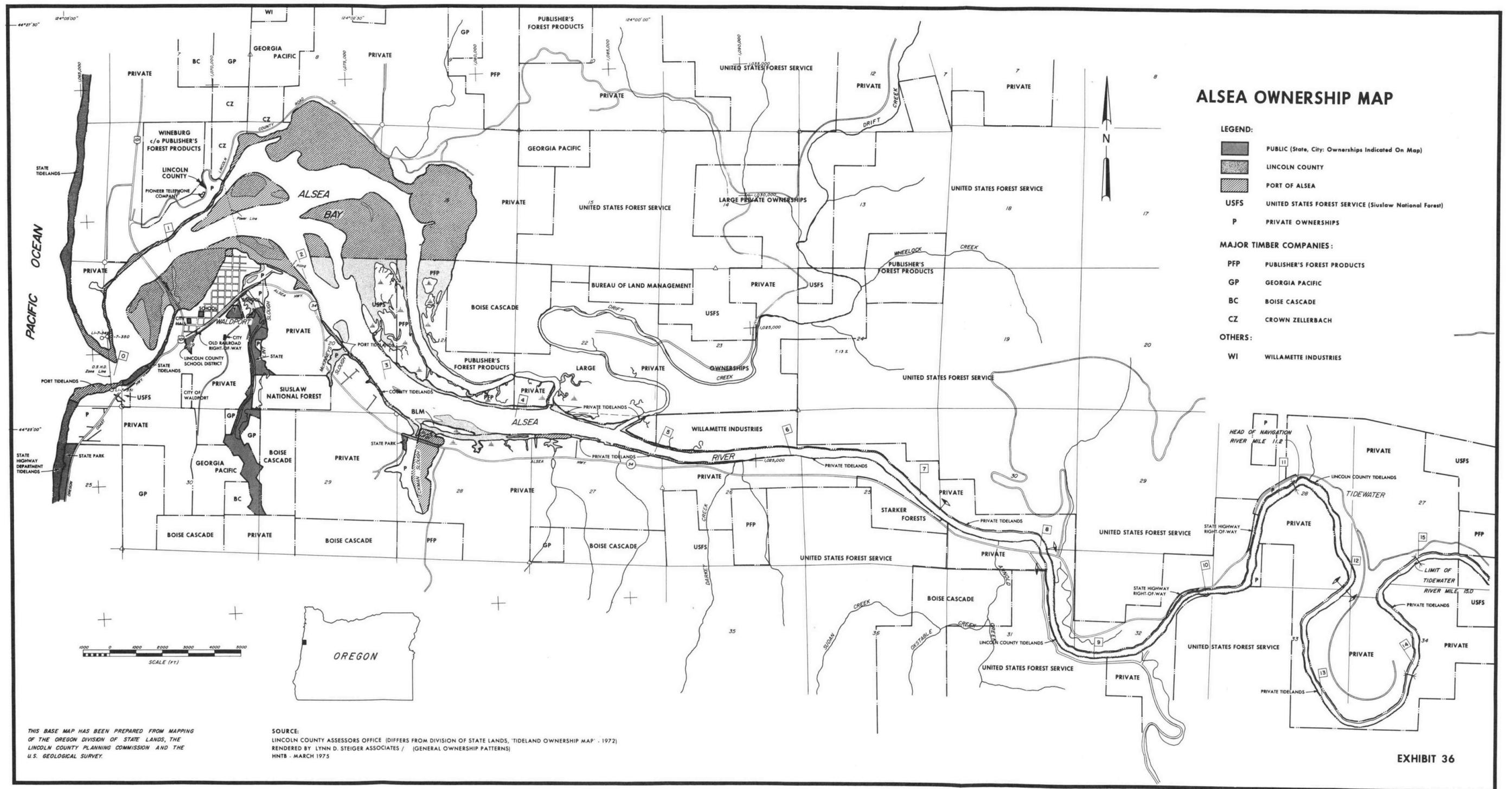
Ownership

Ownership patterns in the study area have major land use implications insofar as large tracts dedicated to timber production are not generally available for housing and development purposes. Large private non-timber tracts may involve either future subdivision or speculation. Ownership patterns are displayed on Exhibit 36 and are approximations only. Site-specific details would require inspection of legal metes and bounds from the Lincoln County Assessors sheets from which this display was prepared. As a point of interest, ownership of the lands immediately adjacent to the bay and riverfront is as follows:

<u>Property Owner</u>	<u>Feet</u>	<u>Miles</u>	<u>Percentage</u>
Private	147,000	27.84	83.53
Government	10,000	1.89	5.67
Commerical	<u>19,000</u>	<u>3.60</u>	<u>10.80</u>
TOTAL	176,000	33.33	100.00

Water and Sewer

The availability of water and sewer services is a major determinant of land uses, and in the case of floodplains and areas with poor soils, a necessary condition of development unless county-approved septic systems and state-approved private water supplies are installed. Exhibits 37 and 38 show the status of current county water and sewer planning. Potential service tends to be long-range and extends only as far east as Little Switzerland. The north side of Alsea Bay to approximately river mile 8 and the south side of the Alsea River from river mile 8 to head of tide are not expected to obtain services in the far distant future. High



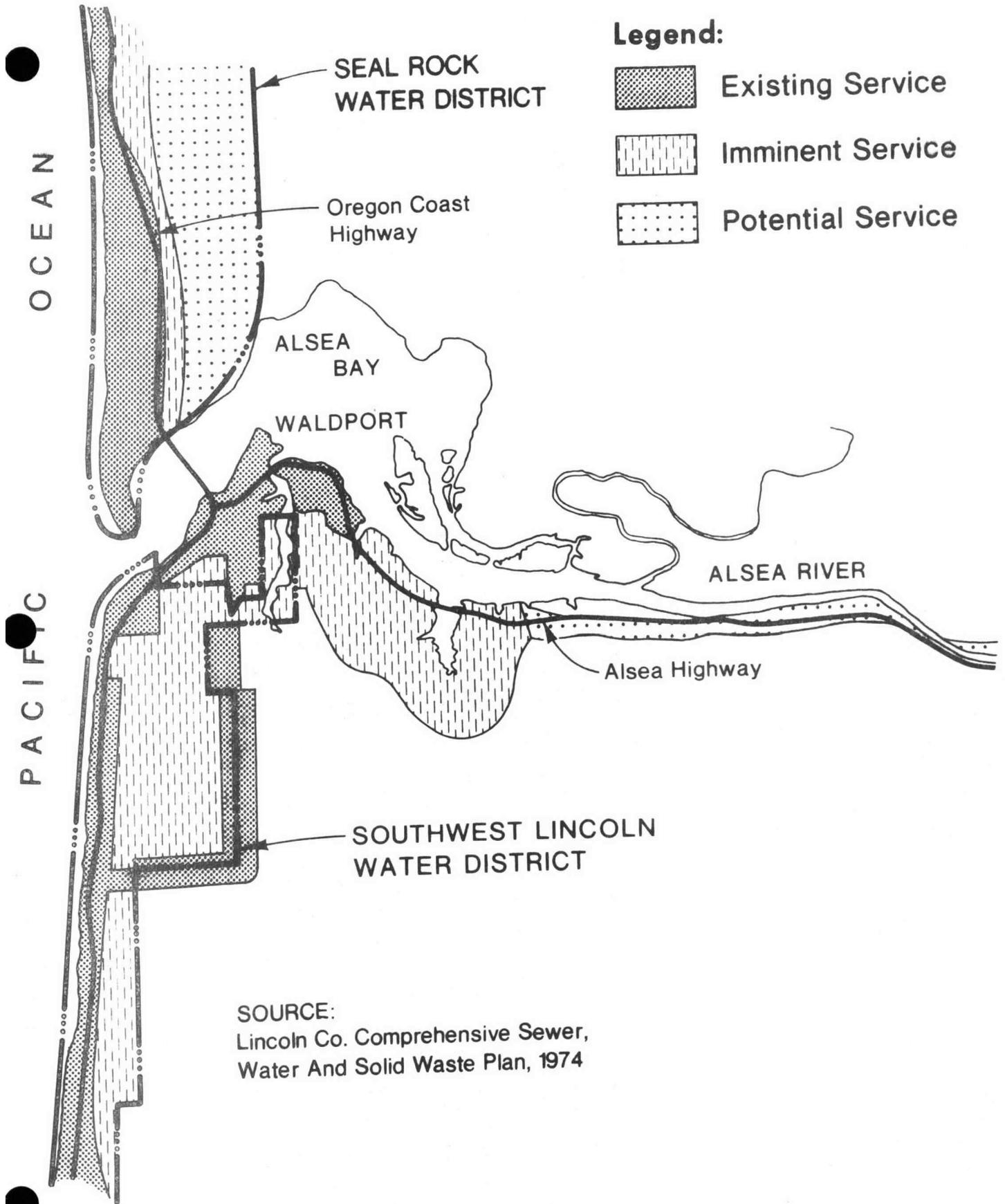
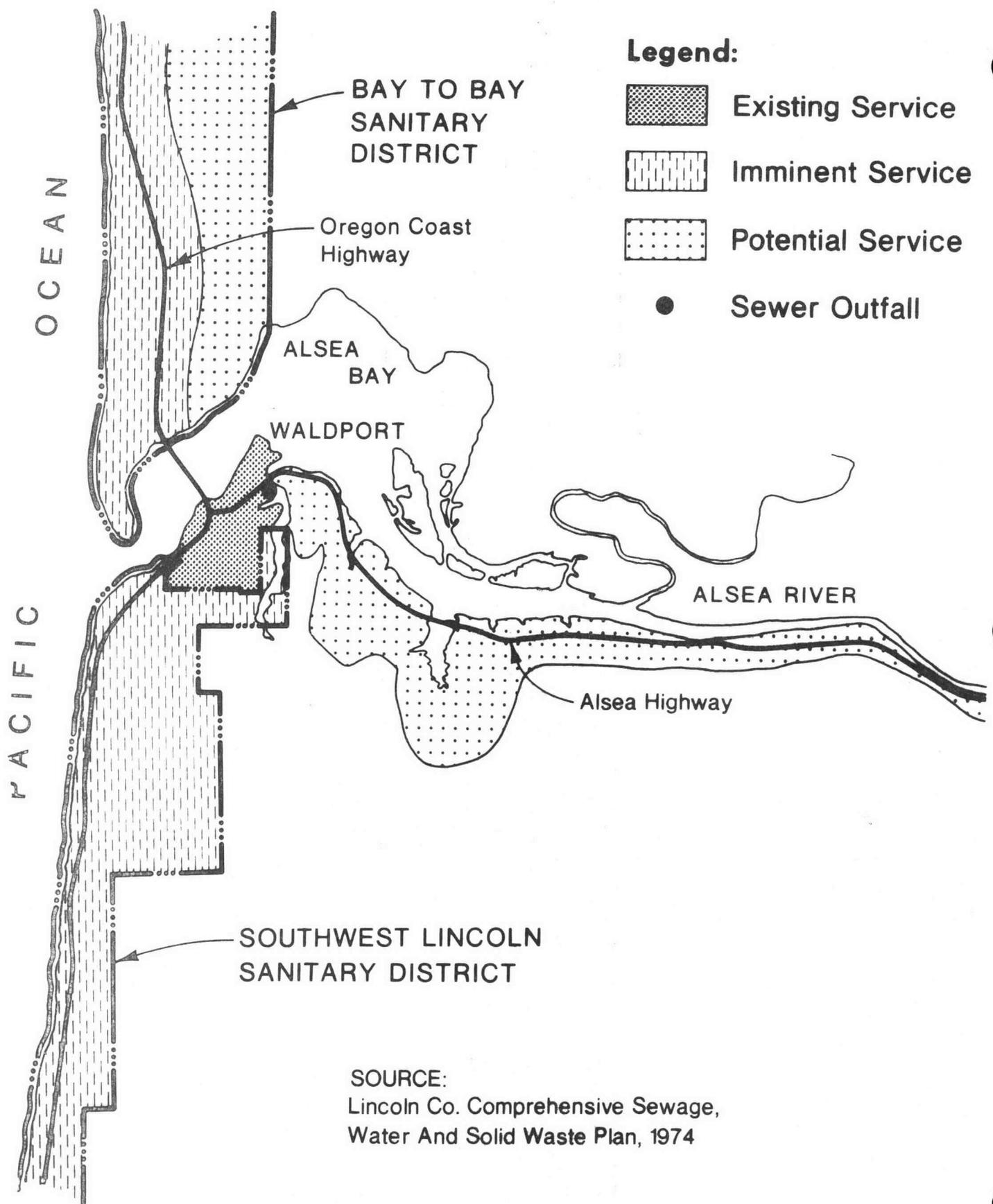


Exhibit 37

ALSEA WATER SERVICE



SOURCE:
 Lincoln Co. Comprehensive Sewage,
 Water And Solid Waste Plan, 1974

levels of development would require privately installed systems. Present service in Lincoln County is summarized in Table 49.

Planning and Zoning

By far, the greatest determinants of future development are adopted land use plans and zoning. The land use plan is displayed on Exhibit 5 in Chapter 1, while zoning is shown on Exhibit 39 in this Chapter. Land uses compatible with Lincoln County zoning are shown in Tables 50 and 51.

Roughly 46 percent of the shorelines within the study area (excluding the ocean beach, Drift Creek, Eckman Lake, Lint Slough and the tidal and marsh islands) is committed to residential and marine residential zoning; nearly 40 percent is committed to natural resource uses, farms, forest and recreation. The remaining 14 percent is zoned for either rural residential, commercial or marine uses. (See Table 52.) These patterns generally correspond to uses recommended in the Alsea Bay Regional Land and Water Use Plan, but inconsistencies occur at the Bay-shore Sandspit, the North Terrace, Barclay Meadows and Alder Springs Acres. Until officially resolved, inconsistencies between a legally adopted master plan and zoning will be decided by the county relying on the more restrictive requirement (Oregon Supreme Court 1975 Baker decision).

The Alsea Regional Plan recommends the following commitments for areas zoned for natural resource uses.

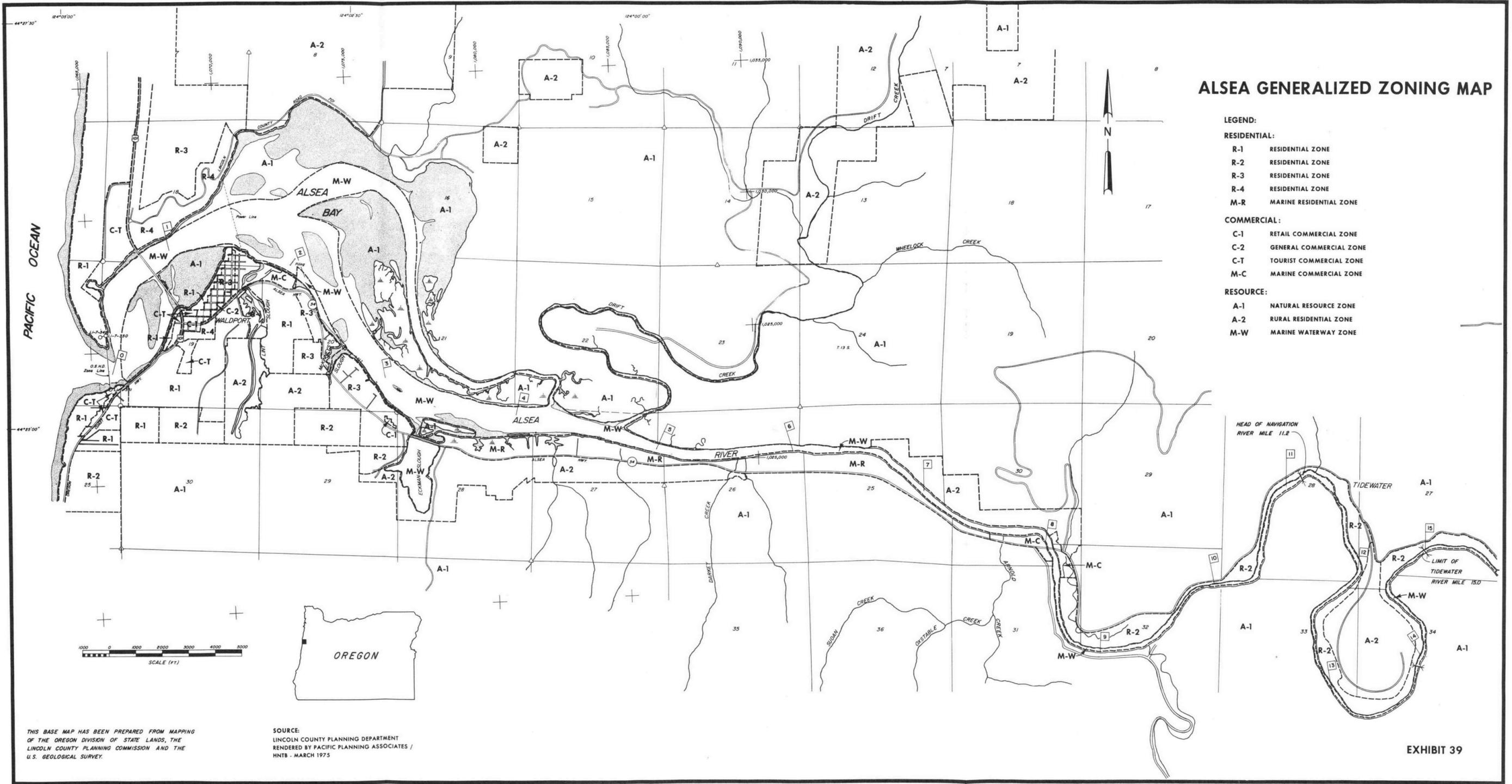
Marshland	521 acres
Marine Waterway (excluding Drift Creek and Eckman Lake)	1,209 acres (At Mean Tide)
Tideland	889 acres
Duneland	<u>301</u> acres
TOTAL	2,920 acres

Zoning and land use planning recommendations for the Alsea pose a problem with respect to future Corps of Engineers permit activities. Most of the south bank of the Alsea to river mile 8 is used, zoned and planned for marine residential uses. Much of the area is in the floodplain. Mobile trailer homes have taken on all of the aspects of permanent residences: patios, driveways, porches, bank stabilization and docks. A similar condition exists along the north bank from river mile 8 upstream to the head of tide. These homes are important economic resources to the Alsea study area and have tremendous social value for retirees and others unable to afford higher-priced properties in the few available upland tracts in Waldport proper or in areas such as Bayshore. Others are sites of seasonal habitation by visitors who make important economic contributions to the area. Interviews with representatives of both groups indicate that they share an awareness of flooding and other limitations imposed by the floodplain. Further, they tend to appreciate the natural beauty of the bay and river that originally served as an attraction for settle-

TABLE 49
SEWAGE TREATMENT

<u>Existing Facility</u>	<u>Type</u>	<u>Location</u>	<u>Efficiency</u>	<u>Design Capacity MGD</u>	<u>Average Volume Discharged</u>
Lincoln City	Aerated Lagoon Secondary	Schooner County (mile 0.8)	Design = 1.0 MGD Present = 0.75 MGD	1.000	0.75 MGD
Siletz Keys	Package Plant Secondary	Siletz Bay	Only 2 homes on system Designed for 40 lots	0.015	600 gpd
Salishan	Extended aeration Primary package plant	Siletz Bay Syota Creek - 50' upstream from Siletz Bay	Poor	0.110	Varies 3,400 to 12,300 gpd
City of Siletz (outside study area)	Lagoon Secondary	Siletz River at Siletz	O.K.	0.070	28,000 gpd
Waldport	Secondary	Lint Slough into Alsea Bay	O.K. - new system	0.300	0.07 MGD

Source: Pacific Planning, 1975.
Howard, Needles, Tammen and Bergendoff, 1975.



ALSEA GENERALIZED ZONING MAP

- LEGEND:**
- RESIDENTIAL:**
- R-1 RESIDENTIAL ZONE
 - R-2 RESIDENTIAL ZONE
 - R-3 RESIDENTIAL ZONE
 - R-4 RESIDENTIAL ZONE
 - M-R MARINE RESIDENTIAL ZONE
- COMMERCIAL:**
- C-1 RETAIL COMMERCIAL ZONE
 - C-2 GENERAL COMMERCIAL ZONE
 - C-T TOURIST COMMERCIAL ZONE
 - M-C MARINE COMMERCIAL ZONE
- RESOURCE:**
- A-1 NATURAL RESOURCE ZONE
 - A-2 RURAL RESIDENTIAL ZONE
 - M-W MARINE WATERWAY ZONE

THIS BASE MAP HAS BEEN PREPARED FROM MAPPING OF THE OREGON DIVISION OF STATE LANDS, THE LINCOLN COUNTY PLANNING COMMISSION AND THE U.S. GEOLOGICAL SURVEY.

SOURCE:
LINCOLN COUNTY PLANNING DEPARTMENT
RENDERED BY PACIFIC PLANNING ASSOCIATES /
HNFB - MARCH 1975

TABLE 50

LAND USES COMPATIBLE WITH LINCOLN COUNTY ZONING: RESIDENTIAL ZONING

Permitted Activities					
Residential Zone (R-1)	Residential Zone (R-2)	Residential Zone (R-3)	Residential Zone (R-4)	Marine Residential Zone	Rural Residential Zone (A-2)
Single-family dwelling built on site Factory built dwelling Trailer dwelling for one year while dwelling built Agricultural use-no livestock, no commercial building maintained	Two-family dwelling Mobile home	Two-family dwelling Multi-family dwelling		Travel trailer Golf course, park, playground, picnic or swimming area Agriculture or forestry Outdoor recreation activity Hunting, fishing Wildlife or marine life sanctuary, etc.	One-family dwelling built on site Factory built on site
Conditional Uses					
Airport Church, cemetery, charity institution Community center Nursery school, kindergarten Government structure or use Home occupation Hospital, nursing home Golf course, country club Mobile home Private non-commercial recreation club Public park or playground, swimming pool School Utility facility Radio or TV tower Solid waste disposal area Temporary real estate office	Travel trailer	Trailer park Travel trailer	Clinic Club, lodge Hotel, motel, resort Museum, art gallery Professional office Vacation or travel trailer park	Boat launching or moorage facilities Mobile home trailer park Vacation or travel trailer park, campground Retail sales sporting goods, bait, etc Any use permitted in M-R zone involving filling, dredging, etc. Any use permitted in M-R zone involving construction piers, docks, bulkheads Outdoor recreation development	Animal hospital Extraction and removal of rock, sand, gravel, etc. Kennel

Source: Lincoln County Zoning Ordinance, 1974.
Howard, Needles, Tammen and Bergendoff, 1975.

TABLE 51

LAND USES COMPATIBLE WITH LINCOLN COUNTY ZONING: COMMERCIAL ZONING

Permitted Activities			
Commercial Zone (C-1)	Commercial Zone (C-2)	Tourist Commercial Zone (C-T)	Marine Commercial Zone (M-C)
Retail store, food, drug, furniture, etc. Repair store for retail establishments permitted in zone C-1, enclosed building Personal or business service, beauty shop, barber, laundry, etc. Clinic Financial institution Club, lodge Hotel, motel, resort Indoor amusement or recreational establishment, bowling alley, theater, etc. Mortuary Newspaper office Office Museum, art gallery Restaurant, bar, tavern	Auto, truck trailer sales, service, rental Boat launching or moorage facility Boat or marine sales, service, rental Cabinet or woodworking shop Cold storage or ice plant Feed or seed store Machinery sales, service, rental Laboratory Lumber or building materials Machine, welding, metal shop Outdoor amusement or recreation establishment Plumbing, electrical, paint contractors, shop Processing, packing, storage food or beverages Tire sales, repair, etc. Truck terminal, freight depot Upholstery shop Warehouse or storage area Wholesale establishment	Auto service and repair within closed building Barber or beauty shop Boat launching or moorage facility Car wash Clinic Club, lodge Food store Gift shop Hotel, motel, resort Indoor commercial amusement or recreation establishment Laundromat Office Museum, art gallery Restaurant, bar, tavern Retail sale of sporting goods, bait	Auto service Boat launching or moorage Boat or marine equipment sales, service, etc. Manufacture of boats and accessories Multi-family dwelling Single-family dwelling built on site Factory built on site Two-family dwelling Restaurant, bar, tavern Retail sale of sporting goods, food, etc. Hotel, motel, resort Cold storage, etc.
Conditional Uses			
Vacation or travel trailer park Outdoor commercial amusement or recreation Signs, advertising	Kennel Animal hospital	Vacation or travel trailer park Outdoor recreation activity or development Auto repair within enclosed building Signs, advertising	Mobile home Mobile home trailer park Government structure or use Laboratory Open recreation area Public park, playground Public utility facility Vacation or travel trailer park Use permitted in M-C zone involving filling, dredging, etc. Use permitted in M-C zone involving construction of docks, piers, bulkheads

252

Source: Lincoln County Zoning Ordinance, 1974.
 Howard, Needles, Tammen and Bergendoff, 1975.

TABLE 52

EXISTING ALSEA BAY ZONING BY LENGTH OF SHORELINE^a

Zoning	Feet	Percent in Study Area	Notes
Residential (R-1)	8,500	4.83	16,000 feet on ocean
Residential (R-2)	38,000	21.58	
Residential (R-3)	8,000	4.56	
Residential (R-4)	6,000	3.42	
Marine Residential	21,000	11.94	
Retail Commercial	0		
General Commercial	0		
Tourist Commercial	3,000	1.71	500 feet on ocean
Marine Commercial	7,500	4.26	
Natural Resource	70,000	39.75	29,000 feet on island
Rural Residential	14,000	7.95	
TOTAL	176,000	100.00	

^aExcluding Drift Creek, Eckman Lake and Marine Production Area.

Source: Howard, Needles, Tammen and Bergendoff, 1975.

ment and have mixed expressions of concern over overpopulation and crowding. This narrow upriver portion of the Alsea River, more than Alsea Bay proper, poses the classic dilemma for estuarine and riverine shorelines: how to accommodate the legitimate interests and needs of people for close contacts with the "edges" of bays, rivers and lakes while protecting the shoreline characteristics that induced settlement originally and that are of such concern to the general public. On the Alsea, opportunities for judicious compromise exist by strictly limiting any developments along the bay and river solely to those areas where development has already occurred and where massive changes to the environment would not be required to make an area suitable for habitation.

Corps Permits

There is an obvious geographic correlation between patterns of past shoreline development and areas of intense permit activities. Of the permits granted between 1971 and 1974 most have been for docks. It is extremely difficult, however, to determine the extent to which easy availability of dock permits has contributed to development of the shoreline and floodplain. Undoubtedly, the prospect of private moorage has been a major inducement for settlement along the shoreline, but other

motivations may be equally important, e.g., previous settlement by friends and relatives, esthetic qualities and the availability of buildable land.

Since 1971, about 180 permits have been granted for private docks within the study area. There is a potential for an additional 180 permits in the future to serve only those riverfront areas already subdivided but not yet served by moorage facilities. Further, the Alsea Bay Regional Land and Water Use Plan indicates that the installation of water and sewer services would open up some 1,500 acres of buildable land, about 300 acres of which are in the floodplain. This suggests that as many as 700 private docks may eventually be constructed within the Alsea study area to service anticipated and planned levels of development, unless controlled by appropriate restrictions.

Thus far, docks have preempted 20 acres of marine waterways within the bay and river. At the maximum level of anticipated and planned development, the preemption would equal roughly 80 acres, or 6.6 percent of bay and river areas zoned as marine waterways, excluding Drift Creek and Eckman Lake. More significant is the extent to which concentrations of docks in narrow reaches of the river may cause crowding interferences with navigation. (See Table 53.)

Wider reaches of the bay tend to be shallow and contain snags and other obstructions to navigation. Boating is concentrated in the deeper, upstream sections of the river. The convergence of narrow floodplains, which are high demand areas for dock construction, therefore creates the potential for a significant conflict with recreational boaters in the narrow channel. The esthetic and social costs of expanding private moorages upstream are becoming extremely high. To some extent these costs would be mitigated if undeveloped shorelines, planned for low density uses such as timber production and general recreation, were retained in their existing natural state.

Esthetic degradation due to crowding along the river is not calculable. To some such losses might be regarded as minimal as long as good fishing were maintained. Based on an analysis of the results of the public opinion questionnaire and other findings of the community participation program (Chapter 4, Social Profile) local concern over the proliferation of docks may not be as intense as originally thought. Local citizens anticipate more docks in areas that are now used for such purposes but expect large tracts of undeveloped shorelines on the north side of Alsea Bay and on the south side of the Alsea River upstream to remain in their existing condition, which will act as a mitigating factor. Question VII, Proposition 3 of the questionnaire provides some additional insights. Citizens were asked if they strongly agreed, generally agreed, generally disagreed or strongly disagreed with the statement "If there were more marinas, public moorages or central dock facilities, people could be reasonably restricted from building so many private docks along the Bays and Rivers." The overall results (46.9 percent agreed; 37.7 percent disagreed and 15.3 percent had no opinion or needed more information) is statistically

TABLE 53
 PERMIT ACTIVITY, ALSEA RIVER, 1971-1974

<u>River Mile</u>	<u>Activity</u>	<u>Year</u>	<u>Approximate Number of Lots</u>	<u>Moorage Permits</u>	<u>Dredge/ Fill</u>	<u>Bank Protection</u>	<u>Other Permits</u>	<u>Total Permits</u>
1.6	Single	1971	1	1				1
2.0	Single	1971	3		1			1
2.1-2.7	None		9					
2.7-3.5	Intense	1971-72, few 1973-74	34	12	4	1	4	21
3.5-4.5	Scattered	1972	6	2	2			4
4.5-6.0	Intense	1971-72, few 1973- 74	55	22	2		2	24
7.0-7.2	Scattered	1971		1			2	3
7.5-8.5	Intense	1972, few 1971, 73, 74	41	33		2	4	39
8.9-9.8	Intense	1972, some 1971, 1973	63	31	1	1	1	34
10.0	Intense	1972, few in 1973	22	15			1	16
10.3-10.6	Intense	1972, few 1973	41	28			4	32
10.9	None		7					
11.3-12.0	Intense	1972, 1-1971 few 1973	27	15			3	18
12.5	Intense	1972	15	8				8
13.5	Intense	1972, few	23	11				11
14.5	None	1973-74	8					
14.8	None		13					
TOTALS			368	179	10	4	21	212

Source: Howard, Needles, Tammen and Bergendoff, 1975.

inconclusive. Specific groups, however, had stronger feelings. Owners and managers of shoreline properties along the river generally disagreed by 52.1 to 30.7 percent, and marine-oriented business disagreed by 52 to 40 percent; retirees tended to agree 50.1 to 35.4 percent along with those who felt that their economic needs were not adequately met (54.9 to 29.4 percent). In addition, of all of the issues discussed at the public workshops, the issue of docks was among the least discussed.

It seems apparent that citizens within the study area would be willing to support measures to impose realistic restrictions on the proliferation of docks in areas where there are already natural physical limitations on such development (i.e. steep banks, marshes, and tideflats), but would be hesitant to support controls in areas that are already subdivided or used for such developments.

Physical Effects

Hydrologically, there is no evidence to support a conclusion that existing docks and bank stabilization have altered river flows except to trap silt. This is not to say that bankline modifications may not have such effects in the future as riverfronts reach maximum levels of development. Moreover, debris collection and localized silt deposits around pilings have been reported but, as with hydraulic effects, an evaluation would have to be based on site inspection and hydraulic analysis beyond the scope of this study.

Dredging and Filling

Other than docks, permit activities that have had the greatest effects on land uses within the study area have been for filling of tidal fringes and floodplains in order to create buildable land. (See Exhibit 24 in Chapter 2, the Environmental Profile.) Most of the waterfront around Lint Slough and at the Port docks at Waldport has been filled for marina and related recreational development, as have tracts along the south bank of the Alsea River to approximately river mile 6. Past dredging has been limited to the main channel at Waldport and in Lint Slough for recreational navigation and marina purposes.

The long-term effects and efficacy of dredging within the Alsea, however, cannot be established from existing data. The following discussion is appropriate.

The principal impact of dredging operations on water quality is a resuspension of bottom sediments into the water column, which in turn results in a resuspension of finer particles that cause turbidity. Both of these impacts would cause short-term localized effects with long-term effects highly improbable.

The effects on the aquatic environment resulting from the resuspension of bottom sediments are dependent upon the physical, chemical and biological characteristics of the sediments encountered. Presently data on the characteristics of dredged sediments are limited and have only recently been emphasized as necessary information for studying the effects of dredging.

In general, studies tend to support the contention that the release of nutrients and the possible release of toxic materials occur in the water column with resuspension of bottom sediments. However, the extent to which this occurrence (due to dredging operations alone) alters the water quality is not known, but is estimated to be relatively minor.

A secondary impact of dredging occurs during disposal. Where disposal of dredged material away from the river is possible, no adverse effects upon the river flows will occur but significant impacts will be made upon the affected lands. Material used to build up existing levees, beaches and islands or stored in temporary sumps will create some changes in the hydraulic characteristics of the river. Material that is disposed of in the river, or near enough to it so that material is washed back into the river, results in the reduction of the cross sectional area of the channel and subsequent carrying capacity. This, in turn, may lead to higher river elevations than previously experienced, especially during high flows.

Disposal of material in open water sites has the impacts of local increases of turbidity and smothering of bottom organisms. The near-shore margins are vital ecological transition areas that frequently develop between open water and moist shorelines of beaches and islands. In the estuary these vital areas are more extensive because of the rise and fall of the tides. Where disposal material is placed along beaches or vegetated shorelines, severe local change may be inflicted on shallow water plant and animal food sources. A usually abundant plant and benthic community that inhabits the near-shore margins is essentially destroyed.

Shore or marsh birds and marine divers which hunt the near-shore margins for small fish, insects or crustaceans may find such food sources eliminated from the disposal area. The grasses and aquatic plants which line the many shore areas are important food for geese and all surface-feeding ducks. These plants also protect some of the important food organisms and juvenile fish from predatory fish.

Another adverse effect of near-shore disposal is the loss of fish habitat found close to beach and island shorelines...The stabilization and recolonization of the new, near-shore margins will occur, but the species present and the time required will depend upon numerous factors and will vary with each area affected.

Another effect of open water disposal in the river and the estuary is that some material will eventually be carried back into the navigation channel to be removed again.

While the exact nature of the impacts is not known at this time, some preliminary findings from the field tests at Tillamook Bay are discussed below. The field tests were by the Oregon State University School of Oceanography for the Corps of Engineers with the cooperation of the Fish Commission of Oregon.

While oysters were buried and killed by siltation at all five test locations, the overall survival was high. The same finding was true for crabs and clams. While mortality occurred in fish at the test sites, it also occurred at the controlled sample where no siltation from the tests had occurred. Before the dredging, a greater numerical abundance and diversity of marine animals and fish were found in the trawls than after the dredging.

The adverse impacts of land disposal occur when natural habitat is covered by dredged material and wildlife is either smothered or displaced. All vegetation upon which dredged material is placed will be destroyed and all fauna dependent upon the vegetation or habitat will be displaced or destroyed if they are unable to find other suitable habitat. The beneficial impacts include the actual creation of natural landforms such as inlets or lagoons, beaches and islands and the nourishment of such landforms when they are subject to excessive erosion. For disposal sites that are covered by dredged material periodically, substantial re-vegetation will not occur until the site has reached its disposal capacity and is no longer used. Until that time, the disposal site will remain bare and unproductive as habitat.

The impacts of disposal of dredged material as outlined above and the impacts of fills are very similar. Dredging can also uncover sediment layers or "pockets" of toxic materials often resulting from industrial activity. In some cases, waterways, which were used extensively for

log rafting and storage accumulate sediment layers of wood bark and debris. This accumulation can undergo decomposition with the subsequent release of toxic sulfide compounds, particularly in brackish or marine waters. Upon dredging, the toxic sulfide compounds are circulated into the water and may cause deleterious effects (as occurred in the extreme case of fish kills caused by dredging cedar bark deposits in a western Canada estuary). Conversely, dredging of such waterways is beneficial in removing the polluted sediments and thus up-grading water quality, in the long-term.

The principal effect of increased turbidity is a decrease in the depth of effective light penetration. By impairing light penetration, turbidity limits primary productivity by reducing the column of water in which light intensity is sufficient for the rate of photosynthesis to exceed the respiration rate. Turbidity increases may affect benthic organisms by clogging filter feeding organs and fish by disrupting the gill respiratory system. At this time, it is believed that temporary increases in turbidity will not be detrimental to anadromous fish migrations. Turbidity increases are most prevalent during the disposal aspect of dredging. Open-water disposal creates significant increases, whereas land disposal can lead to little, or extensive turbidity depending upon the effectiveness of settling dikes and the physical composition of dredged materials. An extensive turbidity trail is also produced by discharged overflow from hopper dredges. Turbidity resulting from pipeline dredging is generally minor, except for the above mentioned land disposal aspect.

The quantified effects of temporary increases of turbidity on water quality is not known. However, turbidity increases caused by dredging operations alone can be considered slight when compared to the magnitude of natural turbidity produced during freshets and flood flows.

The advisability or need of future dredging and filling cannot be totally resolved within the context of the Wetlands Review. Certainly, dredging and filling in areas recommended for management as "wetlands of importance" should not be permitted; moreover, existing uses of the bay and river do not warrant a regular program of annual maintenance dredging throughout the entire channel. Finally, the study has not been able to identify where continued widespread filling of areas beneath the mean higher high water mark can generally be justified in order to accommodate anticipated uses. As discussed in Chapter 1, there is a common law presumption against filling of navigable waters.

There are, however, some significant exceptions.

1. Dredging of the tideflats at Waldport has been recommended in connection with the proposal to provide jetties at the inlet and to accommodate navigation to a boat marina at Lint Slough. Its advisability, need and effects should be considered along with other factors in connection with a separate environmental impact assessment or statement on the proposal.

2. There is local concern over silt depositions along the south bank of the Alsea River from Lint Slough to approximately river mile 5 where private docks have been silted in and where there is a concentration of marina and trailer park developments. Selective dredging has often been held out as a possible solution.

3. There is local concern over underwater snags, pilings and other obstructions to navigation, in addition to local support for the removal of the remaining pilings for the abandoned railroad trestle to Sheppard Point to improve flushing on the north end of the bay.

4. Bank stabilization at the Bayshore Spit may require infilling behind a seawall or other retaining structure. If so, there is a potential for interference with public uses of the bay beach and encroachment on adjacent clam beds which have been recommended as "wetlands of importance." Stabilization of the spit, if proposed, should be subjected to a separate environmental impact assessment or statement.

5. Sewer lines are planned along Route 34 in an easterly direction. This may involve dredging of portions of McKinney Slough and Eckman Slough adjacent to the road to accommodate lines. Similarly, improvements or widening of Route 34 may involve additional fill and bank stabilizations that encroach on the sloughs which are recommended as "wetlands of importance." Consideration should be given to placing lines within the existing right-of-way or on the south side of Route 34.

6. The undeveloped floodplain between river mile 3.5 and river mile 5 and between river mile 6.5 and Taylors Landing on the south side of the Alsea River may require filling in order to accommodate planned marine commercial and marine residential uses. Marshes (not recommended as "wetlands of importance") and tidal meanders would be involved.

All of these possibilities, except those requiring separate environmental impact statements or assessments, should be resolved within the context of a comprehensive plan for the estuary or in discussions with the permit applicant since they involve areas representing tradeoffs between local development needs and environmental protection.

SITE EVALUATIONS
(See Exhibit 40)

The Inlet

Alsea is one of the few major bays in Oregon without safe, year round navigational access to the ocean. A shallow offshore bar, noted more than a 100 years ago in the first Corps of Engineers survey of the region, prohibits development of either a commercial fishing or ocean-oriented sport fishing industry at Waldport. To provide access, the Port of Alsea has supported the construction of groins and jetties and other navigational improvements at the inlet. Thus far, the Port has not been able to obtain financing for its half-share of construction costs to match a Congressional authorization through the Portland District Corps of Engineers. With moorage at nearby Newport becoming increasingly scarce, there is some desire - both locally and along the coast generally - to provide such moorage at Waldport for sport fishing purposes. The existence of one of the most abundant salmon resources in Oregon off the coast at Alsea tends to increase desires for such facilities. The need or desirability of groins and jetties is beyond the scope of the Wetlands Review except to the extent that the study recommends the preparation of an environmental impact statement should the proposal become economically feasible. One of the major considerations that should be addressed is the anticipated effect on land uses at Waldport, which would be significant. Other factors are discussed in appropriate chapters of the report, including economic, esthetic, hydrologic and biological considerations.

Bayshore Dune-Spit

The Bayshore spit dominates the northwest side of Alsea Bay, jutting south toward the inlet between U.S. 101 and the Pacific Ocean. The spit is part of a dynamic ocean/dune complex that extends north toward Seal Rock outside of the immediate study area. Six dune lakes in the deflation plain adjacent to U.S. 101 indicate a high water table. A small stream drains into Alsea Bay just west of the footing of the U.S. 101 Bridge. Other significant environmental features include the wide sandy ocean beach, the southern end of the spit, and the bay shore of the spit from the inlet to the U.S. 101 Bridge.

Most of the ocean beach is owned by the Oregon State Highway Department and managed as a "public highway" under the Open Beaches Act. The southern end near the inlet is owned by the Port of Alsea. The Port also owns the bay side of the beach, where extensive erosion is occurring. The dune itself is privately owned.

The dune has been reconstituted and stabilized with European beach grass to provide lots averaging 70 feet x 120 feet for the Bayshore and Sandpiper Village subdivisions. Water from the Seal Rock Water District has been available and sewage service from the Bay to Bay Sanitary District

is imminent. The dune is criss-crossed with subdivision roads. Approximately 40 homes, mostly seasonal, have already been built in scattered locations and an additional 500 units are planned. The Bayshore Motel occupies the southernmost portion of commercially zoned property on the bay beach. Adjacent to the motel on the east side is a public boat launching facility and a short term parking area; on the south side, an artificially constructed canal meanders through the center of the dune. The canal, which was originally intended for drainage, has since been diked near its inlet. A private clubhouse on the ocean beach is the only other non-residential feature on the dune.

It is reported that the planned development of the Bayshore sand dune has not proved as financially successful as originally anticipated. Individual lots with ocean views are assessed at \$7,000 to \$8,000, while more inland lots average from \$3,000 to \$5,000. Most of the dune, originally zoned for residential development, has since been designated as "Duneland" in the Alsea Bay Regional Land and Water Use Plan; but in the absence of an active program of public acquisition, this limited type of coastal environment is more likely to be replaced by seasonal housing.

Should residential development approach the level originally planned, demand for activities requiring permits from the Corps of Engineers would increase proportionately e.g., shoreline stabilization to protect properties built along the bay side of the spit; additional moorage facilities either in Waldport or on the spit itself; and possible beach stabilization should the existing trend toward accretion be reversed on the ocean side of the dune.

Notwithstanding existing development, the esthetics of the sandspit and dune have been rated highly in the Wetlands Review consistent with the determination in OCC&DC's Visual Resources that they represent opportunities for "an exceptional coastal experience." The Bayshore Motel neon sign, highly visible from Waldport, is an obvious, although improvable, intrusion on the coastal landscape.

In response to issues raised at public hearings on driftwood removal elsewhere in Lincoln County, the Division of Parks of the Oregon Highway Department has declared a temporary moratorium on the commercial removal of driftwood from Oregon's ocean beaches and is preparing a study on potential erosion effects, public safety and other considerations. The potential for commercial sand removal from the Bayshore spit is unclear, but no such activity has been reported within the study area.

With respect to beach stabilization, the ocean side of the spit is accreting. The primary dune has already been stabilized with European grasses but the effects of the planting on beach nourishment elsewhere have not been researched. Studies by the National Park Service in 1973 have questioned both the advisability and effectiveness of such measures.

City of Waldport

The City of Waldport is the dominant population center within the study area. In addition to its 700 permanent residents, Waldport is the nearest commercial and service center for approximately 4,000 people on or near the estuary. The shoreline adjacent to the town consists primarily of Alsea Bay beach frontage; two large tideflats immediately east and west of the U.S. 101 Bridge, and Lint Slough.

The older section of Waldport east of U.S. 101 was originally the site of the Siletz Indian Reservation, and between about 1850 and 1936 it was the major commercial center of town. When the U.S. 101 Bridge was completed in 1936, commercial activity shifted along U.S. Highway 101, while new residential areas fanned out into the surrounding hills to the south at Waldport Heights and Crestview. "Old" Waldport thus became and still is the older residential section of town, with approximately 100 homes and several dozen businesses and public buildings.

Buildings still exist near the old waterfront that date back to the turn of the century. Old Town Tavern, for example, is shown as a drug store in photographs dated 1897. A detailed inspection by historians would reveal others.

The original ferry landing, salmon processing facilities, and docks on high pilings shown in old photographs or described in available literature are now obliterated by landfills in areas now occupied by the Port of Alsea. Nothing remains of the Baldwin Lumber Mill near Lint Slough.

More recently, because of numerous vacant lots and older homes, the "Old" Waldport area is a potential area for higher density development, a prospect that is supported by both Lincoln County zoning and in the recommendations of the Alsea Master Plan.

Two previously proposed projects adjacent to Waldport are worth noting for purposes of the Wetlands Review. In the early 1970's, the Port of Alsea proposed a marina accommodating 250 vessels in the tideflats west of the Port's existing docks. To accommodate the facility, the tideflats, owned by the Port of Alsea, would have required extensive dredging. The proposal has apparently been held in abeyance because of financing problems and may now be preempted by the Port's support for a marina at Lint Slough.

In addition, an informal proposal was made in connection with development of the Alsea Bay Regional Land and Water Use Plan to install a boardwalk and public mall along the entire Alsea Bay beach from the footings of the U.S. 101 Bridge to the port facilities to the east. The proposed boardwalk was intended to complement a bay beach park recommended in the plan that would extend along the entire bay frontage of Waldport as far south as the City park fronting the tideflats and inlet.

Tideflats

The tideflats under the U.S. 101 Bridge and adjacent to the City of Waldport are used extensively for clamming, crabbing, fishing, shrimping and other forms of recreation. The tideflats are zoned and planned for Tideland uses. At minus tides, tidal pools and sandy riffles provide dramatic relief to the generally submerged bay, adding to the tideflats high esthetic and open space value.

These tideflats are formed more by oceanborne sediments and have a far greater sand content than the silty diatom-covered tideflats east of the U.S. 101 Bridge on the north side of the bay. Local citizens report that these tideflats have increased significantly in size since the U.S. 101 Bridge was built and attribute the increase to sediments deposited under the bridge when the current was slowed by bridge pilings. Aerial photography taken in 1939 indicates that the present size and configuration of the tideflats are similar to their condition then. The condition of the tideflats prior to 1939 is unknown but 100-year old descriptions indicate that the bay off Waldport was shallow. The tideflats undoubtedly keep the main channel oriented toward the Bayshore spit and provide Waldport with a buffer against the wind and tides from the inlet.

Log debris and jetty stone are presently used to stabilize the beach and bank immediately adjacent to Waldport; permit applications to further stabilize the shore are not likely. Since most of the tideflats are owned by the Port of Alsea, private docks and other structures would probably be discouraged by local officials.

Marshlands

In addition to the tideflats at the U.S. 101 Bridge, the tidelands and marshland east of the U.S. 101 Bridge are recommended for management as "wetlands of importance." (See Exhibit 4.) The tideflats are predominantly owned by the Port of Alsea, while ownership of the marshes is shared by the U.S. Forest Service, Publishers Forest Products and various private parties. These areas are designated as natural resource areas (Marshland and Tideland) in both the Lincoln County Zoning Ordinance and the Alsea Bay Regional Land and Water Use Plan. As such, they are only suitable for very limited development and use, primarily for recreation, as a waterfowl refuge and marine sanctuary, and for fish production and open space. The Oregon Coastal Conservation and Development Commission recommends inclusion of these marshes in a "marsh bank," and a similar recommendation might be made for the tideflats since they are covered with eelgrass and serve as a base for possible future marsh expansion.

The marshes and tideflats are necessary to maintain the biological and hydrological integrity of Alsea Bay's estuarine system, and both are rated highly by criteria established for the Wetlands Review; uniqueness, primary productivity, and habitat value are rated high. From an economic standpoint, the cost of development in the marshes and tideflats would

far exceed any short - or long-term public benefit that could be gained at any number of alternative locations. OCC&DC's Visual Aspects Report recommends that "filling and diking of estuarine environments should be discouraged for experiential (emphasis added) loss as well as for biological reasons," a reference to the obvious esthetic qualities of marshes and tideflats.

The area, recommended as a "wetlands of importance," represents the largest continuous tract of irreplaceable marshes and tideflats within the Alsea study area. According to researchers Jefferson (1975)²⁷ and Johannesson (1964),²⁹ the marshes are not expanding rapidly. Some immature marsh growth, on the other hand, is shown along the northernmost fringe of the bay adjacent to Bayview and County Route 701. It can be concluded that the natural succession from tideflat to immature marsh to high marsh in the Alsea estuary, compared to rates of marsh growth in other Oregon estuaries, has been slowed considerably due to some presently unknown factor, or combination of factors. This possibility should be the subject of further field investigation. Several biologists and geographers, as well as others interested in Oregon's coastal ecosystem, believe man's activities in the Alsea estuary should be strictly limited, if not prohibited altogether, so that answers to this and other questions can be explored in an unmodified estuarine environment.

To boost the local economy, it has been suggested that oyster production be attempted in the tideflats on the north side of the bay. Biologists at Oregon State University's Marine Science Center at Newport, however, speculate that sediment deposits from upstream and the extreme variations in bay salinity and temperature from season to season may prevent oyster production. Coliform counts are also very high. To stabilize salinity and effectively manage oyster production, one marina operator recommended that the north end of the bay be diked.

The North Terrace

Immediately adjacent to the U.S. 101 Bridge, a forested siltstone terrace and cliff, approximately 200 feet high, is part of the northern gateway to Waldport. The sheer face of the cliff combined with its high erosion potential creates a strong possibility for slides onto the beach below. The only landscape similar to the North Terrace within the study area is found at Yaquina John Point near the inlet.

The terrace is zoned for high density development, while the Alsea Bay Regional Land and Water Use Plan recommends a park adjacent to U.S. 101 and lower density development eastward toward Bayview. Esthetically, the cliff is rated highly, while the beach zone is recommended as a "wetlands of importance." The area below the bridge is used extensively for clamming, crabbing and bank fishing.

Applications for permits are likely in connection with the eventual reconstruction and/or relocation of the U.S. 101 Bridge and other projects such as utility lines.

Bayview/Sheppard Point

The agricultural pastures and hills above Bayview on the north side of Alsea Bay are given attention in the Wetlands Review for several reasons.

Bayview and Sheppard Point, strategically located adjacent to the marshes and tideflats, are recommended for management as "wetlands of importance."

Much of the low-lying pasture land is either within the floodplain or represents diked marshland. Aerial photography shows that the North Channel apparently followed an old oxbow that swings far north of Route 701. Tide gates and streams choked with log debris can still be seen off Route 701.

Bayview is a highly scenic backdrop for Alsea Bay even though its total esthetic rating in the Wetlands Review is relatively low because of historical disturbance (conversion of the area to farmlands); its inaccessibility; and the fact that individual permit actions, short of potential moorage facilities at Sheppard Point, are not likely to result in any significant esthetic change to the area. The primary concern at Bayview is the extent to which changes from agricultural and timber production would increase demands for moorage on the north side of the bay where none now exists; and conversely, the extent to which moorage facilities, especially at Sheppard Point, would increase secondary impacts from unplanned higher density uses at Bayview. Scattered homes and trailers indicate that the area may now be subject to speculation.

Road access to Bayview is off of U.S. 101 via Route 701, which trails off toward the Drift Creek drainage southeast of Sheppard Point into the unimproved Route 702. Public water and sewer service is not available or anticipated in the foreseeable future. Because of slope conditions, lack of service, unsuitable soil conditions and geologic hazards, the Alsea Bay Regional Land and Water Use Plan recommends that the rural nature of the area be preserved. Zoning, however, would allow multiple family dwellings in the western portion and rural residential uses in the eastern two-thirds of the tract. Historically, Bayview was the first white settlement when Waldport itself was called "Indian Town." The remains of docks for the J. C. Barnes Store at Sheppard Point and pilings for the old railroad bridge that crossed the bay from Waldport to Toledo may have some historic interest. The area between the bay and Route 701 is either too narrow or too steep for development but several scenic overlooks of the bay and public turnarounds are possible.

North Channel

The area along the north shore of Alsea Bay includes the North Channel up to the present closure downstream of Drift Creek. The blockage produced a backwater slough that only flushes during major floods. Comparison of a 1914 Corps of Engineers Hydrographic Chart with more recent ones shows

little change in the depths of the North Channel but because of the deposition of material by tidal flow and lack of adequate scouring and flushing during ebb tides, the North Channel is filling with organic sediments. The blocking of the North Channel did have the anticipated effect of increasing the flow and depth in the main channel, increasing navigation opportunities at Waldport. High groundwater and compressible soils limit the development of the shorelines to agriculture. The shallow bay and mud flats limit the desirability of constructing docks, piers or boat launching ramps along the shoreline.

A possible future request for a permit in the North Channel would be to install a hydraulic deflection device at the upstream end of the confluence with the main channel and to remove the North Channel blockage, thereby increasing the flushing of the channel. Properly designed and installed, this type of action should improve the water quality of the North Channel and not harm the navigational characteristics of the main channel near Waldport. A detailed hydraulic study would be necessary.

South Bank: Alsea Bay

The shoreline properties on the south bank of Alsea Bay from Waldport to Taylor's Landing are almost entirely within the historic floodplain. Narrow and confined between the channel and Route 34, the floodplain has been the scene of intense development--permanent and seasonal homes, trailer parks, marinas, fishing camps and access roads. Development has been accompanied, and in some cases prompted by, intense permit activities, primarily docks, dredging and filling and bank stabilization. The geographic correlation between Section 10 permits and encroachment on the floodplain is obvious, but the cause and effect relationship is obscured by the large number of permits that were granted after work had been completed. It can be concluded that the possibility of obtaining permits for personal moorage has been a major inducement in upgrading temporary and seasonal housing--such as trailer homes--to permanent residential standards. Distinct reaches of the river, however, are in various stages of development. Differing circumstances and conditions therefore warrant discriminating judgments for future permit activities. Because of a "grandfather" provision in the Corps' regulations, it is presumed that property owners will be able to maintain and repair docks, and otherwise protect existing shoreline investments. The social and economic costs of removing or failing to maintain existing docks and other such private facilities would be greater than any environmental benefit that might be gained otherwise.

The south shoreline from McKinley's Marina at river mile 2 to the mouth of Eckman Lake at river mile 3.5 has been the scene of extensive development since 1939. Most low-lying areas have long been filled and stabilized for permanent residential and commercial uses. Although the area is within the historic floodplain, flood impacts are mitigated by the absorption capacity of Alsea Bay itself. High groundwater limits the usage of septic

tanks but those areas not now serviced by the Waldport treatment plant are expected to obtain both water and sewage service in the near future.

Erosion does not appear to be a problem because of lower water velocities within the estuary. The area is zoned and planned for mixed residential and marina recreational uses. Provisions for additional marinas have been included in the Alsea Bay Regional Land and Water Use Plan. None of the remaining marsh or tideland fringes along this stretch of the bay, except for the sloughs, are recommended for management as "wetlands of importance." Some locations along the shoreline have experienced heavy silt depositions and local shoreline residents report that the situation is deteriorating making docks unusable, particularly at low tide. Much of the shoreline is inaccessible to the general public, particularly to inland lot owners.

The south shoreline properties between Route 34 and the main channel of the Alsea River from river mile 3.5 at Eckman Slough east to the agricultural floodplain at river mile 5.5 have been zoned for marine residential uses and planned for corresponding recreational residential purposes. Physically, the tract is a mix of pasture, higher land adjacent to Route 34, disturbed marsh, and fill, reflecting the concentration of marinas, trailer parks, single family homes and commercial developments that have occurred here. None of the remaining marshland or tideland along the main channel has been recommended for management as "wetlands of importance" except for portions immediately adjacent to Eckman Slough.

Permit activities and land use tend to go hand in hand along this stretch of river. As land is filled for development, applications for dredging, docks and bank stabilizations follow. Once the facilities are in place, applications for maintenance and repair occur regularly. High groundwater limits usage of septic tanks, but water and sewer facilities are planned for the near future. The shoreline has very high economic and social value because of the concentration of marinas, trailer parks and other tourist facilities. This trend in land uses is not likely to change significantly. Public access paralleling the entire shoreline is limited to individual service roads leading from Route 34 directly to docks and banklines. Some silting is occurring--a major concern of shoreland owners, particularly marina and trailer park owners.

Other than siltation, the major factor identified in the study which should be of concern is the continuing filling of remaining marshlands between Eckman Slough and a point east opposite Drift Creek. While disturbed and not recommended for management as "wetlands of importance," these marshes have high biological value and flood absorption capacity. They may also represent an esthetic resource of some significance.

Undeveloped Floodplain (South Bank, river mile 5.5 to 8). This diked agricultural property is the largest undeveloped floodplain within the study area. The tract runs along the south side of the Alsea River from a point at Darkey Creek to Taylor's Landing. Route 34 is its southern boundary. The tract is privately owned and a single farmhouse with potential historic value is located on the higher ground adjacent to Route

34. Further upstream, a few contiguous recreational homes occupy the floodplain at a point where Route 34 climbs the ridge toward Taylor's Landing. The entire shoreline is zoned for marine residential uses with similar uses recommended in the Alsea Bay Regional Land and Water Use Plan. At the narrow western end of the tract near Oaklands Marina, older docks and abandoned pilings, apparently to serve private homes across Route 34, are combined with power lines making the area highly amenable to future permit activities and improvements. This reach of the river has the same general geological, soils and hydraulic characteristics as other Alsea floodplains, but since the floodplain is wider at this point, heights have not been as great. Seasonally high groundwater, however, would affect foundations and septic tank systems--a severe limitation for uses other than agricultural and open space. Public water and sewage services are foreseeable in the future but extension of such services this far upstream is not included in immediate planning.

This undeveloped floodplain area represents a major conflict between local planning goals and environmental goals inherent in the Wetlands Review Study. Development for marine residential uses would require filling of tidal meanders within the floodplain; unless controlled, lead to proliferation of docks along the narrow stretch of river; diminish flood absorption capacity; and diminish available open space along the river. In contrast, development is planned and would add to the tax base as well as increase the feasibility of extending sewer lines upstream as anticipated. Permit activities in this area should be discussed with Lincoln County, preferably within the context of a comprehensive estuary plan.

North Bank: Alsea Bay

In addition to Bayshore, Bayview/Sheppard Point and the North Channel (which were already discussed), the north bank of Alsea Bay includes Drift Creek, the undeveloped steep banks between Drift Creek and Barclay Meadows and Barclay Meadows itself.

Drift Creek

The Drift Creek drainage is the major tributary of the Alsea within the study area. Head of tide is at river mile 2.7. Tidal influences coupled with seasonal high flows from upstream places a large portion of the lowlands within the floodplain, rendering developments in this area prone to flood damage. Soils exhibit poor drainage, have a high groundwater table thus limiting septic tank usage, and are unsuitable for foundation material. Soil capability limits use of this land to forestry, wildlife, recreation or limited pasture and agriculture.

All of Drift Creek within the study area has been zoned as a Natural Resource Zone which is also consistent with the recommendations of the Alsea Bay Regional Land and Water Use Plan. The high marsh at the mouth of Drift Creek is recommended for management as a "wetlands of importance." Upstream, some of the historic marshes have been diked for pasture. A single farmstead is located above the first major oxbow. Upland owner-

ship is shared by the U.S. Forest Service, the Bureau of Land Management and private companies and individuals. Water, sewer and other public services are not expected in the foreseeable future. Access by road is extremely difficult if not impossible because of gating and posting.

Drift Creek is highly esthetic. Locally, the area is regarded as a quasi-wilderness and one of the few remaining landscapes representative of Oregon during the eras of homesteading and settlement. A proposal to locate aquaculture facilities at the entrance to Drift Creek several years ago was intensively opposed by local citizens in Waldport.

Permit activities in the past, except for the diking of the marshlands, have been very limited and are likely to be so in the future. However, the Alsea Bay Regional Land and Water Use Plan makes provision for conditional use of the Natural Resource Area for private recreational development. Docks, bank stabilization and other supportive activities are therefore possible, but would lead to eventual development of the area.

Barclay Meadows

This agricultural land on the north side of the Alsea River has been the site of intense development activity. Recreational residences line the bank from Taylor's Landing in a westerly direction for approximately one-quarter mile. The tract is zoned for rural residential uses. Actual uses conform more realistically to the recommendation of the Alsea Bay Regional Land and Water Use Plan for recreation residential use. Because of high water tables, use of septic tanks is limited. Water and sewer service is not planned for the foreseeable future. Flooding occurs seasonally. Banks are relatively stable and are not easily erodible. Additional docks in the subdivided portion of the tract are not likely to affect river hydraulics. Further subdivision to the west at current lot sizes would potentially double the number of private moorages. Esthetically, Barclay Meadows sits at the bottom of a highly scenic bowl and is subject to Lincoln County's ordinances for scenic corridors. Further permit activities should be limited to the existing subdivided areas. Applications from areas to the west should be discussed with Lincoln County for their compatibility with local zoning.

North Bank: Alsea River

The north bank of the Alsea River from Taylor's Landing east to Little Switzerland includes Bain Slough and the subdivisions of Westwood Village, Little Albany, Alsea/Riviera, Tidewater and Little Switzerland to the head of tide at river mile 15.

The entire area between Route 34 and the river has been zoned for rural residential uses but its actual uses are more consistent with recreational residential uses recommended in the Alsea Bay Regional Land and Water Use Plan. This reach of river is characterized by a narrow gorge with steep slopes. Most of the developable land is subject to frequent flooding. Little Albany, Tidewater and Little Switzerland have been severely damaged

by floods in the past 10 years. Groundwater is seasonally high, limiting use of septic tanks. The soils of the floodplain are suitable for agricultural purposes but have moderate erosion limitations if not protected by vegetation. Private docks and other permit structures along the river bank are subjected to severe water forces and, unless adequately secured, create downstream hazards as floating debris during flooding. Existing sewage disposal is subsurface but water and sewage service is expected in the foreseeable future.

Biologically, the only area of interest within the floodplain is Bain Slough--a unique wet meadow that is being filled adjacent to Taylor's Landing.

At Westwood Village, an internal canal off the main channel of the Alsea River has been built to provide central moorage facilities for anticipated homesites. Septic tanks were recently installed. Water quality in the canal will have a tendency to deteriorate unless a device is installed to provide flushing. A properly designed culvert system upstream and downstream of the canal entrance would be a non-consumptive use of river water and should have no effect on river hydraulics. In addition, minimal stabilization has been applied to the rather steep banks of the canal and unless vegetated or stabilized with riprap, they have a tendency to erode. Activities within subdivision canals are not exempt from the permit requirements of the Department of the Army since they connect with tidal waters.

At Little Albany, Alsea/Riviera, and Little Switzerland there also has been an intense demand for private riverfront docks. The trend is likely to continue.

South Bank: Alsea River

From Taylor's Landing to the head of tide opposite Little Switzerland, the south bank of the Alsea River is in steep forested banks of the Siuslaw National Forest, except for scattered holdings in the Canal Creek drainage, at Alder Spring Acres, and at the oxbow opposite Kozy Kove marina. The U.S. Forest Service has expressed intentions to retain the high visual quality of the national forest within the riverscape. Private holdings have been zoned for natural resource uses (farm, forest and recreation) and for the most part have inherent development limitations, i.e., lack of access, water and sewer service, steep slopes and flooding. The south bank of the river represents the most highly scenic backdrop for upstream Alsea and, if protected against encroachment, mitigates the effects of development on the north bank.

Alder Spring Acres at the base of Canal Creek opposite Westwood Village is the only floodplain development of significance on the south bank of the Alsea River from Taylor's Landing to head of tide.

Reservoirs

The two reservoirs in the Alsea study area are Eckman Lake and the upper portion of Lint Slough. Both were created by diking the sloughs for fisheries management. There are significant differences between them, however.

Lint Slough. This reservoir is largely an experimental research facility of the Department of Fish and Wildlife, although much of the actual area is owned by the U. S. Forest Service. The lake, adjacent to the Ray Cox Senior Citizens Center, is highly eutrophic because of artificial fish feeding. The reservoir and adjacent uplands have been zoned for Natural Resource uses which is consistent with the Alsea Bay Regional Land and Water Use Plan. The relatively low esthetic rating for the reservoir is due to the modification of the original drainage and the fact that further permit activities are not likely to affect existing esthetic opportunities. The setting is parklike, however, and is an important social resource, particularly for the adjacent Ray Cox Senior Citizens Center. A nature walk and other facilities have been installed to maximize recreation and educational opportunities.

Release of over-enriched waters from the reservoir, coupled with releases from the sewage treatment plant downstream, may be creating a water quality problem in the marshes and tideflats of middle Lint Slough. The reservoir is managed by the U. S. Forest Service, the State Department of Fish and Wildlife, and other State agencies. Further permit activities are highly unlikely.

Eckman Lake. Approximately 80 acres in size, Eckman Lake was created by the Route 34 Causeway. Management is primarily the responsibility of the Oregon Highway Department and the Fish Commission. At one time the largest slough in the Alsea study area, its conversion to a freshwater lake has made management considerations more a matter of local and State concern. A roadside park has been located off Route 34 and the reservoir is a highly valuable local recreational facility, with swimming, boating and fishing.

The area surrounding the reservoir is zoned for single family residential use on the east and west and for rural residential use on the south. Owned partially by private riparian owners and partially by the Port of Alsea, the reservoir itself is zoned as a marine waterway.

Because of management by State agencies, the most likely permit activities would be for private docks. On the south bank, the upland owner has expressed intentions to build high quality, low density housing on five-acre tracts, which may also result in applications for private moorages. This is a locally-oriented consideration.

Eckman Lake was created by diking the former slough. As in reservoir management, it is reasonable to expect that, where possible, the recreational value of the lake to the general public be protected and enhanced by providing bankline access, possibly with circumferential trails. Local citizens report that tailings from upstream quarry operations are polluting the lake and interfering with swimming and other recreational uses.

Sloughs

Biological characteristics comparable to those identified for the marshes and tideflats on the north side of Alsea Bay are common to the midportion of Lint Slough between Route 34 and the managed fisheries reservoir at the Ray Cox Senior Citizens Center; McKinney Slough; and the marshes and tideflats at the mouth of Eckman Lake. All are recommended for management as "wetlands of importance." Because of their proximity to Waldport and the developed areas along Route 34, however, each has experienced varying levels of disturbance.

Middle Lint Slough. The marsh and tideflats south of Route 34 to the Fish Commission reservoir are zoned as Natural Resource Areas and recommended in the Alsea Bay Regional Land and Water Use Plan for management as Marine Production areas. While not realistically suitable for navigation, the slough is legally navigable to a point 0.5 miles upstream and subject to permits from both the Portland District and the Division of State Lands. Present uses consist of: open space for the neighborhoods on the high terraces surrounding the slough; the location of the sewage outfall from the municipal sewage treatment plant, which may be relocated north so as to discharge directly into Alsea Bay; a transportation corridor for Route 34; and a research and outdoor classroom for Waldport High School which is located adjacent to it.

An inspection of 1939 aerial photography shows that the marsh area was far more extensive than it is today and that Waldport High School, Hospital Road to the Ray Cox Center, and the municipal sewage treatment plant were all constructed on fill. While there is no private development pressure on the slough, permits for dredging and filling in connection with public facilities are possible. Hydraulically, the flushing characteristics of the slough may have already been severely affected by the dike, dredging and jetty work downstream at McKinley's Marina, but detailed field analysis would have to be performed to confirm this. Water quality is poor because of the outfall and releases of eutrophic waters from the upstream reservoir.

Further dredging, diking or filling in the Middle Slough would probably represent a significant loss to educational endeavors at Waldport High School, loss of productive marshes and would have esthetic impacts on visitors to the Ray Cox Senior Citizens Center and the adjacent neighborhood.

McKinney Slough. This relatively small natural area is bounded by permanent residential and commercial developments east and west of its mouth and by an abandoned (perhaps historic) mill just south of Route 34. The mill site is recommended as a park in the Alsea Bay Regional Land and Water Use Plan. The slough is privately owned, and conversion to other than existing open space and wildlife and recreational use would require a dike and extensive filling. Reconstruction and/or maintenance of Route 34 across the narrow south end of the slough may require a permit application with the U. S. Coast Guard. The Alsea Bay Regional Land and Water Use Plan recommends the mouth of the slough as a potential area for marina development but extensive dredging to provide access to the main channel would have to be undertaken for such a purpose.

Management of the slough is primarily a local, and possibly a State, concern. The adjacent area is zoned for intensive development involving the installation of water and sewage lines in the future; currently, it is the location of the only industrial facility in Waldport, the Shell storage and distribution plant. Marina development would be within walking distance of a large complex of homes just east of the slough that is currently land-locked behind private riparian owners along the shoreline of Alsea Bay itself, and direct access to the water would be a significant social consideration.

Eckman Slough. This area is considered one of the most important within the Alsea estuary. Due to its unique herring spawning (one of only seven estuaries known in Oregon), high productivity, easy access to Route 34 and varied vegetation types, at least 30 acres north and east of Highway 34 are recommended as "wetlands of importance." Ownership is shared by the Bureau of Land Management, U. S. Department of Interior and riparian owners, including the Port of Alsea. The marsh and tidal island at the mouth are zoned as a Natural Resource Zone and planned for marshland management in the Alsea Bay Regional Land and Water Use Plan. The Estuary Report of the Oregon Coastal Conservation and Development Commission also recommends its inclusion in a protective "marsh bank." Immediately east of the mouth, the floodplain and orchard is zoned for Marine Residential uses, creating a potential conflict for protection of the slough itself. To the west of the herring spawning area, the Alsea Regional Plan recommends a site suitable for marina development, again creating a potential conflict in view of the extensive dredging that would have to occur to reach the main channel of the bay.

The slough rates esthetically high by criteria established for the Wetlands Review due to the panoramic view of the bay afforded from Route 34 and Eckman Lake.

Dredge Disposal Sites

Potential dredge disposal sites within the study area are extremely limited. Most marshes and tidelands are considered "wetlands of importance." The channel itself is shallow and considered too important a resource for fisheries, salmon migration and recreational navigation. Much of the

developed floodplain has long been filled and built upon. It is recommended that the flood absorption capacity of major tracts of undeveloped floodplains not be diminished. Two feasible dredge disposal sites, however, have been identified.

1. The area west of Lint Slough has been diked and stabilized in connection with dredging and reconstruction for McKinley's Marina. Any biological value associated with the former tideflats over which the diking occurred has long been absent. Capacity of the site is estimated at 30,000 cubic yards. Since the area is privately owned, arrangements for disposal would have to be made with McKinley's Marina, the lessor of the property.

2. The second potential area is the higher ground above MHHW along Route 34 between river mile 3.5 and river mile 5. Filling of some of the floodplain and higher remaining marshes is now taking place at certain locations under permit from the Corps of Engineers. Because of existing adjacent uses, (marina and trailer park development), supportive zoning and the prospect of water and sewer service, the continued viability of the marsh (which is highly disturbed) is doubtful. In order to avoid damage to Eckman Slough and to maintain as much of the marshes' flood absorption capacity as possible, further filling should be restricted to an area near Route 34 and within a seaward line fixed at the Mean High High Tide. Both sites are accessible to marina development on the south bank of Alsea Bay where dredging, if it occurs at all, is most likely.

Historic/Archeological Sites

According to the OCC&DC "Historic/Archeological" report only two structures in the Alsea area have received formal recognition as historical sites-- both outside the Wetlands Review study area. Six archeological digs are also reported near Alsea Bay. A report entitled "A Geographic Perspective of the Development of Waldport" (90 pp. undated) by Joseph E. Johnson for student geographical work at Waldport High School states that some 6,000 Indians in 16 villages once inhabited the bay area. Local citizens report private finds of artifacts and recount stories handed down by parents and grandparents of burials at "Old" Waldport. A single reservation marker at Route 34 and Broadway Street near Lint Slough is the only visible reminder of these past civilizations. More recently, several buildings circa 1900 identified in old photography still stand; some may have been constructed from old rafts built upstream at the towns of Alsea and Tidewater to float farm produce downstream to Waldport. Two buildings have been positively identified, but undoubtedly others exist: the "Oyster House" on the south bank at river mile 2 and the "Old Town Tavern" building near the waterfront, once a pharmacy. In addition, lines of abandoned pilings at Sheppard Point and parallel to Route 34 east of McKinley's Marina are obvious remnants of the logging and commercial salmon era at the turn of the century.

While not "old" by some standards, Oregon's relatively short modern history, of slightly more than 100 years gives importance to structures constructed

at the turn of the century. Another 50 to 100 years will make such resources even more significant. Archeological resources will become invaluable as the sites, facilities and artifacts of pre-white history become obliterated by the needs of modern man. The study has found that local public interest in these historic and archeological resources is high, but far more field identification by professionals and organizations needs to be supported lest activities subject to Corps permits inadvertently destroy them. Significant sites proposed for fill will be examined under the supervision of a staff archeologist of the Corps.

Transportation Corridors

The two primary transportation corridors running through the study area are U. S. 101, which skirts the coastal fringe from Lincoln City south to the California border, and Route 34 along the Alsea River from Waldport to Philomath on the edge of the Willamette Valley. Both are two-lane roads likely to require substantial improvement in the foreseeable future. Direct interface with bay and river waters occurs at the following locations within the immediate study area.

1. U.S. 101 between Yaquina John Point and Waldport. A public turnout regarded as inadequate has been constructed just below the Point to maximize the view of the bay and inlet. Immediately below the turnout is a seawall built below the erodible terraces to protect the road and cliff from the action of wind and waves. Permit applications may be forthcoming in connection with repair, maintenance and/or improvement to these facilities. The bay beach and tideflats adjacent to U.S. 101 are heavily used public recreational resources and contain significant clam beds. The Oregon Highway Department has provided pedestrian access to the beach itself.

2. Route 34. East from Waldport, Oregon, Route 34 crosses Lint Slough and McKinney Slough on concrete bridges constructed to enable water passage through the sloughs. At Eckman Lake, crossing is by an earthen causeway that acts as a dike for the lake itself.

From approximately river mile 5.5, Route 34 east to the limit of the study area has been designated as a scenic roadway by Lincoln County and zoning regulations governing signing and other roadside features apply. The high ridge at river mile 7 offers potential for a public roadside park which would maximize use of the vista overlooking the river.

Upstream, east of Taylor's Landing, the Oregon Highway Department has provided public turnouts to take advantage of the view of the river wherever the road skirts the bankline. Bankline stabilization has been applied and will likely be maintained to avoid erosion of the road terrace.

3. Route 701. This is a secondary road on the north side of Alsea Bay running east from U.S. 101 to Bayview. Several actual and potential vista points are located here, particularly on the steep and highly erodible banks west of Sheppard Point. Improvements to the road will un-

doubtedly be made in the foreseeable future. Marsh and tidal fringes are recommended for management as "wetlands of importance" and involve growths of eelgrass, marsh and clam beds. Piles of logs and driftwood tend to serve as bank stabilization, protecting both the bluffs and the lower reaches of the road itself. From Sheppard Point east, Route 701 veers in the northeasterly direction away from the bay. Its unimproved extension, Route 702, runs south into the pastures and wooded areas opposite the high marshes. Opening of Route 702 may trigger major secondary land use changes.

CHAPTER 7 FINDINGS AND EVALUATIONS

In this chapter the major findings of the Wetlands Review are summarized and organized into an appropriate set of operational policies, standards and criteria to be used by the Portland District, Corps of Engineers in approving, denying or conditioning Department of the Army permits. These standards and criteria are based upon interpretations of the data presented in the preceding chapters of this report. Portland District decisions emanating from the study findings must be made after consideration of specific site information provided by the applicant. For example, a finding on the need to maintain vegetated cover at streambanks may not be applicable in a situation where a permit applicant has shown that such cover has long been removed and where restoration of vegetated cover is not feasible.

Secondly, and equally important, is the understanding that the standards and criteria apply only to those activities over which the Portland District has jurisdiction or responsibility as defined in the Introduction and Appendices. For example, a finding that clearcutting has a major esthetic impact on certain areas would not have relevance to the Portland District unless Department of the Army permits in support of such an activity were somehow involved. Since it is impossible to predict in advance every activity for which permits might be applied, conditions in the study area are presented as they exist, without limiting environmental factors solely to those clearly within Corps jurisdiction.

Study findings are presented in four distinct, but interrelated ways:

1. General findings relating to policies and procedures that may have future relevance on the issuance, denial or conditioning of permits.
2. A program for areas recommended as "wetlands of importance."
3. General standards relating to planning, environmental, esthetic, social, economic, and land and water use considerations; and criteria for major anticipated activities in the study area.
4. Application of study findings to specific areas or "Evaluation Units."

POLICY AND PROCEDURAL FINDINGS

Two difficult problems are inherent in the development of guidelines and standards for permit decisions in the study area. First, appropriate permit activities should serve the overall management policy of the estuary. That policy should be manifested in the local plans, zoning ordinances, legal restraints and overall objectives discussed in this study, particularly in the chapters on political setting (Chapter 1) and land and water use (Chapter 6). These plans have been identified and

catalogued to the extent possible, but they are not yet organized into an overall plan for the estuary comparable to the comprehensive land use plan adopted by Lincoln County. Further, implementation of activities pursuant to such a plan should be closely coordinated with the public and every responsible level of government.

The second difficulty associated with the establishment of standards and criteria is that a single set of rules is not adequate for each situation likely to occur in a diverse, complex and changing estuarine environment. Both the structure and application of standards should be flexible and supportive of changing local goals and objectives. For example, as elements of Oregon's Coastal Zone Management program are implemented, the Portland District will have to reevaluate its own policies and procedures to ensure as much consistency as possible in the management of the submerged and submersible lands and water of the estuary. This study has accounted for and, in fact, draws on many facets of OCC&DC's work; but some of the issues involved in OCC&DC's dialogue with the State government will need to be clarified in the continuing relationships between State and Federal agencies. The issues of fill versus piling, and restrictions on further fill discussed throughout the Chapters 1 and 6, Political Setting and Land and Water Use Setting, are examples. For these reasons, the study raises the following policy and procedural matters for discussion with Lincoln County, the Land Conservation and Development Commission (Oregon's coastal zone management agency), the Division of State Lands, and other appropriate State and Federal agencies.

Estuarine Clearinghouses

As discussed in Chapter 1, the Oregon Coastal Conservation and Development Commission has considered a recommendation to establish local estuarine clearinghouses within each coastal county. While the Portland District cannot subrogate its permit authority to local "management" centers, it can participate in a "clearinghouse" directed at providing public information on permit activities and technical services to Lincoln County and other agencies and citizens anticipating work or activities requiring permits. A clearinghouse could also assist in the coordination of research proposals; the informal coordination of the processing of specific permit applications with Lincoln County, the Land Conservation and Development Commission and other agencies; and the development of additional esthetic and other criteria affecting permits required of Lincoln County through Oregon's Coastal Zone Management program.

It is noted that in the Chesapeake Bay region, for example, the Corps of Engineers participates in regular enforcement conferences with local, State and Federal agencies as a means of fostering coordination and consistency of action between government and the public. In the case of the study area, an estuarine clearinghouse would offer opportunities to consider the cumulative effects of certain types of activities, such as the continued proliferation of private moorage, and alternatives that

are consistent with changing State and local goals.

Portland District field officers could function as Corps of Engineer complements to the estuarine clearinghouse. The responsibilities of Corps field officers and inspectors should be expanded to include public education and governmental liaison functions as well as technical assistance, continued monitoring and field inspection.

Comprehensive Estuary Plan

The Portland District could participate in the development of a comprehensive plan for the Alsea as discussed in Chapter 1. Such participation would be particularly relevant for local and State implementation of several major findings of the Wetlands Review as they relate to the following issues:

- o There is local support for an "action" program to restore the waterfront at "Old Waldport" as the most viable small boat harbor site within the entire study area. However, the integration of public recreation uses between Port of Alsea facilities and existing marine development on Lint Slough, which is under private ownership and management, poses many problems. These problems might be resolved through negotiation and the imaginative use of boardwalks, piers and other structural facilities requiring permits from the Portland District. In keeping with local planning goals, the Portland District intends to encourage continued marina uses at both the Port facility and at Lint Slough. However, in the absence of a locally sponsored plan for the waterfront, specific structures which may require Corps permits can have varying and unpredictable effects on navigation, esthetics, adjacent land uses, public access, and the provision of facilities to serve the needs of the handicapped; all of these have been raised as significant issues of local and regional interest.
- o Consideration of the diked area of Lint Slough opposite McKinley's Marina and portions of the floodplain adjacent to Route 34 from river mile 3.5 to river mile 5 as potential dredge disposal locations. Both areas are privately owned. Acceptable disposal sites are extremely limited within the study area, and these two sites offer disposal opportunities in connection with any dredging which may eventually be needed for improvements to public navigation. Use of these areas as approved dredged disposal sites requires the concurrence of private owners and State and local agencies.
- o Consideration of a publicly acceptable program for the removal of selected and localized silt deposits, snags and other obstructions to navigation, especially along the south bank of Alsea Bay from river mile 2 east to river mile 5. Residential,

commercial and recreational uses either exist or are planned for this developed area immediately east of Waldport. Permit applications for docks, bank stabilization and silt removal are likely to accompany such activities. Activities, however, should not encroach on McKinney Slough or the mouth of Eckman Slough which are "wetlands of importance." In this respect, the recommendation of the Alsea Bay Regional Land and Water Use Plan for marina development near both sites should be reevaluated by the City of Waldport, Port of Alsea, Lincoln County and appropriate State agencies (see Chapter 6).

- o The need for more accurate information about the potential historic and archaeological sites in the study area. Lack of this information severely limited discussion of these areas in the Wetlands Review.
- o Measures to protect as much of the remaining marsh as possible on the south bank of Alsea Bay east of Eckman Lake. Existing and future filling conflicts with the esthetic quality, biological value and flood absorption capability of this area. However, in view of the economic and social importance of planned marina and recreational development, a line should be established (near Mean High tide, and acceptable to the public interest) beyond which further filling and diking should not occur. (See Exhibit 24.)
- o Consideration of improved public access along the bay and river.
- o Correction of the water quality problem caused by damming in the North Channel, including modification of the existing dike to provide for tidal flushing and salmon migration.
- o The need to eliminate the effects of marine residential zoning on the undeveloped floodplain adjacent to Route 34 between river mile 5.5 and river mile 8. Based on experiences elsewhere within the study area, marine residential uses would involve extensive filling and occupation of the floodplain and a major increment in new private moorages in this narrow reach of the river. In the absence of detailed site development plans for the area or other measures to mitigate such effects, denial of permit applications in this area would be warranted.
- o Consideration of alternatives to the development of waterfront facilities and structures on the Bayshore spit. Because of the high esthetic value of the spit and the potential for interference with natural erosion processes, applications for stabilization of the spit should be denied or at a minimum, subject to an environmental impact statement or assessment. However, some activities, such as the restoration of public

access along the Bay Beach, might be undertaken without the need of the extensive evaluation inherent in an environmental impact statement.

- o Continued liaison with the Port of Alsea concerning sponsorship and local financing of groins and jetties at the inlet. Should that project prove economically feasible in the future, the procedures inherent in Corps planning guarantee opportunities for public involvement in such a decision as well as technical and environmental evaluation. In view of the fact the consensus on the desirability of the project may not exist, an environmental impact statement under the National Environmental Policy Act should be prepared at the time the Project was deemed feasible.

WETLANDS OF IMPORTANCE

In accordance with 33 CFR 209.120, "wetlands of importance to the public interest" are defined as those marshes, eelgrass beds, clam beds, tideflats and other areas regularly inundated by the ebb and flow of the tide having high biological, recreational, esthetic and social values. Biological criteria used in recommending wetlands in the study area were high productivity, high species diversity, low levels of disturbance, low resiliency, uniqueness, and functional ecosystem importance. Social, recreational, esthetic and economic factors were also considered in recommending such areas. The acreage at Waldport was included on the recommendation of the Oregon Department of Fish and Wildlife and local citizens. "Wetlands of Importance" shown on Exhibit 4 in Chapter 1 include:

- o Tideflats adjacent to the 101 Bridge at Waldport.
- o Clambeds and tideflats on the inside of Bayshore Spit and northeast along the base of the north terrace.
- o Tideflats, marshes, eelgrass and clam beds in the northern portions of the bay, southeast to and including the central tideflats, marsh island and marshes of Drift Creek.
- o Marshes and tideflats of middle Lint Slough south of Route 34.
- o McKinney Slough.
- o Tideflats and marshes at the mouth of Eckman Slough north of Route 34.

Within these "wetlands of importance," permit applications involving the following types of activities should ordinarily be denied:

- o Dredging
- o Filling

- o Damming or diking
- o Bulkheads or riprap
- o Removal of pilings, driftwood, log debris, sediments (except for remnants of the railroad tressle to Bayview which should improve flushing and reduce the build-up of sediments)
- o Aquaculture, if it involves alteration of the wetlands or denies public uses thereof
- o Causeways
- o Channelization
- o Draining
- o Sewage, refuse or dredged material disposal
- o Piers, docks, or marinas
- o Overhead or submerged utility lines except as noted for McKinney Slough and Eckman Slough
- o Other activities indicated as generally unsuitable for tidelands and marshes in Table 54.

Allowable activities include:

- o Fishing
- o Collecting bait
- o Recreational clamming and crabbing
- o Hunting
- o Shallow draft boating
- o Birdwatching and photography
- o Scientific collections and research
- o Education field trips
- o Wildlife refuges
- o Marine production (except aquaculture involving significant alteration of the environment or that preemts public uses)

TABLE 54

GENERAL SUITABILITY OF PERMIT ACTIVITIES BY EVALUATION UNITS

Activity	Evaluation Unit ^{1/}						
	The Inlet	Bayshore Dune Spitt	City of Waldport	Tideflats*	Marshes*	North Terrace	Bayview/Sheppard Point
Bridge (new)							
Bridge (replacement/expansion)			EIS	C	C	EIS	
Bridge (maintenance/repair)		C	+	+		+	
Boardwalk (on pilings)		C	+	+	+	-	C
Boardwalk (on fill)	+	-	-	-	-	-	-
Breakwaters	EIS	EIS	C	C	-		-
Bulkheads (seawalls and ripraps)	+	-	C	+	-	C	-
Causeway (new)			EIS	EIS	EIS		EIS
Causeway (replacement/expansion)			C	C	C		C
Causeway (maintenance/repair)			+	+	C		+
Dikes (new)		-	C	C	-		-
Dikes (repair)					+		+
Dams (main stream)							
Dams (wing)			-	-	-		-
Docks (single)	-	-	+	-	-	-	-
Docks (multiple and scattered)	-	-	-	-	-	-	-
Docks (multiple and clustered)	-	C	C	-	-	-	-
Dredging (more than 50 cubic yards)	EIS	-	C	C	C	-	-
Dredging (less than 50 cubic yards)		C	+	+	C	-	C
Dredged Disposal (more than 50 cubic yards)		-	C	EIS	EIS	-	-
Dredged Disposal (less than 50 cubic yards)		C	+	+	C	-	C
Fill (creation of fast land from aquatic environments)		-	EIS	-	-	-	-
Groins	EIS	-	C	C	-	C	-
Industrial Waste Disposal		-	C	-	-	C	-
Jetties	EIS	EIS	C	C	C	-	-

Legend: + Activity generally suitable.*
 - Activity generally unsuitable.**
 C Activity may be suitable with conditions.***
 EIS Requires Environmental Assessment or Impact Statement.

* Other than areas recommended as "Wetlands of Importance."

** Site specific conditions are described in the text and summarized by unit in this chapter under the heading of "Evaluation Units."

*** Suitability or unsuitability is based on an evaluation of all factors discussed in the Wetlands Review Study and is the result of a balancing of environmental, esthetic, social, economic, and land and water planning use factors.

Source: Howard, Needles, Tammen and Bergendoff, 1975.

TABLE 54

GENERAL SUITABILITY OF PERMIT ACTIVITIES BY EVALUATION UNITS

Activity	Evaluation Unit							
	North Channel	North Bank Alsea Bay	South Bank Alsea Bay	Drift Creek	North Bank Alsea River RM 8-15	South Bank Alsea River RM 8-15	Int and Eukan Lakes	Sleights
Bridge (new)				EIS		EIS		
Bridge (replacement/expansion)			C		C		C	C
Bridge (maintenance/repair)			+		+		+	+
Boardwalk (on pilings)	C	C	+	-	+	-	+	+
Boardwalk (on fill)	-	-	C	-			-	-
Breakwaters	-	-	C	-				-
Bulkheads (seawalls and ripraps)	-	-	+	-	+	-	+	-
Causeway (new)	EIS	EIS	C	-			C	C
Causeway (replacement/expansion)	C		C	-			C	C
Causeway (maintenance/repair)	C		+				+	+
Dikes (new)	-	-	C	-	C	-	C	+
Dikes (repair)	C	C	+	+	+		+	
Dams (main stream)	-	-		-	-	-	+	-
Dams (wing)	C	-	C	C	-	-		-
Docks (single)	-	C	C	-	C	-	C	-
Docks (multiple and scattered)	-	-	C	-	-	-	-	-
Docks (multiple and clustered)	C	C	+	C	+	-	C	C
Dredging (more than 50 cubic yards)	-	-	C	-	-	-	C	-
Dredging (less than 50 cubic yards)	C	C	+	-	C	-	+	C
Dredged Disposal (more than 50 cubic yards)	-	-	C	-	-	-	C	-
Dredged Disposal (less than 50 cubic yards)	C	C	+	-	C	-	+	C
Fill (creation of fast land from aquatic environments)	-	-	EIS	-	C	-	-	-
Groins	-	-	C	-				C
Industrial Waste Disposal	-	-	C	-	-	-	-	-
Jetties	-	-	C	-				C

Legend: + Activity generally suitable.*
 - Activity generally unsuitable.**
 C Activity may be suitable with conditions.***
 EIS Requires Environmental Assessment or Impact Statement.

* Other than areas recommended as "Wetlands of Importance."

** Site specific conditions are described in the text and summarized by unit in this chapter under the heading of "Evaluation Units."

*** Suitability or unsuitability is based on an evaluation of all factors discussed in the Wetlands Review Study and is the result of a balancing of environmental, esthetic, social, economic, and land and water planning use factors.

Source: Howard, Ncedles, Tammen and Bergendoff, 1975.

TABLE 54

GENERAL SUITABILITY OF PERMIT ACTIVITIES BY EVALUATION UNITS

Activity	Evaluation Unit						
	The Inlet	Bayshore Dune/Spit	City of Waldport	Tideflats*	Marshes*	North Terrace	Bayview/Sheppard Point
Marinas	-	EIS	+	-	-	-	EIS
Marina Parking, Storage, etc., and Land-Based Support Facilities	-	C	+	-	-	-	C
Overhead Lines	-		+	-	-	C	C
Pilings (installation)		C	+	C	-	-	C
Pilings (removal)			+	C	C		+
Pilings (replacement)		C	+	C	C		C
Power Plant Siting	-	-	EIS	-	-	-	EIS
Riprap (wood/stone)		C	+	+	-	-	C
Riprap (steel sheeting)		-	C	-	-	-	-
Riprap (vegetated earthen bank)		C	+	+	C	+	C
Riprap (unvegetated earthen bank)		C	+	+	C	-	-
Roads (new)			+	C	-	C	EIS
Roads (expansion)			+	C	C	+	C
Roads (maintenance/repair)		+	+	+	+	+	+
Shoreline Developments	-	C	+	C	-	-	C
Structures on Pilings (floats)				(see specific activity)			
Tidegates				-	-		C
Underwater Cables, Pipelines	-	-	+	C	-	C	+
Waste Disposal (solid)	-	-	C	-	-	C	C
Waste Disposal (liquid)	C		C	C	-	C	C

Legend: + Activity generally suitable.*
 - Activity generally unsuitable.**
 C Activity may be suitable with conditions.***
 EIS Requires Environmental Assessment or Impact Statement.

* Other than areas recommended as "Wetlands of Importance."

** Site specific conditions are described in the text and summarized by unit in this chapter under the heading of "Evaluation Units."

*** Suitability or unsuitability is based on an evaluation of all factors discussed in the Wetlands Review Study and is the result of a balancing of environmental, esthetic, social, economic, and land and water planning use factors.

Source: Howard, Needles, Tammen and Bergendoff, 1975.

TABLE 54

GENERAL SUITABILITY OF PERMIT ACTIVITIES BY EVALUATION UNITS

Activity	Evaluation Unit							Sloughs
	North Channel	North Bank Alsea Fav	South Bank Alsea Bay	Drift Creek	North Bank Alsea River RM 8-15	South Bank Alsea River RM 8-15	Lint and Eckman Lakes	
Marinas	-	-	+	-	+	-		C
Marina Parking, Storage, etc., and Land-Based Support Facilities	-	-	C	-	+	-	C	-
Overhead Lines	C	C	+	C	+	-	C	-
Pilings (installation)	C		+	C	+	-	+	C
Pilings (removal)	+	+	+	+	+	+	+	C
Pilings (replacement)	C	C	+	C	+	C	+	C
Power Plant Siting	-	EIS	EIS	-	-	-	-	-
Riprap (wood/stone)	C	C	+	C	+	-	+	C
Riprap (steel sheeting)	-	-	C	-	C	-	C	-
Riprap (vegetated earthen bank)	C	C	+	C	+	C	+	C
Riprap (unvegetated earthen bank)	-	-	C	-	C	-	C	C
Roads (new)	EIS	EIS	+	EIS	C	EIS	+	C
Roads (expansion)	C	C	+	C	+	C	+	+
Roads (maintenance/repair)	+	+	+	+	+	+	+	+
Shoreline Developments	C	C	+	C	+	-	+	C
Structures on Pilings (floats)					(see specific activity)			
Tidegates	C	C	C	C	C	-	C	-
Underwater Cables, Pipelines	+	+	+	C	+	C	+	C
Waste Disposal (solid)	-	-	C	-	C	-	C	-
Waste Disposal (liquid)	-	-	C	-	C	C	-	-

Legend: + Activity generally suitable.*
 - Activity generally unsuitable.**
 C Activity may be suitable with conditions.***
 EIS Requires Environmental Assessment or Impact Statement.

* Other than areas recommended as "Wetlands of Importance."

** Site specific conditions are described in the text and summarized by unit in this chapter under the heading of "Evaluation Units."

*** Suitability or unsuitability is based on an evaluation of all factors discussed in the Wetlands Review Study and is the result of a balancing of environmental, esthetic, social, economic, and land and water planning use factors.

Source: Howard, Needles, Tammen and Bergendoff, 1975.

- o Open space

Where social or economic factors appear to be sufficiently justified, consideration of permit activities in these "wetlands of importance" will be made in the context of an environmental assessment or environmental impact statement, wherein the following are evaluated:

- o Public benefit of the proposed activity versus the loss of the wetlands resource.
- o The necessity of the proposed activity to realize public benefits.
- o Feasible and prudent alternatives to loss of the wetlands resource.
- o Primary and secondary impacts.*

Permits submitted pursuant to environmental assessments or impact statements will then be reviewed subject to standards and criteria available for which the permit is sought as described in the next section of this chapter.

This overall approach differs from that usually applied in the management of "preservation" areas under public ownership. Many of the wetlands are privately owned and their future use is unpredictable. Moreover, the Corps authority is regulatory and applies irrespective of actual ownership. Finally, this approach differs from "zoning" because the recommendations are performance standards whereby an applicant would be required to show that an anticipated activity would not detract from productivity, ecosystem functions and other values inherent in these "wetlands of importance." This standard, differs from standards in other areas which are not "wetlands of importance", because the test to be applied is whether damage occurs -- not the extent of damage.

Some activities may have negative impacts on "wetlands of importance" wherever they occur. In such instances detailed environmental assessments, related especially to the biological and hydrological impacts on the wetlands, should be conducted if there is reason to believe they will alter flushing characteristics and circulation patterns; change salinity, temperature, or clarity of water; result in discharges of toxic substances or materials with excessive nutrient content; change the volume or rate of fresh water inflows; result in heavy sedimentation; reduce high levels of dissolved oxygen within the estuary or cause other changes in excess of State and/or Federal water quality standards. The following list contains examples of activities that might have negative impacts on "wetlands of importance."

*Interpreted from 33 CFR 209.120. Section (3) (IV) (a and b), page 31328, Appendix A.

- o Major dredging in the channels
- o Expansion and construction of transportation corridors
- o Water withdrawal/diversions
- o Resource extraction
- o Tidegates
- o Outfalls and waste disposal
- o Groins/jetties

Information in the preceding section and Table 55 indicates the order of magnitude of probable effects from various activities. Note that fill has the greatest overall impact on environmental factors (rate 81), while minor repairs have the least (rate 30). If permits for activities rated 2 or 3 are applied for in close proximity to "wetlands of importance" there is a presumption that sufficient uncertainty exists with respect to potential effects to warrant further biological and hydrologic assessment.

GENERAL PERMITS

General Permits are designed to facilitate permit processing for specific actions in specified areas. This will help expedite approval of routine activities resulting in minor impact. The general permit will be evaluated "in-whole" previous to issuance.

The District Engineer may, after compliance with the other procedures of this regulation, issue general permits for certain clearly described categories of structures or work, including discharges of dredged or fill material, requiring Department of the Army permits. After a general permit has been issued, individual activities falling within those categories that are authorized by such general permits do not have to be further authorized by the procedures of this regulation unless the District Engineer determines, on a case-by-case basis, that the public interest requires.

District Engineers will include only those activities that are substantially similar in nature, that cause only minimal adverse environmental impact when performed separately, and that will have only a minimal adverse cumulative effect on the environment as categories which are candidates for general permits.

In addition to the conditions prescribed in Appendix C of this Regulation (found on page 31341 of Appendix A of this report), any general permit issued by the District Engineer shall prescribe the following conditions.

The maximum quantity of material that is authorized for discharge by the general permit in a single or incidental operation (if applicable);

A description of the category or categories of activities included in the general permit; and

The type of waters(s) into which the activity may occur.

The District Engineer shall require reporting procedures where the general permit fails to designate a specific water body or water bodies. He may require such procedures in other situations.

A general permit may be revoked if it is determined that the cumulative effects of the activities by it will have an adverse impact on the public interest. Following revocation, any future activities in areas covered by the general permit shall be processed as individual permits under this regulation.*

Specific examples of general permit possibilities include:

- 1) Docks and erosion control for the area from RM 2.5 to RM 5.5 South Bank (See Exhibit 36), excluding the mouth of McKinney Slough; the mouth of Eckman Slough; and approximately 2500 feet of marshland east of Eckman Slough where a fill line needs to be negotiated between the riparian owners, State agencies and the District. General permits could be issued for private docks (seaward to the line of adjacent docks); riprap and bank stabilization; fill, not to exceed 50 cubic yards landward of the mean high water mark; dredging, not to exceed 50 cubic yards per applicant; pilings; pile removal and/or replacement. All previous criteria concerning these matters would apply.
- 2) Marina maintenance for all areas, for the ordinary repair and expansion (horizontally along the riverbank) of existing marinas, including all of the activities described above, wherever they exist.
- 3) Dock maintenance and repair for all areas (ordinary and routine and excluding new piling or any other structural modifications).
- 4) Private dock construction on Eckman Lake.

*Found in CFR 33 290.120, page 31335, Appendix A.

5) Dike and sea wall, routine and ordinary repair and maintenance (no expansion) of existing dikes and seawalls wherever they occur, excluding the dikes on the north channel. Areas included are the dikes around Waldport, the seawall on Highway 101 south of Waldport, the diked marshes on the North side of the Bay, and the diked floodplains from RM 6 to RM 7 on the south bank of the Alsea River.

6) Removal of snags and deadheads wherever they occur, except in "wetlands of importance" and removal of the railroad tressle, even though in a "wetland of importance."

In addition, materials to be used would be comparable to those described in the original permit, except that stone would be an acceptable replacement for metal sheeting; and wood would be an acceptable replacement for stone (see Esthetic criteria, chapter 3)

The general permits would be for a fixed period of time to allow for District review of any unforeseen cumulative effects, after which the permits can be extended for another fixed period of time. (The general permit should not in any way be construed as an abdication of authority or responsibility).

It is important that the applicant notify the District of his intent to proceed with the work or activity under general permit within a time period which the applicant determines but not less than two weeks before starting the work. Notification can be simply a letter, or in an emergency a phone call, including the number of the original permit (for repairs). Unless the applicant hears otherwise he can proceed after two weeks of the date of notification.

GENERAL STANDARDS AND CRITERIA

As stated in the regulations, no permit in navigable waters will be granted unless its issuance is found to be in the public interest; further, all factors which may be relevant to the proposal must be considered.* These factors, as they apply to the study area, have been discussed in the following chapters of the Wetlands Review: conservation (Chapter 2); economic (Chapter 5); esthetic (Chapter 3); general environmental concerns (Chapters 1 through 6); historic values (Chapters 3, 4 and 6); fish and wildlife values (Chapter 2); flood damage prevention (Chapters 2 and 6); land use classifications (Chapters 1 and 6); navigation (Chapters 2 and 6); recreation (Chapters 2, 5, and 6); water supply (Chapter 2); water quality (Chapters 2 and 6); and in general, the needs and welfare of the people (Chapters 1 and 4).

* 33 CFR 209.120. (Permits for activities in navigable waters or ocean waters.) Appendix A.

General standards and criteria to be applied by the Portland District in considering the approval, denial or conditioning of permit applications (in environments other than those recommended as "wetlands of importance") can be derived from the data presented in each chapter. The following, while not exhausting all of the findings which might be made if additional information on the study area were available, are presented as they first appear in each chapter.

TABLE 55

GENERAL MAGNITUDE OF POTENTIAL IMPACTS FROM PERMIT ACTIVITIES ON BIOLOGICAL FUNCTIONS, HABITAT AND PHYSICAL FUNCTIONS

PERMIT ACTIVITY	ENVIRONMENTAL FACTOR									HABITAT														PHYSICAL FUNCTIONS				IMPACT RATING				
	DIVERSITY	PRIMARY PRODUCTIVITY	INITIAL DISTURBANCE	RESILIENCY	ECOSYSTEM FUNCTION	ESTRIBES	NUTRIENT INFLOW	NUTRIENT RECYCLING	FISH SPAWNING	BIRD NESTING/FEEDING	AQUATIC MAMMAL HABITAT	SHELLFISHERY	OCEAN	MIGRATION	BAY/ESTUARY	WATER QUALITY	MARSH	TIDEFLAT	BEACH/DUNE	BELOWGRASS	RIVER/CHANNEL	WET MEADOW	RIPARIAN HABITAT	FIELD/PARK	WOODED UPLAND/HABITAT	ENDANGERED SPECIES	CIRCULATION/FRESHING		SEDIMENTATION/DEPOSITS	EROSION/SCOURING	FLOODING	
	Permit Activities									Habitats														Physical Functions								
FILL	3	3	3	3	3	3	3	3	3	3	2	3	2	2	3	3	3	3	3	3	3	3	3	3	1	1	1	3	3	3	3	81
SPOILING	3	3	3	3	3	3	3	3	3	2	2	3	2	2	3	3	3	3	3	3	3	3	3	1	1	1	3	3	3	3	80	
BRIDGE	2	3	3	2	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	1	1	1	3	2	3	3	78	
BULKHEADS	3	3	3	3	3	3	3	1	2	3	2	3	2	2	3	2	3	3	1	3	3	3	3	1	1	1	3	2	3	3	74	
CAUSEWAY	3	3	3	3	3	3	2	2	3	2	2	3	1	3	3	3	3	3	3	3	3	3	1	1	1	3	2	3	2	74		
CHANNELIZATION	3	3	3	3	3	2	1	3	3	3	1	1	2	2	2	3	2	3	2	3	3	3	1	1	1	3	3	3	3	72		
DAH	3	3	3	3	3	2	2	3	3	2	1	1	3	2	3	1	2	2	3	3	3	3	3	1	1	3	3	3	3	70		
DRAINING	3	3	2	3	3	3	2	2	3	3	1	1	1	3	2	3	2	3	3	2	3	2	3	1	1	2	2	2	3	70		
NAVIGATION	3	2	3	2	3	3	1	2	2	1	2	2	1	2	3	3	3	3	3	3	3	3	1	3	1	1	3	3	2	2	68	
DIKE	3	3	2	2	3	3	1	3	1	2	2	1	3	3	3	2	2	1	3	3	3	3	1	1	1	3	3	3	3	2	67	
ALTER INLET	2	2	3	3	2	2	3	1	3	1	2	2	2	2	3	3	1	3	3	3	3	3	1	1	1	3	3	3	3	2	67	
TRANSPORTATION CORRIDOR	3	3	3	3	3	1	2	1	2	2	2	1	1	1	2	2	3	3	3	3	3	3	2	3	1	1	2	2	3	65		
REFUSE DISPOSAL	3	2	2	2	1	3	3	2	2	2	1	1	2	1	3	3	3	3	3	3	3	3	3	1	2	1	2	2	2	2	64	
RAFT/STORAGE	3	2	2	2	1	3	3	2	1	2	1	1	1	3	3	3	3	3	3	3	3	3	3	1	2	1	1	1	1	1	63	
INDUSTRY	2	3	3	2	1	1	1	2	1	2	3	2	1	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1	1	62		
WATER WITHDRAWAL	2	3	1	2	2	1	1	1	3	1	2	2	1	2	3	3	3	3	3	3	3	3	1	2	1	1	3	2	2	2	62	
LEVELS	3	2	2	3	3	2	1	1	2	2	1	1	1	2	1	3	2	3	1	3	3	3	3	1	1	1	1	2	3	2	60	
RIPRAP	2	3	2	2	2	2	2	1	2	2	1	1	1	2	1	3	3	3	3	3	3	3	3	1	1	1	1	2	3	2	58	
DIVERSIONS	1	3	2	2	1	2	2	1	3	1	1	3	1	2	3	1	3	2	1	3	3	3	1	3	1	1	2	2	2	2	57	
POWER PLANT	2	2	3	3	2	1	2	1	2	2	1	2	1	1	3	3	3	2	2	2	2	3	2	2	2	1	1	1	1	1	57	
RESOURCE EXTRACTION	3	2	3	2	1	3	2	1	3	1	1	2	2	1	1	2	1	2	3	3	3	2	3	1	1	1	1	1	1	1	1	56
COG/FALLS	3	3	1	2	2	1	3	2	1	1	1	3	2	1	3	3	3	3	2	3	2	3	1	1	1	1	1	1	1	1	55	
TIDEGATE	1	2	2	3	3	1	2	2	3	1	2	1	1	3	1	2	3	2	1	1	2	3	1	1	1	1	1	1	1	1	52	
OIL DRILLING	3	2	2	1	1	1	1	1	2	3	2	2	2	3	2	2	3	2	2	2	2	2	1	1	3	1	1	1	1	52		
DOCKS	2	2	2	2	1	1	1	1	2	1	1	1	1	2	2	3	3	1	3	3	3	3	1	1	1	1	2	2	2	1	51	
MARINA	2	2	2	3	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	1	2	1	1	1	2	2	2	1	51	
PIER/WHARF	2	2	2	3	1	1	1	1	2	1	1	1	1	2	2	3	3	1	3	3	2	2	1	1	1	2	2	2	1	48		
GROINS	3	1	3	3	2	1	1	1	2	2	1	2	2	1	1	1	3	1	1	1	1	1	1	1	3	1	2	3	1	48		
JETTIES	3	1	3	3	2	1	1	1	2	2	1	2	2	1	1	1	1	3	1	1	1	1	1	1	3	1	2	3	1	47		
WEIR	1	1	1	1	1	1	2	1	3	1	2	1	1	3	1	2	2	1	1	2	3	2	2	2	2	1	2	3	1	2	45	
BRIDGE	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	3	2	3	2	3	2	2	2	2	1	2	2	1	1	42	
FLOATING DOCKS	1	2	1	1	1	1	1	1	2	1	1	1	1	2	2	3	3	1	2	2	1	2	1	1	1	2	1	1	1	42		
DOLPHIN	1	1	1	1	1	1	1	1	3	1	2	1	1	1	1	2	2	1	2	3	1	2	1	1	1	2	2	2	1	41		
PILING	1	1	1	1	1	1	1	1	3	1	2	1	1	1	1	2	2	1	2	3	1	2	1	1	1	2	2	1	1	40		
MAJOR REPAIR	1	1	2	1	1	1	1	1	2	1	1	1	1	1	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	39		
UNDERWATER PIPE/CABLE	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	3	3	1	3	1	3	1	1	1	1	1	1	1	1	37		
OVERHEAD LINES	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	2	2	1	1	2	1	2	2	1	1	1	1	1	30	
MINOR REPAIR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30		

3 - Greatest impact
 2 - Moderate impact
 1 - Least impact
 Total = Impact rating

Source: Howard, Needles, Tammen and Bergendoff, 1975.

Political Setting

Standard

Permits will not be issued where certification or authorization of the proposed work is required by Federal, State, and/or local law and that certification or authorization has been denied. Where officially adopted State, regional, or local land-use classifications, determinations, or policies are applicable to the land or water areas under consideration, they shall be presumed to reflect local factors of the public interest and shall be considered in addition with the other national factors of the public interest.

Even if official certification and/or authorization is not required by State or Federal law, but a State, regional, or local agency having jurisdiction or interest over the particular activity comments on the application, due consideration shall be given to those official views as a reflection of local factors of the public interest.

Criterion 1: Lincoln County approval of a permit application shall be presumed to reflect local factors of the public interest except where such approval represents a conflict between the county's comprehensive land use plan and zoning or other development standards (compare Exhibits 5 and 39). In that instance, the plan, zoning, or standard representing the highest level of natural resource protection shall guide the Portland District in its determination until the inconsistency is resolved.*

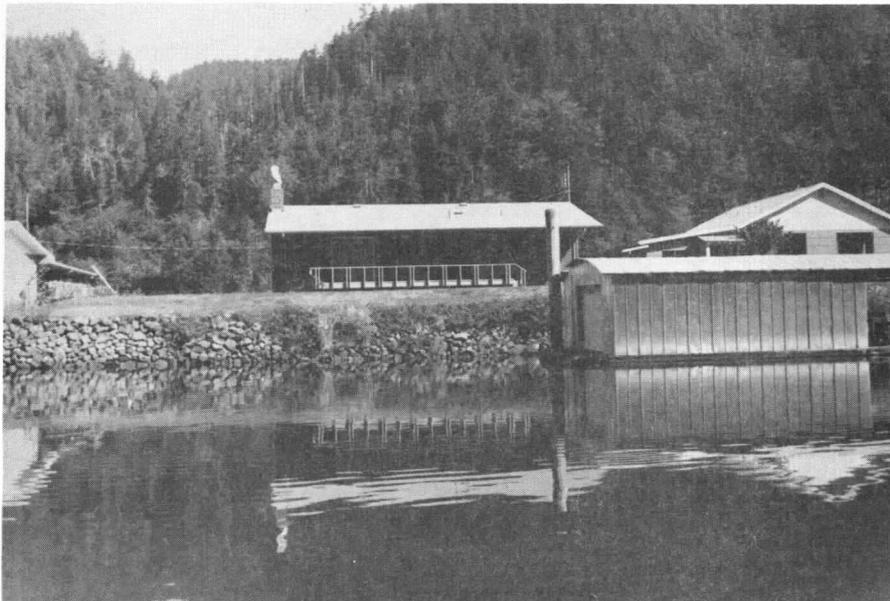
Criterion 2: Approval of a permit application by the State of Oregon is presumed to reflect statewide and regional factors of the public interest except where such approval represents a conflict with Statewide or regional planning policies, goals and criteria as reflected in Oregon's Coastal Zone Management Act.** In that instance, the policies, goals or criteria representing the highest level of natural resource protection shall guide the Portland District in its determination until the inconsistency is resolved.*

*Executive Order #11514, Protection and Enhancement of Environmental Quality, March 5, 1970. "The Federal Government shall provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life . . . Heads of agencies shall consult with appropriate Federal, State and local agencies in carrying out their activities as they affect the quality of the environment."

** Section 307 (g) of the Coastal Zone Management Act that will require State certification that the proposed activity is consistent with the State's Coastal Zone Management Plan, (action is pending LCDC Program).



Vegetated banklines are considered a preferred alternative to structural measures; wood and stone will be a preferred alternative to metal sheeting.



Overall, it is the intent of the Portland District to continue its program of consultation with applicants; local, State, regional and Federal agencies in the event that conflicts arise with respect to specific applications. The District is willing to consider appropriate suggestions for additional measures which might be taken to increase the effectiveness of such consultations over and above those discussed in the Wetlands Review Study.

Environmental Setting

Data in the environmental profile are discussed according to physical conditions and biological resources. From this discussion potential impacts on either physical functions or biological habitat are summarized in Table 55. Impacts are ranked 3 (highest), 2 (moderate), 1 (lowest) in terms of their degree of negative impact, i.e., disruption of productivity or increase in flood levels.

This table serves as a generalized guide to the Portland District in determining the overall acceptability or unacceptability of particular types of actions in terms of their potential disruption of physical or biological processes and values. More specifically, the following standards and criteria are interpreted directly from the data as they apply to the study area.

Standard: Geologic Hazards

The identification of geologic hazards and the control of erosion and siltation for water quality and other purposes are primarily the responsibility of other Federal agencies and of State and local government. Oregon State coastal zone management recommendations and Lincoln County development standards address such hazards and are presumed to reflect factors of local and regional concern. The Federal concern under the regulatory responsibility of the Corps of Engineers is 1) that permit decisions not diminish or contravene the purposes of State and local policies and programs and 2) that the Portland District, in evaluating such hazards in connection with Department of the Army permits, insure that State and local measures are adequate for the protection of public safety and resources of or within the navigable waters.

Criterion 1: Permits in support of developments in highly or moderately erodible soils (as indicated on Exhibit 7) should ordinarily be denied unless the applicant demonstrates to the satisfaction of the Portland District that he has or will take measures to prevent the erosion of banklines and to preclude the deposition of silt and debris into the waterway.*

Criterion 2: Permits in support of commercial and/or industrial structures on slopes in excess of 10 percent (as shown on Exhibit 8) should ordinarily be denied unless the applicant can demonstrate to the satisfaction of the Portland District that the development poses no long-term hazard to the public, does not increase erosion of banklines, or result in the deposit of silt or debris in the navigable waterways.*

Criterion 3: Permits in support of new residential subdivisions (other than single family homes) on slopes in excess of 20 percent (indicated as white space on Exhibit 8) should ordinarily be denied unless the applicant can demonstrate to the satisfaction of the Portland District that the development poses no long-term hazard to the public, does not increase erosion of banklines, or result in the deposit of silt or debris in the navigable waterways.*

Criterion 4: Permits in support of permanent developments in areas where geologic faults intersect landslide areas (as shown on Exhibit 8) should ordinarily be denied unless the applicant can demonstrate that in the event of catastrophic occurrence, the development poses no hazard to the general public.

In all of the above, it will be assumed that an applicant has met these tests if his application has been approved by Lincoln County and the State and if in commenting on the application, Lincoln County indicates that its approval was based on consideration of a Statement of Limitations under Article 13 of County zoning ordinances.* Further, in all of the above instances, permit applications may be forwarded to the Soil Conservation Service for its advice on the adequacy of the measures described in the application for controlling erosion.

* Erosion control, in connection with types of activities for which permits might be applied, i.e., riprap, bank stabilization, etc., is discussed in the criteria for the specific activity later in this section. Only those specific activities likely to occur within the Alsea are selected for detailed discussion.

**Under Article 13, the County may require an applicant to file a Statement of Limitations for County consideration of geologic hazards. This requirement would make application of Article 13 mandatory as a condition for Department of the Army permits in geographic areas stipulated as highly or moderately erodible or having geologic hazards as indentified on Exhibits 7 and 8. (See Environmental Profile.)

Criterion 5: In view of the critical natural erosion of the Bayshore spit and serious doubts about the effectiveness of structural stabilization measures, permit applications in support of permanent development and structures on the southern end of the spit (south/southwest of the Bayshore Motel) will ordinarily be denied. Where social or economic factors present sufficient justification (to be provided by the applicant), applications for seawalls, riprap and other stabilization measures will only be considered in the context of an environmental impact assessment or statement wherein the following are evaluated:

- o Public benefit of the proposed activity versus loss of the dune spit environment.
- o Necessity and effectiveness of the proposed activity to realize these benefits.
- o Feasible and prudent alternatives to the activity, including the removal of structures from the spit.
- o Primary and secondary impacts.*

Permit applications in support of subdivision developments on the spit will be coordinated with the Department of Housing and Urban Development for compliance with the Interstate Land Sales Disclosure Act.**

Standard: Flooding

As recognized in the Federal Flood Insurance Program, for which Lincoln County qualifies, flooding and flood control measures are primarily the responsibility of State and local government. Flood damage can be expected in areas identified as the 100-year floodplain on Exhibit 16. Because of past levels of development and lack of suitable alternate sites for development within the study area, prohibitions on all development in the floodplain would have severe negative economic and social impacts without proportionate benefits to the public. Therefore, Department of the Army permits in support of floodplain development will be evaluated according to the following criteria.

Criterion 1: Permit approval by Lincoln County and the State will be presumed to reflect factors of local concern in floodplains from Waldport to river mile 6 on the south bank of Alsea Bay; in floodplains on the north bank of the Alsea River from river mile 8 to the head of tide; at Barclay Meadows on the north side of the Alsea River; and at Alder Spring Acres on the south side of the Alsea River.

*33 CFR 209.120. (Permits for activities in navigable waters or ocean waters) July 25, 1975.

**The basic intent of the Act is not to prohibit development in potentially hazardous areas but to alert prospective buyers that such hazards exist.

Criterion 2: The primary factor of Federal concern is to maximize the flood retention capability of other undeveloped floodplains within the study area (the north side of Alsea Bay to Drift Creek, Drift Creek, the south side of the Alsea River from river mile 6 to river mile 8 and from river mile 8 to head of tide with the exception of Alder Spring Acres). Permit applications in these areas will be discussed with Lincoln County for the purpose of determining whether the application is in support of low density uses and developments which do not contribute to increased flood heights downstream.*

Criterion 3: Applications for flood control structures on the main stem of the Alsea River from river mile 6 upstream to head of tide will ordinarily be denied. In order to be effective, such measures would have to attain vertical heights of such magnitude (7 to 10 feet or more) and be applied so uniformly throughout the study area that a massive conversion of the entire floodplain downstream would be required.**

Criterion 4: Applications for flood control structures at Alsea Bay proper (river mile 6 downstream to the inlet) may be approved consistent with standards and criteria recommended for specific types of activities, i.e., bulkheads, riprap, bank stabilization, and with other general esthetic, land use and planning standards and criteria in this section.

Standard: Water Quality

Section 101(b) of the Federal Water Pollution Control Act Amendments recognizes the primary responsibility of the State to control pollution but does not extinguish the Federal interest. Section 401 of the Act requires State certification if an activity requiring a Corps of Engineers permit includes the construction of a structure, the normal use of which may result in a discharge of pollutants, (other than dredged or fill material which are covered separately under Section 404***) into navigable waters of the United States. Oregon State water quality standards that guide such certification are shown in Chapter 2. Permit applications are coordinated with the State of Oregon and the U.S. Environmental Protection Agency. In the event that State certification is denied, the permit application is denied.

*State Coastal Zone Management policies recommend use of areas within the 100-year floodplain for forestry, agriculture, open space and park usages.

**Applies to the main stem only - not to tributaries and intermittent streams where small flood control impoundments under Public Law 566 may be applied. Such structures are under the program responsibility of the Soil Conservation Service, U.S. Department of Agriculture.

***Section 404 is discussed under the heading, Standard for Dredged Disposal.

Even with such State certification, however, permits are still subject to the general test for all Department of the Army permits - that they not be issued "in the absence of overriding national factors of the public interest."

In addition to ensuring compliance with water quality standards, the Federal interest in water quality of the Alsea is clearly established with respect to protection of anadromous fishes (offshore salmon resources) and the ecological integrity of the estuary, which contains such resources as marshes, clam beds, endangered species sites, eel-grass beds, herring spawning grounds (over which State and local government may have primary jurisdiction, but all of which are significant factors in "interstate and foreign commerce"). On this reasoning, the following additional criteria will be applied to permit applications.

Criterion 1: There shall be no direct discharges of pollutants, industrial or municipal, into "wetlands of importance;" (Exhibit 4) unique habitat areas (Exhibit 25) or clam or shrimp beds (Exhibit 27).

Criterion 2: There shall be no direct discharges into areas which are poorly flushed so as to create a situation of stress, specifically, the North Channel, Drift Creek, Eckman Lake and subdivision canals.

Criterion 3: Applications for major estuarine modifications (i.e., dredging and dredged disposal in excess of 50 cubic yards) shall, to the extent possible, be conditioned so that the modifications take place in months of high river discharges (December to April) to take advantage of tidal flushing (2.7 tidal cycles to flush the estuary as opposed to 18 tidal cycles in months of low precipitation in May, June, July, August) as described on Exhibit 11.*

Criterion 4: Major estuarine modifications (i.e., dredging and dredged disposal; bank stabilization; riprapping) shall be prohibited between May through November (Table 14) to minimize effects of turbidity during months of fisheries spawning and migration.

Criterion 5: Other water quality criteria as described on Flood Plain hazards, (Exhibit 16) will to the extent possible also be applied.

Criterion 6: Applications for dredging or pile removal in areas where bottom sediments may contain high volumes of sulfides or volatile solids shall be accompanied by verified results of bottom samplings. Sampling will be forwarded to the U.S. Environmental Protection Agency for analysis and comment. Such areas are likely to be 1) the North Channel,

*This criterion should be flexible so as not to endanger life since seasonal winter weather often prohibits work or makes such work hazardous.

2) the south bank of the bay from river mile 2 to river mile 5.5 and 3) Lint Slough. If the sample contains high levels of volatile solids, sulfides or other potentially toxic materials as identified in the sample, dredging and pile removal shall be absolutely prohibited during the months of April through November because of the potential lethal effects on fish spawning and migration.

Criterion 7: Failure to receive a response from the State under State certification procedures of Section 401 of the Federal Water Pollution Control Act shall not be presumed to exhaust Federal responsibility in water pollution control in the Alsea. Applications shall be denied if the Portland District has reason to believe the activity for which application is made may result in the discharge of pollutants into the navigable waters with adverse effects on fish and wildlife, esthetics, land use classifications and other factors in the total public interest.

Standard: Environmental Impact Assessments

Corps of Engineers regulations for the implementation of environmental impact assessments or statements in connection with Department of the Army permits require consideration of alternatives to the proposed action. A major element in the definition of alternatives is the availability of alternate sites suitable for the activity or work for which a Department of the Army permit is issued. In evaluating "alternative sites," the Portland District will apply the following criteria except for permits involving water quality considerations:

Criterion 1: Activities or work in areas of very severe ecological disturbance (Exhibit 24) will be preferred as a suitable alternative site to areas of severe ecological disturbance, of moderate ecological disturbance or of low ecological disturbance.

Criterion 2: Activities or work in areas of severe ecological disturbance (Exhibit 24) will be preferred as a suitable alternative site to sites of moderate ecological disturbance.

Criterion 3: Activities or work in areas of moderate ecological disturbance (Exhibit 24) will be preferred as a suitable alternative site to areas of low ecological disturbance.

Criterion 4: Activities or work in areas of low ecological disturbance (Exhibit 24) will be considered the least preferred as a suitable alternative site.

"The application of these criteria also depend on the nature of the activity for which a Department of the Army permit may be applied. For applications involving private moorage or other structures involving riparian access and for applications involving the protection of private property, the criteria will apply to the general vicinity within the ownership or control of the applicant."

"For applications involving the provision of new public services and/or major facilities (marinas, subdivision developments, transportation/utility corridors and facilities) and for applications involving landfills in excess of 50 cubic yards of material. The criteria will be applied to the study area of the wetlands review."^{**}

Standard: Protection of Fish and Wildlife Habitat

While responsibilities for fish and wildlife resources are under the jurisdiction of the State and, in some instances, other Federal agencies, Federal and State laws require the protection of significant habitats of fish and wildlife resources.**

"The Portland District in all permit cases consults with the Regional Director, U. S. Fish and Wildlife Service, with the Regional Director, National Marine Fisheries Service, and with the State of Oregon with the view to the conservation of wildlife resources by prevention of their loss and damage due to the work or structures proposed in a permit application. Great weight is given to fish and wildlife considerations in the Corps decision to grant, deny or condition a permit."

Criterion 1: Standards for "wetlands of importance" are presumed to reflect the extent of needed protection of fish, wildlife and unique natural areas in such areas in the absence of specific comments on particular applications to the contrary.

Criterion 2: Permits will ordinarily not be granted in habitats of Oregon's rare and endangered species (Exhibit 25).

Criterion 3: Permits will ordinarily not be granted within 300 feet on the shoreward side of habitats for bald eagle, American osprey, great blue heron rookery, or spotted owl habitats (Exhibit 26).

Criterion 4: Permits will ordinarily not be granted in areas identified as habitats for band-tailed pigeon watering areas (Exhibit 26).

*33 CFR 209.120 (Permit activities in navigable waters or ocean waters.

**See Appendix E for a description of legislation relevant to Department of the Army permits, i.e., Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972 (U.S.C. 1432); The National Environmental Policy Act of 1969 (42U.S.C. 4321-4347); The Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act (16 U.S.C. 760c-760g); and The Fish and Wildlife Coordination Act (16 U.S.C. 661-666c).

Criterion 5: Unless the applicant demonstrates that the activity or work for which the permit is applied will not render the tract to be served by that activity or work unsuitable as habitat for bear, deer, elk, spotted owl, beaver, muskrat, otter, mink and other major species generally found in such areas as described in Table 26, permits will ordinarily not be granted in the following bay areas: banklines of big game winter range (Exhibit 26), banklines of upland forest (Exhibit 28), banklines with existing riparian alder, banklines with conifers, or in eelgrass beds (Exhibit 28).

Standard: Access

(Private Docks, Platforms, Boardwalks or Other
Similar Stationary Structures)

A landowner's general "right" of access to navigable waters is subject to the similar "rights" of access held by nearby landowners and to the general public's right of navigation on the water surface. Proposals which create undue interference with access to, or use of, navigable waters will generally not receive favorable consideration.

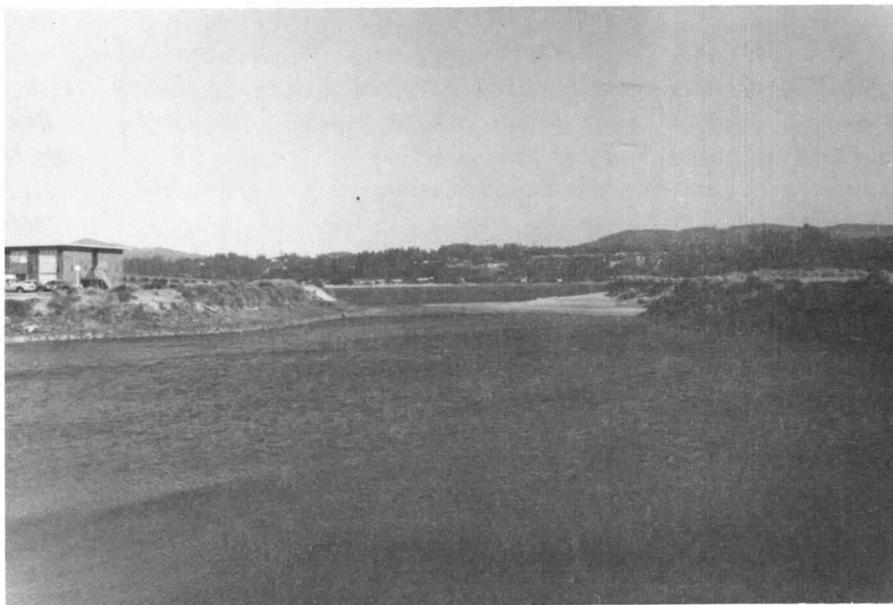
As a matter of policy, in the absence of overriding public interest, favorable consideration will be generally given to applications from riparian proprietors for permits for piers, boat docks, moorings, platforms and similar structures for small boats. Particular attention will be given to the location and general design of such structures to prevent possible obstructions to navigation with respect to both the public's use of the waterway and the neighboring proprietors' access to the waterway. District Engineers will inform applicants of the hazards involved and encourage safety in location, design and operation. Corps of Engineers officials will also encourage cooperative or group use facilities in lieu of individual proprietor use facilities.

In its zoning ordinance, Lincoln County has adopted the following standards for docks, piers and similar structures relating to access:

- o No dock, pier or similar facility shall extend into any watercourse more than 25' from ordinary low water line nor 50' from ordinary high water line, unless it can be shown that such extension is necessary and will not increase flood hazards or create other problems such as the deterioration or destruction of marine life or wildlife habitat as a result of the extension.
- o No dock, pier or similar facility shall extend into the navigable channel any distance greater than required for safe moorage and shall be designed so as to minimize potential flood hazard and loss of navigable waterway area.



Public access along the Bay beach has been cut off by this subdivision canal . . . remedial action may be possible through permit modification.



. . . serious doubt exists whether efforts to stabilize spits can be really effective without massive conversion of this unique type of environment.

- o No pier, dock or similar facility shall extend into any water-course more than 5% of the width thereof as measured perpendicular from the mean low water line on one side of the water-course to the mean low water line on the opposite side.
- o New subdivisions docks having less than 10 moorage spaces will be approved only in the instance that no other public or private means of launching or moorage is available or can be developed within 1000 feet of the site in question.
- o Facilities being proposed in areas where it is likely that additional similar structures will be desired shall be designed to be combined into joint facilities wherever possible.
- o The design of moorages must provide sheer logs or similar devices for fending debris. Such improvements need not be maintained during periods where there is no danger of flood water.
- o Docks shall have the long dimension running parallel to the channel unless future development will result in pier construction or moorages being connected, necessitating facility design perpendicular to the channel.
- o The width of those portions of such facilities shall be the minimum dimension required to provide safe access and moorage.
- o One dock shall not be closer to another dock than the length of the shorter structure or 25' whichever distance is greater.
- o The number of ramps, fenders and other land connections, and the number of pilings and other projections below the surface of the water shall be minimized.
- o Walkways shall be provided on only one side of individual moorages unless it can be satisfactorily shown that walkways are necessary on both sides. Walkways and breakwaters shall have a width not greater than required to provide safe moorage and access thereto.
- o Each dock, boathouse, or similar facility shall have the U.S. Army Corps of Engineers permit number permanently affixed to the outboard side of the facility in a clearly visible location prior to requesting final Planning Department inspection for Conditional Use permit issuance.
- o No owner of a dock or similar facility shall exercise any proprietary rights on the water surrounding such structure. Violations of such will be considered a failure to maintain the Conditional Use approval requirements.

- o Recognition of potential flood hazards as well as the need to protect the visual attractiveness of the waterway shall be shown in design and exterior materials used in construction of docks, piers, boathouses and similar facilities.

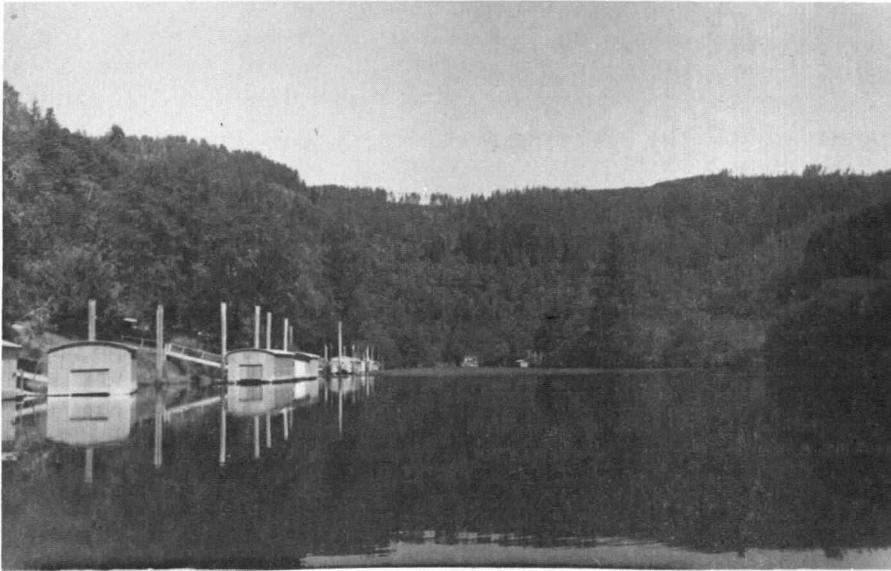
Criterion 1: Existing Lincoln County standards for dock construction are assumed to protect the public's right of navigation, and in the interest of consistency, will generally be recognized by the Portland District in the absence of information that the standards in a particular instance do not protect the general public's right of navigation. Lincoln County approval of applications for docks, moorages and similar structures are expected to state specifically that the application meet such standards as in County Ordinance, Section 6.050, Standards and Procedures Governing Conditional Use, or the extent to which such standards are not applicable to the application at hand. Without such stipulation, applications to the Portland District may not be approved. In the event that the existing ordinance (March 1974) is rescinded or amended, the County should so notify the Portland District in commenting on any permit application submitted once the ordinance is amended or rescinded.

Criterion 2: The construction of docks, piers and other structures for the provision of private access may be in conflict with other standards and criteria relating to fish and wildlife, land use classifications and other factors in the total public interest if located in the following areas:

- o "Wetlands of importance" (fish and wildlife protection, esthetics).
- o Sheppard Point as coded in green in Exhibit O (land use changes).
- o North Channel as coded in green in Exhibit O (water quality, fish and wildlife protection, esthetics).

- o Drift Creek as coded in green in Exhibit O (water quality, fish and wildlife protection, land use changes, esthetics).
- o Non-man dominated areas (Exhibit 28) on the south bank of Alsea Bay from river miles 6-8 (conversion of the floodplain and potential loss of flood absorption capacity).
- o Non-man dominated areas (Exhibit 28) on the south bank of the Alsea River from river mile 8 to head of tide (land use changes, fish and wildlife protection, esthetics).

Applications for moorage in these areas will ordinarily be denied unless the applicant can demonstrate that the anticipated adverse effects are not likely to occur and that there is no prudent and feasible alternative to the activity or work for which a Department of the Army permit is applied in order to provide for personal access. Permits for the maintenance, repair, or replacement of existing facilities or of facilities traditionally provided in such areas are exempt from this criterion, provided the application for such work is approved by Lincoln County.



When dock spacing reaches a certain limit, other recreation uses of the river are precluded. Along shore trolling and hunting are no longer possible in areas similar to the left bank.

Criterion 3: A high density of docks along a stretch of river can preclude other riparian uses. Fishing opportunities for near shore trawling and shorecasting, as well as hunting and high quality scenic recreation are not available in areas with intensive wharfing. Quantitative information on the effect of dock proliferation on the fishery resource is not available, but past experience has shown the associated increase in human activity usually degrades the aquatic environment. In order to preserve the options to utilize the high recreation and esthetics values in certain areas, dock proliferation control is needed.

The values inventoried in this report indicate certain areas are best suited to a certain intensity of use, be it light, intermediate, or intense. In areas that are coded for natural resource uses (green), on the generalized land use capability exhibit, as stated in criterion 2, dock permits will ordinarily be denied unless an overriding public interest can be shown.

In the conditional use zone (yellow), dock permits will be ordinarily denied if the spacing between that dock and the adjacent docks is less than the recommended density limit. In yellow areas where lots have less than the minimum frontage to support a dock, permit applicants are encouraged to seek out dock sharing arrangements with neighbors. Dock permits in areas coded red will ordinarily be approved.

The density limit for the yellow zone is based on the interaction of 1) total contiguous frontage owned by applicant(s), 2) number of cooperating owners in the permit application, 3) a set of values estimating

the optimal minimum dock spacing and the optimal maximum dock size. The assumption behind the set of values used to formulate the following table are: 1) an optimal dock spacing, or amount of frontage a dock should service, is 500 feet, 2) a desirable base width for a dock is 5 percent of the frontage it services, 3) a dock shall be no smaller than 18 feet. The first two assumptions are based on previously discussed recreation and esthetic values, and the third is based on the needs of boats. Sixty-five percent of the boats registered in Lincoln County are under 16 feet, and the most common dock width on the Alsea is between 20 and 40 feet or a modest average of 25 feet. A dock width 3 feet greater than the length of the boat is usually considered adequate.

The following table illustrating interaction of the various factors was developed from this set of values to achieve regulation of the spacing and size of docks. The numbers in the table represent the maximum allowable dock width in feet, as measured parallel to the shoreline. N is the number of cooperating owners applying for a dock permit; TF is the total contiguous frontage. Permits will ordinarily be denied ()* for areas capable of supporting less than an 18-foot dock, by these standards. The dock dimension is a recommended maximum and, applicants are encouraged to design docks just large enough to fit their needs. These are guidelines and specific determinations will be made by the Corps of Engineers.

N	TF						
	200'	250'	300'	350'	400'	500'	800'
1			(13)*	(15)*	18	25	50
2			(17)*	21	24	33	62
3		(15)*	19	22	26	35	66
4		(16)*	19	23	27	36	
5	(12)*	(16)*	20	24	28	37	
6	(16)*	20	20	24	28	28	

Permits will be handled on a first-come basis. Adjoining property owners will be furnished a copy of the public notice which will contain a warning that construction of the proposed dock may adversely effect any future permit application by the adjoining owner. Permit applications may be amended at any time before issuance of the permit to include other contiguous property owners. The Portland District does not assume any responsibility for the forming of cooperative agreements.

The permit application would identify all cooperating members and be designed to accommodate adequate space for multiple use. Certain docks would be allowed if preexisting constraints can be shown. The selection of a minimum separation distance was based on a minimum spacing to allow public use of near shore areas and yet not be so strict as to diminish

the recreation potential of these areas. The limits will be open to review and may be changed based on agency or public comment. Where the demand for private docks exceeds these advised limits, alternatives of public access ramps, use of common facilities, and local cooperation should be explored. This criterion puts no limitation on existing wharf structures, and is concerned only with new permits.

Standard: Bank Protection

(Bulkheads, Breakwaters, Groins, Jetties, Riprap)

Authorization of work or structures by the Department of the Army does not convey a property right, nor authorize any injury to property or invasion of other rights.

"A landowner has a general right to protect his property from erosion but may not do so in such a way as to injure others. A significant probability of resulting damage to nearby properties can be a basis for denial of an application."

Lincoln County has established general standards for bulkheads and similar structures in its zoning ordinance. However, applications for activities or work for bank protection must also generally meet the public interest test required for Department of the Army permits and be consistent with policies, standards and criteria established for fish and wildlife protection, flood water retention, esthetics, land use classifications and other factors cited in 33 CFR 209.120. Impacts of bank protection measures are often similar to impacts of deposition of dredged materials. (See discussion of dredging and dredged disposal.) To minimize such effects throughout the Alsea, the following criteria shall be applied to permits for bank protection and similar activities and works.

Criterion 1: In the absence of a showing to the contrary, permits for bank protection can be assumed to be in the public interest only at shorelines of man-dominated environments as displayed on Exhibit 28.

Criterion 2: For the purposes of recommending alternatives to an applicant, vegetated banks and the retention of shoreline vegetation will be generally considered preferable to structures; wood protective structures and stone riprap will generally be considered a preferable structural alternative to metal sheeting. The applicant will describe, by photograph or in writing, the vegetative condition of the bankline which he wishes to stabilize and, if relevant to his application, the condition of banklines adjacent to his property.

Criterion 3: Material for ripraps shall be clean, durable and from an upland source.

Criterion 4: Where possible, sloping riprap will be a preferred alternative to vertical seawalls, which do not lend themselves to tasteful blending between land and water.

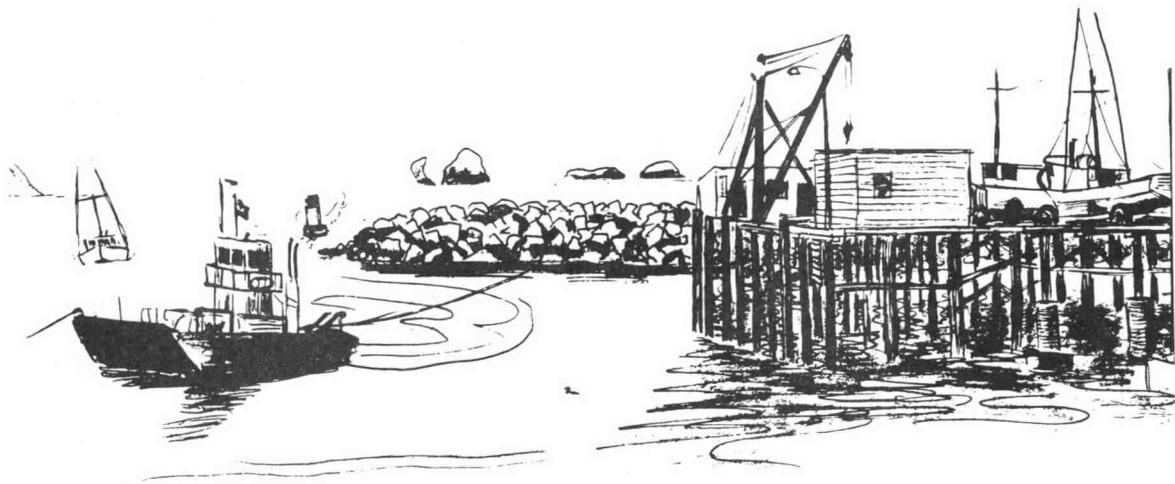
Criterion 5: Bulkhead lines will ordinarily be set landward of the ordinary high water line and constructed to avoid sharp angles that may collect debris, cause shoaling or interfere with currents.



The retention of natural vegetation is a preferable alternative to structural measures for purposes of erosion control, fish and wildlife protection and esthetics. In areas like this, the applicant will have to demonstrate that his right of access cannot be met by means other than wholesale destruction of these riparian edges.

Standard: Dredging and Dredged Disposal

Permits for non-Federal dredging operations will contain conditions requiring the permittee to comply with the same practices or requirements utilized in connection with related Federal dredging operations with respect to such matters as turbidity, water quality, containment of material, nature and location of approved disposal areas (non-Federal use of Federal contained, disposal areas will be in accordance with laws authorizing such areas and regulations governing their use), extent and period of dredging, and other factors relating to protection of environmental and ecological values.



A permit for the dredging of a channel, slip or other such project for navigation will also authorize the periodic maintenance dredging of the project. Authority for maintenance dredging will be subject to revalidation at regular intervals to be specified in the permit. The permit, however, will require the permittee to give advance notice to the District Engineer each time maintenance dredging is to be performed.

Applications for permits for the discharge of dredged or fill material into navigable waters at specific disposal sites will be reviewed in accordance with guidelines promulgated by the Administrator, EPA, under authority of section 404(b) of the Federal Water Pollution Control Act. If the EPA guidelines alone prohibit the designation of a proposed disposal site, the economic impact on navigation and anchorage of the failure to authorize the use of the proposed disposal site in navigable waters will also be considered in evaluating whether or not the proposed discharge is in the public interest.

Applications for permits for the transporting of dredged material for the purpose of dumping it into ocean waters will be evaluated to determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.*

*33 CFR 209.120.

Criterion 3: The need for dredging for the removal of shoaling between river miles 2 and 6 can be determined by an assessment of biological and hydrologic effects, pursuant to a State-approved estuary plan under the State coastal zone management program without need for a separate environmental impact statement.

Criterion 4: Dredging for the placement of sewer lines and other utilities adjacent to Route 34 can be approved without a separate environmental impact statement providing the applicant shows that measures have been taken to minimize disturbances to Lint Slough, McKinney Slough or Eckman Slough and that use of the right of way of Route 34 for these lines is not a feasible alternative to dredging within the sloughs themselves.

Criterion 5: Hydraulic suction dredges will be a preferred alternative to draglines. In this respect, consideration should be given to application of the jet pumping techniques by the Portland District.

Criterion 6: Environmentally suitable dredged disposal sites are extremely limited within the Alsea. Favorable consideration will be given to use of the diked area adjacent to Lint Slough and to portions of the undeveloped floodplain east of Eckman Lake on the south side of Alsea Bay, provided a suitable line can be negotiated beyond which disposal in the navigable waters will not be permitted. (See Policy and Procedural Findings.) All other locations within the Alsea below the mean Higher High Water mark are regarded as unsuitable for dredged disposal. Applications in such areas will ordinarily be denied. Applications for disposal at sea will be evaluated separately, pursuant to Section 404 of the Federal Water Pollution Control Act or under Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972.

Standard: Subdivision Canals

A canal or similar artificial waterway is subject to the regulatory authorities discussed in this section if it constitutes a navigable water of the United States, or if it is connected to navigable waters of the United States in a manner which affects their course, condition, or capacity. In all cases the connection to navigable waters of the United States requires a permit. Where the canal itself constitutes a navigable water of the United States, evaluation of the permit application and further exercise of regulatory authority will be in accordance with the standard procedures of this regulation. For all other canals the exercise of regulatory authority is restricted to those activities which affect the course, condition, or capacity of the navigable waters of the United States. Examples of the latter may include the length and depth of the canal; the currents circulation, quality and turbidity of its waters, especially as they affect fish and wildlife values; and modifications or extensions of its configuration.

Corps of Engineers officials will consider the potential effect of a permit denial on navigation, economic and industrial development, and foreign and domestic commerce of the United States.*

Public interest in dredging and dredged disposal in the Alsea can potentially be established only with respect to the following circumstances:

- o Dredging for the purpose of providing ocean access.
- o Dredging for the purpose of providing and maintaining of marina facilities on the south bank of Alsea Bay from Waldport east to approximately river mile 6.
- o Dredging for the purpose of eliminating shoaling on the south bank of Alsea Bay from approximately river mile 2 east to approximately river mile 6.
- o Dredging for the purpose of laying sewer lines, underwater cables and other utilities.

The following criteria shall apply.

Criterion 1: Dredging and dredged disposal in "wetlands of importance" will be prohibited.

Criterion 2: Maintenance dredging for marina purposes at Lint Slough may be permitted without an environmental impact statement provided the application is approved by the State; such work should be performed between the months of December through April when river flushing is highest and to avoid seasons of spawning and migration. Dredged material should be placed within the diked area adjacent to the slough. Opportunities for subdivision canals are limited within the Alsea. The following criteria, derived from Florida standards, are appropriate for such areas as Westwood Village.

Criterion 1: Permits for residential developments that are feasible only through creation of land by dredging and filling of submerged areas will not be approved.

Criterion 2: Artificial waterways should be designed to ensure adequate flushing. Dead-end waterways should be avoided.

Criterion 3: Approved upland waterway construction should be done in the dry, if possible, so that shaping and stabilization of the banks can be completed before the "plug" is removed for connection to open waters.

*33 CFR 209.120 (Permits for activities in navigable waters or ocean ocean waters)

Criterion 4: Artificial waterways should generally not be excavated to depths greater than six feet, mean low water, to allow establishment of vegetation on the canal bottoms.

Criterion 5: The sides of artificial waterways should be appropriately stabilized and gently sloping, rather than vertical, to facilitate biological as well as physical stabilization of the canal shoreline.

Criterion 6: The berm of artificial waterways should be raised so that there is a gradual slope away from the canal edge. This will help prevent introduction of contaminants into adjacent water bodies.

Criterion 7: All factors in the public interest will be evaluated for applications for subdivision canals including its need, compatibility with zoning and adopted master plans, anticipated uses and the effect of such uses on navigable waters, quality and turbidity of waters, fish and wildlife values among others.

Standard: Fill

Filling of the navigable waters is the most irreversible activity which might be accomplished under a Department of the Army permit. The issue of filling versus use of pilings to support water-related structures is addressed extensively in Oregon State coastal zone management recommendations. Further, as discussed in the "public trust" section of Chapter 1, there is a common law presumption against filling that can only be overcome by the most rigid of tests imposed by the Federal courts. Within the Alsea the study has not been able to identify a single use or purpose for which fill might be justified as an alternative to pilings, or for which other sites are not available except for the south bank of Alsea Bay just east of Eckman Lake (as noted in the Policy and Procedural Findings).

Criterion 1: Discharge of fill material in navigable waters (to Mean Higher High Water within the estuary) will not be permitted unless the applicant can demonstrate that the activity proposed for the fill site is integral to the public need, depends on water resources and that the site selected and the fill itself are the least environmentally damaging alternative. An activity is dependent on water resources if the fundamental social or economic need, which it is intended to fulfill requires direct access to waters of the United States. The Federal Government has no obligation to allow a property owner to improve a condition inherent to the property, other than the minimum requirements of property protection.

Criterion 2: Use of pilings or other open structures will be considered a mandatory alternative to fill unless the applicant demonstrates that such use is not technically feasible.

Criterion 3: Material placed behind bulkheads and riprap is considered fill. Such actions are referred to the Bank Protection Standard.

Criterion 4: Fill in "wetlands of importance" will be prohibited in

Standard: Marinas

Marina development should be encouraged for social and economic reasons and, where feasible, be considered preferable to the proliferation of private moorage. Applications for permits for the repair, maintenance and expansion of existing marina facilities should be expedited and the sites of new marinas considered in connection with a comprehensive estuary plan. The following criteria should guide such selection:

Criterion 1: Marinas should be located in areas where maximum physical advantages exist and where least dredging and maintenance will be required.

Criterion 2: For marinas catering primarily to craft smaller than 24 feet, upland dry storage facilities should be used rather than dockage.

Criterion 3: Marina construction should avoid "wetlands of importance" and generally be located near man-dominated areas to take advantage of existing transportation facilities.

Criterion 4: Open dockage extending to deep water should be considered as an alternative to dredging for navigational access.

Criterion 5: Turning basins and navigation channels should be designed to prevent long-term degradation of water quality. Deadend or deep canals without adequate flushing should be avoided.

Criterion 6: Regional as well as local interests should be considered as necessary input in determination of the location of marinas.

Standard: Transportation

Permits for transportation (and utilities) are the primary responsibility of the U.S. Department of Transportation, as delegated through the Coast Guard. Coast Guard and Corps responsibilities are outlined in the Memorandum of Understanding referenced in the Introduction. The Corps of Engineers, however, retains a basic responsibility to provide comment on Coast Guard applications as appropriate. The following criteria will guide such comment:

Criterion 1: Regarding U. S. Coast Guard applications for new transportation facilities, the Portland District will recommend preparation of an environmental impact statement in the event such application involves 1) placement of structures in "wetlands of importance," 2) placement of causeways in lieu of bridges that would affect "wetlands of importance."

Criterion 2: Regarding U. S. Coast Guard applications for maintenance, repair or expansion of existing transportation facilities, the Portland District will, as appropriate, recommend the following:

- a) measures to allow free flow of water and to minimize shoaling
- b) slopes and road cuts are to be stabilized by vegetation or other means as soon as possible in the construction of the improvements to prevent erosion and siltation
- c) consideration should be given to catwalks and fishing platforms to provide recreational use of such structures
- d) removal when possible by applicant of existing blockages to tidal and riverine flows so as to improve flushing
- e) application of criteria in the wetlands review for specific activities in connection with such improvements, such as dredging, diking and so forth.

Criterion 3: Highway corridor analysis in undeveloped areas should consider suitability of the adjacent land for urbanization. Routing should be designed to guide growth into favorable areas and away from areas where growth is not planned. In cases where this is not possible, access should be strictly limited.

Criterion 4: Structures over water should be designed to allow free flow of water and minimize shoaling, as well as provide adequate clearance for vessels.

Criterion 5: All slopes and road cuts should be stabilized by vegetation or other means as soon as possible in the construction of the facility to prevent unnecessary erosion.

Criterion 6: Catwalks and fishing platforms should be constructed on new bridges, where appropriate, to provide recreational use of these structures.

Criterion 7: All new transportation and utility construction in "wetlands of importance" will require preparation of an environmental impact statement.

Criterion 8: Applications for the modification of existing transportation for the purpose of restoring tidal or riverine flushing will ordinarily be approved.

Criterion 9: Standards and criteria for other factors in 33 CFR 209.120 will be applied in connection with dredging, filling and other work associated with maintenance and improvements of transportation facilities.

Standard: Esthetics

Esthetics and the preservation of natural beauty should not be underestimated as a significant factor which must be considered in the exercise of Corps permit authorities. Public reaction to particular activities or work requiring permits is more often than is generally realized based on intuitive and highly subjective feelings that a proposal is inherently right or inherently not right because of its effects on their sensibilities. The Federal interest in esthetic opportunities within the Alesia is most clear with respect to those resources of more than local significance expressed by environments with high ratings (7 to 9) on Exhibit 32 in Chapter 3.

The following criteria will apply (as summarized in Table 56):

Criterion 1: Activities with major effects (as described in Chapter 3) in highly rated environments* (Exhibit 32) will be considered potential candidates for the preparation of an environmental impact statement or assessment based on the inherent unsuitability of the location for the activity or work for which the permit is applied. (See Table 55.) Unsuitability will be evaluated in terms of: loss of wildness, loss of unique recreational experiences, loss of solitude, intrusion on highly scenic backdrops of other "locational" considerations described in Chapter 3. Such a procedure may warrant services of a professional landscape architect, design evaluation and formal opportunities for public involvement.*

Criterion 2: Activities with moderate effects in areas rated 7 to 9 (Exhibit 32) or with major effects in areas rated 3 to 6 (Exhibit 32) will be considered potential candidates for preparation of an environmental assessment based on the inherent suitability of the location as previously described, including services of a professional landscape architect, design analysis and informal opportunities for public participation.**

Criterion 2: Activities with moderate effects in areas rated 7 to 9 (Exhibit 32) or with major effects in areas rated 3 to 6 (Exhibit 32) will be considered potential candidates for preparation of an environmental assessment based on the inherent suitability of the location as previously described, including services of a professional landscape architect, design analysis and informal opportunities for public participation.*

Criterion 3: Activities with minor effects in areas rated from 7 to 9 (Exhibit 32) or with moderate effects in areas rated 3 to 6 (Exhibit 32) may warrant the services of a professional landscape architect for design evaluations and consultation with the applicant.

*Environments rated 7-9

**The District Engineer will request such information of the applicant as may be required to determine whether an impact statement or assessment is warranted.

TABLE 56

ESTHETIC STUDY REQUIREMENTS

<u>Esthetic Score</u>	<u>Activity</u>	<u>Related Study Requirements</u>
7 - 9	Major Effects	<p>Esthetic considerations on their own may be sufficiently high to warrant a <u>formal environmental impact statement</u> including:</p> <ul style="list-style-type: none"> a. Services of a professional landscape architect b. Location analysis c. Design evaluation d. Public participation
7 - 9 3 - 6	Moderate Effects - Major Effects	<p>Esthetic considerations on their own may be sufficiently high to warrant an <u>esthetic impact assessment</u> including:</p> <ul style="list-style-type: none"> a. Services of a professional landscape architect b. Location analysis c. Design analysis d. Informal public participation procedures
7 - 9 3 - 6	Minor Effects - Moderate Effects	<p>Esthetic considerations on their own may be sufficiently high to warrant the services of a <u>professional landscape architect</u> including:</p> <ul style="list-style-type: none"> a. Design evaluation b. Consultation with applicant
3 - 6	Minor Effects	<p>Esthetic considerations are assumed to be reflected in county approval.</p>

Criterion 4: For activities with minor effects in areas rated 3 to 6 (Exhibit 32), county or State approval of the application will be assumed to reflect esthetic factors of local concern in the absence of specific information to the contrary.

Criterion 5: In all areas recommended by Lincoln County as scenic corridors or scenic roadways, the Portland District will assure itself of the compatibility of the proposed activity with Lincoln County standards for such areas. In evaluating "compatibility", the Portland District will be guided by land use and design recommendations recommended for the State Coastal Zone Management.

Standard: Land Use

For purposes of evaluation of permit applications, direct Federal interest in land uses is expressed in the following provision of 33 CFR 209.120:

Applications for permits covered by this regulation may involve areas which possess recognized historic, cultural, scenic, conservation, recreational or similar values. Full evaluation of the general public interest requires that due consideration be given to the effect which the proposed structure or activity may have on the enhancement, preservation, or development of such values. Recognition of those values is often reflected by State, regional, or local land use classifications of this section, or by similar Federal controls or policies. In both cases, action on permit applications should, insofar as possible, be consistent with, and avoid adverse effect on the values or purposes for which those classifications, controls, or policies were established.

In addition, there is a direct Federal interest in specific areas involving both land and water surfaces when they have been authorized under the following legislative statutes:

- o Rivers named in Section 3 of the Wild and Scenic Rivers Act (82 Stat. 906, 16 U.S.C. 1273 et seq.), and those proposed for inclusion.
- o Historic, cultural, or archeological sites or practices as provided in the National Historic Preservation Act of 1966. Particular attention should be directed toward any district, site, building, structure or object listed in the National Register of Historic Places.

- o Sites included in the National Registry of Natural Landmarks which are published periodically in the Federal Register.
- o Any other areas named in Acts of Congress or Presidential Proclamations as National Rivers, National Wilderness Areas, National Seashores, National Recreation Areas, National Lakeshores, National Parks, National Monuments, and such areas as may be established under Federal law for similar and related purposes, such as estuarine and marine sanctuaries.*
- o Lands owned by the U.S. Forest Service, Siuslaw National Forest (Exhibit 36).
- o Lands owned by the Bureau of Land Management (Exhibit 36).

Finally, the National Environmental Policy Act requires that consideration be given to secondary land use effects which may occur as a result of Federal programs, activities and regulations such as those exercised under 33 CFR 209.120.

Criteria 1: Lincoln County master plans, and zoning, and the land use requirements of the State coastal zone management plan (when adopted) will be assumed to reflect local factors in the public interest related to land uses and land use classifications. In the event of inconsistencies, as stated in standards for the Political Setting, the highest level of natural resource protection shall apply.

Criterion 2: The cause and effect relationship between Department of the Army permits and land use classifications in the study area is reflected on Exhibit 35, and will guide the Portland District as follows:

- o Permit applications that are likely to result in major secondary environmental impacts on the land or in land use changes that are inconsistent with local planning goals and zoning requirements are not presumed to reflect the total public interest unless the applicant can show the activity to be otherwise through an impact assessment or statement (Exhibit 35).
- o Permit applications that are consistent with locally-adopted environmental goals, planning goals and zoning requirements will, in the absence of specific information to the contrary, be presumed to reflect the total public interest as it relates to land use. Other standards and criteria for fish, wildlife and similar factors must still be evaluated.

* No such areas authorized by these statutes are found within the study area.

EVALUATION UNITS

Initially, the study area was broken down into more than 60 distinct areas based on common characteristics, trends, uses and other factors considered in the Wetlands Review. This procedure facilitated initial findings of fact and analysis. These units were then combined into larger units displayed in this section. (See Exhibit 40.) The units are generalizations only since the specific boundaries of physical, biological, esthetic, ownership, land use classifications and other study elements are already displayed on specific exhibits in the report.

Local plans, objectives and actual and/or potential developments for each unit are shown in the left hand column of the following unit discussions. Many are beyond the primary responsibility or regulatory authority of the Corps of Engineers, but are provided to account for the full range of development or preservation options available and because they are of interest to the public in general. The primary source of the development (actual or potential) is shown in parenthesis for that particular option. The second column of the unit discussions indicates whether the findings of the Wetlands Review are generally consistent or inconsistent with the actual or potential development. Finally, the third column indicates a corresponding response which might be taken by the Portland District with regard to permit applications relating to or in support of the development option.

This summary is meant to serve only as a general guide to permit activities in the study area and not as a binding requirement on the Portland District in the issuance, denial or conditioning of Department of the Army permits.

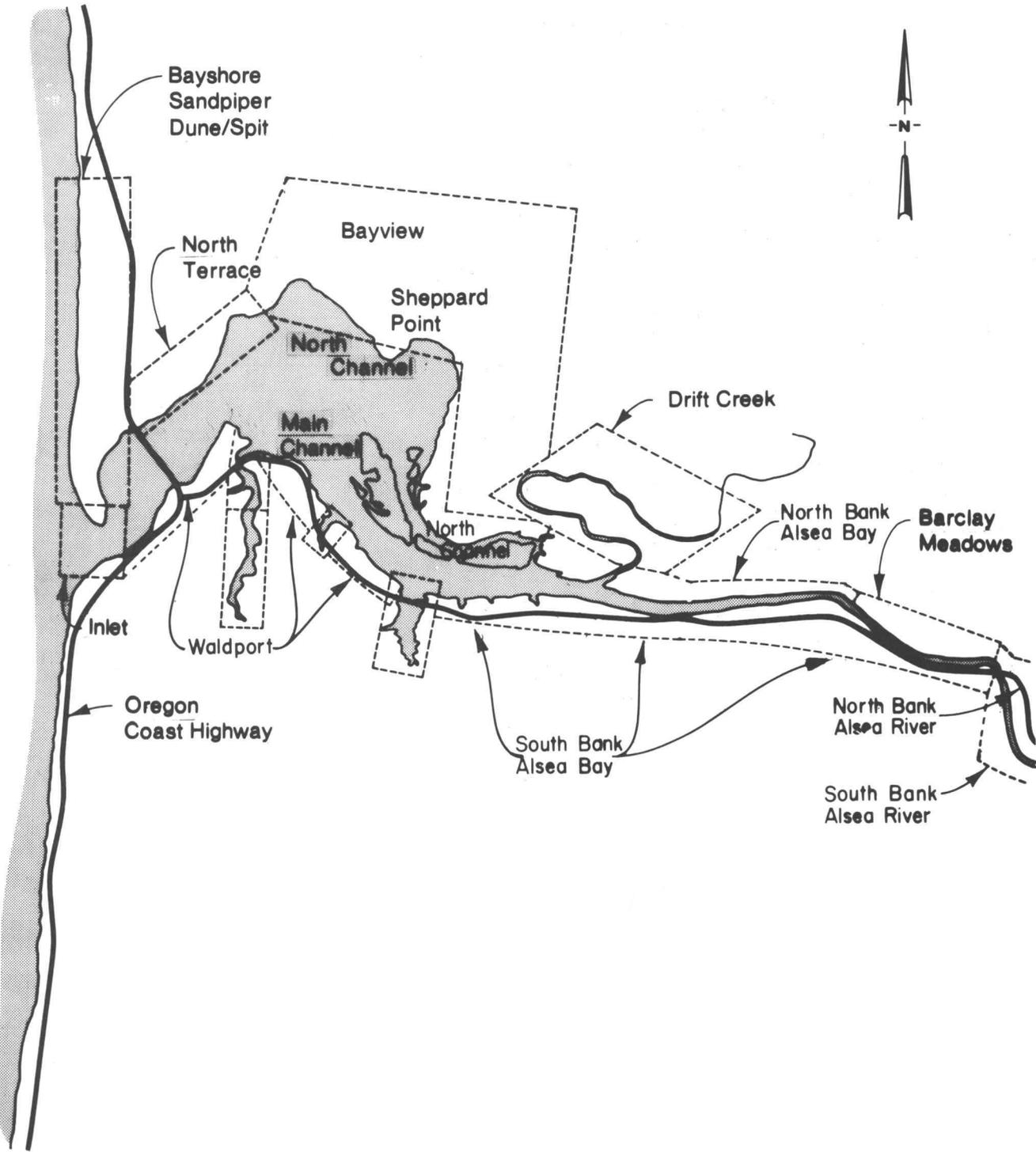


Exhibit 40

LOCATION OF EVALUATION UNITS

THE INLET

	Development Activity	Esthetic Barrier	Coastal Association (OCC&DC) 1/	Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations
INLET	None-Navigation Potential	High 1	High Reg'l, Local: growth potential	High	Low	Low	Low	Wind, Tides Shallow Sand Bar	
Channel	Recreational Fishing, crabbing	High 1	High Regional, Local	High	Low	Low	High	Wind, Tides, Tideflats	
Ocean	Beach uses only Scavenging, fishing	High 1	High National, Regional	Low	Low	Low	High	Sand bar, littoral drift	

Local Goal/Objectives Actual/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
1. Maintain in existing state. (Actual use)	1. One of Oregon's few major estuaries without ocean access.	1. None.
2. Provide groins and jetties and supportive dredging. (Port of Alsea)	2. Inconclusive -- requires environmental impact statement to match existing economic feasibility study.	2. Maintain cooperative planning with Waldport, Port of Alsea, County, etc. If project proves economically feasible, prepare environmental impact statements to consider: <ul style="list-style-type: none"> a. impacts on offshore salmon and other fisheries in terms of net increases in harvest; biological effects on migrations and spawning within bay and channel b. effects of initial and maintenance dredging, turbidity, and other water quality parameters; location and assessment of suitable disposal sites c. effects of dredging on tideflats at Waldport as a "wetland of importance"; potential loss of recreational and esthetic resource and storm buffer d. overall esthetic impact: inlet is cited in OCC&DC's <u>Visual Aspect</u> report as providing opportunities for "exceptional esthetic experiences" e. extent to which north and south jetties would interrupt littoral drift of sand supplies to Bay-shore beach and beaches south of inlet f. extent to which ocean waters may be deflected into Yaquina John Point where erosion is occurring g. extent to which developments would result in or accelerate major land use changes in Waldport

1/ These values are defined on Table 27; 1=Obvious and strong coastal experience, 2=Less obvious coastal association, 3=Subtle coastal experience, 4=Weak coastal association.

Local Goal/Objectives Actual/
Potential Developments

Findings of Wetlands Review

Corresponding Response
by Portland District

- | | | |
|--|--|--|
| <p>3. Maintain existing seawall at Highway 101 east of inlet.</p> <p>4. Upgrade Highway 101 east of inlet.</p> | <p>3. Findings concur.</p> <p>4. None.</p> | <p>displacement of low and moderate income housing; socio/economic effects on local governmental services, utility and transportation infrastructure improvements, net changes in employment, income and tax base</p> <p>h. community attitudes regarding a marked change in the character of Waldport</p> <p>i. disruption of snowy plover habitat on end of spit.</p> <p>3. Approve in response to appropriate action by the Corps or U.S. Coast Guard.</p> <p>4. Condition to avoid unnecessary encroachment on adjacent tideflat as "wetland of importance".</p> |
|--|--|--|

BAYSHORE/SANDPIPER: DUNE & SPIT

	<i>Development Activity</i>	<i>Aesthetic Rating</i>	<i>Coastal Association (OCC&DC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
<u>BAYSHORE SPIT</u>	Subdivided, homes Commercial uses	High	1	Moderate Local growth potential					Critical Ocean Erosion; high water
<u>Beach/dune</u>	Recreation Seasonal homes	High	1	High local, Moderate Regional	High	Low	High	Low	Wind, Water State Beach
<u>Tideflat</u>	Clamming, Fishing Beach Recreation	High	1	High Local	High	Mod.	Low	High	Submerged/zoning, Submersible Lands
<u>Woodlands</u>	Commercially Zoned Open Space	High	1	Moderate Local	Low	Mod.	High	Mod.	Unstable Soils High Water Table
<u>Man-dominated</u>	Service Roads, Motel, homes, canal	High	1	Moderate Local	Mod.	Low	High	Low	Bay Side Eroding High Water, Storms

- | | | |
|---|---|---|
| <p>1. Continue development of dune and spit for single family and commercial use; provide sewer and water. (Zoning, Actual use)</p> <p>2. Manage as duneland as recommended in Alsea Regional Plan; i.e., purchase properties; restrict developments to clusterings on higher grounds. (Potential)</p> <p>3. Maintain ocean beach for public recreation; provide additional public access. (Zoning, Alsea Regional Plan, OCC&DC, State)</p> | <p>1. Development will generate permit demands.</p> <p>2. Southern portion of spit is an area of critical erosion.</p> <p>3. Jurisdiction of Division State Parks under Oregon beach law.</p> | <p>1. Apply general land use standards and site evaluation to conditions or deny permit applications.</p> <p>2. Apply general erosion standards to condition or deny permit applications.</p> <p>3. None.</p> |
|---|---|---|

Local Goal/Objectives, Actual/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
4. Commercial sand removal. (Potential)	4. Commercial sand removal on Oregon beaches generally is under study by Division of State Parks; beach is accreting.	4. None pending outcome of study; permit application would be coordinated with Division in light of study findings.
5. Maintain and improve beach and bayfront tidelands for public recreation. (Actual use)	5. Public access would be improved by pedestrian cross-over at mouth of canal.	5. Should be discussed as element in estuary plan; Apply policy and procedural findings.
6. Use canal for marina development. (Potential)	6. Canal contributes to dune breaching potential.	6. Deny. Apply general erosion standards. If applicant can show cause, require impact assesment on dune breaching potential; concentrations of vessel pollutants in canal and turbidity effects on adjacent tideflats as "wetlands of importance".
7. Stabilize eroding bayside of spit. (Public comment)	7. Major question exists on effectiveness of erosion control or stabilization of sand spits.	7. Deny. Apply general erosion standards. If applicant can show cause, require impact assessments on: <ul style="list-style-type: none"> a. visual/esthetic effects (apply general standards, esthetics) b. Probability of erosion c. probable effect if erosion uncontrolled d. potential interference with navigation in the bay e. hydrologic change in bay/transport of erosion problem to the terrace and footings of the U.S. 101 Bridge f. turbidity effects or encroachment on adjacent clam beds as "wetlands of importance" g. interference with existing public recreation; fishing, clamming, collecting.
8. Protect value of clam beds in tidelands to main channel. (Public comment)	8. Findings concur.	8. Manage as "wetlands of importance".
9. Develop waterfront recreational/marine commercial complex. (Alsea Regional Plan, Zoning).	9. Public comments indicate such development is not planned or likely.	9. See Item 6 and 7 general policy and procedural findings.
10. Maintain/improve existing boat ramp adjacent to Bayshore Motel. (Actual)	10. Facility is a day-use non-structural ramp.	10. Approve.

WALDPOR

(Waldport Proper - East to River Mile 2)

	<i>Development Activity</i>		<i>Esthetic Rating</i>	<i>Coastal Association (OCC&DC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
WALDPOR	Town of 700 Mixed Res/Comm	Mod.	2	High local, Moderate Regional						Tax Base, Poor Capitalization
Man-dominated	Highway 101 High Tourist Use	Mod.	2	High Local; Mod. Regional Potential	Mod.	Low	High	Low		Stable Flood Plain Steep Slopes
Tideflat	Clamming, Fishing Beach Recreation	High	1	High Local	Mod.	Low	Mod.	Mod.		Submerged; zoning Submersible Land
PORTDOCKS/ LINT SLOUGH	Recreation; Fishing Crabbing; Retail	Mod.	2	High Economic and Social						Lack of Development Plan
Marina	Fill, Docks, Breakwater	Mod.	2	High Economic and Social	Mod.	Low	High	Low		Financing; Limited Services
Man-dominated	Public Parking, Bait-Tackle Shops	Low	3	High Economic and Social	Mod.	Low	High	Low		Program to attract Tourism
Channel	Fishing, Crabbing, Boating	High	2	High Local and Regional	High	Low	Low	High		Silt/Snags Narrow Channel
River	Fishing, Marinas homes, docks, piling	High	3	High Local and Regional	High	Low	Low	High		Narrow Channel heavy use

Local Goal/Objectives, Actual/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
1. Encourage moderate develop- ment of bay; maintain balan- ced mix of uses; discourage strip development; protect small town flavor; increase economic potential and public services; improve recreation facilities and opportunities; restore "Old" town. (Zoning, Alsea's Waldport Plans, General Public, OCC&DC)	1. Study findings concur. Specific means subject to discussion.	1. Portland District may participate in comprehensive estuary plan; apply policy and procedural findings to allow, condition or deny permits.
2. Develop bay waterfront as a park as residential housing becomes vacant; integrate with commercial development along U.S. 101; consider boardwalk, fishing pier, trailer and auto parking; boat launching facilities. (Alsea Regional Plan- Informal Public Comments)	2. Study findings are inconclusive.	2. Supportive permits will be condi- tioned to avoid or minimize dis- ruption of tideflats as "wetlands of importance"; ensure accessi- bility for young, infirm and elderly; minimize disruption of residential neighborhood and include public participation in reviewing plan; (apply local standards); maintain bank/beach stability (apply general stand- ards; bulkheads, riprap); and to utilize pilings and wood struc- tures in lieu of fill (apply gen- eral standards, fill).
3. Assemble specific tracts of shoreline property for <u>high</u> density commercial/retail/ tourist development. (Potential)	3. Study findings generally do not tend to concur.	3. Same as Item 2.
4. Assemble specific tracts of shoreline property for <u>moderate</u> commercial/retail/ tourist development. (Potential)	4. Study findings generally concur.	4. Same as Item 2.

Local Goal/Objectives, Actual/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
5. Construct boat marina on northeastern end of tideflat. (Port of Alsea; Potential)	5. Proposal would involve major dredging and diking of the tideflat. Project has been authorized but may be moot by Port of Alsea support for marina development at Lint Slough.	5. Disapprove, encroaches on "wetlands of importance".
6. Construct new boat marina at Port of Alsea docks and Lint Slough. (Port of Alsea)	6. Study findings concur; most feasible sites for discussion on integration of port and Lint Slough facilities Apply: Policy and Procedural Findings.	6. Approve. Same as Item 2; Apply General Standards, Marinas).
7. Maintain, repair and expand existing port facilities at "Old Waldport Waterfront". (Actual use)	7. Findings concur.	7. Approve. Apply general standards for marinas, dredging, fill; condition to avoid interference with main navigation channel.
8. Maintain, repair and expand private marina at Lint Slough (Actual use); use diked area as approved dredge disposal site. (Potential)	8. Findings concur. For discussion of potential disposal site, see: Policy and Procedural Findings.	8. Approve. Apply general standards for marinas, dredging, fill.

NORTH TERRACE

	Development Activity	Esthetic Rating	Coastal Association (CCEAD)	Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations
NORTH TERRACE	101 Bridge, Overlook	High	2	Moderate Local					Erodable Cliff Landslides
Tideflat	Clamming, Fishing Beach Recreation	High	1	Moderate Local *	High	Mod.	Low	High	Submerged/Zoning Submersible Lands
Woodlands	None-Potential Utility Crossing	High	3	Moderate local	Low	High	Low	High	Erodable Soils Steep Slopes

*Aquaculture Potential

1. Develop for high density/residential use. (Lincoln County Zoning)	1. Inconsistent with Alsea plan.	1. Apply general standards for erosion and policy and plan findings for planning and zoning inconsistencies.
2. Develop for park/low density residential use. (Alsea Regional Plan)	2. Inconsistent with zoning.	2. Same as above.
3. Use area as a gateway for U.S. 101 bridge crossing and utility lines. (Actual use)	3. Findings concur.	3. Same as above. Encourage utilization of bridge span for crossing of utility lines in connection with appropriate action by the US Coast Guard.

<u>Local Goal/Objectives, Actual/ Potential Developments</u>	<u>Findings of Wetlands Review</u>	<u>Corresponding Response by Portland District</u>
4. Maintain importance of bay beach for recreation/bank fishing/crabbing and clamming. (Zoning, Alsea Regional Plan, Actual Use).	4. Findings concur.	4. Manage as a "wetlands of importance"
5. Protect esthetics. (Public comment)	5. Unique cliff backdrop at entry to Waldport.	5. Apply general esthetic standards for highly rated areas.

BAYVIEW/SHEPPARD POINT

	<i>Development Activity</i>	<i>Aesthetic Rating</i>	<i>Coastal Association (OCCAS/C)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
<u>BAYVIEW/SHEPPARD POINT</u>	Low Density housing, Farms	Mod. 4	Moderate local						Lack of Water, Sewers; Zoning
<u>Woodlands</u>	Timber, Hunting	Mod. 4	Low local		Low	High	Mod. High		Landslides, Steep Slopes
<u>Diked/Agricultural Pasture</u>	Farming, Grazing	Mod. 3	Moderate local		Mod.	Mod.	Mod. Mod.		Flood Plain Moderate Erosion
<u>Man-dominated</u>	Route 701 Scattered Building	Low 4	Low local potential		Mod.	Low	Mod. Mod.		Erodable Soils; Landslides

1. Maintain agricultural/natural resource use; limit water and sewer expansion to area parallel to U.S. 101. (Zoning, Alsea Regional Plan, Lincoln County Water and Sewer Plan, Actual use)	1. Findings concur.	1. Apply general standards and criteria for land use. Evaluate permit applications on north side of Alsea Bay for potential effects on land use; i.e., navigation access as an inducement to higher density development.
2. Develop areas extensively. (Potential)	2. Would induce permit demands with effects on adjacent "wetlands of importance".	2. Same as above. See site evaluation. Deny or condition supportive permits affecting wetlands of importance.
3. Apply Lincoln County scenic corridor ordinances to Bayview developments. (Zoning, Regional Plan, Public Comment)	3. Findings concur. Pastoral background for north end of bay encroach on "wetlands of importance".	3. Apply general esthetic standards for highly rated areas.
4. Construct marina facilities/multiple docks at Sheppard Point. (Potential; Public Comment)	4. Would involve major land use changes and potentiality.	4. Require preparation of environmental impact statement.

NORTH CHANNEL.

	<i>Development Activity</i>	<i>Esthetic Rating</i>	<i>Coastal Association (OCCBAC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
NORTH CHANNEL	Diked; Fishing, Hunting	Mod.	2	Moderate Local	Mod.	Mod.	Mod.	Mod.	Waterway Obstruction

<u>Local Goal/Objectives, Actual/Potential Developments</u>	<u>Findings of Wetlands Review</u>	<u>Corresponding Response by Portland District</u>
1. Maintain as marine waterway. (Regional Plan)	1. Findings concur; major activities would effect adjacent "wetlands of importance".	1. Apply general standards for dredging, filling, dredge disposal. Deny or condition supportive permits affecting wetlands of importance.
2. Maintain dam across north channel. (Existing)	2. Dam is creating water quality problem; permit for dam allowed continued maintenance.	2. Discuss possibility of installing culvert or piers as modifications with Port of Alsea and State agencies in connection with estuary plan; alternative requires detailed hydrologic and biological analysis; for discussion. See policy and procedural findings and site evaluation.
3. Develop marina/moorage facilities. (Potential)	3. Would increase water quality problem; reduce esthetics and hunting use; and potentially intrude on Bandtail pigeon area; induce land use changes.	3. Deny pending preparation of EIS.
4. Allow private docks, bank stabilization and minor works. (Potential)	4. May be indicative of land use changes; same as 3 above.	4. Apply general standards for land use and avoidance of endangered species habitat; apply general standards for docks, bank stabilization, etc.
5. Protect esthetics. (Zoning, Public comments)	5. Findings concur.	5. Apply general standards for esthetics.
6. Remove pilings and railroad trestle as obstructions to navigation. (Port of Alsea, Public Comments)	6. Findings concur; would improve flushing in north channel.	6. Approve. Condition removal to occur during non-critical months. Apply standards for major estuarine work.

DRIFT CREEK
(North Bank Alsea Bay)

	<i>Development Activity</i>		<i>Esthetic Rating</i>		<i>Coastal Association (COCADOC)</i>		<i>Socioeconomic Significance</i>		<i>Uniqueness</i>		<i>Productivity</i>		<i>Disturbance</i>		<i>Habitat Value</i>		<i>Development Limitations</i>	
<u>DRIFT CREEK</u>	Natural Resource Zone	High	3	Mod. local Econ.; high local social	High	Low	Low	High	Zoning; Water, Sewer, Roads									
<u>River</u>	Fishing, Hunting, Boating	High	3	Mod. economic; high social	High	Low	Low	High	Submerged land, Narrow channel									
<u>Diked/Agricultural Pasture</u>	Farmstead; Grazing	Mod.	4	Low local	Mod.	Mod	High	Mod.	Floodplain									
<u>Woodlands</u>	Timber Production	High	4	Moderate local	Low	Mod	Mod.	High	Slopes; Erodable Soils									

Local Goal/Objectives, Actual/Potential Developments

Findings of Wetlands Review

Corresponding Response by Portland District

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| <p>1. Maintain agricultural, natural resource use of watershed; do not extend water, sewer or other public services, including transportation improvements.
(Zoning, Alsea Regional Plan, Lincoln County Water and Sewer Plan, U.S. Forest Service; General Public)</p> | <p>1. Permit applications have potential effects on land use changes, i.e., navigation development as an inducement to more intense land uses.</p> | <p>1. See general land use standards and site evaluation.</p> |
| <p>2. Protect open space and semi-wild esthetic character of watershed.
(Zoning, Alsea Regional Plan, U.S. Forest Service, General Public)</p> | <p>2. Lincoln County Scenic ordinances apply.</p> | <p>2. Apply esthetic standards and criteria for highly rated areas.</p> |
| <p>3. Allow recreational development as a variance of Lincoln county natural resource zoning.
(Alsea Regional Plan, Zoning)</p> | <p>3. Same as 1 and 2 above.</p> | <p>3. Same as 1 and 2 above.</p> |
| <p>4. Consider watershed as potential candidate for public acquisition.
(Alsea Regional Plan)</p> | <p>4. None.</p> | <p>4. None.</p> |
| <p>5. Maintain tide gates and dikes for existing agricultural use of floodplain.
(Actual use)</p> | <p>5. Extent of Corps jurisdiction requires field inspection to determine limits of aquatic vegetation.</p> | <p>5. Approve with following conditions: restrict applications to repair/maintenance of existing gates and dikes; limit extensions to prevent destruction of tidal meanders and remaining marshes. Apply general standards for vegetative bank stabilization.</p> |

Local Goals/Objectives, Action/
Potential Developments

Findings of Wetlands Review

Corresponding Response
by Portland District

6. Provide marine access for riparian owners. (Actual use)

6. Numerous applications for docks may be an indication that significant land use changes are about to occur.

6. Approve. Apply general criteria for moorage and docks; in the event of multiple application, discuss land use implications with Lincoln County as discussed in general land use standards and criteria to establish proliferation control limits.

MCKINNEY SLOUGH

	<i>Development Activity</i>	<i>Ethletic Rating</i>	<i>Coastal Association (OCCADC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
<u>McKINNEY SLOUGH</u>	Route 34; Possible Marina	Mod.	3	High economic; Moderate social					Silt Shallow Depths
<u>Marsh</u>	Open Space Recreation	Mod.	3	Low economic; Moderate social	High	High	Low	High	Submerged Submersible Land
<u>Tideflat</u>	Possible Oysters	Mod.	2	Mod. Economics; Mod. Social	High	High	Low	High	Submerged Submersible Land
<u>Man-dominated</u>	Industrial Plant, housing; Retail	Low	4	High local Economic	Mod.	Low	High	Low	Flood Plain; Moderate Erosion

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| <p>1. Maintain marsh/tideflat in their natural condition. (Public comments)</p> <p>2. Dike slough at mouth and infill for additional residential/commercial land. (Public comment)</p> <p>3. Permit stabilization of adjacent properties north of Route 34. (Public comment)</p> <p>4. Locate boat marina at mouth of slough. (Alsea Regional Plan)</p> <p>5. Develop park at site of old mill south of Route 34 and evaluate historical value of mill. (Alsea Regional Plan)</p> | <p>1. Findings concur.</p> <p>2. Alternative development locations are available.</p> <p>3. Marsh now acts as stabilizing feature; slough is local anemity in existing state.</p> <p>4. An estuary plan should evaluate with State-local agencies need for initial and maintenance dredging to provide access to main channel, provide public access for inland lot owners; minimize effects on adjacent "wetlands of importance"; utilize docks and pilings in lieu of fill; evaluate biological, esthetic effects on slough and channel.</p> <p>5. Shoreline structures (pilings instead of fill) may maximize public use and access to shoreline in connection with park plan.</p> | <p>1. Manage as a "wetlands of importance".</p> <p>2. Deny. Same as above.</p> <p>3. Deny. Same as above.</p> <p>4. District can anticipate. See policy and procedural findings and site evaluation. Apply general marina and other standards.</p> <p>5. Apply general standards for activity applied for; i.e., dock, boardwalk, etc.</p> |
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Local Coals/Objectives, Action/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
6. Allow docks for shoreline owners. (Public comment)	6. Unsuitable.	6. Manage as "wetlands of importance".
7. Manage for oyster/clam production. (Public comment)	7. There should be no structural modification.	7. Same as above.
8. Maintain/repair Route 34 Bridge. (Actual use)	8. Only feasible route.	8. In response to Coast Guard permit, comment on general standards for transportation corridors to avoid encroachment on slough or flow of tidal waters.
9. Cross slough with water and sewer lines. (Public comment)	9. Lines can be placed adjacent to or within Route 34 right of way.	9. Approve. Condition application to minimize dredging use existing bridge structure where possible.

LINT SLOUGH (MIDDLE)

	Development Activity	Esthetic Rating	Coastal Association (OCC&DC)	Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations
LINT SLOUGH	Sewage Outfall; Route 34	Mod. 3	Low economic; Moderate social						Flood Plain; Land-Slides - Erodable
Marsh	Educational; Open Space	Mod. 3	Low economic; Moderate social	High	High	Mod.	High		Zoning; Submerged Submersible Lands
Tideflat	Educational; Open Space	Mod. 3	Low Economic; Moderate social	High	Mod.	Mod.	High		Zoning; Submerged Submersible Lands

1. Maintain for fish production zoning. (Alsea Regional Plan, Actual Use)	1. Findings concur.	1. Manage as "wetlands of importance".
2. Continue educational use. (Waldport High School, Actual Use)	2. Same as above.	2. Same as above.
3. Improve water quality in slough; relocate outfall. (Lincoln County)	3. Move outfall to area of greater flushing. Under consideration by Lincoln County.	3. None. Apply appropriate standards to application for outfall permit.
4. Dredge/fill for expansion of school and other public property. (General public)	4. Alternatives are available.	4. Deny. Manage as "wetlands of importance". See site evaluations.
5. Maintain marsh/tideflat in natural condition. (Zoning, General public)	5. Findings concur.	5. Same as above.
6. Allow docks for shoreline owners. (General comment)	6. Slough has physical limitations- steep banks, erodibility, need for dredging, etc.	6. Deny. Same as above.

Local Goals/Objectives, Action/
Potential Developments

Findings of Wetlands Review

Corresponding Response
by Portland District

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| 7. Dike at Route 34 for conversion of entire slough into a reservoir.
(Potential) | 7. Same as above. | 7. Deny. Same as above. |
| 8. Repair/maintain Route 34; expand/improve Hospital Road.
(Actual use) | 8. Permits should be conditioned to maintain flow of tide underneath bridge and to avoid encroachments on marshes and tideflats. | 8. Apply general standards for transportation improvements in response to Coast Guard application. |

ECKMAN SLOUGH (MOUTH)

	<i>Development Activity</i>	<i>Esthetic Rating</i>	<i>Coastal Association (OCC&DC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
<u>MOUTH-ECKMAN</u>	Herring Spawning Possible Marina	High	2	High economic; high social	High	High	Mod	High	Zoning; Silt Shallow Depths
<u>Marsh</u>	None Open Space	High	2	Mod. local economic; high social	High	High	Low	High	Zoning, Submerged Submersible Lands
<u>Tideflat</u>	None Open Space	High	2	Low economic; Moderate social	High	Mod.	Low	High	Zoning, Submerged Submersible Lands
<u>Man-dominated</u>	Orchard; Dike Route 34; housing	Low	4	High economic; Moderate social	Low	Low	High	Low	Flood Plain; Moderate Erosion

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| 1. Maintain marshes and tideflats in natural condition.
(OCC&DC, Lincoln County Zoning, Alsea Regional Plan) | 1. Findings concur. | 1. Manage 30 acres identified in Exhibit 5 as "wetlands of importance". |
| 2. Locate boat marina near mouth.
(Alsea Regional Plan) | 2. Poses turbidity and water quality problems; should be considered in estuary plan. | 2. District can participate; permits require detailed hydrologic and biological analysis. See policy and procedural findings and site evaluation. |
| 3. Protect esthetics.
(Alsea Regional Plan) | 3. Vista of bay unobstructed from Route 34; study concurs. | 3. Apply esthetic criteria for highly rated areas. See site evaluation. |
| 4. Maintain/repair Route 34.
(Actual use) | 4. Study concurs, only feasible route. | 4. Approve, but condition permits to avoid dredging/filling/erosion into slough north of Route 34: Apply standards and criteria for transportation in response to Coast Guard permits. |
| 5. Cross slough with water and sewer lines.
(Alsea Regional Plan, Lincoln County Water and Sewer Plan) | 5. Lines may be placed in or close to Route 34 right of way. | 5. Approve, but condition permits to avoid dredging/filling or construction in slough north of Route 34. |
| 6. Maintain dike for Eckman Lake.
(Actual use) | 6. High social values as reservoir; managed by state agencies. | 6. Condition permit to guarantee maintenance of tidegate and fish migration to and from lake in accordance with comments from local and state agencies having management responsibility for lake. |

Local Goals/Objectives, Action/
Potential Developments

Findings of Wetlands Review

Corresponding Response
by Portland District

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| <p>7. Permit adjacent landowners east and west of slough along Alsea Bay shoreline to stabilize property.
(Public comment)</p> <p>8. Maximize slough for scientific/educational use.
(Public comment)</p> | <p>7. Findings concur.</p> <p>8. Boardwalks and other means of pedestrian access can be provided on periphery.</p> | <p>7. Apply general standards for bank stabilization with proviso that they not encroach on "wetlands of importance".</p> <p>8. Condition to avoid "wetlands of importance"; apply general standards for pilings, docks, boardwalks; deny fill.</p> |
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SOUTH BANK ALSEA BAY
(River Mile 2 to River Mile 8)

	<i>Development Activity</i>	<i>Esthetic Rating</i>	<i>Coastal Association (OCCADOC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
DEVELOPED FLOODPLAIN	Old Filing; Many Docks, Homes	Mod. 3	High economic and Social						Silted Channel
Man-dominated	Route 34	Low 4	High economic and Social		Mod. Low	High	Low		Narrow R.O.W. Highly Erodable
Man-dominated	Marinas, Docks; Fill, homes	Mod. 3	High economic and social		Mod. Low	High	Low		Moderate Erosion
Marsh	Filling, Diking	Mod. 2	High economic and social		Mod. Low	High	Low		Submerged Submersible Lands
Riparian	6-8 Marine Residences	High 4	High economic		High	Mod. Low	High		Steep Slopes; Narrow Floodplain
Diked/Agricultural Pasture	Farm; Open Space Utility Lines	Mod. 3	High economic		Mod.	Mod.	Mod.	Mod.	Floodplain

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| <p>1. Continue residential/commercial development; provide water and sewer services. (Zoning, Alsea Regional Plan, Lincoln County Comprehensive Water and Sewer Plan)</p> <p>2. Maintain/repair existing shoreline facilities, docks and bulkhead; allow new and replacement bankline facilities. (Zoning, regional Plan, Public comments)</p> <p>3. Dredge silt deposition at existing docks to provide navigation to main channel; fill marsh. (Public comment)</p> | <p>1. Findings concur; suitable use; potential conflict with maintenance of floodplain between R.M. 6-8.</p> <p>2. Same as above.</p> <p>3. See policy and procedural findings; marsh east of Eckman Lake requires discussion with county, state agencies and applicants.</p> | <p>Approve.</p> <p>1. Apply general criteria for docks, bank stabilization and other specific permit activities except at R.M. 6-8 where special conditions should apply. See policy and procedural findings.</p> <p>2. Approve. Same as above.</p> <p>3. Explore with local and State agencies whether silt constitutes major obstruction to navigation; evaluate alternative solutions to dredging should hydrologic and biologic effects on estuary appear significant. Minimize filling in marsh. See policy and procedural findings; and dredging standard.</p> |
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Local Goals/Objectives, Action/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
4. Locate public marina facilities. (Alsea Regional Plan)	4. Suitable use; findings concur.	4. Approve except for condition noted for McKinney and Eckman Slough; Apply general marina standards and criteria.
5. Maintain in existing agricultural/open space use. (Actual use) River Mile 6-8 only.	5. Suitable use; findings concur.	5. Permit applications to be explored with Lincoln County as discussed in policy and procedural finding and site evaluation.
6. Permit docks, floats and bank stabilization for existing residents, between river mile 6-8.	6. Concur.	6. Approve. Apply general standards for specific activity.
7. Construct public moorage in general vicinity, between river mile 6-8. (Alsea Regional Plan)	7. Offers an alternative to proliferation of docks along narrow reach of river.	Approve. 7. Condition application to ensure ease of public navigation in narrow reaches of river, particularly where docks exist on opposite bank; condition application to maximize public access and enhance esthetics; group storage, parking and permanent facilities on higher ground, to avoid need for filling and to meet county floodplain ordinances; coordinate site suitability with Lincoln County and State agencies; Apply general marina standards.
8. Use as corridor for water and sewer lines. (Lincoln County Comprehensive Water and Sewer Plan)	8. Findings concur.	8. Condition applications to minimize dredging and filling of floodplain and tidal meanders between river mile 6-8 as in Item 5.
9. Repair/maintain Route 34. (Actual use)	9. Findings concur. Opportunities exist for public vistas at higher locations on ridge opposite Barclay Meadows.	9. Condition permits to minimize filling in floodplain and tidal meanders and erosion of materials at steep bank.
10. Install new power and utility lines and maintain existing lines. (Potential)	10. Findings concur.	10. Evaluate permits to avoid visual intrusion in view of high esthetic values on north bank; permits to conform to Lincoln County scenic roadway and corridor ordinances; apply general esthetic criteria.

NORTH BANK ALSEA BAY

(River Mile 4 to River Mile 6.7)

	Development Activity	Ethnic Rating	Coastal Association (OCCSDC) Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations	
NORTH BANK ALSEA BAY	Natural Resource Zone	High	4	Moderate econ.; high social				Zoning; Access Water; Sewers	
Woodland	Timber Production	High	4	Moderate econ.; high social	Low	High	Low	High	Steep slopes; Erodible
Riparian	None	High	4	Low Economic; high social	High	Mod.	Low	High	Floodplain
Field/Farm	Agriculture	Mod.	4	Moderate econ. Moderate social	Mod.	Mod.	Mod.	High	Zoning; Access; Water; Sewer

Local Goals/Objectives, Action/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
1. Maintain for natural resource uses (farm, forest, recreation). (Alsea Regional Plan, Zoning)	1. Permit applications may signal major land use changes.	1. Deny applications in conflict.
2. Maintain esthetic qualities. (Alsea Regional Plan, U.S. Forest Service)	2. Findings concur.	2. Apply general standards and esthetic criteria; overall deny almost all applications.
3. Protect fisheries. (Public comment)	3. Condition permits to maintain vegetated bank overhang.	3. Apply general standards for erosion; overall deny almost all applications.

BARCLAY MEADOWS

	Development Activity	HNW Esthetic Rating	Coastal Association (OCCADP)	Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations
BARCLAY MEADOWS	Subdivision	Mod.	3	High economic and social					Water, Sewer, Zoning, Access
Man-dominated	Many Docks; homes trailers	Mod.	3	High economic and social	Mod.	Low	High	Low	Flood Hazards
Agricultural/ Pasture	Open Space Grazing	High	4	Moderate economic; high social	Mod.	Mod.	Mod.	Mod.	Floodplain
Riparian	Bank Clearance; Stabilization	Mod.	4	High economic and social	Mod.	Low	High	Low	Erodable

Local Goals/Objectives, Action/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
1. Develop for recreational housing. (Alsea Regional Plan, Active use). Develop for rural residential. (Zoning)	1. County to eliminate inconsistencies among zoning, planning recommendations and actual use.	1. See planning and land use standards and criteria. Hold applications until inconsistencies resolved, if necessary.
2. Minimize proliferation of private docks along river. (Alsea Regional Plan)	2. Narrow stretch of river; potential interference with navigation if opposite bank is similarly developed. Should be discussed with Lincoln County in estuary plan.	2. Portland District can participate with county in determining limits to numbers of docks.
3. Continue development "infilling" for lots already sold and subdivided; limit lateral extension of subdivision in undeveloped land to the west. (Public comment)	3. Same as 2. above.	3. Same as 2. above.

- 4. Allow maintenance and repair or existing docks/facilities and bank stabilization for properties with such facilities; allow new docks and bank stabilization for lots already sold and/or subdivided. (Actual use)
- 5. Maintain/protect/restore esthetic qualities of river zone. (Alsea Regional Plan)
- 4. Findings concur.
- 5. Concur; within Lincoln County scenic corridor.
- 4. Apply general criteria for docks, bank stabilization.
- 5. Apply general esthetic standards and criteria.

NORTH BANK ALSEA RIVER
(River Mile 8 to Head of Tide)

	<i>Development Activity</i>	<i>Esthetic Rating</i>	<i>Coastal Association (OCCBDC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
DEVELOPED FLOODPLAIN	Route 34, Mixed Marina-Subdivisions	Mod.	3	High economic; Moderate social					Water, Sewer, Floodplain
Man-dominated	Many seasonal homes; trailers	Low	4	High economic; Moderate social	Mod.	Low	High	Low	Flood Hazards
Wet meadow	Fill; biking	Mod.	4	High economic; Moderate social	High	High	Mod.	Mod.	Submerged, Submersible Lands
Riparian	Many Docks; Bank Stabilization	Mod.	3	High economic; Moderate social	High	Mod.	Mod.	High	Flood Hazards

Local Goals/Objectives, Action/ Potential Developments	Findings of Wetlands Review	Corresponding Response by Portland District
1. Maintain/enhance/encourage marine recreational/residential/commercial uses; provide water and sewer services. (Alsea Regional Plan, Zoning, Lincoln County Comprehensive Sewer Plan)	1. Findings concur.	1. Evaluates supportive permits.
2. Minimize proliferation of private docks along river. (Alsea Regional Plan)	2. Alternatives to private docks are limited.	2. Apply general standards and criteria for docks to minimize proliferation.
3. Continue development "infilling" for lots already sold and subdivided; limit lateral extension of subdivision to areas served by adequate water and sewer. (Public comment)	3. Few areas are not subdivided.	3. Apply appropriate standards and criteria to supportive permits.
4. Maintain/protect/restore esthetic qualities of river zone. (Alsea Regional Plan, U.S. Forest Service, Public Comments)	4. None.	4. Apply general esthetic standards and criteria.
5. The following apply to distinct circumstances:	5. None.	
Marinas		Expedite consideration of maintenance permit applications from commercial owners operators.
		Explore with Lincoln County, State agencies, marina operators and Port of Alsea the extent to which snags constitute hazard to navigation as discussed in policy and procedural findings.
Bain Slough/Westwood Village		Request site evaluation of continued filling/diking of remaining wet meadow and tidal meanders within Bain Slough because of potential loss of unique habitat and flood absorption capacity.
		Subdivision canals such as those at Westwood Village offer alternatives to bankline moorage along river front as additional development occurs. Apply standards for subdivision canals.
		Should potential water quality problem in slough occur, confer with State agencies and owner of slough on means to alleviate problem.

SOUTH BANK ALSEA RIVER
 (River Mile 8 to Head of Tide)
 (Excluding Alder Springs Access)

	Development Activity	Esthetic Rating	Coastal Association (COCOA)	Socioeconomic Significance	Uniqueness	Productivity	Disturbance	Habitat Value	Development Limitations
<u>SOUTH BANK RM-8-9-10 - HEAD OF TIDE</u>	Natural Resource Zone	High	4	Moderate econ.; high social					Zoning; Access; Water; Sewers
<u>Woodland</u>	Timber Production	High	4	Moderate econ.; high social	Low	High	Low	High	Steep Slopes; Erodeable
<u>Riparian</u>	None	High	4	Low-Economic; high social	High	Mod.	Low	High	Floodplain
<u>Field/Farm</u>	Agriculture	Mod.	4	Moderate econ. Moderate social	Mod.	Mod.	Mod.	High	Zoning; Access; Water; Sewer

Local Goals/Objectives, Action/Potential Developments

Findings of Wetlands Review

Corresponding Response by Portland District

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| 1. Maintain for natural resource uses (farm, forest, recreation). (Alsea Regional Plan, Zoning) | 1. Except at Alder Springs Acres, permit applications may signal major land use changes. | 1. Deny applications in conflict. |
| 2. Maintain esthetic qualities. (Alsea Regional Plan, U.S. Forest Service) | 2. Findings concur. | 2. Apply general standards and esthetic criteria; overall deny almost all applications. |
| 3. Protect fisheries. (Public comment) | 3. Condition permits to maintain vegetated bank overhang. | 3. Apply general standards for erosion; overall deny almost all applications. |
| 4. Locate bridge crossing upstream of Taylors Landing as replacement to Canal Creek Road. (Potential option for U.S. Forest Service) | 4. May have significant increase in development along Canal Creek; See land use standards and criteria. | 4. Explore need for environmental assessment with U.S. Forest Service and USCG as appropriate. |
| 5. Install/maintain/repair moorage for riparian owners at oxbow opposite Little Switzerland. | 5. Numerous applications may signal significant land use changes. | 5. Apply general land use standards and criteria. |

ALDER SPRINGS ACRES

	<i>Development Activity</i>	<i>Esthetic Rating</i>	<i>Coastal Association (CCA/SC)</i>	<i>Socioeconomic Significance</i>	<i>Uniqueness</i>	<i>Productivity</i>	<i>Disturbance</i>	<i>Habitat Value</i>	<i>Development Limitations</i>
ALDER SPRINGS ACRES	Subdivision	Mod. 3	Low economic; High social						Water, Sewer, Zoning, Access
Man-dominated	Docks; Approx. 15 Trailers	Mod. 3	Low economic; High social		Mod. Low	High	Low		Flood Hazards
Riparian	Bank Clearance	Mod. 4	Low economic; High social		Mod. Low	High	Low		Highly Erodable

<u>Local Goals/Objectives, Action/ Potential Developments</u>	<u>Findings of Wetlands Review</u>	<u>Corresponding Response by Portland District</u>
1. Develop for recreational housing. (Alsea Regional Plan, Actual use). Develop for rural residential. (Zoning)	1. County to eliminate inconsistencies between zoning, planning recommendations and actual use.	1. See planning and land use standards and criteria
2. Minimize proliferation of private docks along river. (Alsea Regional Plan)	2. Narrow stretch of river, potential interference with navigation if opposite bank is similarly developed should be discussed with Lincoln County in estuary plan.	2. Portland District can participate for aiding control of dock proliferation.
3. Continue development "infilling" for lots already sold and subdivided; limit lateral subdivision in undeveloped land in any direction. (Public comment)	3. Same as above.	3. Same as 1. above.
4. Allow maintenance and repair of existing docks/facilities and bank stabilization for properties with such facilities; allow new docks and bank stabilization for lots already sold and/or subdivided. (Actual use)	4. Findings concur.	4. Apply general criteria for docks, bank stabilization.
5. Maintain/protect/restore esthetic qualities of river zone. (Alsea Regional Plan)	5. Concur; within Lincoln County scenic corridor.	5. Apply general esthetic standards and criteria.

SUMMARY OF IMPACTS

Although the Wetlands Review is not a formal environmental impact statement under Section 102 (c) of the National Environmental Policy Act, the interdisciplinary analysis which the Act fosters is inherent in the balancing of factors considered in the Wetlands Review. The following table briefly summarizes the principle impacts of implementing the findings, standards and criteria of the Wetlands Review in the study area. These findings, standards and criteria are listed by principle headings in the vertical column and their specific impacts are shown horizontally according to effects on policies, plans and programs; on the environment; on esthetic opportunities offered by the study area; and on social, economic and land use considerations. It should be noted that specific criteria for socio/economic factors were not developed in Chapter 7 even though such factors played a major role in the Wetlands Review. Many of these factors are discussed as they apply to the study area in the chapters on the Social Profile (Chapter 4), Economics (Chapter 5) and the Land and Water Use Setting (Chapter 6).



TABLE 57

PRINCIPAL EFFECTS OF IMPLEMENTING THE WETLANDS REVIEW

<u>Findings, Standards and Criteria</u>	<u>Policy, Plans and Programs</u>	<u>Environmental</u>	<u>Esthetic</u>	<u>Social</u>	<u>Economic</u>	<u>Land Use</u>
<u>POLICY & PROCEDURES</u>						
Clearinghouse	Would be consistent with coastal zone management; would provide direct coordination of governmental programs.	Would provide opportunity for closer monitoring of changes and coordination of research and regulation.	Would provide opportunity to participate in development of coastal esthetic standards.	Would give public & prospective applicants information on where permits are likely to be denied or granted.	Would require increase in District budget and manpower in short run; would provide savings from efficiency in long run.	Would provide opportunity for early resolution of potential land use conflicts with Lincoln County and LCDC.
Estuary plan	Same as above.	Overall would help determine most suitable level of long term development.	Would provide opportunity to acquire more precise information on historic and archaeological sites.	Opportunity to plan for better public access to river.	Overall would provide framework for reasonable economic expectations for estuary.	Would ensure compatibility between land uses and water-related uses.
Field officers	Would require increase in District permit staff.	Would tend to emphasize Corps commitment to wetlands protection.	Would provide opportunity to enforce emerging esthetic standards.	Would provide greater Corps visibility in area and facilitate contacts for local people.	Would increase costs to District in short run; would provide savings from efficiencies in long run.	Would help to define appropriate Corps role in land uses as they relate to Section 10 permits.
<u>"WETLANDS OF IMPORTANCE"</u>	Would be consistent with "marsh bank" concept and local planning.	Would protect 1,500+ acres of marshes and tidelands against encroachments.	Would retain open space and visual characteristics.	Would limit activities to non-destructive uses.	Would have minimal effect - most acreage is zone for low density uses; would prevent aquaculture structures in north end of bay.	Would keep development channeled in existing and planned areas.
<u>POLITICAL SETTING</u>	Would rely on Lincoln County and LCDC to express local factors in the public interest.	In the event of inconsistencies with local goals, District would opt for action that represents highest level of natural resource protection.	Same as Environmental.	Would encourage resolution of inconsistencies in local resource allocations.	Would place restrictions on areas subject to speculation until zoning and plans are compatible; require local reconsideration of planned marina sites in certain areas.	Would affect Barclay Meadows and Alder Spring Acres; Drift Creek and Eckman Slough.
<u>ENVIRONMENTAL</u>						
Soils, steep slopes, geologic hazards	Would make a County statement of development limitations mandatory in areas with geologic hazards as a Section 10 condition.	Would prevent silt, debris in navigable waters.	Would tend to keep vegetated, steep slopes unmodified.	Would place a burden on applicant to show no adverse effects on public safety or on navigable waters.	Would increase development costs of steep slopes.	Would deter growth on north side of Alsea Bay and on south side of Alsea River upstream.

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PRINCIPAL EFFECTS OF IMPLEMENTING THE WETLANDS REVIEW

Findings, Standards and Criteria	Policy, Plans and Programs	Environmental	Esthetic	Social	Economic	Land Use
Spit	Would apply Interstate Land Sales Disclosure Act to spit.	Would prevent interference with natural erosion of spit.	Would retain bay frontage in existing natural state.	Would approve restoration of public access along Bay Beach.	Would increase cost of stabilization to applicant and discourage use of public funds.	Would deter further building on extreme end of spit.
Flooding; flood control	Would rely on local government flood control measures in existing developed areas would assert Corps responsibility not to encourage development in unmodified floodplains.	Would discourage floodplain developments on north side of Alsea Bay and on south side of Alsea River upstream; would protect fish and wildlife habitats and sites of endangered species.	Same as Environmental; would maintain scenic backdrop for Bay and River.	Would tend to support local desires for maintenance of livable, uncrowded environment.	Would discourage public expenditures for future flood control measures.	Would maintain low farm/forest, recreational use; would recognize unavailability of buildable land within study area in existing developed floodplains.
Water quality	Would provide multidisciplinary interpretation of Sec. 401 requirements in 33 CFR 209.120.	Would prohibit direct discharges to "wetlands of importance" and other select sites; would suggest additional water quality standards.	Would eliminate potential for turbidity increases in summer and fall months.	Would require applicant to provide sample results in connection with dredging and to conduct major modifications in winter and spring months.	Would increase costs to permit applicants in certain instances.	Would limit discharges in North Channel and Drift Creek making sewer lines infeasible on north side of Alsea Bay; would tend to discourage growth in these locations consistent with County zoning and master plans.
Environmental impact assessment	Would provide definition of concept of alternatives.	Would be based on degree of ecological disturbance.	Would discourage growth in highly scenic areas.	Would tend to support local desires to control "sprawl."	Would discourage speculation and public expenditures for services in areas planned for low density uses.	Would concentrate development in developed locations.
Fish and wildlife	Would support State and Federal fish and wildlife programs by prohibiting disturbance of critical habitats such as those listed in adjacent Environmental column.	1) "Wetlands of Importance;" 2) Habitats of rare and endangered species; 3) Areas within 300 feet of bald eagle osprey, spotted owl sites; 4) Band-tailed pigeon watering areas; 5) Unmodified big game wintering range; and	Would support possibility of continuing hunting, fishing, wildlife siting opportunities; would maintain naturalistic setting for areas of existing development.	Would tend to maintain values that serve as attractions for visitors and residents.	Would tend to continue opportunities to supplement personal subsistence requirements (tourism and recreation is a primary factor in local economy).	Would discourage development in "Wetlands of Importance;" Drift Creek; north side of Alsea Bay; south side of Alsea Bay; south side of Alsea River upstream.

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PRINCIPAL EFFECTS OF IMPLEMENTING THE WETLANDS REVIEW

Findings, Standards and Criteria	Policy, Plans and Programs	Environmental	Esthetic	Social	Economic	Land Use
		6) unmodified riparian edges.				
Access: private docks, platforms, etc.	Would recognize rights of access subject to public interest tests in 33 CFR 209.120, relating to public navigation, fish and wildlife protection, esthetics, etc.; Lincoln County Dock Standards would serve as expressions of public rights of navigation in absence of findings to contrary.	Ordinarily would prohibit new dock construction in "Wetlands of Importance," Sheppard Point, North Channel, Drift Creek, and in non-man dominated areas as exhibited; existing or replacement facilities would be exempt.	Would tend to eliminate crowding in recreational use of river and protect highly scenic and naturalistic backdrops.	Would expedite permits for docks in areas of existing traditional or planned uses subject to County approval, including Barclay Meadows and Alder Spring acres.	Would maintain moderate level of private moorage as a mainstay of local economy.	Would place new private moorage on south side of undeveloped floodplain from river miles 6 - 8 in doubt and subject to discussion with County.
Bank protection: bulkheads, breakwaters, riprap, etc.	Would recognize rights of property subject to public interest test in 33 CFR 209.120 relating to fish and wildlife protection, esthetics, navigation, etc.; informally involves Division of State Lands in areas between MHW and MHHW.	Would make natural shorelines and vegetated banks preferred alternatives to structural measures; would limit application of stabilization measures to man-dominated areas (as exhibited) to protect riparian habitats.	Would maintain natural edges on north side of Alsea Bay and on south side of river upstream as scenic backdrop for development; would eliminate possibility of total manicuring of riverine edges.	Would limit an applicant's options for total conversion of his bankline and cause some obstructions to his view of river; would require applicant to provide information on vegetated condition of his adjacent bankline and to use development setbacks.	Would be small increase in permit cost for applicants and less reliance on structures with negative effects on suppliers of construction materials, such as stone.	Would discourage modifications in areas planned and zoned for farm, forest and recreation uses; would place use of undeveloped floodplain between river mile 6 - 8 in doubt, subject to discussion with County and applicants.
Dredging; dredged disposal	Would define public interest in dredging possibilities to four instances; would identify potential disposal sites.	Would prohibit dredging in "Wetlands of Importance" and place most of bay and river off-limits to dredging and dredge disposal; specific dredging proposals would be subject to varying tests; would encourage use of new hydraulic techniques; potential for minor loss of distributed marsh at river mile 3.5.	Would be increase in temporary turbidity.	Would be some inconvenience to applicants because of bottom sediment and seasonal scheduling of work to avoid summer and fall months as discussed in Water Quality Standards.	Dredging and use of marsh site on south side of bay at river mile 3.5 would support continued marina development; dredging at Lint Slough would support existing marina development.	Would be allowed to dredge support water-related uses in developed areas and in areas planned for development.

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PRINCIPAL EFFECTS OF IMPLEMENTING THE WETLANDS REVIEW

<u>Findings, Standards and Criteria</u>	<u>Policy, Plans and Programs</u>	<u>Environmental</u>	<u>Esthetic</u>	<u>Social</u>	<u>Economic</u>	<u>Land Use</u>
Subdivision canals	Would prohibit subdivision if its feasibility depends on dredging/filling; would set generalized construction/location standards.	Suitable sites are limited; should be discussed in connection with comprehensive plan for estuary to determine specific effects.				
Fill	Would establish public interest test required in 33 CFR 209.120. Based on coastal zone recommendations and interpretations of "public trust," would define "water-related."	Fill would be generally prohibited; would require use of pilings unless technically infeasible for water-related use.		Specific effects would have to be determined in connection with comprehensive plan for the estuary.		
Marinas	Would encourage marina development as alternative to private dock proliferation under general guidelines.	Would avoid "wetlands of importance."		Specific effects would have to be determined in connection with a comprehensive plan for the estuary.		
<u>TRANSPORTATION</u>	Would establish guidelines to be used by Portland District in commenting on applications for Coast Guard permits.	Would avoid "wetlands of importance" except under EIS.		Specific effects would have to be determined on the findings of an EIS.		
<u>ESTHETIC</u>	Would provide Portland District with approach to consideration of esthetic effects.	Would limit permits in marsh tidelands and on north side of Bay, Drift Creek, inlet, the spit, and on south bank of river upstream.	Would protect most scenic areas against encroachment and sprawl.	Would add to applicant's obligation to prove that permits be in the total public interest.	Would protect most scenic areas as attractions for tourism, second home development and recreation, the mainstays of the local economy.	Would support local zoning, plans and Lincoln County standards for scenic highways and corridors.
<u>LAND USE AND PLANNING</u>	Would require greater involvement of District in water-related land use decisions in addition to regulation.	Land use standards would be consistent with local zoning and plans, but not necessarily exhaustive of total public interests in fish and wildlife and other factors in 33 CFR 209.120.	Same as Environmental.	Would require District effort in public involvement beyond issuance of "Public Notices."	Would discourage speculation.	Would support Lincoln County zoning and master plans and channel growth where planned.

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PRINCIPAL EFFECTS OF IMPLEMENTING THE WETLANDS REVIEW

<u>Findings, Standards and Criteria</u>	<u>Policy, Plans and Programs</u>	<u>Environmental</u>	<u>Esthetic</u>	<u>Social</u>	<u>Economic</u>	<u>Land Use</u>
<u>GENERAL SUITABILITY OF PERMIT ACTIVITIES BY EVALUATION UNITS</u>	Would serve as an overall guide to Portland District in approving, denying or conditioning Section 10 permit applications and identify activities requiring separate impact analysis.					

APPENDIX A

CFR 33 209.120 July 25, 1975

PERMITS FOR ACTIVITIES IN NAVIGABLE WATERS OR OCEAN WATERS

RULES AND REGULATIONS

Title 33—Navigation and Navigable Waters

CHAPTER II—CORPS OF ENGINEERS,
DEPARTMENT OF THE ARMYPART 209—ADMINISTRATIVE
PROCEDUREPermits for Activities in Navigable Waters
or Ocean Waters

On May 6, 1975, the Department of the Army, acting through the Corps of Engineers, published four alternative proposed regulations in response to the order of the United States District Court for the District of Columbia in *NRDC v. Callaway*, et al., ---- F. Supp. ----, 7 ERC 1784, (D.D.C., March 27, 1975). Each of the four alternative proposed regulations pertained to the regulation, by the Corps of Engineers, of those activities involving the discharge of dredged or fill material in navigable waters pursuant to section 404 of the Federal Water Pollution Control Act Amendments of 1972 (hereinafter referred to as the FWPCA). Each of these alternatives offered an administrative definition of the term "navigable waters" for public review and comment, as well as a definition of the terms "fill material" and "dredged material" and varying procedures to implement the regulatory permit program under Section 404 of the FWPCA.

Over 4,500 comments were received in response to this regulation. Those responding to the regulation included a large number of Governors; members of Congress; Federal, State, and local agencies; environmental organizations; commercial, industrial, and trade organizations; port authorities; agricultural organizations; and individual members of the public. A large number of these comments addressed the issue of whether there should or should not be a Federal permit program to regulate the discharge of dredged or fill material in navigable waters (defined in the FWPCA as "waters of the United States") rather than the particular provisions in the four alternative proposed regulations under review. Many comments appeared to be responses to the wide spread news coverage of the proposed regulation.

Those comments which did address substantive aspects of the regulation were helpful in meeting the dual purposes of the FWPCA: First, the development of a workable program; and, second, the needs of water quality. The regulation has clarified the activities which are included in the program and has incorporated administrative mechanisms to lessen the impacts of the regulation on affected Federal and State agencies, and on the public. To further refine the program the Corps will again need the help of the public and of State and Federal agencies in identifying activities and bodies of water that can be excluded from the Section 404 program without adverse impact on the chemical, physical, or biological integrity of the nation's waters.

We look forward to again working with the public and the State and Federal agencies on these further changes.

The Corps of Engineers wishes to take

this opportunity to express its appreciation to every individual, organization, and governmental agency and representative that submitted comments during this rule-making exercise.

The Department of the Army, acting through the Corps of Engineers, is publishing herewith an interim final regulation which prescribes the policies, practice, and procedures to be followed in the processing of Department of the Army permits for activities in navigable or ocean waters including the discharge of dredged or fill material in navigable waters. Interim final regulations are being published in order to begin immediately to implement a permit program under Section 404 of the FWPCA in those waters which will be included in the Corps regulatory jurisdiction as a result of the decision in *NRDC v. Callaway*. However, while this regulation becomes effective July 25, 1975, there will be an additional comment period of 90 days in order that the public can comment further on any of its provisions. Thereafter, these comments will be reviewed and the regulation modified, if necessary.

The development of a permit program to regulate the discharge of dredged material and fill material in all waters of the United States has been the subject of intensive discussions between the Corps of Engineers and the Environmental Protection Agency since the decision in *NRDC v. Callaway*. We have worked together in an effort to develop a program that is manageable, responsive to the concerns of protecting vital national water resources from destruction through irresponsible and irreversible decisions, and sensitive to the often conflicting needs and desires of people who utilize these resources. We have attempted to create a program that recognizes the need to interweave all concerns of the public—environmental, social, and economic—in the decision-making process; that recognizes that present limitations on manpower preclude its immediate implementation throughout the country; and that we believe to be responsive to the overall objectives and needs of the Federal Water Pollution Control Act to the extent that the law now allows.

We recognize that this program, in its effort to protect water quality to the full extent of the commerce clause, will extend Federal regulation over discharges of dredged or fill material to many areas that have never before been subject to Federal permits or to this form of water quality protection. We therefore strongly urge the public to review and comment further on this interim final regulation in order that it can be modified, where necessary and legally permissible, to fully address your concerns, desires, goals, and objectives. To assist you in your analysis and understanding of this regulation, representatives from the Corps of Engineers intend to travel throughout the country during the next 90 days and conduct public hearings on this regulation. We urge your participation in these hearings when they are scheduled in your area.

As we move into this new program, we also urge your support and understanding. To the extent that enforcement of its provisions becomes necessary, the Corps of Engineers intends to request the Department of Justice and the Environmental Protection Agency to take appropriate action. However, we intend to pursue a reasonable enforcement program over these activities that have never before been subject to Federal regulation, relying initially on an intensive public information campaign to make the public aware of the requirements of Section 404 of the FWPCA. It is our desire and intention to work closely with the Department of Justice and the Environmental Protection Agency to achieve this purpose.

On May 6, 1975, the Environmental Protection Agency, in conjunction with the Department of the Army, published proposed guidelines for public comment which are required by section 404(b) of the FWPCA in the review of a permit application for the discharge of dredged or fill material. It is anticipated that final guidelines will be published about August 15, 1975. During the interim, the present procedures will be utilized by Corps District Engineers in the review of permit applications for the discharge of dredged or fill material in navigable waters.

There follows a brief discussion of the pertinent sections of this regulation which address the discharge of dredged or fill material in navigable waters:

Paragraph (d) (2): This paragraph defines the term "navigable waters" and in so doing identifies those waters of the United States which are subject to Corps Jurisdiction under section 404 of the FWPCA.

With respect to the coastal regions of the country, Corps jurisdiction would extend to all coastal waters subject to the ebb and flow of the tide shoreward to their mean high water mark (mean higher high water mark on the Pacific Coast) and also to all wetlands, mudflats, swamps, and similar areas which are contiguous or adjacent to coastal waters. This would include wetlands periodically inundated by saline or brackish waters that are characterized by the presence of salt water vegetation capable of growth and reproduction, and also wetlands (including marshes, shallows, swamps and similar areas) that are periodically inundated by freshwater and normally characterized by the prevalence of vegetation that requires saturated soil conditions for growth and reproduction. In months to come, we intend to publish a list of fresh, brackish, and salt water vegetation that can be used as one of the indicators in determining the extent of Corps jurisdiction in these areas.

With respect to the inland areas of the country, Corps jurisdiction under Section 404 of the FWPCA would extend to all rivers, lakes, and streams that are navigable waters of the United States, to all tributaries (primary, secondary, tertiary, etc.) of navigable waters of the United States, and to all interstate waters. In addition, Corps jurisdiction would extend to those waters located en-

tirely within one state that are utilized by interstate travelers for water related recreational purposes, or to remove fish for sale in interstate commerce, or for industrial purposes or the production of agricultural commodities sold or transported in interstate commerce. Corps jurisdiction over these water bodies would extend landward to their ordinary high water mark and up to their headwaters, as well as to all contiguous or adjacent wetlands to these waters which are periodically inundated by freshwater, brackish water, or salt water and are characterized by the prevalence of aquatic vegetation, as described in the preceding paragraph, that are capable of growth and reproduction. Manmade canals which are navigated by recreational or other craft are also included in this definition. Drainage and irrigation ditches have been excluded.

We realize that some ecologically valuable water bodies or environmentally damaging practices may have been omitted. To insure that these waters are also protected, we have given the District Engineer discretionary authority to also regulate them on a case by case basis.

Paragraph (d) (2) (ii): Several additional definitions amplify the definition of navigable waters and are expressed in this paragraph. "Ordinary high water mark", used as a measurement point to determine the extent of Federal jurisdiction in inland freshwater rivers, streams, and lakes that do not have wetlands contiguous or adjacent to them, is established as that point on shore which is inundated 25% of the time (derived by a flow duration curve based on available water stage data).

"Headwaters" has been defined as the point on a stream beyond which the flow of the water body is normally less than five cubic feet per second. However, other factors, such as the volume of flow and point and nonpoint source discharge characteristics in the area will also be considered in determining these limits. Finally, "lakes" have been defined to include all natural bodies of water greater than five acres in surface area and also all bodies of standing water created by impounding any navigable water. This would not include stock watering ponds and settling basins, other than those that result from the impoundment of a navigable water.

During the 90 day comment period, the public is urged to carefully review these various definitions, particularly with respect to "ordinary high water mark," "headwaters," and "lakes" and furnish comments and recommended revisions to assist in the development of a final definition of this term that is consistent with the goals and objectives of the FWPCA to protect water quality.

Paragraph (d) (4): The term "dredged material" has been defined to include any material that is excavated or dredged from any of the waters of the United States identified in the preceding paragraphs. It would not include material which is obtained from some other source beyond a water of the United States, and also would not include materials pro-

duced in normal farming, silviculture, and ranching activities such as plowing, cultivating, seeding, and harvesting.

Paragraph (d) (5): The term "discharge of dredged material" has been added to the lists of definitions in an effort to clarify the types of activities that fall under this term. Under this definition, therefore, any material which is excavated or dredged from a navigable water and then reintroduced through a point source into a navigable water would fall under this term. The types of activities encompassed by this term would include the depositing into navigable waters of dredged material if it is placed alongside of a newly dredged canal which has been excavated in a wetland area. It would also include maintenance of these canals if excavated material is placed in navigable waters. Also included is the runoff or overflow from a contained land or water disposal area.

The term "discharge of dredged material" does not include the discharge of pollutants into navigable waters that occur during the subsequent land based processing of dredged material extracted for commercial use even though the operation of extracting the materials itself may require a permit from the Corps of Engineers under section 10 of the River and Harbor Act of 1899. Discharges of materials from land based commercial washing operations are regulated under section 402 of the FWPCA.

Paragraph (d) (6): The term "fill material" has been defined to mean any pollutant used to create fill in the traditional sense of replacing an aquatic area with dry land or changing the bottom elevation of a water body for any purpose. Again, materials resulting from normal farming, silviculture, and ranching activities, such as plowing, cultivating, seeding, and harvesting for the production of food, fiber, and forest products, would not fall within this term. Farm conservation practices such as terracing, check dams and landleveling would also not be regulated unless they occur in navigable waters. In addition, maintenance or emergency reconstruction of existing structures such as dikes, dams, or levees, will not be regulated.

Paragraph (d) (7): A new term "discharge of fill material" has been added to identify the types of activities to be regulated under section 404 of the FWPCA if, and only if, they are performed in a navigable water as that term has been defined in the regulation and discussed in the preceding paragraphs. Those activities falling within this term include site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters, and bulkheads and fills; beach nourishment; levees; sanitary landfills; backfill required for the placement of structures such as sewage treatment facilities, intake and outfall pipes associated with power plants, and subaqueous utility lines; and artificial reefs.

Paragraph (e) (2): In view of manpower and budgetary constraints it is necessary that this program be phased in over a two year period. Provision for such a phase-in approach exists in this paragraph. Thus, under Phase I, this regulation would become immediately operative in all coastal waters and contiguous or adjacent wetlands as well as inland rivers, lakes and streams that are navigable waters of the United States (which the Corps of Engineers is already regulating) and their contiguous or adjacent wetlands. In Phase II, which would begin on July 1, 1976, we would continue to regulate all of those discharges of dredged material occurring in those waters identified in Phase I, and also begin to regulate discharges of dredged or fill material in primary tributaries (the main stems of tributaries directly connecting to navigable waters of the United States), their contiguous or adjacent wetlands, and all lakes. Finally, in Phase III, all discharges of dredged or fill material in navigable waters would be regulated after July 1, 1977.

We believe that the initial thrust of this phase-in program will enable the protection of those wetland and water resources areas that are in immediate danger of being further destroyed through unregulated development. As we move to implement these phases, we will endeavor to utilize general categorical permits to the maximum possible extent relying on individual permit actions to regulate only those environmentally significant activities. We will also attempt to identify additional categories of activities which can be excluded at a later date.

Discharges of dredged or fill material that occur before a particular water body falls under a particular phase are permitted by the regulation in paragraph (e) (2) (1), provided certain prescribed conditions are met before the discharge occurs. Included in these conditions is the requirement to obtain a State water quality certification (or to have the State waive its right to so certify) and the requirement to certify under section 307 (c) (3) of the Coastal Zone Management Act of 1972 that the discharge will be in compliance with an approved coastal zone management program. This paragraph does not automatically exempt all discharges of dredged or fill material not covered by a particular phase from the permitting requirements of this regulation, for it still gives the District Engineer the option of exercising jurisdiction over any activity involving the discharge of dredged or fill material in those cases where the activity will have a significant impact on the environment.

Paragraph (e) (2) (iii): This paragraph "grandfathers" all discharges of dredged or fill material in waters other than navigable waters of the United States which were completed before the date of this regulation and also permits any discharge of dredged or fill material of less than 500 cubic yards which was commenced before the date of this regulation and is completed within six months. This 500 cubic yard exemption

to the requirements of this regulation only pertains to a single and complete project, and would not encompass cumulative discharges of dredged or fill material, each less than 500 cubic yards, in a large number of projects which comprise and are associated with a complete plan of development. The term "commenced" as used in this paragraph is satisfied if there has been some discharge of dredged or fill material at a specified disposal site or the entering into a written contract to do such before the date of the regulation. The "grandfathering" of these activities does not avoid the legal requirement to comply with the State water quality certification requirements of section 401 of the FWPCA or to furnish a coastal zone management certification, however.

Paragraph (e)(2)(iv): This paragraph permits, (without the need for the processing of a individual permit application through the procedures in the regulation), minor bulkheads and fills that are constructed in waters other than navigable waters of the United States provided they are less than 500 feet in length, constructed for property protection, and involve the discharge of less than an average of one cubic yard per running foot. However, while these types of discharges are permitted through the regulation, conditions have also been imposed that must be met before the discharge can occur (including the need to obtain a water quality certification and furnish a coastal zone management certification). In addition, the District Engineer can still exercise jurisdiction over these activities in those cases where he determines that the discharge will have a significant impact on the environment.

We believe that this administrative mechanism of authorizing this type of activity through the regulation is essential in order to make this program manageable from a manpower and resources point of view, and still protect the aquatic environment. In addition, it serves as a mechanism to alleviate the administrative burdens which are encountered in the normal processing of individual permits. To this end, we intend to rely heavily on the general public to bring to the attention of the District Engineer those minor bulkhead and fill activities which, while falling within the protection of this paragraph, should be regulated on a case by case basis.

Paragraph (e)(4): Activities of Federal agencies that involve the discharge of dredged material or of fill material into navigable waters are not exempt from the provisions of this regulation. Activities of the Corps of Engineers involving such discharges are reviewed and regulated pursuant to the policies and procedures expressed in Title 33 of the Code of Federal Regulations, Part 209.145.

Paragraph (f)(3): We believe there is considerable merit in having the States become directly involved in the decision-making process to the maximum extent possible under the law. Indeed, many states already have ongoing permit pro-

grams which address many, and, in some cases all, of the concerns which are addressed in the Corps decision-making process. Three ways will be used to involve the States in this decision-making process. We have embodied these three mechanisms in an effort to make the program manageable and publicly acceptable, and in response to the overwhelming number of comments which supported the basic concept.

First, since each discharge of dredged or fill material into a navigable water is, in effect, the discharge of a pollutant into the water, a State water quality certification is required under section 401 of the FWPCA before that discharge can be lawfully undertaken. Provision has therefore been made in the opening paragraph of this section to indicate this legal requirement. Thus, any State may cause the denial of a section 404 permit if it chooses to deny a water quality certification. Similar situations also exist in those states with approved coastal zone management plans: An individual in states with such plans must also certify that his activity will comply with the approved plan. On the other hand, where the state does not have such a certification program or delays the processing of its certification, we will still begin to process the section 404 permit. In absence of a timely response from the State, the section 404 permit will be processed to a conclusion.

Second, we are mindful that many states have existing permit programs to regulate the same types of activities that will be regulated through section 404 of the FWPCA by the Corps of Engineers. To the extent possible, it is our desire to support the state in its decision. Thus, where a state denies a permit, the Corps will not issue a section 404 permit. On the other hand, if a state issues a permit, the Corps would not deny its permit unless there are overriding national factors of the public interest which dictate such action. We believe that this type of situation can be kept to a minimum provided the State's permit program has built into it the policies, procedures, goals, requirements, and objectives embodied in the Corps permit program and the national legislation which molded and supports it. This would include, for example, the concerns and requirements of the National Environmental Policy Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, the Coastal Zone Management Act, and the FWPCA. In view of this objective, a section 404 permit will generally be issued following a favorable State determination unless overriding national factors of the public interest are revealed during the final processing of the section 404 permit application and provided the concerns, policies, goals, and requirements expressed in the above cited statutes, the Corps policies, and the guidelines have been addressed. In those States without any type of permit program to regulate the types of activities envisioned by section 404, we believe that the objectives expressed in this subparagraph should give them guidance in the formulation of

their respective programs should they choose to do so.

Finally, provision has been made in subparagraph (v) of this section to allow the District Engineer to enter into an agreement with those States having ongoing permit programs which would enable joint processing of the Department of the Army and the state permit application to an independent conclusion by each entity. This would include joint public notices, joint public hearings, and the joint development, review, and analysis of information which leads to the final decision on a permit application. We strongly encourage States to work with our District Engineers in this effort for we feel that this is a valuable mechanism to make this program manageable and publicly acceptable as well as a means to avoid unnecessary duplication of effort.

Paragraph (i)(2)(ix): We have also adopted a procedure, found in this paragraph, to process general permits for certain clearly described categories. A general permit once issued would preclude the need for any further permit for similar work and would prescribe conditions to be followed in the future performance of such work. We hope this mechanism will go far in making our entire regulatory program administratively manageable, and we will attempt to use the general permit for many categories in Phases II and III prior to the effective date of those phases. We intend to urge our District Engineers to utilize this mechanism as often as possible, and we request that those Federal agencies, organizations, and members of the public who review and comment on public notices for general permits do so in a spirit of cooperation, constructive criticism and suggestion.

During the next 90 days, comments addressing this interim final regulation should be submitted in writing to the Chief of Engineers, Forrestal Building, Washington, D.C. 20314, ATTN: DAEN-CWO-N.

It is hereby certified that the economic and inflationary impacts of this regulation have been carefully evaluated in accordance with OMB Circular A-107.

Dated: July 22, 1975.

ROBERT B. HUGHES,
Colonel, Corps of Engineers, Assistant Chief, Construction Operations, Directorate of Civil Works.

§ 209.120 Permits for activities in Navigable Waters or Ocean Waters.

(a) **Purpose.** This regulation prescribes the policy, practice, and procedure to be followed by all Corps of Engineers installations and activities in connection with applications for permits authorizing structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into navigable waters, and the transportation of dredged material for the purpose of dumping it into ocean waters.

(b) **Laws requiring authorization of structures or work.** (1) Section 9 of the

River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401) prohibits the construction of any dam or dike across any navigable water of the United States in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army. Where the navigable portions of the waterbody lie wholly within the limits of a single State, the structure may be built under authority of the legislature of that State, if the location and plans or any modification thereof, are approved by the Chief of Engineers and by the Secretary of the Army. The instrument of authorization is designated a permit. Section 9 also pertains to bridges and causeways but the authority of the Secretary of the Army and Chief of Engineers with respect to bridges and causeways was transferred to the Secretary of Transportation under the Department of Transportation Act on October 16, 1968 (80 Stat. 941, 49 U.S.C. 1165g(6) (A)).

(2) Section 10 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavation from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters are unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated a permit or letter of permission. The authority of the Secretary of the Army to prevent obstructions to navigation in the navigable waters of the United States was extended to artificial islands and fixed structures located on the outer continental shelf by section 4(f) of the Outer Continental Shelf Lands Act of 1953 (67 Stat. 463; 43 U.S.C. 1333(f)).

(3) Section 11 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 404) authorizes the Secretary of the Army to establish harbor lines channelward of which no piers, wharves, bulkheads, or other works may be extended or deposits made without approval of the Secretary of the Army. Regulations (ER 1145-2-304) have been promulgated relative to this authority and published at § 209.150. By policy stated in those regulations effective May 27, 1970, harbor lines are guidelines only for defining the offshore limits of structures and fills insofar as they impact on navigation interests. Except as provided in paragraph (e) (1) of this section below, permits for work shoreward of those lines must be obtained in accordance with section 10 of the same Act, cited above.

(4) Section 13 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1152; 33 U.S.C. 407) provides that the Secretary of the Army, whenever the Chief of Engineers determines that anchorage and navigation will not be injured thereby, may permit the discharge of refuse into navigable waters. In the

absence of a permit, such discharge of refuse is prohibited. While the prohibition of this section, known as the Refuse Act, is still in effect, the permit authority of the Secretary of the Army has been superseded by the permit authority provided the Administrator, Environmental Protection Agency, under sections 402 and 405 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1342 and 1345).

(5) Section 14 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1152; 33 U.S.C. 408) provides that the Secretary of the Army on the recommendation of the Chief of Engineers may grant permission for the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States. This permission will be granted by an appropriate real estate instrument in accordance with existing real estate regulations.

(6) Section 1 of the River and Harbor Act of June 13, 1902 (32 Stat. 371; 33 U.S.C. 565) allows any persons or corporations desiring to improve any navigable river at their own expense and risk to do so upon the approval of the plans and specifications by the Secretary of the Army and the Chief of Engineers. Improvements constructed under this authority, which are primarily in Federal project areas, remain subject to the control and supervision of the Secretary of the Army and the Chief of Engineers. The instrument of authorization is designated a permit.

(7) Section 404 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1344) authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into the navigable waters at specified disposal sites. The selection of disposal sites will be in accordance with guidelines developed by the Administrator of the Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army. Furthermore, the Administrator can prohibit or restrict the use of any defined area as a disposal site whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shell fish beds and fishery areas, wildlife or recreational areas.

(8) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (PL 92-532, 86 Stat. 1052, 33 U.S.C. 1413) authorizes the Secretary of the Army to issue permits, after notice and opportunity for public hearings, for the transportation of dredged material for the purpose of dumping it in ocean waters. However, similar to the EPA Administrator's limiting authority cited in paragraph (b) (7) of this section, the Administrator can prevent the issuance of a permit under this authority if he finds that the dumping of the material will result in an unacceptable adverse impact on municipal water supplies,

shellfish beds, wildlife, fisheries or recreational areas.

(9) The New York Harbor Act of June 29, 1888, as amended (33 U.S.C. 441 et seq.) provides for the issuance of permits by the Supervisors of the New York, Baltimore, and Hampton Roads Harbors for the transportation upon and/or discharge in those harbors of a variety of materials including dredgings, sludge and acid. The District Engineers of New York, Baltimore and Norfolk have been designated the Supervisors of these harbors, respectively. However, section 511 (b) of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816) provides that the discharge of these materials into navigable waters shall be regulated pursuant to that Act and not the New York Harbor Act except as to the effect on navigation and anchorage. In addition, section 106(a) of the Marine Protection, Research and Sanctuaries Act of 1972 (PL 92-532, 86 Stat. 1052) provides that all permits for discharges in ocean waters shall only be issued in accordance with the Act after April 23, 1973. Therefore, the supervisors of these three harbors will no longer issue permits under the authority of the New York Harbor Act, as amended, for transportation and/or discharge of these materials.

(c) *Related Legislation.* (1) Section 401 of the Federal Water Pollution Control Act (PL 92-500; 86 Stat. 816, 33 U.S.C. 1411) requires any applicant for a Federal license or permit to conduct any activity which may result in a discharge into navigable waters to obtain a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility.

(2) Section 307(c) (3) of the Coastal Zone Management Act of 1972 (PL 92-583, 86 Stat. 1280, 16 U.S.C. 1456(c) (3)) requires any applicant for a Federal license or permit to conduct an activity affecting land or water uses in the State's coastal zone to furnish a certification that the proposed activity will comply with the State's coastal zone management program. Generally, no permit will be issued until the State has concurred with the applicant's certification. This provision becomes effective upon approval by the Secretary of Commerce of the State's coastal zone management program.

(3) Section 302 of the Marine Protection, Research, and Sanctuaries Act of 1972 (Pub. L. 92-532, 86 Stat. 1052, 16 U.S.C. 1432) authorizes the Secretary of Commerce, after consultation with other interested Federal agencies and with the approval of the President, to designate as marine sanctuaries those areas of the ocean waters or of the Great Lakes and their connecting waters or of other coastal waters which he determines necessary for the purpose of preserving or

restoring such areas for their conservation, recreational, ecological, or esthetic values. After designating such an area, the Secretary of Commerce shall issue regulations to control any activities within the area. Activities in the sanctuary authorized under other authorities are valid only if the Secretary of Commerce certifies that the activities are consistent with the purposes of Title III of the Act and can be carried out within the regulations for the sanctuary.

(4) The National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) declares the national policy to encourage a productive and enjoyable harmony between man and his environment. Section 102 of that Act directs that "to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall * * * insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations * * *." See also paragraph (1)(1) of this section on environmental statements.

(5) The Fish and Wildlife Act of 1956 (16 U.S.C. 742a, et seq.), the Migratory Marine Game-Fish Act (16 U.S.C. 760c-760g) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c) and other acts express the concern of Congress with the quality of the aquatic environment as it affects the conservation, improvement and enjoyment of fish and wildlife resources. Reorganization Plan No. 4 of 1970 transferred certain functions, including certain fish and wildlife-water resources coordination responsibilities, from the Secretary of the Interior to the Secretary of Commerce. Under the Fish and Wildlife Coordination Act and Reorganization Plan No. 4, any Federal Agency which proposes to control or modify any body of water must first consult with the United States Fish and Wildlife Service, the National Marine Fisheries Service, as appropriate, and with the head of the appropriate State agency exercising administration over the wildlife resources of the affected State.

(6) The Federal Power Act of 1920 (41 Stat. 1063; 16 U.S.C. 791a et seq.), as amended, authorizes the Federal Power Commission (FPC) to issue licenses for the construction, operation and maintaining of dams, water conduits, reservoirs, power houses, transmission lines, and other physical structures of a power project. However, where such structures will affect the navigable capacity of any navigable waters of the United States (as defined in 16 U.S.C. 796), the plans for the dam or other physical structures affecting navigation must be approved by the Chief of Engineers and the Secretary of the Army. In such cases, the interests of navigation should normally be protected by a recommendation to the FPC for the inclusion of appropriate provisions in the FPC license rather than the issuance of a separate Department of the Army permit

under 33 U.S.C. 401 et seq. As to any other activities in navigable waters not constituting construction, operation and maintenance of physical structures licensed by the FPC under the Federal Power Act of 1920, as amended, the provisions of 33 U.S.C. 401 et seq. remain fully applicable. In all cases involving the discharge of dredged or fill material into navigable waters or the transportation of dredged material for the purpose of dumping in ocean waters, Department of the Army permits under section 404 of the Federal Water Pollution Control Act, or under section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 will be required.

(7) The National Historic Preservation Act of 1966 (80 Stat. 915, 16 U.S.C. 470) created the Advisory Council on Historic Preservation to advise the President and Congress on matters involving historic preservation. In performing its function the Council is authorized to review and comment upon activities licensed by the Federal Government which will have an effect upon properties listed in the National Register of Historic Places.

(8) The Interstate Land Sales Full Disclosure Act (15 U.S.C. 1701 et seq.) prohibits any developer or agent from selling or leasing any lot in a subdivision unless the purchaser is furnished in advance a printed property report including information which the Secretary of Housing and Urban Development may, by rules or regulations, require for the protection of purchasers. In the event the lot in question is in a wetlands area, the report is required by Housing and Urban Development regulation to state that no permit has been granted by the Corps of Engineers for the development under Section 10 of the River Harbor Act of 1899.

(9) The Water Resources Planning Act (42 U.S.C. 1962 et seq.) provides for the possible establishment upon request of the Water Resources Council or a State of river basin water and related land resources commissions. Each such commission shall coordinate Federal, State, interstate, local and nongovernmental plans for the development of water and related land resources in its area, river basin, or group of river basins. In the event the proposed Corps of Engineers permits to non-governmental developers or other agencies under section 10 of the River and Harbor Act of 1899 and section 404 of the Federal Water Pollution Control Act may affect the plans of such river basin commissions, the permits will be coordinated with the appropriate concerned river basin commissions. The same is true of Corps of Engineers authorizations to private persons or corporations to improve navigable rivers at their own expense under section 1 of the River and Harbor Act of 1902.

(d) Definitions. For the purpose of issuing or denying authorizations under this regulation.

(1) "Navigable waters of the United States." The term, "navigable waters of the United States," is administratively defined to mean waters that have been

used in the past, are now used, or are susceptible to use as a means to transport interstate commerce landward to their ordinary high water mark and up to the head of navigation as determined by the Chief of Engineers, and also waters that are subject to the ebb and flow of the tide shoreward to their mean high water mark (mean higher high water mark on the Pacific Coast). See 33 CFR 209.260 (ER 1165-2-302) for a more definitive explanation of this term.

(2) "Navigable waters". (i) The term, "navigable waters," as used herein for purposes of Section 404 of the Federal Water Pollution Control Act, is administratively defined to mean waters of the United States including the territorial seas with respect to the disposal of fill material and excluding the territorial seas with respect to the disposal of dredged material and shall include the following waters:

(a) Coastal waters that are navigable waters of the United States subject to the ebb and flow of the tide, shoreward to their mean high water mark (mean higher high water mark on the Pacific coast);

(b) All coastal wetlands, mudflats, swamps, and similar areas that are contiguous or adjacent to other navigable waters. "Coastal wetlands" includes marshes and shallows and means those areas periodically inundated by saline or brackish waters and that are normally characterized by the prevalence of salt or brackish water vegetation capable of growth and reproduction;

(c) Rivers, lakes, streams, and artificial water bodies that are navigable waters of the United States up to their headwaters and landward to their ordinary high water mark;

(d) All artificially created channels and canals used for recreational or other navigational purposes that are connected to other navigable waters, landward to their ordinary high water mark;

(e) All tributaries of navigable waters of the United States up to their headwaters and landward to their ordinary high water mark;

(f) Interstate waters landward to their ordinary high water mark and up to their headwaters;

(g) Intrastate lakes, rivers and streams landward to their ordinary high water mark and up to their headwaters that are utilized;

(1) By interstate travelers for water-related recreational purposes;

(2) For the removal of fish that are sold in interstate commerce;

(3) For industrial purposes by industries in interstate commerce; or

(4) In the production of agricultural commodities sold or transported in interstate commerce;

(h) Freshwater wetlands including marshes, shallows, swamps and, similar areas that are contiguous or adjacent to other navigable waters and that support freshwater vegetation. "Freshwater wetlands" means those areas that are periodically inundated and that are normally characterized by the prevalence of vegetation that requires saturated soil

conditions for growth and reproduction; and

(i) Those other waters which the District Engineer determines necessitate regulation for the protection of water quality as expressed in the guidelines (40 CFR 230). For example, in the case of intermittent rivers, streams, tributaries, and perched wetlands that are not contiguous or adjacent to navigable waters identified in paragraphs (a)-(h), a decision on jurisdiction shall be made by the District Engineer.

(ii) The following additional terms are defined as follows:

(a) "Ordinary high water mark" with respect to inland fresh water means the line on the shore established by analysis of all daily high waters. It is established as that point on the shore that is inundated 25% of the time and is derived by a flow-duration curve for the particular water body that is based on available water stage data. It may also be estimated by erosion or easily recognized characteristics such as shelving, change in the character of the soil, destruction of terrestrial vegetation or its inability to grow, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area;

(b) "Mean high water mark" with respect to ocean and coastal waters means the line on the shore established by the average of all high tides (all higher high tides on the Pacific Coast). It is established by survey based on available tidal data (preferably averaged over a period of 18.6 years because of the variations in tide). In the absence of such data, less precise methods to determine the mean high water mark may be used, such as physical markings or comparison of the area in question with an area having similar physical characteristics for which tidal data are already available;

(c) "Lakes" means natural bodies of water greater than five acres in surface area and all bodies of standing water created by the impounding of navigable waters identified in paragraphs (a)-(h), above. Stock watering ponds and settling basins that are not created by such impoundments are not included;

(d) "Headwaters" means the point on the stream above which the flow is normally less than 5 cubic feet per second; provided, however, the volume of flow, point and nonpoint source discharge characteristics of the watershed, and other factors that may impact on the water quality of waters of the United States will be considered in determining this upstream limit; and

(e) "Primary tributaries" means the main stems of tributaries directly connecting to navigable waters of the United States up to their headwaters and does not include any additional tributaries extending off of the main stems of these tributaries.

(3) "Ocean waters". The term "ocean waters," as defined in the Marine Protection, Research, and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1052), means those waters of the open seas lying seaward of the base line from which the territorial sea is measured, as provided

for in the Convention on the Territorial Sea and the Contiguous Zone (15 UST 1606; TIAS 5639).

(4) "Dredged material". The term "dredged material" means material that is excavated or dredged from navigable waters. The term does not include material resulting from normal farming, silviculture, and ranching activities, such as plowing, cultivating, seeding, and harvesting, for production of food, fiber, and forest products.

(5) "Discharge of dredged material". The term "discharge of dredged material" means any addition of dredged material, in excess of one cubic yard when used in a single or incidental operation, into navigable waters. The term includes, without limitation, the addition of dredged material to a specified disposal site located in navigable waters and the runoff or overflow from a contained land or water disposal area. Discharges of pollutants into navigable waters resulting from the onshore subsequent processing of dredged material that is extracted for any commercial use (other than fill) are not included within this term and are subject to section 402 of the Federal Water Pollution Control Act even though the extraction of such material may require a permit from the Corps of Engineers under section 10 of the River and Harbor Act of 1899.

(6) "Fill material." The term "fill material" means any pollutant used to create fill in the traditional sense of replacing an aquatic area with dry land or of changing the bottom elevation of a water body for any purpose. "Fill material" does not include the following:

(i) Material resulting from normal farming, silviculture, and ranching activities, such as plowing, cultivating, seeding, and harvesting, for the production of food, fiber, and forest products;

(ii) Material placed for the purpose of maintenance, including emergency reconstruction of recently damaged parts of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, and bridge abutments or approaches, and transportation structures.

(iii) Additions to these categories of activities that are not "fill" will be considered periodically and these regulations amended accordingly.

(7) "Discharge of fill material." The term "discharge of fill material" means the addition of fill material into navigable waters for the purpose of creating fastlands, elevations of land beneath navigable waters, or for impoundments of water. The term generally includes, without limitation, the following activities: placement of fill that is necessary to the construction of any structure in a navigable water; the building of any structure or impoundment requiring rock, sand, dirt, or other pollutants for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands, property protection and, or reclamation devices such as riprap, groins, seawalls, breakwalls, and bulkheads and

fills; beach nourishment; levees; sanitary landfills; fill for structures such as sewage treatment facilities, intake and outfall pipes associated with power plants, and subaqueous utility lines; and artificial reefs.

(8) "Person". The term "person" means any individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, any interstate body, or any agency or instrumentality of the Federal Government, other than the Corps of Engineers (see 33 CFR 209.145 for procedures for Corps projects).

(9) "Coastal zone." The term "coastal zone" means the coastal waters and adjacent shorelands designated by a State as being included in its approved coastal zone management program under the Coastal Zone Management Act of 1972.

(e) *Activities Requiring Authorizations.* (1) Structures or work in navigable waters of the United States. Department of the Army authorizations are required under the River and Harbor Act of 1899 (See paragraph (b) of this section) for all structures or work in navigable waters of the United States except for bridges and causeways (see Appendix A), the placement of aids to navigation by the U.S. Coast Guard, structures constructed in artificial canals within principally residential developments where the canal has been connected to a navigable water of the United States (see paragraph (g)(11) below), and activities that were commenced or completed shoreward of established harbor lines before May 27, 1970 (see 33 CFR § 209.150) other than those activities involving the discharge of dredged or fill material in navigable waters after October 18, 1972.

(i) Structures or work are in the navigable waters of the United States if they are within limits defined in 33 CFR 209.260. Structures or work outside these limits are subject to the provisions of law cited in paragraph (b) of this section if those structures or work affect the course, location, or condition of the water body in such a manner as to significantly impact on the navigable capacity of the water body. A tunnel or other structure under a navigable water of the United States is considered to have a significant impact on the navigable capacity of the water body.

(ii) Structures or work licensed under the Federal Power Act of 1920 do not require Department of the Army authorizations under the River and Harbor Act of 1899 (see paragraphs (b) and (c) of this section); provided, however, that any part of such structures or work that involves the discharge of dredged or fill material into navigable waters or the transportation of dredged material for the purpose of dumping it into ocean waters will require Department of the Army authorization under Section 404 of the Federal Water Pollution Control Act and Section 103 of the Marine Protection, Research, and Sanctuaries Act, as appropriate.

(2) *Discharges of dredged material or of fill material into navigable waters.* (i)

Except as provided in subparagraphs (ii) and (iii) below, Department of the Army permits will be required for the discharge of dredged material or of fill material into navigable waters in accordance with the following phased schedule:

(a) *Phase I:* After the effective date of this regulation, discharges of dredged material or of fill material into coastal waters and coastal wetlands contiguous or adjacent thereto or into inland navigable waters of the United States and freshwater wetlands contiguous or adjacent thereto are subject to the procedures of this regulation.

(b) *Phase II:* After July 1, 1976, discharges of dredged material or of fill material into primary tributaries, freshwater wetlands contiguous or adjacent to primary tributaries, and lakes are subject to the procedures of this regulation.

(c) *Phase III:* After July 1, 1977, discharges of dredged material or of fill material into any navigable water are subject to the procedures of this regulation.

(ii) All other discharges of dredged or fill material that occur before the dates specified in subparagraphs (i) (b) and (c) above, are hereby permitted for purposes of Section 404 of the Federal Water Pollution Control Act without further processing under this regulation; *provided, however,* That the procedures of this regulation including those pertaining to individual and general permits (see paragraph (i) (2) (ix), below) shall apply to any discharge(s) of dredged or fill material if the District Engineer determines that the water quality concerns as expressed in the guidelines (see 40 CFR 230) indicate the need for such action; and *further provided,* That the following conditions are met:

(a) That a water-quality certification under section 401 of the Federal Water Pollution Control Act (see paragraph (c) (1) of this section) is obtained before the discharge is commenced or the State has waived its right to so certify;

(b) That a certification of compliance with a State's approved coastal zone management program pursuant to section 307(c)(3) of the Coastal Zone Management Act (see paragraph (c) (2), above), is furnished, if applicable, before the discharge is commenced;

(c) That the discharge will not be located in the proximity of a public water supply intake;

(d) That the discharge will not contain unacceptable levels of pathogenic organisms in areas used for sports involving physical contact with the water;

(e) That the discharge will not occur in areas of concentrated shellfish production; and

(f) That the discharge will not destroy or endanger the critical habitat of a threatened or endangered species, as identified under the Endangered Species Act.

(iii) Discharges of dredged or fill material in waters other than navigable waters of the United States that have been completed by the effective date of this regulation and discharges of dredged or fill material of less than 500 cubic

yards into waters other than navigable waters of the United States that are part of an activity that was commenced before the publication of this regulation, that will be completed within six months of the publication of this regulation, and that involves a single and complete project and not a number of projects associated with complete development plans are hereby authorized for purposes of Section 404 of the Federal Water Pollution Control Act without further processing under this regulation; *provided, however,* That the exemption of these types of activities from the requirements of this regulation shall not be construed as a waiver of the requirement to obtain a State water-quality certification under section 401 of the Federal Water Pollution Control Act or a certification of compliance with a State's approved coastal zone management program pursuant to section 307(c)(3) of the Coastal Zone Management Act in those cases where the discharge of dredged or fill material has not been completed by the date of this regulation; and *further provided,* That the procedures of this regulation shall apply to any activity involving the discharge of dredged or fill material commenced before the date of this regulation if the District Engineer determines that the interests of water quality as expressed in the guidelines (see 40 CFR Part 230) so require. The term "commenced" as used herein shall be satisfied if there has been, before the date of this regulation, some discharge of dredged or fill material into the navigable water as a part of the above activity or an entering into of a written contractual obligation to have the dredged or fill material discharged at a designated disposal site by a contractor.

(iv) All bulkhead and fill activities involving discharges of dredged material or of fill material in navigable waters other than navigable waters of the United States that are less than 500 feet in length, are constructed for property protection, and involve less than an average of one cubic yard per running foot are hereby permitted for purposes of section 404 of the Federal Water Pollution Control Act without further processing under this regulation; *provided, however,* That the procedures of this regulation including those pertaining to individual and general permits (see paragraph (i) (2) (ix), below) shall apply to any discharge(s) of dredged or fill material if the District Engineer determines that the water-quality concerns as expressed in the guidelines (see 40 CFR 230) indicate the need for such action; and *further provided,* That the conditions specified in subparagraph (ii) (a)-(f) are met.

(3) *Transportation of dredged material for the purpose of dumping it in ocean waters and construction of artificial islands and fixed structures on the outer continental shelf.* Department of the Army authorizations are required for the transportation of dredged material for the purpose of dumping it in ocean waters and construction of artificial islands and fixed structures on the outer continental shelf pursuant to Section 103

of the Marine Protection, Research, and Sanctuaries Act of 1972 and Section 4(f) of the Outer Continental Shelf Lands Act, respectively.

(4) *Activities of Federal Agencies.* Except as specifically provided in this subparagraph, activities of the type described in paragraph (e) (1), (2), and (3) of this section done by or on behalf of any Federal agency, other than the Corps of Engineers, are subject to the authorization procedures of this regulation. Agreement for construction or engineering services performer for other agencies by the Corps of Engineers do not constitute authorization under the regulation. Division and District Engineers will therefore advise Federal agencies accordingly and cooperate to the fullest extent in the expediting processing of their applications.

(i) By section 10 of the Act of March 3, 1899 (see paragraph (b) (2) above), Congress has delegated to the Secretary of the Army and the Chief of Engineers the duty of authorizing or prohibiting certain work or structures in navigable waters of the United States. The general legislation by which Federal agencies are empowered to act generally is not considered to be sufficient authorization by Congress to satisfy the purposes of section 10. If an agency asserts that it has Congressional authorization meeting the test of section 10 or would otherwise be exempt from the provisions of section 10, the legislative history and/or provisions of the Act should clearly demonstrate that Congress was approving the exact location and plans from which Congress could have considered the effect on navigable waters of the United States or that Congress intended to exempt that agency from the requirements of section 10. Very often such legislation reserves final approval of plans or construction for the Chief of Engineers. In such cases, evaluation and authorization under this regulation are limited by the intent of the statutory language involved.

(ii) The policy provisions set out in paragraph (f) (3) of this section, relating to State or local authorizations, do not apply to work or structures undertaken by Federal agencies, except where compliance with non-Federal authorization is required by Federal law or Executive policy. Federal agencies are required to comply with the substantive State, interstate, and local water-quality standards and effluent limitations as are applicable by law that are adopted in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended, in the design, construction, management, operation, and maintenance of their respective facilities. (See Executive Order No. 11752, dated 17 Dec. 73.) They are not required, however, to obtain and provide certification of compliance with effluent limitations and water-quality standards from State or interstate water pollution control agencies in connection with activities involving discharges into navigable waters.

(f) *General Policies for Evaluating Permit Applications.* (1) The decision

whether to issue a permit will be based on an evaluation of the probable impact of the proposed structure or work and its intended use on the public interest. Evaluation of the probable impact that the proposed structure or work may have on the public interest requires a careful weighing of all those factors that become relevant in each particular case. The benefit that reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal and, if authorized, the conditions under which it will be allowed to occur, are therefore determined by the outcome of the general balancing process (e.g., see § 209.400, Guidelines for Assessment of Economic, Social and Environmental Effects of Civil Works Projects). That decision should reflect the national concern for both protection and utilization of important resources. All factors that may be relevant to the proposal must be considered; among those factors are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood-damage prevention, land-use classifications, navigation, recreation, water supply, water quality, and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

(2) The following general criteria will be considered in the evaluation of every application:

(i) The relative extent of the public and private need for the proposed structure or work.

(ii) The desirability of using appropriate alternative locations and methods to accomplish the objective of the proposed structure or work.

(iii) The extent and permanence of the beneficial and/or detrimental effects that the proposed structure or work may have on the public and private uses to which the area is suited.

(iv) The probable impact of each proposal in relation to the cumulative effect created by other existing and anticipated structures or work in the general area.

(3) Permits will not be issued where certification or authorization of the proposed work is required by Federal, State, and/or local law and that certification or authorization has been denied. Initial processing of an application for a Department of the Army permit will proceed until definitive action has been taken by the responsible State agency to grant or deny the required certification and/or authorization. Where the required State certification and/or authorization has been denied and procedures for reconsideration exist, reasonable time not to exceed 90 days will be allowed for the applicant to attempt to resolve the problem and/or obtain reconsideration of the denial. If the State denial of authorization cannot be thus resolved, the application will be denied in accordance with paragraph (p) of this section.

(1) Where officially adopted State, regional, or local land-use classifications, determinations, or policies are applicable to the land or water areas under consideration, they shall be presumed to reflect local factors of the public interest and shall be considered in addition with the other national factors of the public interest identified in paragraph (f) (1), above.

(ii) A proposed activity in a navigable water may result in conflicting comments from several agencies within the same State. While many States have designated a single State agency or individual to provide a single and coordinated State position regarding pending permit applications, where a State has not so designated a single source, District Engineers will elicit from the Governor an expression of his views and desires concerning the application (see also paragraph (j) (3), below) or, in the alternative, an expression from the Governor as to which State agency represents the official State position in this particular case. Even if official certification and/or authorization is not required by State or Federal law, but a State, regional, or local agency having jurisdiction or interest over the particular activity comments on the application, due consideration shall be given to those official views as a reflection of local factors of the public interest.

(iii) If a favorable State determination is received, the District Engineer will process the application to a conclusion in accordance with the policies and procedures of this regulation. In the absence of overriding national factors of the public interest that may be revealed during the subsequent processing of the permit application, a permit will generally be issued following receipt of a favorable State determination provided the concerns, policies, goals, and requirements as expressed in paragraphs (f) (1) and (2), above, the guidelines (40 CFR 230), and the following statutes have been followed and considered: the National Environmental Policy Act; the Fish and Wildlife Coordination Act; the Historical and Archaeological Preservation Act; the National Historic Preservation Act; the Endangered Species Act; the Coastal Zone Management Act; the Marine Protection, Research, and Sanctuaries Act of 1972; and the Federal Water Pollution Control Act (see paragraph c, above).

(iv) If the responsible State agency fails to take definitive action to grant or deny required authorizations or to furnish comments as provided in subparagraph (ii) above within six months of the issuance of the public notice, the District Engineer shall process the application to a conclusion.

(v) The District Engineer may, in those States with ongoing State permit programs for work or structures in navigable waters of the United States or the discharge of dredged or fill material in navigable waters, enter into an agreement with the States to jointly process and evaluate Department of the Army and State permit applications. This may

include the issuance of joint public notices; the conduct of joint public hearings, if held; and the joint review and analysis of information and comments developed in response to the public notice, public hearing, the environmental assessment and the environmental impact statement (if necessary), the Fish and Wildlife Coordination Act, the Historical and Archaeological Preservation Act, the National Historic Preservation Act, the Endangered Species Act, the Coastal Zone Management Act, the Marine Protection, Research, and Sanctuaries Act of 1972, and the Federal Water Pollution Control Act. In such cases, applications for Department of the Army permits may be processed concurrently with the processing of the State permit to an independent conclusion and decision by the District Engineer and appropriate State agency.

(4) The District Engineer shall consider the recommendations of the appropriate Regional Director of the Bureau of Sport Fisheries and Wildlife, the Regional Director of the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, the Regional Administrator of the Environmental Protection Agency, the local representative of the Soil Conservation Service of the Department of Agriculture, and the head of appropriate State agencies in administering the policies and procedures of the regulation.

(g) *Policies on particular factors of consideration.* In applying the general policies cited above to the evaluation of a permit application, Corps of Engineers officials will also consider the following policies when they are applicable to the specific application:

(1) *Interference with adjacent properties or water resource projects.* Authorization of work or structures by the Department of the Army does not convey a property right, nor authorize any injury to property or invasion of other rights.

(i) (a) Because a landowner has the general right to protect his property from erosion, applications to erect protective structures will usually receive favorable consideration. However, if the protective structure may cause damage to the property of others, the District Engineer will so advise the applicant and inform him of possible alternative methods of protecting his property. Such advice will be given in terms of general guidance only so as not to compete with private engineering firms nor require undue use of government resources. A significant probability of resulting damage to nearby properties can be a basis for denial of an application.

(b) A landowner's general right of access to navigable waters is subject to the similar rights of access held by nearby landowners and to the general public's right of navigation on the water surface. Proposals which create undue interference with access to, or use of, navigable waters will generally not receive favorable consideration.

(ii) (a) Where it is found that the work for which a permit is desired may interfere with a proposed civil works project

of the Corps of Engineers, the applicant and the party or parties responsible for fulfillment of the requirements of local cooperation should be appraised in writing of the fact and of the possibility that a civil works project which may be constructed in the vicinity of the proposed work might necessitate its removal or reconstruction. They should also be informed that the United States will in no case be liable for any damage or injury to the structures or work authorized which may be caused by or result from future operations undertaken by the Government for the conservation or improvement of navigation, or for other purposes, and no claims or right to compensation will accrue from any such damage.

(b) Proposed activities which are in the area of a civil works project which exists or is under construction will be evaluated to insure that they are compatible with the purposes of the project.

(2) *Non-Federal dredging for navigation.* (i) The benefits which an authorized Federal navigation project is intended to produce will often require similar and related operations by non-Federal agencies (e.g., dredging an access channel to dock and berthing facilities or deepening such a channel to correspond to the Federal project depth). These non-Federal activities will be considered by Corps of Engineers officials in planning the construction and maintenance of Federal navigation projects and, to the maximum practical extent, will be coordinated with interested Federal, State, regional and local agencies and the general public simultaneously with the associated Federal projects. Non-federal activities which are not so coordinated will be individually evaluated in accordance with paragraph (f) of this section. In evaluating the public interest in connection with applications for permits for such coordinated operations, equal treatment will, therefore, be accorded to the fullest extent possible to both Federal and non-Federal operations. Furthermore, permits for non-Federal dredging operations will contain conditions requiring the permittee to comply with the same practices or requirements utilized in connection with related Federal dredging operations with respect to such matters as turbidity, water quality, containment of material, nature and location of approved spoil disposal areas (non-Federal use of Federal contained, disposal areas will be in accordance with laws authorizing such areas and regulations governing their use), extent and period of dredging, and other factors relating to protection of environmental and ecological values. (See also paragraph (g)(17) of this section.)

(ii) A permit for the dredging of a channel, slip, or other such project for navigation will also authorize the periodic maintenance dredging of the project. Authority for maintenance dredging will be subject to revalidation at regular intervals to be specified in the permit. Revalidation will be in accordance with the procedures prescribed in paragraph (n)(5) of this section. The permit, how-

ever, will require the permittee to give advance notice to the District Engineer each time maintenance dredging is to be performed.

(3) *Effect on wetlands.* (i) Wetlands are those land and water areas subject to regular inundation by tidal, riverine, or lacustrine flowage. Generally included are inland and coastal shallows, marshes, mudflats, estuaries, swamps, and similar areas in coastal and inland navigable waters. Many such areas serve important purposes relating to fish and wildlife, recreation, and other elements of the general public interest. As environmentally vital areas, they constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest.

(ii) Wetlands considered to perform functions important to the public interest include:

(a) Wetlands which serve important natural biological functions, including food chain production, general habitat, and nesting, spawning, rearing and resting sites for aquatic or land species;

(b) Wetlands set aside for study of the aquatic environment or as sanctuaries or refuges;

(c) Wetlands contiguous to areas listed in paragraph (g)(3)(ii)(a) and (b) of this section, the destruction or alteration of which would affect detrimentally the natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics of the above areas;

(d) Wetlands which are significant in shielding other areas from wave action, erosion, or storm damage. Such wetlands often include barrier beaches, islands, reefs and bars;

(e) Wetlands which serve as valuable storage areas for storm and flood waters; and

(f) Wetlands which are prime natural recharge areas. Prime recharge areas are locations where surface and ground water are directly interconnected.

(iii) Although a particular alteration of wetlands may constitute a minor change, the cumulative effect of numerous such piecemeal changes often results in a major impairment of the wetland resources. Thus, the particular wetland site for which an application is made will be evaluated with the recognition that it is part of a complete and interrelated wetland area. In addition, the District Engineer may undertake reviews of particular wetland areas, in response to new applications, and in consultation with the appropriate Regional Director of the Bureau of Sport Fisheries and Wildlife, the Regional Director of the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, the Regional Administrator of the Environmental Protection Agency, the local representative of the Soil Conservation Service of the Department of Agriculture, and the head of the appropriate State agency to assess the cumulative effect of activities in such areas.

(iv) Unless the public interest requires otherwise, no permit shall be granted for work in wetlands identified as important by subparagraph (ii), above, unless the District Engineer concludes, on the basis of the analysis required in paragraph (f) of this section, that the benefits of the proposed alteration outweigh the damage to the wetlands resource and the proposed alteration is necessary to realize those benefits.

(a) In evaluating whether a particular alteration is necessary, the District Engineer shall primarily consider whether the proposed activity is dependent upon the wetland resources and environment and whether feasible alternative sites are available.

(b) The applicant must provide sufficient data on the basis of which the availability of feasible alternative sites can be evaluated.

(v) In accordance with the policy expressed in paragraph (f)(3) of this section, and with the Congressional policy expressed in the Estuary Protection Act, PL 90-454, state regulatory laws or programs for classification and protection of wetlands will be given great weight. (See also paragraph (g)(18) of this section).

(4) *Fish and wildlife.* (i) In accordance with the Fish and Wildlife Coordination Act (see paragraph (c)(5) of this section) Corps of Engineers officials will in all permit cases, consult with the Regional Director, U.S. Fish and Wildlife Service, the Regional Director, National Marine Fisheries Service, and the head of the agency responsible for fish and wildlife for the state in which the work is to be performed, with a view to the conservation of wildlife resources by prevention of their loss and damage due to the work or structures proposed in a permit application (see paragraphs (i)(1)(ii) and (j)(2) of this section). They will give great weight to these views on fish and wildlife considerations in evaluating the application. The applicant will be urged to modify his proposal to eliminate or mitigate any damage to such resources, and in appropriate cases the permit may be conditioned to accomplish this purpose.

(ii) The Division Engineer may issue a permit over an unresolved objection based on fish and wildlife considerations by the regional representative of Federal fish and wildlife agencies unless otherwise directed by the Chief of Engineers; provided, however, that the policies and procedures stated in the Memorandum of Understanding between the Department of the Army and the Department of the Interior (Appendix B) will be followed with respect to all activities involving dredging, excavation, filling and other related work.

(5) *Water quality.* (i) Applications for permits for activities which may affect the quality of navigable waters will be evaluated with a view toward compliance with applicable effluent limitations and water quality standards during both the construction and operation of the proposed activity. Certification of compliance with applicable effluent limitations and water quality standards required under provisions of Section 401 of the

Federal Water Pollution Control Act will be considered conclusive with respect to water quality considerations unless the Regional Administrator, Environmental Protection Agency (EPA), advises of other water quality aspects to be taken into consideration. If the certification provided is to the effect that no effluent limitation and water quality standards have been established as applicable to the proposed activity, or if certification is not required for the proposed activity, the advice of the Regional Administrator, EPA, on water quality aspects will be given great weight in evaluating the permit application. Any permit issued may be conditioned to implement water quality protection measures.

(1) If the Regional Administrator, EPA, objects to the issuance of a permit on the basis of water quality considerations and the objection is not resolved by the applicant or the District Engineer, and the District Engineer would otherwise issue the permit, the application will be forwarded through channels to the Chief of Engineers for further coordination with the Administrator, EPA, and decision. (See also paragraphs (b) (7) and (b) (8), above, and (g) (17) and (1) (2) (1) of this section.)

(6) *Historic, scenic, and recreational values.* (i) Applications for permits covered by this regulation may involve areas which possess recognized historic, cultural, scenic, conservation, recreational or similar values. Full evaluation of the general public interest requires that due consideration be given to the effect which the proposed structure or activity may have on the enhancement, preservation, or development of such values. Recognition of those values is often reflected by State, regional, or local land use classifications (see paragraph (f) (3) of this section), or by similar Federal controls or policies. In both cases, action on permit applications should, insofar as possible, be consistent with, and avoid adverse effect on, the values or purposes for which those classifications, controls, or policies were established.

(ii) Specific application of the policy in paragraph (g) (6) (i) of this section, applies to:

(a) Rivers named in Section 3 of the Wild and Scenic Rivers Act (82 Stat. 906, 16 U.S.C. 1273 et seq.), and those proposed for inclusion as provided by sections 4 and 5 of the Act, or by later legislation.

(b) Historic, cultural, or archeological sites or practices as provided in the National Historic Preservation Act of 1966 (83 Stat. 852, 42 U.S.C. 4321 et seq.) (see also Executive Order 11593, May 13, 1971, and Statutes there cited). Particular attention should be directed toward any district, site, building, structure, or object listed in the National Register of Historic Places. Comments regarding such undertakings shall be sought and considered as provided by paragraph (1) (2) (iii) of this section.

(c) Sites included in the National Registry of Natural Landmarks which are published periodically in the FEDERAL REGISTER.

(d) Any other areas named in Acts of Congress or Presidential Proclamations as National Rivers, National Wilderness Areas, National Seashores, National Recreation Areas, National Lakeshores, National Parks, National Monuments, and such areas as may be established under Federal law for similar and related purposes, such as estuarine and marine sanctuaries.

(7) *Structures for small boats.* As a matter of policy, in the absence of overriding public interest, favorable consideration will be generally be given to applications from riparian proprietors for permits for piers, boat docks, moorings, platforms and similar structures for small boats. Particular attention will be given to the location and general design of such structures to prevent possible obstructions to navigation with respect to both the public's use of the waterway and the neighboring proprietors' access to the waterway. Obstructions can result from both the existence of the structure, particularly in conjunction with other similar facilities in the immediate vicinity, and from its inability to withstand wave action or other forces which can be expected. District Engineers will inform applicants of the hazards involved and encourage safety in location, design and operation. Corps of Engineers officials will also encourage cooperative or group use facilities in lieu of individual proprietor use facilities.

(1) Letters transmitting permits for structures for small boats will, where applicable, include the following language: "Notice is hereby given that a possibility exists that the structure permitted may be subject to damage by wave wash from passing vessels. Your attention is invited to special condition ----- of the permit." The appropriate designation of the permit condition placing responsibility on the permittee and not on the United States for integrity of the structure and safety of boats moored thereto will be inserted.

(ii) Floating structures for small recreational boats or other recreational purposes in lakes owned and operated by the Corps of Engineers under a Resources Manager are normally subject to permit authorities cited in paragraph (b), above when those waters are regarded as navigable waters of the United States. (See 33 CFR 209.260). However, such structures will not be authorized under this regulation but will be regulated under applicable regulations of the Chief of Engineers published in Chapter III, Part 327.19 of Title 36, Code of Federal Regulations if the land surrounding those lakes is under complete Federal ownership. District Engineers will delineate those portions of the navigable waters of the United States where this provision is applicable and post notices of this designation in the vicinity of the lake Resources Manager's office.

(8) *Aids to navigation.* (1) The placing of non-Federal fixed and floating aids to navigation in a navigable water of the United States is within the purview of section 10 of the River and Harbor Act of 1899. Furthermore, these aids are of par-

ticular interest to the U.S. Coast Guard because of their control of marking, lighting and standardization of such navigation aids. Applications for permits for installation of aids to navigation will, therefore, be coordinated with the appropriate District Commander, U.S. Coast Guard, and permits for such aids will include a condition to the effect that the permittee will conform to the requirements of the Coast Guard for marking, lighting, etc. Since most fixed and floating aids to navigation will not ordinarily significantly affect environmental values, the usual form of authorization to be used will be a letter of permission.

(ii) Fishing structures and appliances in navigable waters of the United States will be lighted for the safety of navigation as follows: Lights will be displayed between sunset and sunrise. They will be placed at each end of the structure, except where the inner end terminates at such a point where there could be no practicable navigation between it and the high-water line of the adjacent coast. In such case no inner light will be required. The outer light will be white, and the inner light will be red. The size, capacity, and manner of maintenance of the lights will be specified in the Department of the Army permit authorizing the erection of the structure or appliances. When several structures or appliances are placed on one line with no navigable passage between them, they will be considered for lighting purposes as one structure.

(9) *Outer continental shelf.* Artificial islands and fixed structures located on the outer continental shelf are subject to the standard permit procedures of this regulation. Where the islands or structures are to be constructed on lands which are under mineral lease from the Bureau of Land Management, Department of the Interior, that agency, in cooperation with other Federal agencies, fully evaluates the potential effect of the leasing program on the total environment. Accordingly, the decision whether to issue a permit on lands which are under mineral lease from the Department of the Interior will be limited to an evaluation of the impact of the proposed work on navigation and national security. The public notice will so identify the criteria (see paragraph (j) (1) (viii) (b) of this section).

(10) *Effect on limits of the territorial sea.* Structures or work affecting coastal waters may modify the coast line or base line from which the three mile belt is measured for purposes of the Submerged Lands Act and International Law. Generally, the coast line or base line is the line of ordinary low water on the mainland; however, there are exceptions where there are islands or low-tide elevations off shore. (See the Submerged Lands Act, 67 Stat. 29, U.S. Code section 1301(c), and United States v. California, 381 U.S. 139 (1965), 382 U.S. 445 (1966)). All applications for structures or work affecting coastal waters will therefore be reviewed specifically to determine whether the coast line or base line might be altered. If it is determined that such a change might occur, coordination with

the Attorney General and the Solicitor of the Department of the Interior is required before final action is taken. The District Engineer will submit a description of the proposed work and a copy of the plans to the Solicitor, Department of the Interior, Washington, D.C. 20240, and request his comments concerning the effects of the proposed work on the outer continental rights of the United States. These comments will be included in the file of the application. After completion of standard processing procedures, the file will be forwarded to the Chief of Engineers. The decision in the application will be made by the Secretary of the Army after coordination with the Attorney General.

(11) *Canals and other artificial waterways connected to navigable waters.*

(i) A canal or similar artificial waterway is subject to the regulatory authorities discussed in paragraph (b) (2) of this section if it constitutes a navigable water of the United States, or if it is connected to navigable waters of the United States in a manner which affects their course, condition, or capacity. In all cases the connection to navigable waters of the United States requires a permit. Where the canal itself constitutes a navigable water of the United States, evaluation of the permit application and further exercise of regulatory authority will be in accordance with the standard procedures of this regulation. For all other canals the exercise of regulatory authority is restricted to those activities which affect the course, condition, or capacity of the navigable waters of the United States. Examples of the latter may include the length and depth of the canal; the currents circulation, quality and turbidity of its waters, especially as they affect fish and wildlife values; and modifications or extensions of its configuration.

(ii) The proponent of canal work should submit his application for a permit, including a proposed plan of the entire development, and the location and description of anticipated docks, piers and other similar structures which will be placed in the canal, to the District Engineer before commencing any form of work. If the connection to navigable waters of the United States has already been made without a permit, the District Engineer will proceed in accordance with paragraph (g) (12) (i) of this section. Where a connection has not yet occurred, but canal construction is planned or has already begun, the District Engineer will, in writing, advise the proponent of the need for a permit to connect the canals to navigable waters of the United States. He will also ask the proponent if he intends to make such a connection and will request the immediate submission of the plans and permit application if it is so intended. The District Engineer will also advise the proponent that any work is done at the risk that, if a permit is required, it may not be issued, and that the existence of partially-completed excavation work will not be allowed to weigh favorably in evaluation of the permit application.

(12) *Unauthorized activities.* The following procedures will be followed with respect to activities which are performed without proper authorization.

(i) When the District Engineer becomes aware of any unauthorized activity which is still in progress, he shall immediately issue a cease and desist order to all persons responsible for and/or involved in the performance of the activity. In appropriate cases, the District Engineer may also order interim protective measures to be taken in order to protect the public interest. If there is noncompliance with this cease and desist order, the District Engineer shall forward a factual report immediately to the local U.S. Attorney with a request that a temporary restraining order and/or preliminary injunction be obtained against the responsible persons.

(ii) In all cases, the District Engineer shall commence an immediate investigation to ascertain the facts surrounding the unauthorized activity. In making this investigation, the District Engineer shall solicit the views of appropriate Federal, State and local agencies, and shall request the persons involved in the unauthorized activity to provide appropriate information on this activity which will assist him in evaluating the activity and recommending the course of action to be taken. The District Engineer shall evaluate the information and views developed during this investigation in conjunction with the factors and criteria cited in paragraph (f) of this section and shall formulate recommendations as to the appropriate administrative and/or legal action to be taken, subject to the following:

(a) Except where the activity was performed in nontidal waters prior to an administrative, judicial or legislative determination that the water is a navigable water of the United States, the District Engineer is not authorized to process or accept for processing any permit application received.

(1) The District Engineer shall in all cases other than those covered by paragraph (g) (12) (ii) (a) (2) of this section prepare and forward a report to the Chief of Engineers, ATTN: DAEN-GCK, which shall contain an analysis of the data and information obtained during this investigation and recommend appropriate civil and criminal action. In those cases where the analysis of the facts developed during his investigation, when made in conjunction with the factors and criteria in paragraph (f) of this section leads to the preliminary conclusion that removal of the unauthorized activity is in the public interest, the District Engineer shall also recommend restoration of the area to its original condition.

(2) In those cases to which the provisions of paragraph (m) (3), below, apply, the District Engineer may refer the matter directly to the local United States Attorney for appropriate legal action.

(b) If criminal and/or civil action is instituted against the responsible person, the District Engineer shall not accept for processing any application until

final disposition of all judicial proceedings, including the payment of all prescribed penalties and fines and/or the completion of all work ordered by the court. Thereafter, the District Engineer may accept an application for a permit; Provided, that with respect to any judicial order requiring partial or total restoration of an area, the District Engineer, if so ordered by the court, shall supervise this restoration effort and may allow the responsible persons to apply for a permit for only that portion of the unauthorized activity for which restoration has not been so ordered.

(c) In those cases where the District Engineer determines that the unauthorized activity was performed in nontidal waters, prior to an administrative, judicial or legislative determination that the water is a navigable water of the United States, the District Engineer shall instruct the responsible persons to immediately file for a permit, unless he determines on the basis of all the facts and circumstances that immediate legal action is warranted. In such cases, the District Engineer will follow the procedures of paragraph (g) (12) (ii) (a) and (b) of this section.

(iii) Processing and evaluation of applications for after-the-fact authorizations for activities undertaken without the required Department of the Army authorizations will in all other respects follow the standard procedures of this regulation. Thus, authorizations may still be denied in accordance with the policies and procedures of this regulation.

(iv) Where after-the-fact authorization is determined to be in the public interest, the standard permit form for the activity will be used, omitting inappropriate conditions, and including whatever special conditions the District Engineer may deem appropriate to mitigate or prevent undesirable effects which have occurred or might occur.

(v) Where after-the-fact authorization is not determined to be in the public interest, the notification of the denial of the permit will prescribe any corrective actions to be taken in connection with the work already accomplished and establish a reasonable period of time for the applicant to complete such actions. The District Engineer, after denial of the permit, will again consider whether civil or criminal action is appropriate.

(vi) If the applicant declines to accept the proposed permit conditions, or fails to take corrective action prescribed in the notification of denial, or if the District Engineer determines, after denying the permit application, that legal action is appropriate, the matter will be referred to the Chief of Engineers, ATTN: DAEN-GCK, with recommendations for appropriate action.

(vii) Applications will generally not be required for work or structures completed before 18 December 1968, nor where potential applicants had received expressions of disclaimer prior to the date of this regulation; provided, however, That the procedures of paragraph

(g) (12) (4) of this section shall apply to all work or structures which were commenced or completed on or after 18 December 1968, and may be applied to all specific cases, regardless of date of construction or previous disclaimers, for which the District Engineer determines that the interests of navigation so require.

(13) *Facilities at the borders of the United States.* (i) The construction, operation, maintenance, or connection of facilities at the borders of the United States are subject to Executive control and must be authorized by the President, Secretary of State, or other delegated official.

(a) Applications for permits for the construction, operation, maintenance, or connection at the borders of the United States of facilities for the transmission of electric energy between the United States and a foreign country, or for the exportation or importation of natural gas to or from a foreign country, must be made to the Federal Power Commission. (See Executive Order 10485, September 3, 1953, 16 U.S.C. 824(a) (e), 15 U.S.C. 717b, and 18 CFR Parts 32 and 153).

(b) Applications for the landing or operation of submarine cables must be made to the Federal Communications Commission. (See Executive Order 10530, May 10, 1954, 47 U.S.C. 34 to 39, and 47 CFR 1.767).

(c) The Secretary of State is to receive applications for permits for the construction, connection, operation, or maintenance, at the borders of the United States, of: (1) pipelines, conveyors belts, and similar facilities for the exportation or importation of petroleum products, coals, minerals, or other products to or from a foreign country; (2) facilities for the exportation or importation of water or sewage to or from a foreign country; (3) monorails, aerial cable cars, aerial tramways and similar facilities for the transportation of persons or things, or both, to or from a foreign country. (See Executive Order 11423, August 16, 1968).

(ii) A Department of the Army permit under Section 10 of the River and Harbor Act of March 3, 1899 is also required for all of the above facilities which affect the navigable waters of the United States, but in each case in which a permit has been issued as provided above, the decision whether to issue the Department of the Army permit will be based primarily on factors of navigation, since the basic existence and operation of the facility will have been examined and permitted as provided by the Executive Orders. Furthermore, in those cases where the construction, maintenance, or operation at the above facilities involves the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it into ocean waters, appropriate Department of the Army authorizations under section 404 of the Federal Water Pollution Control Act or under section 103 of the Marine Protection Research and Sanctuaries Act of 1972 are also required. Evaluation of applications

for these authorizations will be in accordance with paragraph (g) (17) of this section.

(14) *Power transmission lines.* (i) Permits under section 10 of the River and Harbor Act of March 3, 1899, (33 U.S.C. 403) are required for power transmission lines crossing navigable waters of the United States unless those lines are part of a water power project subject to the regulatory authorities of the Federal Power Commission under the Federal Water Power Act of 1920 (16 U.S.C. 797). If an application is received for a permit for lines which are part of a water power project, the applicant will be instructed to submit his application to the Federal Power Commission. If the lines are not part of a water power project, the application will be processed in accordance with the procedures prescribed in this regulation.

(ii) The following minimum clearances are required for aerial electric power transmission lines crossing navigable waters of the United States. These clearances are related to the clearances over the navigable channel provided by existing fixed bridges, or the clearances which would be required by the U.S. Coast Guard for new fixed bridges, in the vicinity of the proposed power line crossing. The clearances are based on the low point of the line under conditions which produce the greatest sag, taking into consideration temperature, load, wind, length of span, and type of supports as outlined in the National Electrical Safety Code.

Nominal system voltage, kV:	Minimum additional clearance (ft.) above clearance required for bridges
115 and below	20
138	22
161	24
230	26
350	30
500	35
700	42
750-765	45

(15) *Seaplane operations.* Structures in navigable waters of the United States associated with seaplane operations require Department of the Army permits, but close coordination with the Federal Aviation Administration (FAA), Department of Transportation, is required on such applications.

(i) The FAA must be notified by an applicant whenever he proposes to establish or operate a seaplane base. The FAA will study the proposal and advise the applicant, District Engineer, and other interested parties as to the effects of the proposal on the use of airspace. The District Engineer will therefore refer any objections regarding the effect of the proposal on the use of airspace to the FAA, and give due consideration to their recommendations when evaluating the general public interest.

(ii) If the seaplane base will serve air carriers licensed by the Civil Aeronautics Board, the applicant must receive an airport operating certificate from the FAA. That certificate reflects determination and conditions relating to the installa-

tion, operation, and maintenance of adequate air navigation facilities and safety equipment. Accordingly, the District Engineer may, in evaluating the general public interest, consider such matters to have been primarily evaluated by the FAA.

(16) *Foreign Trade Zones.* The Foreign Trade Zones Act (48 Stat. 998-1003, 19 U.S.C. sections 81a to 81u, as amended) authorizes the establishment of foreign-trade zones in or adjacent to United States ports of entry under terms of a grant and regulations prescribed by the Foreign-Trade Zones Board. Pertinent regulations are published at Title 15 of the Code of Federal Regulations, Part 400. The Secretary of the Army is a member of the Board, and construction of a zone is under the supervision of the District Engineer. Laws governing the navigable waters of the United States remain applicable to foreign-trade zones, including the general requirements of this regulation. Evaluation by a District Engineer of a permit application may give recognition to the consideration by the Board of the general economic effects of the zone on local and foreign commerce, general location of wharves and facilities, and other factors pertinent to construction, operation, and maintenance of the zone.

(17) *Discharge of dredged or fill material in navigable waters or dumping of dredged material in ocean waters.* (i) Applications for permits for the discharge of dredged or fill material into navigable waters at specific disposal sites will be reviewed in accordance with guidelines promulgated by the Administrator, EPA, under authority of section 404(b) of the Federal Water Pollution Control Act. If the EPA guidelines alone prohibit the designation of a proposed disposal site, the economic impact on navigation and anchorage of the failure to authorize the use of the proposed disposal site in navigable waters will also be considered in evaluating whether or not the proposed discharge is in the public interest.

(ii) Applications for permits for the transporting of dredged material for the purpose of dumping it into ocean waters will be evaluated to determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In making the evaluation, Corps of Engineers officials will apply criteria established by the Administrator, EPA, under authority of section 102 (a) of the Marine Protection, Research and Sanctuaries Act of 1972, and will specify the dumping sites, using the recommendations of the Administrator, pursuant to section 102(c) of the Act, to the extent feasible. (See 40 CFR Part 220). In evaluating the need for the dumping as required by paragraph (f) (2) (i) of this section, Corps of Engineers officials will consider the potential effect of a permit denial on navigation, economic and industrial development, and foreign and domestic commerce of the United States.

(iii) Sites previously designated for use as disposal sites for discharge or dumping of dredged material will be specified to the maximum practicable extent in permits for the discharge or dumping of dredged material in navigable waters or ocean waters unless restricted by the Administrator, EPA, in accordance with section 404(c) of the Federal Water Pollution Control Act or section 102(c) of the Marine Protection, Research, and Sanctuaries Act of 1972.

(iv) Prior to actual issuance of permits for the discharge or dumping of dredged or fill material in navigable or ocean waters, Corps of Engineers officials will advise appropriate Regional Administrators, EPA, of the intent to so issue permits. If the Regional Administrator advises, within fifteen days of the advice of the intent to issue, that he objects to the issuance of the permits, the case will be forwarded to the Chief of Engineers in accordance with paragraph (s), below, for further coordination with the Administrator, EPA, and decision. The report forwarding the case will contain an analysis for a determination by the Secretary of the Army that there is no economically feasible method or site available other than that to which the Regional Administrator objects. (See also paragraphs (b) (7) and (b) (8) of this section.)

(18) *Activities in coastal zones and marine sanctuaries.* (i) Applications for Department of the Army authorizations for activities in the coastal zones of those States having a coastal zone management program approved by the Secretary of Commerce will be evaluated with respect to compliance with that program. No permit will be issued until the applicant has certified that his proposed activity complies with the coastal zone management program and the appropriate State agency has concurred with the certification or has waived its right to do so (see paragraph (i) (2) (ii) of this section); however, a permit may be issued if the Secretary of Commerce, on his own initiative or upon appeal by the applicant, finds that the proposed activity is consistent with the objectives of the Coastal Zone Management Act of 1972 or is otherwise necessary in the interest of national security.

(ii) Applications for Department of the Army authorization for activities in a marine sanctuary established by the Secretary of Commerce under authority of section 302 of the Marine Protection, Research, and Sanctuaries Act of 1972 will be evaluated for impact on the marine sanctuary. No permit will be issued until the applicant provides a certification from the Secretary of Commerce that the proposed activity is consistent with the purposes of Title III of the Marine Protection, Research and Sanctuaries Act of 1972 and can be carried out within the regulations promulgated by the Secretary of Commerce to control activities within the marine sanctuary. Authorizations so issued will contain such special conditions as may be required by the Secretary of Commerce in connection with his certification.

(h) *Applications for authorizations.*

(1) Any person proposing to undertake any activity requiring Department of the Army authorization as specified in paragraph (e) of this section, must apply for a permit to the District Engineer in charge of the District where the proposed activity is to be performed. Applications for permits must be prepared in accordance with instructions in the pamphlet entitled "Applications for Department of the Army Permits for Activities in Waterways" published by the Corps of Engineers, utilizing the prescribed application form (ENG Form 4345). The form and pamphlet may be obtained from the District Engineer having jurisdiction over the waterway in which the proposed activity will be located. Local variations of the application form for purposes of facilitating coordination with State and local agencies may be proposed by District or Division Engineers. These variations will be submitted for approval to DAEN-CWO-N and for clearance by the Office of Management and Budget.

(2) Generally, the application must include a complete description of the proposed activity, which includes necessary drawings, sketches or plans, the location, purpose and intended use of the proposed activity; scheduling of the activity; the names and addresses of adjoining property owners and the location and dimensions of adjacent structures; and the approvals required by other Federal, Interstate, State or local agencies for the work, including all approvals or denials already made.

(i) If the activity involves dredging in navigable waters of the United States, the application must include a description of the type, composition and quantity of the material to be dredged, the method of dredging, and the site and plans for disposal of the dredged material.

(ii) If the activity includes the discharge of dredged or fill material in the navigable waters or the transportation of dredged material for the purpose of dumping it in the ocean waters, the application must include the source of the material, a description of the type, composition and quantity of the material, the method of transportation and disposal of the material, and the location of the disposal site. Certification under section 401 of the Federal Water Pollution Control Act is required for such discharges into navigable waters. In addition, applicants for permits for these activities are required to pay a fee of \$100 per application if the quantity of the material to be discharged in navigable waters or to be dumped in ocean waters exceeds 2500 cubic yards; if the quantity of material is 2500 cubic yards or less, the fee is \$10 per application. Agencies or instrumentalities of Federal, State, or local governments will not be required to pay any fee in connection with applications for permits. This fee structure will be reviewed from time to time.

(iii) If the activity includes the construction of a fill or pile or float-supported platform, the project description

must include specific structures to be erected on the fill or platform.

(iv) If the activity includes the construction of a structure the normal use of which may result in a discharge of pollutants, other than dredged or fill material, into navigable waters or ocean waters, the application must include either the identification of the application for the discharge permit assigned by the appropriate water pollution control agency or a copy of that application. Certification under Section 401 of the Federal Water Pollution Control Act is required for such discharges into navigable waters.

(v) If the activity will be located within a marine sanctuary established by the Secretary of Commerce, the application must include a copy of the certification from the Secretary of Commerce that the proposed activity is consistent with the purposes of Title III of the Marine Protection, Research and Sanctuaries Act of 1972 and can be carried out within the regulations promulgated by the Secretary of Commerce to control activities within the marine sanctuary.

(vi) If the activity requires the preparation of an environmental impact statement (see paragraphs (1) (1) (iv) and (1) of this section), which necessitates the development of data and information which will result in substantial expense to the United States, the District Engineer may, after obtaining written approval from the Division Engineer, charge the applicant for those extraordinary expenses incurred in the development of this information pursuant to 31 U.S.C. 483(a). All money so collected shall be paid into the Treasury of the United States as miscellaneous receipts. In lieu of this assessment, the District Engineer may require reports, data, and other information for the environmental impact statement (see paragraph (h) (3) of this section), to be compiled by an independent third party under contract with the applicant and furnished directly to the District Engineer; *Provided*, In such cases, the District Engineer shall specify the type of information to be developed; *And provided further*, That the information furnished by this third party contractor may not be used by the District Engineer to assist in his preparation of the environmental impact statement unless he has approved the selection of this third party contractor after consulting with interested Federal, State, and local agencies, public interest groups, and members of the general public, as he deems appropriate, to assure objectivity in this selection. In either case, the District Engineer should advise the applicant in writing that there is no assurance that favorable action will ultimately be taken on his application.

(3) In addition to that information indicated in paragraph (h) (2) of this section, the applicant will be required to furnish such additional information as the District Engineer may deem necessary to assist him in his evaluation of the application. Such additional information may include an environmental assessment, including information on alter-

nate methods and sites, as may be necessary for the preparation of an environmental impact statement (see paragraph (l), below).

(4) The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish, upon request, supplemental information in support of the application. In either case, the signature of the applicant will be understood to be an affirmation that he possesses the authority to undertake the activity proposed in his application, except where the lands are under the control of the Corps of Engineers, in which case the District Engineer will coordinate the transfer of the real estate and the permit action. When the application is submitted by an agent, the application may include the activity of more than one owner provided the character of the activity of each owner is similar and in the same general area.

(i) *Processing applications for permits—(1) standard procedures.* (1) When an application for a permit is received, the District Engineer shall immediately assign it a number for identification, acknowledge receipt thereof, and advise the applicant of the number assigned to it. He shall review the application for completeness and obtain from the applicant any additional information he deems necessary for further processing.

(ii) When all required information has been provided, the District Engineer will issue a public notice as described in paragraph (j) of this section unless specifically exempted by other provisions of this regulation. The notice will be distributed for posting in post offices or other appropriate public places in the vicinity of the site of the proposed work and will be sent to the applicant, to appropriate city and county officials, to adjoining property owners, to appropriate State agencies, to concerned Federal agencies, to local, regional and national shipping and other concerned business and conservation organizations, and to any other interested parties. If in the judgment of the District Engineer the proposal may result in substantial public interest, the public notice (without drawings) may be published for five consecutive days in the local newspaper, and the applicant shall reimburse the District Engineer for the costs of publication. Copies of public notices will be sent to all parties who have specifically requested copies of public notices, to the U.S. Senators and Representatives for the area where the work is to be performed, the Field Representative of the Secretary of the Interior, the Regional Director of the Bureau of Sport Fisheries and Wildlife, the Regional Director of the National Park Service, the Regional Administrator of the Environmental Protection Agency (EPA), the Regional Director of the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA),

the head of the State agency responsible for fish and wildlife resources, the District Commander, U.S. Coast Guard, and the Office of the Chief of Engineers, Attention: DAEN-CWO-N.

(iii) The District Engineer shall consider all comments received in response to the public notice in his subsequent actions on the permit application. Receipt of the comments will be acknowledged and they will be made a part of the official file on the application. Comments received as form letters or petitions may be acknowledged as a group to the person or organization responsible for the form letter or petition. If comments relate to matters within the special expertise of another Federal agency, the District Engineer may seek the advice of that agency. The applicant must be given the opportunity to furnish the District Engineer his proposed resolution or rebuttal to all objections from Government agencies and other substantive adverse comments before final decision will be made on the application.

(iv) The District Engineer will consider whether or not an environmental impact statement is necessary (see paragraph (l) of this section) at the earliest time during the processing of an application involving an activity which is not already subject to an environmental impact statement. This will be done when he can make an assessment of the environmental impact of a proposed activity, which in some cases may be upon receipt of the application due to the magnitude of the proposed project or the nature of the area involved. This will be reconsidered as additional information is developed; however, at the earliest time that it appears an environmental impact statement may be required, the District Engineer will require the applicant to furnish additional information and an analysis of the environmental impacts of the proposed action. A preliminary determination as to whether an environmental impact statement will be prepared or a statement that an environmental impact statement has already been prepared on the overall activity by the Corps of Engineers or another Federal agency, will be announced in the Public Notice (see paragraph (j) of this section). If the District Engineer determines that an environmental impact statement will not be prepared for the proposed activity, a finding to that effect will immediately be placed in the permit file and, if the public notice has indicated an intent to prepare a statement, will be announced to the public. This finding shall be dated and signed and shall include a brief statement of the facts and reasons for the decision. If the District Engineer believes that granting the permit may be warranted but that the proposed activity would significantly affect the quality of the human environment, he will prepare an environmental impact statement in accordance with § 209.410. In such cases and if a public hearing is to be held (see subparagraph (v), below), the proposed final environmental impact statement must be completed prior to the hearing. If a public meeting is held, however, the

draft environmental impact statement will be filed with the Council on Environmental Quality (CEQ) at least 15 days prior to the meeting.

(v) If the proposed activity includes the discharge of dredged or fill material into navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters and a person or persons having an interest which may be affected by the issuance of a permit requests a hearing, or if a second State objects to issuance of a permit on the basis of water quality and requests a hearing, or if otherwise required by law or directed by the Chief of Engineers, the District Engineer will arrange a public hearing in accordance with applicable Corps of Engineers regulations (§ 209.133). If no public hearing is to be held and the District Engineer determines that public interest warrants and additional information necessary to the proper evaluation of the application would probably be obtained thereby, the District Engineer will hold a public meeting (see paragraph (k) of this section).

(vi) After all above actions have been completed, the District Engineer will determine in accordance with the record and applicable regulations whether or not the permit should be issued. If a permit is warranted, he will determine the conditions and duration which should be incorporated into the permit (see paragraphs (m) and (n) of this section). In accordance with the authorities specified in paragraph (p) of this section the District Engineer will take final action or forward the application with all pertinent comments, records, and studies, including the final environmental impact statement if prepared, and a statement of findings to support his recommendation, through channels to the official authorized to make the final decision. The report forwarding the application for decision will be in the format prescribed in paragraph (s) of this section. Notice that the application has been forwarded to higher headquarters will be furnished the applicant. When the final decision is made, the statement of findings to support that decision will be placed in the permit file. If an environmental impact statement was filed with CEQ, a copy of the statement of findings will be submitted to DAEN-CWO-N for filing with CEQ. In those cases where an environmental impact statement has not been prepared but the application is forwarded for decision in the format prescribed in paragraph (s) of this section, the report will serve as the Statement of Findings.

(vii) If the final decision is to deny the permit, the applicant will be advised in writing of the reason therefor. If the final decision is to issue the permit, the issuing official will forward two copies of the draft permit to the applicant for signature accepting the conditions of the permit. The applicant will return both signed copies to the issuing officials who then signs and dates the permit. The permit is not valid until signed by the issuing official. Final action on the permit application is the signature on the letter

notifying the applicant of the denial of his application or signature of the issuing official on the authorizing document.

(viii) The District Engineer will publish monthly a list of permits issued or denied during the previous month. The list will identify each action by public notice number, name of applicant, and brief description of activity involved. This list will be distributed to all persons who received any of the public notices listed.

(ix) If the applicant fails to respond within six months to any request or inquiry of the District Engineer, the District Engineer may advise the applicant by registered letter that his application will be considered as having been withdrawn unless the applicant responds thereto within thirty days of the date of the letter.

(2) *Procedures for particular types of permit situations.* (i) Activities requiring water quality certification:

(a) If water quality certification for the proposed activity is necessary under the provisions of the Federal Water Pollution Control Act, the District Engineer shall so notify the applicant and obtain from him either the appropriate certification or a copy of his application for such certification. The District Engineer shall forward one copy of the permit application to the appropriate certifying agency and two copies to the Regional Administrator of the Environmental Protection Agency (EPA). The District Engineer may issue the public notice of the application jointly with the certifying agency if arrangements for such joint notices have been approved by the Division Engineer. When the certification is received a copy of the certification will be forwarded to the Regional Administrator of EPA who shall determine if the proposed activity may affect the quality of the waters of any State or States other than the State in which the work is to be performed. If he needs supplemental information in order to make this determination, the Regional Administrator may request it from the District Engineer who shall obtain it from the applicant and forward it to the Regional Administrator. The Regional Administrator shall, within thirty days of receipt of the application, certification and supplemental information, notify the affected State, the District Engineer, and the applicant in the event such a second State may be affected. The second State then has sixty days to advise the District Engineer that it objects to the issuance of the permit on the basis of the effect on the quality of its waters and to request a hearing.

(b) No authorization will be granted until required certification has been obtained or has been waived. Waiver is deemed to occur if the certifying agency fails or refuses to act on a request for certification within a reasonable period of time after receipt of such request. The request for certification must be made in accordance with the regulations of the certifying agency. In determining whether or not a waiver period has commenced, the District Engineer will verify

that the certifying agency has received a valid request for certification. Three months shall generally be considered to be a reasonable period of time. If, however, special circumstances identified by the District Engineer require that action on an application be taken within a more limited period of time, the District Engineer shall determine a reasonable lesser period of time, advise the certifying agency of the need for action by a particular date and that, if certification is not received by that date, it will be considered that the requirement for certification has been waived. Similarly if it appears that circumstances may reasonably require a period of time longer than three months, the District Engineer may afford the certifying agency up to one year to provide the required certification before determining that a waiver has occurred. District Engineers shall check with the certifying agency at the end of the allotted period of time before determining that a waiver has occurred.

(ii) If the proposed activity will be located in the coastal zone of a State, the District Engineer shall obtain from the applicant a certification that the activity conforms to the coastal zone management program of the State. Upon receipt of the certification, the District Engineer will forward a copy of the permit application and certification to the State agency responsible for implementing the coastal zone management program and request its concurrence or objection. The District Engineer can issue the public notice of the application jointly with the State agency if arrangements for such joint notices have been approved by the Division Engineer. A copy of the certification will also be sent, along with the public notice of the application to the Director, Office of Coastal Zone Management, NOAA, Department of Commerce, Rockville, Maryland 20852. If the State agency fails to concur or object to the certification within six months of receipt of the request, it will be presumed to waive its right to so act and the certification will be presumed to be valid. Before determining that a waiver has occurred, the District Engineer will check with the State agency to verify that it has failed to act. If the State agency objects to the proposed activity, the District Engineer will so advise the Director, Office of Coastal Zone Management, NOAA, and request advice within thirty days whether or not the Secretary of Commerce will review the objection. If the objection will not be reviewed, the permit will be denied. If, however, the Secretary of Commerce indicates he will review the objection, further action on the application will be held in abeyance pending notification of the results of the review. If the objection is sustained, the permit will be denied. If the objection is overruled by the Secretary's finding, however, the processing will be continued.

(iii) If the proposed activity involves any property listed in the National Register of Historic Places (which is published in its entirety in the FEDERAL REGISTER annually in February with addenda published each month), the District

Engineer will determine if any aspect of the activity causes or may cause any change in the quality of the historical, architectural, archeological, or cultural character that qualified the property for listing in the National Register. Generally adverse effects occur under conditions which include but are not limited to destruction or alteration of all or part of the property; isolation from or alteration of its surrounding environment; and introduction of visual, audible, or atmospheric elements that are out of character with the property and its setting. If the District Engineer determines that the activity will have no effect on the property, he will proceed with the standard procedures for processing the application. If, however, the District Engineer determines that the activity will have an effect on the property, he will proceed in accordance with the procedures specified in the FEDERAL REGISTER, Volume 37, Number 220, November 14, 1972, pages 24146 to 24148.

(iv) If the proposed activity consists of the dredging of an access channel and/or berthing facility associated with an authorized Federal navigation project, the activity will be included in the planning and coordination of the construction or maintenance of the Federal project to the maximum extent feasible. Separate notice, meeting or hearing, and environmental impact statement will not be required for activities so included and coordinated; and the public notice issued by the District Engineer for these Federal and associated non-Federal activities will be the notice of intent to issue permits for those included non-Federal dredging activities required by paragraph (g) (17) (iv) of this section. The decision whether to issue or deny such a permit will be consistent with the decision on the Federal project unless special considerations applicable to the proposed activity are identified.

(v) In addition to the general distribution of public notices cited in paragraph (1) (1) (iv) of this section, notices will be sent to other addressees in appropriate cases as follows:

(a) If the activity involves structures or dredging along the shores of the sea or Great Lakes, to the Coastal Engineering Research Center, Washington, D.C. 20016.

(b) If the activity involves construction of fixed structures or artificial islands on the outer continental shelf or in the territorial seas, to the Deputy Assistant Secretary of Defense (Installations and Housing) Washington, D.C. 20310, the Director, Defense Mapping Agency, Hydrographic Center, Washington, D.C. 20390, Attention, Code N512, and the Director, National Ocean Survey, NOAA, Department of Commerce, Rockville, Maryland 20852.

(c) If the activity involves the construction of structures to enhance fish propagation along the Atlantic and Gulf coasts, to the Atlantic Estuarine Fisheries Center, National Marine Fisheries Service, NOAA, Department of Commerce, Beaufort, North Carolina 28516.

(d) If the activity involves the construction of structures which may affect

aircraft operations or for purposes associated with seaplane operations, to the Regional Director of the Federal Aviation Administration.

(e) If the activity is in connection with a foreign-trade zone, to the Executive Secretary, Foreign-Trade Zones Board, Department of Commerce, Washington, D.C. 20230, and to the appropriate District Director of Customs as Resident Representative, Foreign-Trade Zones Board.

(vi) Copies of permits will be furnished to other agencies in appropriate cases as follows:

(a) If the activity involves the construction of structures or artificial islands on the outer continental shelf, to the Director, Defense Mapping Agency, Hydrographic Center, Washington, D.C. 20390, Attention, Code N512 and to the Director, National Ocean Survey, NOAA, Department of Commerce, Rockville, Maryland 20852.

(b) If the activity involves the construction of structures to enhance fish propagation (fish havens) along the coasts of the United States, to Defense Mapping Agency, Hydrographic Center and National Ocean Survey as in paragraph (1) (2) (vi) (a) of this section and to the Atlantic Estuarine Fisheries Center, National Marine Fisheries Service, NOAA, Department of Commerce, Beaufort, North Carolina 28416.

(c) If the activity involves the erection of an aerial transmission line across a navigable water of the United States, to the Director, National Ocean Survey, NOAA, Department of Commerce, Rockville, Maryland 20852, reference C322.

(d) If the activity is listed in paragraph (1) (2) (vi) (a), (b), or (c) of this section or involves the transportation of dredged material for the purpose of dumping it in ocean waters, to the appropriate District Commander, U.S. Coast Guard.

(vii) If the District Engineer determines that a letter or permission (see paragraph (m) of this section) is the appropriate form of authorization to be issued, he may omit the publishing of a public notice; however, he will coordinate the proposal with all concerned fish and wildlife agencies, Federal and State, as required by the Fish and Wildlife Coordination Act. A copy of the letter of permission will be sent to the Regional Director, Bureau of Sport Fisheries and Wildlife.

(viii) If the circumstances surrounding a permit application require emergency action and the District Engineer considers that the public interest requires that the standard procedures must be abbreviated in the particular case, he will explain the circumstances and recommend special procedures to the Chief of Engineers, ATTN: DAEN-CWO-N by teletype. The Chief of Engineers, upon consultation with the Secretary of the Army or his authorized representative and other affected agencies, will instruct the District Engineer as to further processing of the application.

(ix) *General Permits.* The District Engineer may, after compliance with the

other procedures of this regulation, issue general permits for certain clearly described categories of structures or work, including discharges of dredged or fill material, requiring Department of the Army permits. After a general permit has been issued, individual activities falling within those categories that are authorized by such general permits do not have to be further authorized by the procedures of this regulation unless the District Engineer determines, on a case-by-case basis, that the public interest requires.

(a) District Engineers will include only those activities that are substantially similar in nature, that cause only minimal adverse environmental impact when performed separately, and that will have only a minimal adverse cumulative effect on the environment as categories which are candidates for general permits.

(b) In addition to the conditions prescribed in Appendix C of this Regulation, any general permit issued by the District Engineer shall prescribe the following conditions:

(1) The maximum quantity of material that is authorized for discharge by the general permit in a single or incidental operation (if applicable);

(2) A description of the category or categories of activities included in the general permit; and

(3) The type of water(s) into which the activity may occur.

(c) The District Engineer shall require reporting procedures where the general permit fails to designate a specific water body or water bodies. He may require such procedures in other situations.

(d) A general permit may be revoked if it is determined that the cumulative effects of the activities by it will have an adverse impact on the public interest provided the procedures of paragraph (c) of this regulation are followed.

(e) Following revocation, any future activities in areas covered by the general permit shall be processed as individual permits under this regulation.

(3) *Timing of processing of applications.* In view of the extensive coordination with other agencies and the public and the study of all aspects of proposed activities required by the above procedures, applicants must allow adequate time for the processing of their applications. The District Engineer will be guided by the following time limits for the indicated steps in processing permit applications:

(i) Public notice should be issued within fifteen days of receipt of all required information from the applicant, unless joint notice with State agencies is to be used.

(ii) The receipt of comments as a result of the public notice should not extend beyond seventy-five days from the date of the notice.

(iii) The record of a public meeting should be closed not later than fifteen days after the meeting.

(iv) The District Engineer should either send notice of denial to the applicant, or issue the draft permit to the

applicant for acceptance and signature, or forward the application to higher headquarters within thirty days of one of the following whichever is latest: receipt of notice of withdrawal of objections; completion of coordination following receipt of applicant's rebuttal of objections; receipt of the record of a public hearing; closing of the record of a public meeting; or expiration of the waiting period following the filing of the final environmental impact statement with CEQ.

(j) *Public notice and coordination with interested parties.* (1) The Public Notice is the primary method of advising all interested parties of the proposed activity for which a permit is sought and of soliciting comments and information necessary to evaluate the probable impact on the public interest. The notice must, therefore, include sufficient information to give a clear understanding of the nature of the activity to generate meaningful comments. The notice should include the following items of information:

(i) The name and address of the applicant;

(ii) The location of the proposed activity;

(iii) A brief description of the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pile or float-supported platforms, and a description of the type, composition and quantity of materials to be discharged or dumped and means of conveyance;

(iv) A plan and elevation drawing showing the general and specific site location and character of all proposed activities, including the size relationship of the proposed structures to the size of the impacted waterway and depth of water in the area;

(v) A list of other government authorizations obtained or requested, including required certifications relative to water quality, coastal zone management, or marine sanctuaries;

(vi) A statement concerning a preliminary determination of the need for and/or availability of an environmental impact statement;

(vii) Any other available information which may assist interested parties in evaluating the likely impact of the proposed activity, if any, on factors affecting the public interest, including environmental values;

(viii) A reasonable period of time, normally thirty days but not less than fifteen days from date of mailing, within which interested parties may express their views concerning the permit application; and

(ix) A paragraph describing the various factors on which decisions are based during evaluation of a permit application.

(a) Except as provided in paragraph (j) (1) (ix) (b) of this section the following will be included:

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the

public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetic, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest.

(1) If a Federal agency other than the Corps of Engineers has primary responsibility for licensing an activity and for environmental review as contemplated by the provisions of the National Environmental Policy Act, (see paragraph (e) (3) of this section), the public notice shall, in lieu of the general paragraph above, describe the actions and reviews pending before those agencies, recite the fact that District Engineers will consult with, and give due consideration to the findings of, those agencies and provide the following paragraph: "The decision whether to issue a permit will be based on a consideration of the effect which the proposed activity will have on the navigable capacity of the waterway." (See particularly paragraphs (g) (13), (g) (15), and (g) (16) of this section.)

(2) If the activity involves the discharge of dredged or fill material into the navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the public notice shall also indicate that the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, EPA, under authority of section 404(b) of the Federal Water Pollution Control Act or of the criteria established under authority of section 102(a) of the Marine Protection, Research and Sanctuaries Act of 1972 as appropriate.

(b) In cases involving construction of fixed structures or artificial islands on outer continental shelf lands which are under mineral lease from the Department of the Interior, the notice will contain the following statement: "The decision as to whether a permit will be issued will be based on an evaluation of the impact of the proposed work on navigation and national security."

(x) If the activity includes the discharge of dredged or fill material in the navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, the following statement will also be included in the public notice:

Any person who has an interest which may be adversely affected by the issuance of a permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity.

(2) It is presumed that all interested parties and agencies will wish to respond to public notices; therefore, a lack of response will be interpreted as meaning that there is no objection to the application. A copy of the public notice with the list of the addressees to whom the notice was sent will be included in the record. If a question develops with respect to an activity for which another agency has responsibility and that other agency has not responded to the public notice, the District Engineer may request their comments. Whenever a response to a public notice has been received from a member of Congress, either in behalf of a constituent or himself, the District Engineer will inform the member of Congress of the final decision.

(3) Notices sent to several agencies within the same State may result in conflicting comments from those agencies. While many States have designated a single State agency or individual to provide a single and coordinated State position regarding pending permit applications, where a State has not so designated a single source, District Engineers will elicit from the Governor an expression of his views and desires concerning the application. Where coordination is required by the Fish and Wildlife Coordination Act (see paragraph (c) (5) of this section), District Engineers will address a letter to the designated single State agency or Governor, as appropriate, inviting attention to the coordination requirements of the Fish and Wildlife Coordination Act and requesting that a report from the head of the State agency responsible for fish and wildlife resources be appended to the coordinated State report.

(k) *Public meetings.* (1) It is the policy of the Corps of Engineers to conduct the civil works program in an atmosphere of public understanding, trust, mutual cooperation, and in a manner responsive to the public interest. The views of all concerned persons are initially sought by means of public notices in connection with applications for permits. Where response to a notice indicates further opportunity for public expressions of interest may be warranted, and a public hearing is not required by law or directed by the Chief of Engineers, the District Engineer may hold a public meeting.

(2) A public meeting is a forum at which all concerned persons are given an opportunity to present additional information relevant to a proper evaluation of an application for a permit for an activity. If a public meeting is held, notice announcing the meeting will be published at least thirty days in advance of the meeting. A summary of environmental considerations will be included in the notice. The applicant will be given an opportunity to present his proposal and explain why he thinks it is in the public interest. Officials of other Federal agencies or of State and local governments will be given opportunity to express their views, as well as other persons. The conduct of the meeting will

be in accordance with § 209.405 and a transcript of the meeting will be part of the record.

(1) *Environmental impact statement.* (1) Section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA) requires all Federal agencies, with respect to major Federal actions significantly affecting the quality of the human environment, to submit to CEQ a detailed statement on:

(i) The environmental impact of the proposed action;

(ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented;

(iii) Alternatives to the proposed action;

(iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity;

(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

(2) As indicated in paragraph (1) (1) (iv) of this section the District Engineer must determine whether an environmental impact statement is required in connection with a permit application. If the District Engineer believes that granting the permit may be warranted but that the proposed activity would have a significant environmental impact, an environmental impact statement will be prepared, coordinated and filed in accordance with provisions of § 209.410 prior to final action on the application. If another agency is the lead agency as defined by section 5b of the CEQ guidelines contained in § 209.410, the District Engineer will coordinate with that agency to insure that the resulting environmental impact statement adequately describes the impact of the activity which is subject to Corps permit authority.

(3) The scope of the considerations to be discussed in an environmental impact statement depends heavily on continuing court interpretation of NEPA and on the nature of the activity for which authorization is requested.

(i) All the direct effects of the activity must be evaluated, as must any indirect effects which have a clear or proximate relationship to the activity. Other effects, however, may be too speculative or remote to merit detailed consideration. Thus an environmental impact statement which examines the probable environmental impact of an activity should evaluate all known effects which have a direct or proximate but indirect relationship to the proposal and should cite other remote or speculative effects.

(ii) The scope of the environmental impact statement is often somewhat different from that of the laws under which the activity may be authorized. Thus, an authorization may be only for a part of a much larger and more complex operation or development over which few regulatory controls exist. In such cases, the range of factors to be discussed in the environmental impact statement may

of necessity be expanded to include factors which are beyond the normal scope of the law on which the authorization depends.

(m) *Forms of authorization.* (1) The basic form for authorizing activities in navigable waters or ocean waters is ENG Form 1721, Department of the Army Permit (Appendix C). This form will be used to authorize activities under provisions of:

(i) Section 10 of the River and Harbor Act of March 3, 1899, in all cases where a letter of permission is not appropriate (see paragraph m(3) of this section.)

(ii) Section 404 of the Federal Water Pollution Control Act.

(iii) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1973.

(2) While the general conditions included in ENG Form 1721 are normally applicable to all permits, some may not apply to certain authorizations (e.g. after-the-fact situations where work is completed, or situations in which the permittee is a Federal agency) and may be deleted by the issuing officer. Special conditions applicable to the specific activity will be included in the permit as necessary to protect the public interest in the navigable waters or ocean waters.

(3) In those cases subject to section 10 of the River and Harbor Act of March 3, 1899, in which, in the opinion of the District Engineer, the proposed work is minor, will not have significant impact on environmental values, and should encounter no opposition, the District Engineer may use the abbreviated processing procedures of paragraph (i)(2)(vii) of this section and authorize the work by a letter of permission. The letter of permission will not be used to authorize the discharge of dredged or fill material into navigable waters or the transportation of dredged material for purpose of dumping it in ocean waters. The letter of permission will be in letter form and will identify the permittee, the authorized work and location of the work, the statutory authority (i.e., 33 U.S.C. 403), any limitations on the work, a construction time limit and a requirement for a report of completed work. A copy of the general conditions from ENG form 1721 will be attached and will be incorporated by reference into the letter of permission.

(4) Permits for structures under section 9 of the Act of March 3, 1899, will be drafted during review procedures at Department of the Army level.

(n) *Duration of authorizations.* (1) Authorizations for activities in or affecting navigable waters or ocean waters may authorize both the work and the resulting structure. Authorizations continue in effect until they automatically expire, or are modified, suspended, or revoked.

(2) Authorization for the existence of a structure or other form of alteration of the waterway is usually for an indefinite duration with no expiration date cited. However, where a temporary structure is authorized, or where restoration of a waterway is contemplated, the authorization will be of limited duration with a definite expiration date. Except

as provided in paragraph (r)(5) of this section permits for the discharge of dredged material in the navigable waters or for the transportation of dredged material for the purpose of dumping it in ocean waters will be of limited duration with a definite expiration date.

(3) Authorizations for construction work or other activity will specify time limits for accomplishing the work or activity. The time limits will specify a date by which the work must be started, normally one year from the date of issuance, and a date by which the work must be completed. The dates will be established by the issuing official and will provide reasonable times based on the scope and nature of the work involved. An authorization for work or other activity will automatically expire if the permittee fails to request an extension or revalidation.

(4) Extensions of time may be granted by the District Engineer for authorizations of limited duration, or for the time limitations imposed for starting or completing the work or activity. The permittee must request the extension and explain the basis of the request, which will be granted only if the District Engineer determines that an extension is in the general public interest. Requests for extensions will be processed in accordance with the regular procedures of paragraph (i) of this section including issuance of a public notice, except that such processing is not required where the District Engineer determines that there have been no significant changes in the attendant circumstances since the authorization was issued and that the work is proceeding essentially in accordance with the approved plans and conditions.

(5) If the authorized work includes periodic maintenance dredging (see paragraph (g)(2) of this section), an expiration date for the authorization of that maintenance dredging will be included in the permit. The expiration date, which in no event is to exceed ten years from the date of issuance of the permit, will be established by the issuing official after his evaluation of the proposed method of dredging and disposal of the dredged material. If the permittee desires to continue maintenance dredging beyond the expiration date, he must request a revalidation of that portion of his permit which authorized the maintenance dredging. The request must be made to the District Engineer six months prior to the expiration date, and include full description of the proposed methods of dredging and disposal of dredged materials. The District Engineer will process the request for revalidation in accordance with the standard procedures in paragraph (h) of this section including the issuance of a public notice describing the authorized work to be maintained and the proposed methods of maintenance.

(o) *Modification, suspension or revocation of authorizations.* (1) The District Engineer may evaluate the circumstance and conditions of a permit either on his own motion or as the result of periodic progress inspections, and initi-

ate action to modify, suspend, or revoke a permit as may be made necessary by considerations of the general public interest. Among the factors to be considered are the extent of the permittee's compliance with the terms and conditions of the permit; whether or not circumstances relating to the activity authorized have changed since the permit was issued, extended or revalidated, and the continuing adequacy of the permit conditions; any significant objections to the activity authorized by the permit which were not earlier considered; and the extent to which modification, suspension, or other action would adversely affect plans, investments and actions the permittee has reasonably made or taken in reliance on the permit. Significant increases in scope of a permitted activity will be processed as new applications for permits in accordance with paragraph (i) of this section, and not as modifications under this paragraph.

(2) The District Engineer, as a result of reevaluation of the circumstances and conditions of a permit, may determine that protection of the general public interest requires a modification of the terms or conditions of the permit. In such cases, the District Engineer will hold informal consultations with the permittee to ascertain whether the terms and conditions can be modified by mutual agreement. If a mutual agreement is reached on modification of the terms and conditions of the permit, the District Engineer will give the permittee written notice of the modification, which will then become effective on such date as the District Engineer may establish, which in no event shall be less than ten days from its date of issuance. In the event a mutual agreement cannot be reached by the District Engineer and the permittee, the District Engineer will proceed in accordance with paragraph (o)(3) of this section if immediate suspension is warranted. In cases where immediate suspension is not warranted but the District Engineer determines that the permit should be modified, he will notify the permittee of the proposed modification and reasons therefor, and that he may request a hearing. The modification will become effective on the date set by the District Engineer which shall be at least ten days after receipt of the notice unless a hearing is requested within that period in accordance with § 209.133. If the permittee fails or refuses to comply with the modification the District Engineer will immediately refer the case for enforcement to DAEN-GCK.

(3) The District Engineer may, after telephonic consultation with the Division Engineer, suspend a permit after preparing a written determination and finding that immediate suspension would be in the general public interest. The District Engineer will notify the permittee in writing by the most expeditious means available that the permit has been suspended with the reasons therefor, and order the permittee to stop all previously authorized activities. The permittee will also be advised that following this suspension a decision will be made to either reinstate, modify, or revoke the permit,

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and that he may request a hearing within 10 days of receipt of notice of the suspension to present information in this matter. If a hearing is requested the procedures prescribed in § 209.133 will be followed. After the completion of the hearing (or within a reasonable period of time after issuance of the notice to the permittee that the permit has been suspended if no hearing is requested) the District Engineer will take action to reinstate the permit, modify the permit, or recommend revocation of the permit in accordance with paragraph (o) (4) of this section.

(4) Following completion of the suspension procedures in paragraph (o) (3) of this section, if revocation of the permit is recommended, the District Engineer will prepare a report of the circumstances and forward it together with the record of the suspension proceedings to DAEN-CWO-N. The Chief of Engineers may, prior to deciding whether or not to revoke the permit, afford the permittee the opportunity to present any additional information not made available to the District Engineer at the time he made the recommendation to revoke the permit including, where appropriate, the means by which he intends to comply with the terms and conditions of the permit. The permittee will be advised in writing of the final decision.

(p) *Authority to issue or deny authorizations.* Except as otherwise provided in this regulation, the Secretary of the Army subject to such conditions as he or his authorized representative may from time to time impose, has authorized the Chief of Engineers and his authorized representatives to issue or deny authorizations for construction or other work in or affecting navigable waters of the United States pursuant to sections 10 and 14 of the Act of March 3, 1899, and section 1 of the Act of June 13, 1902. He also has authorized the Chief of Engineers and his authorized representatives to issue or deny authorizations for the discharge of dredged or fill material in the navigable waters pursuant to section 404 of the Federal Water Pollution Control Act or for the transportation of dredged material for the purpose of dumping it into ocean waters pursuant to section 103 of the Marine Protection, Research and Sanctuaries Act of 1972. The authority to issue or deny permits pursuant to section 9 of the River and Harbor Act of March 3, 1899 has not been delegated to the Chief of Engineers or his authorized representatives.

(1) District Engineers are authorized to issue in accordance with this regulation permits and letters of permission which are subject to such special conditions as are necessary to protect the public interest in the navigable waters or ocean waters pursuant to sections 10 and 14 of the River and Harbor Act of March 3, 1899, section 1 of the River and Harbor Act of June 13, 1902, section 404 of the Federal Water Pollution Control Act, and section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, in all cases in which there are no known substantive objections to the proposed work or activity or in which

objections have been resolved to the satisfaction of the District Engineer. It is essential to the legality of a permit that it contain the name of the District Engineer as the issuing officer. However, the permit need not be signed by the District Engineer, in person; but may be signed for and in behalf of him by whomever he designates. District Engineers are authorized to deny permits when required State or local authorization and/or certification has been denied (see paragraph (f) (3) (i) of this section), when a State has objected to a required certification of compliance with its coastal zone management program and the Secretary of Commerce has not reviewed the action and reached a contrary finding (see paragraph (g) (18) and (1) (2) (ii) of this section) or when the proposed work will unduly interfere with navigation. All other permit applications including those cases in paragraph (p) (2) (i) through (vii) of this section will be referred to Division Engineers. District Engineers are also authorized to add, modify, or delete special conditions in permits, except for those conditions which have been imposed by higher authority, and to suspend permits according to the procedures of paragraph (o) (3) of this section.

(2) Division Engineers will review, attempt to resolve outstanding matters, and evaluate all permit applications referred by District Engineers. Division Engineers may authorize the issuance or denial of permits pursuant to sections 10 and 14 of the River and Harbor Act of March 3, 1899, section 1 of the River and Harbor Act of June 13, 1902, section 404 of the Federal Water Pollution Control Act, and section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 and the inclusion of conditions to those permits as may be necessary to protect the public interest in the navigable waters or ocean waters in accordance with the policies cited in this regulation.

(i) Except as provided in paragraph (p) (2) (ii) of this section if the Division Engineer determines that issuance of a permit with or without conditions is in the public interest, but there is continuing objection to the issuance of the permit by another Federal agency, he shall advise the regional representative of that Federal agency of his intent to issue the permit. The Division Engineer shall not proceed with the issuance of a permit if, within 15 days after the date of this notice of intent to issue a permit, an authorized representative of that Federal Agency indicates to the Division Engineer in writing that he wishes to bring his concerns to Departmental level. In such cases, the proposed permit may be issued at the expiration of 30 days from the date of receipt of the letter from such representative unless, prior to that time, as a result of consultations at Departmental level, it is directed that the matter be forwarded to higher authority for resolution. Thereafter, a permit will be issued only pursuant to and in accordance with instructions from such higher authority. Every effort should be made to resolve differences at the Division Engi-

neer level before referring the matter to higher authority.

(ii) Division Engineers will refer to the Chief of Engineers the following cases:

(a) When it is proposed to issue a permit and there are unresolved objections from another Federal agency which must be handled under special procedures specified in statutes or Memoranda of Understanding which thereby preclude final resolution by the Division Engineer (see paragraphs (g) (4), (5) and (17) of this section);

(b) When the recommended decision is contrary to the stated position of the Governor of the affected State or of a member of Congress;

(c) When there is substantial doubt as to authority, law, regulations, or policies applicable to the proposed activity;

(d) When higher authority requests the case be forwarded for decision;

(e) Where the case is recognized to be highly controversial, or litigation is anticipated;

(f) When the proposed activity would affect the baseline used for determination of the limits of the territorial sea.

Division Engineers may also authorize the modification or suspension of permits in accordance with the procedures of this regulation, and may recommend revocation of permits to the Chief of Engineers.

(q) *Supervision and enforcement.* (1) District Engineers will supervise all authorized activities and will require that the activity be conducted and executed in conformance with the approved plans and other conditions of the permit. Inspections must be made on timely occasions during performance of the activity and appropriate notices and instructions will be given permittees to insure that they do not depart from the approved plans. Reevaluation of permits to assure compliance with its purposes and conditions will be carried out as provided in paragraph (o) of this section. If there are approved material departures from the authorized plans, the District Engineer will require the permittee to furnish corrected plans showing the activity as actually performed.

(2) Where the District Engineer determines that there has been noncompliance with the terms or conditions of a permit, he should first contact the permittee and attempt to resolve the problem. If a mutually agreeable resolution cannot be reached, a written demand for compliance will be made. If the permittee has not agreed to comply within 5 days of receipt of the demand, the District Engineer will issue an immediately effective notice of suspension in accordance with paragraph (o) (3) of this section above, and consider initiation of appropriate legal action.

(3) For purposes of supervision of permitted activities and for surveillance of the navigable waters for enforcement of the permit authorities cited in paragraph (b) of this section, the District Engineer will use all means at his disposal. One method of surveillance for unauthorized activities which should be used where

appropriate is aerial photographic reconnaissance. In addition, all Corps of Engineers employees will be instructed to observe and report all activities in navigable waters which would require permits. The assistance of members of the public and personnel of other interested Federal, State and local agencies to observe and report such activities will be encouraged. To facilitate this surveillance, the District Engineer will require a copy of ENG Form 4336 to be posted conspicuously at the site of all authorized activities and will make available to all interested persons information on the scope of authorized activities and the conditions prescribed in the authorizations. Furthermore, significant actions taken under paragraph (c), above, will be brought to the attention of those Federal, State and local agencies and other persons who express particular interest in the affected activity. Surveillance in ocean waters will be accomplished primarily by the Coast Guard pursuant to section 107(c) of the Marine Protection, Research and Sanctuaries Act of 1973. Enforcement actions relative to the permit authorities cited in paragraph (b) of this section, including enforcement actions resulting from non-compliance with permit conditions, will be in accordance with regulations published at § 209.170 (ER 1145-2-301).

(4) The expenses incurred in connection with the inspection of permitted activity in navigable waters normally will be paid by the Federal Government in accordance with the provisions of Section 6 of the River and Harbor Act of 3 March 1905 (33 U.S.C. 417) unless daily supervision or other unusual expenses are involved. In such unusual cases, and after approval by the Division Engineer, the permittee will be required to bear the expense of inspections in accordance with the conditions of his permit; however, the permittee will not be required or permitted to pay the United States inspector either directly or through the District Engineer. The inspector will be paid on regular payrolls or service vouchers. The District Engineer will collect the cost from the permittee in accordance with the following:

(1) At the end of each month the amount chargeable for the cost of inspection pertaining to the permit will be collected from the permittee and will be taken up on the statement of accountability and deposited in a designated depository to the credit of the Treasurer of the United States, on account of reimbursement of the appropriation from which the expenses of the inspection were paid.

(ii) If the District Engineer considers such a procedure necessary to insure the United States against loss through possible failure of the permittee to supply the necessary funds in accordance with paragraph (q)(4)(1) of this section, he may require the permittee to keep on deposit with the District Engineer at all times an amount equal to the estimated cost of inspection and supervision for the ensuing month, such deposit preferably being in the form of a certified check, payable to

the order of Treasurer of the United States. Certified checks so deposited will be carried in a special deposit account (guaranty for inspection expenses) and upon completion of the work under the permit the funds will be returned to the permittee provided he has paid the actual cost of inspection.

(iii) On completion of work under a permit, and the payment of expenses by the permittee without protest, the account will be closed, and outstanding deposits returned to the permittee. If the account is protested by the permittee, it will be referred to the Division Engineer for approval before it is closed and before any deposits are returned to the permittee.

(5) If the permitted activity includes restoration of the waterway to its original condition, or if the issuing official has reason to consider that the permittee might be prevented from completing work which is necessary to protect the public interest in the waterway, he may require the permittee to post a bond of sufficient amount to indemnify the government against any loss as a result of corrective action it might take.

(r) *Publicity.* District Engineer will establish and maintain a program to assure that potential applicants for permits are informed of the requirements of this regulation and of the steps required to obtain permits for activities in navigable waters or ocean waters. Whenever the District Engineer becomes aware of plans being developed by either private or public entities who might require permits in order to implement the plans, he will advise the potential applicant in writing of the statutory requirements and the provisions of this regulation. Similarly when the District Engineer is aware of changes in Corps of Engineers regulatory jurisdiction he will issue appropriate public notices.

(s) *Reports.* The report of a District Engineer on an application for a permit requiring action by the Division Engineer or by the Chief of Engineers will be in a letter form with the application and all pertinent comments, records and studies including the final environmental impact statement if prepared, as inclosures. The following items will be included or discussed in the report:

- (1) Name of applicant.
- (2) Location, Character and purpose of proposed activity.
- (3) Applicable statutory authorities and administrative determinations conferring Corps of Engineers regulatory jurisdiction.
- (4) Other Federal, State, and local authorizations obtained or required and pending.
- (5) Date of public notice and public meeting or public hearings, if held, and summary of objections offered with comments of the District Engineer thereon. The comments should explain the objections and not merely refer to inclosed letters.
- (6) Views of State and local authorities.
- (7) Views of District Engineer concerning probable effect of the proposed work on:

- (i) Navigation, present and prospective.
 - (ii) Harbor lines, if established.
 - (iii) Flood heights, drift and flood damage protection.
 - (iv) Beach erosion or accretion.
 - (v) Conservation.
 - (vi) Fish and Wildlife.
 - (vii) Water Quality.
 - (viii) Aesthetics.
 - (ix) Ecology (General Environmental Concerns).
 - (x) Historic values.
 - (xi) Recreation.
 - (xii) Economy.
 - (xiii) Water supply.
 - (xiv) Land use classification and coastal zone management plans.
 - (xv) Public Interest (Needs and Welfare of the People).
- (8) Other pertinent remarks, including:
- (i) Extent of public and private need;
 - (ii) Desirability of using appropriate alternatives;
 - (iii) Extent and permanence of beneficial and/or detrimental effects; and
 - (iv) Probable impact in relation to cumulative effects created by other activities.
- (9) A copy of the environmental assessment and summary of the environmental impact statement if prepared.
- (10) A Statement of Findings as an inclosure.
- (11) Conclusions.
- (12) Recommendations including any proposed special conditions.

APPENDIX A—U.S. COAST GUARD/CHIEF OF ENGINEERS MEMORANDUM OF AGREEMENT

1. *Purpose and Authority:* A. The Department of Transportation Act, the Act of October 15, 1966, P.L. 89-670, transferred to and vested in the Secretary of Transportation certain functions, powers and duties previously vested in the Secretary of the Army and the Chief of Engineers. By delegation of authority from the Secretary of Transportation (49 CFR 1.46(c)) the Commandant, U.S. Coast Guard, has been authorized to exercise certain of these functions, powers and duties relating to bridges and causeways conferred by:

- (1) the following provision of law relating generally to drawbridge operating regulations: Section 5 of the Act of August 18, 1894, as amended (28 Stat. 362; 33 U.S.C. 499);
 - (2) the following law relating generally to obstructive bridges: The Act of June 21, 1940, as amended (The Truman-Hobbs Act) (64 Stat. 497; 33 U.S.C. 511 et seq.);
 - (3) the following laws and provisions of law to the extent that they relate generally to the location and clearances of bridges and causeways in the navigable waters of the United States:
 - (a) Section 9 of the Act of March 3, 1899, as amended (30 Stat. 1151; 33 U.S.C. 401);
 - (b) The Act of March 23, 1906, as amended (34 Stat. 84; 33 U.S.C. 491 et seq.); and
 - (c) The General Bridge Act of 1946, as amended (60 Stat. 847; 33 U.S.C. 525 et seq.) except Sections 502(c) and 503.
- B. The Secretary of the Army and the Chief of Engineers continue to be vested with broad and important authorities and responsibilities with respect to navigable waters of the United States, including, but not limited to, jurisdiction over excavation and filling, design flood flows and construction of certain structures in such waters, and the prosecution of waterway improvement projects.

C. The purposes of this agreement are: (1) To recognize the common and mutual interest of the Chief of Engineers and the Commandant, U.S. Coast Guard, in the orderly and efficient administration of their respective responsibilities under certain Federal statutes to regulate certain activities in navigable waters of the United States;

(2) To clarify the areas of jurisdiction and the responsibilities of the Corps of Engineers and the Coast Guard with respect to:

(a) the alteration of bridges

(1) in connection with Corps of Engineers waterway improvement projects, and

(2) under the Truman-Hobbs Act;

(b) the construction, operation and maintenance of bridges and causeways as distinguished from other types of structures over or in navigable waters of the United States;

(c) the closure of waterways and the restriction of passage through or under bridges in connection with their construction, operation, maintenance and removal; and

(d) the selection of an appropriate design flood flow for flood hazard analysis of any proposed water opening.

(3) To provide for coordination and consultation on projects and activities in or affecting the navigable waters of the United States.

In furtherance of the above purposes the undersigned do agree upon the definitions, policies and procedures set forth below.

2. *Alteration of bridges in or across navigable waters within Corps of Engineers projects:* A. The Chief of Engineers agrees to advise and consult with the Commandant on navigation projects contemplated by the Corps of Engineers which require the alteration of bridges across the waterways involved in such projects. The Chief of Engineers also agrees to include in such project proposals the costs of alterations, exclusive of betterments, of all bridges within the limits of the designated project which after consultation with the Commandant he determines to require alteration to meet the needs of existing and prospective navigation. Under this concept the federal costs would be furnished under the project.

B. The Commandant of the Coast Guard agrees to undertake all actions and assumes all responsibilities essential to the determination of navigational requirements for horizontal and vertical clearances of bridges across navigable waters necessary in connection with any navigation project by the Chief of Engineers. Further, the Commandant agrees to conduct all public proceedings necessary thereto and establish guide clearance criteria where needed for the project objectives.

3. *Alteration of bridges under the Truman-Hobbs Act:* The Commandant of the Coast Guard acknowledges and affirms the responsibility of the Coast Guard, under the Truman-Hobbs Act, to program and fund for the alteration of bridges which, as distinct from project related alterations described in paragraph 2 herein, become unreasonable obstructions to navigation as a result of factors or changes in the character of navigation and this agreement shall in no way affect, impair or modify the powers or duties conferred by that Act.

4. *Approval alteration and removal of other bridges and causeways:* A. *General definitions.* For purposes of this Agreement and the administration of the statutes cited in 1.A.(3) above, a "bridge" is any structure over, on or in the navigable waters of the United States which (1) is used for the passage or conveyance of persons, vehicles, commodities and other physical matter and (2) is constructed in such a manner that either the horizontal or vertical clearance, or both, may affect the passage of vessels or boats through or under the structure. This definition includes, but is not limited to, highway

bridges, railroad bridges, foot bridges, aqueducts, aerial tramways and conveyors, overhead pipelines and similar structures of like function together with their approaches, fenders, pier protection systems, appurtenances and foundations. This definition does not include aerial power transmission lines, tunnels, submerged pipelines and cables, dams, dikes, dredging and filling in, wharves, piers, breakwaters, bulkheads, jetties and similar structures and works (except as they may be integral features of a bridge and used in its construction, maintenance, operation or removal; or except when they are affixed to the bridge and will have an effect on the clearances provided by the bridge) over which jurisdiction remains with the Department of the Army and the Corps of Engineers under Sections 9 and 10 of the Act of March 3, 1899, as amended (33 U.S.C. 401 and 403). A "causeway" is a raised road across water or marshy land, with the water or marshy land on both sides of the road, and which is constructed in or affects navigation, navigable waters and design flood flows.

B. *Combined structures and appurtenances.* For purposes of the Act cited in 1.A.(3) above, a structure serving more than one purpose and having characteristics of either a bridge or causeway, as defined in 4.A., and some other structure, shall be considered as a bridge or causeway when the structure in its entirety, including its appurtenances and incidental features, has or retains the predominant characteristics and purpose of a bridge or causeway. A structure shall not be considered a bridge or causeway when its primary and predominant characteristics and purpose are other than those set forth above and it meets the general definitions above only in a narrow technical sense as a result of incidental features. This interpretation is intended to minimize the number of instances which will require an applicant for a single project to secure a permit or series of permits from both the Department of Transportation and the Department of the Army for each separate feature or detail of the project when it serves, incidentally to its primary purpose, more than one purpose and has features of either a bridge or causeway and features of some other structure. However, if parts of the project are separable and can be fairly and reasonably characterized or classified in an engineering sense as separate structures, each such structure will be so treated and considered for approval by the agency having jurisdiction thereover.

C. *Alteration of the character of bridges and causeways.* The jurisdiction of the Secretary of Transportation and the Coast Guard over bridges and causeways includes authority to approve the removal of such structures when the owners thereof desire to discontinue their use. If the owner of a bridge or causeway discontinues its use and wishes to remove or alter any part thereof in such a manner that it will lose its character as a bridge or causeway, the Coast Guard will normally require removal of the structure from the waterway in its entirety. However, if the owner of a bridge or a causeway wishes to retain it in whole or in part for use other than for operation and maintenance as a bridge or causeway, the proposed structure will be considered as coming within the jurisdiction of the Corps of Engineers. The Coast Guard will refer requests for such uses to the Corps of Engineers for consideration. The Corps of Engineers agrees to advise the Commandant of the receipt of an application for approval of the conversion of a bridge or causeway to another structure and to provide opportunity for comment thereon. If the Corps of Engineers approves the conversion of a bridge or causeway to another structure, no residual jurisdiction over the

structure will remain with the Coast Guard. However, if the Corps of Engineers does not approve the proposed conversion, then the structure remains a bridge subject to the jurisdiction of the Coast Guard.

5. *Closure of waterways and restriction of passage through or under bridges:* Under the statutes cited in Section 1 of this Memorandum of Agreement, the Commandant must approve the clearances to be made available for navigation through or under bridges. It is understood that this duty and authority extends to and may be exercised in connection with the construction, alteration, operation, maintenance and removal of bridges, and includes the power to authorize the temporary restriction of passage through or under a bridge by use of falsework, piling, floating equipment, closure of draws, or any works or activities which temporarily reduce the navigation clearances and design flood flows, including closure of any or all spans of the bridge. Moreover, under the Ports and Waterways Safety Act of 1972, Public Law 92-340, 86 Stat. 424, the Commandant exercises broad powers in waterways to control vessel traffic in areas he determines to be especially hazardous and to establish safety zones or other measures for limited controls or conditional access and activity when necessary to prevent damage to or the destruction or loss of, any vessel, bridge, or other structure on or in the navigable waters of the United States. Accordingly, in the event that work in connection with the construction, alteration or repair of a bridge or causeway is of such a nature that for the protection of life and property navigation through or in the vicinity of the bridge or causeway must be temporarily prohibited, the Coast Guard may close that part of the affected waterway while such work is being performed. However, it is also clear that the Secretary of the Army and the Chief of Engineers have the authority, under Section 4, of the Act of August 18, 1894, as amended, (33 U.S.C. 1) to prescribe rules for the use, administration and navigation of the navigable waters of the United States. In recognition of that authority, and pursuant to Section 102 (c) of the Ports and Waterways Safety Act, the Coast Guard will consult with the Corps of Engineers when any significant restriction of passage through or under a bridge is contemplated to be authorized or a waterway is to be temporarily closed.

6. *Coordination and cooperation procedures.* A. District Commanders, Coast Guard Districts, shall send notices of applications for permits for bridge or causeway construction, modification, or removal to the Corps of Engineers Divisions and Districts in which the bridge or causeway is located.

B. District Engineers, Corps of Engineers, shall send notices of applications for permits for other structures or dredge and fill work to local Coast Guard District Commanders.

C. In cases where proposed structures or modifications of structures do not clearly fall within one of the classifications set forth in paragraph 4.A. above, the application will be forwarded with recommendations of the reviewing officers through channels to the Chief of Engineers and the Commandant of the Coast Guard who shall, after mutual consultation, attempt to resolve the question.

D. If the above procedures fail to produce agreement, the application will be forwarded to the Secretary of the Army and Secretary of Transportation for their determination.

E. The Chief of Engineers and the Commandant, Coast Guard, pledge themselves to mutual cooperation and consultation in making available timely information and data, seeking uniformity and consistency among field offices, and providing timely and

RULES AND REGULATIONS

adequate review of all matters arising in connection with the administration of their responsibilities governed by the Acts cited herein.

Dated: March 21, 1973.

C. R. BENDER.

Dated: April 18, 1973.

F. J. CLARKE.

APPENDIX B—MEMORANDUM OF UNDERSTANDING BETWEEN THE SECRETARY OF THE INTERIOR AND THE SECRETARY OF THE ARMY

In recognition of the responsibilities of the Secretary of the Army under sections 10 and 13 of the Act of March 3, 1899 (33 U.S.C. 403 and 407), relating to the control of dredging, filling, and excavation in the navigable waters of the United States, and the control of refuse in such waters, and the interrelationship of those responsibilities with the responsibilities of the Secretary of the Interior under the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.), the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-666c), and the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a et seq.), relating to the control and prevention of water pollution in such waters and the conservation of the Nation's natural resources and related environment, including fish and wildlife and recreational values therein; in recognition of our joint responsibilities under Executive Order No. 11288 to improve water quality through the prevention, control, and abatement of water pollution from Federal and federally licensed activities; and in recognition of other provisions of law and policy, we, the two Secretaries, adopt the following policies and procedures:

POLICIES

1. It is the policy of the two Secretaries that there shall be full coordination and cooperation between their respective Departments on the above responsibilities at all organizational levels, and it is their view that maximum efforts in the discharge of those responsibilities, including the resolution of differing views, must be undertaken at the earliest practicable time and at the field organizational unit most directly concerned. Accordingly, District Engineers of the U.S. Army Corps of Engineers shall coordinate with the Regional Directors of the Secretary of the Interior on fish and wildlife, recreation, and pollution problems associated with dredging, filling, and excavation operations to be conducted under permits issued under the 1899 Act in the navigable waters of the United States, and they shall avail themselves of the technical advice and assistance which such Directors may provide.

2. The Secretary of the Army will seek the advice and counsel of the Secretary of the Interior on difficult cases. If the Secretary of the Interior advises that proposed operations will unreasonably impair natural resources or the related environment, including the fish and wildlife and recreational values thereof, or will reduce the quality of such waters in violation of applicable water quality standards, the Secretary of the Army in acting on the request for a permit will carefully evaluate the advantages and benefits of the operations in relation to the resultant loss or damage, including all data presented by the Secretary of the Interior, and will either deny the permit or include such conditions in the permit as he determines to be in the public interest, including provisions that will assure compliance with water quality standards established in accordance with law.

PROCEDURES FOR CARRYING OUT THESE POLICIES

1. Upon receipt of an application for a permit for dredging, filling, excavation, or other related work in navigable waters of the United States, the District Engineers shall

send notices to all interested parties, including the appropriate Regional Directors of the Federal Water Pollution Control Administration, the United States Fish and Wildlife Service, and the National Park Service of the Department of the Interior, and the appropriate State conservation, resources, and water pollution agencies.

2. Such Regional Directors of the Secretary of the Interior shall immediately make such studies and investigations as they deem necessary or desirable, consult with the appropriate State agencies, and advise the District Engineers whether the work proposed by the permit applicant, including the deposit of any material in or near the navigable waters of the United States, will reduce the quality of such waters in violation of applicable water quality standards or unreasonably impair natural resources or the related environment.

3. The District Engineer will hold public hearings on permit applications whenever response to a public notice indicates that hearings are desirable to afford all interested parties full opportunity to be heard on objections raised.

4. The District Engineer, in deciding whether a permit should be issued, shall weigh all relevant factors in reaching his decision. In any case where Directors of the Secretary of the Interior advise the District Engineers that proposed work will impair the water quality in violation of applicable water quality standards or unreasonably impair the natural resources or the related environment, he shall, within the limits of his responsibility, encourage the applicant to take steps that will resolve the objections to the work. Failing in this respect, the District Engineer shall forward the case for the consideration of the Chief of Engineers and the appropriate Regional Director of the Secretary of the Interior shall submit his views and recommendations to his agency's Washington Headquarters.

5. The Chief of Engineers shall refer to the Under Secretary of the Interior all those cases referred to him containing unresolved substantive differences of views and he shall include his analysis thereof, for the purpose of obtaining the Department of Interior's comments prior to final determination of the issues.

6. In those cases where the Chief of Engineers and the Under Secretary are unable to resolve the remaining issues, the cases will be referred to the Secretary of the Army for decision in consultation with the Secretary of the Interior.

7. If in the course of operations within this understanding, either Secretary finds its terms in need of modification, he may notify the other of the nature of the desired changes. In that event the Secretaries shall within 90 days negotiate such amendment as is considered desirable or may agree upon termination of this understanding at the end of the period.

Dated: July 13, 1967.

STEWART L. UDALL, Secretary of the Interior.

Dated: July 13, 1967.

STANLEY RESOR, Secretary of the Army.

APPENDIX C

Application No. _____
Name of Applicant. _____
Effective Date. _____
Expiration Date (If applicable) _____

DEPARTMENT OF THE ARMY

PERMIT

Referring to written request dated _____ for a permit to:

() Perform work in or affecting navigable waters of the United States, upon the recom-

mendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403);

() Discharge dredged or fill material into navigable waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act (86 Stat. 816, P.L. 92-500);

() Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

(Here insert the full name and address of the permittee)

Is hereby authorized by the Secretary of the Army: to _____

(Here describe the proposed structure or activity, and its intended use. In the case of an application for a fill permit, describe the structures, if any, proposed to be erected on the fill. In the case of an application for the discharge of dredged or fill material into navigable waters or the transportation for discharge in ocean waters of dredged material, describe the type and quantity of material to be discharged.)

In _____

(Here to be named the ocean, river, harbor, or waterway concerned.)

at _____

(Here to be named the nearest well-known locality—preferably a town or city—and the distance in miles and tenths from some definite point in the same, stating whether above or below or giving direction by points of compass.)

In accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit (on drawings: give file number or other definite identification marks.) Subject to the following conditions:

I. General conditions: a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to Sections 301, 302, 306 and 307 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge or deposit of dredged or fill material into navigable waters, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or

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modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the permittee agrees to make every reasonable effort to prosecute the construction or work authorized herein in a manner so as to minimize any adverse impact of the construction or work on fish, wildlife and natural environmental values.

e. That the permittee agrees that it will prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.

f. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

g. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

h. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

i. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the District Engineer that immediate suspension of the activity authorized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the District Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct war-

ranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not started on or before _____ day of _____, 19____, (one year from the date of issuance of this permit unless otherwise specified) and is not completed on or before _____ day of _____, 19____, (three years from the date of issuance of this permit unless otherwise specified) this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

q. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

r. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

s. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition v hereof, he must restore the area to a condition satisfactory to the District Engineer.

t. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

u. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

v. That this permit may not be transferred to a third party without prior written notice to the District Engineer, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit in the space provided below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

II. Special Conditions: Here list conditions relating specifically to the proposed structure or work authorized by this permit. The following Special Conditions will be applicable when appropriate:

STRUCTURES FOR SMALL BOATS: That permittee hereby recognizes the possibility that the structure permitted herein may be subject to damage by wave wash from passing vessels. The issuance of this permit does not relieve the permittee from taking all proper steps to insure the integrity of the structure permitted herein and the safety of boats moored thereto from damage by wave wash and the permittee shall not hold the United States liable for any such damage.

DISCHARGE OF DREDGED MATERIAL INTO OCEAN WATERS: That the permittee shall place a copy of this permit in a conspicuous place in the vessel to be used for the transportation and/or dumping of the dredged material as authorized herein.

ERECTION OF STRUCTURE IN OR OVER NAVIGABLE WATERS: That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permittee.

MAINTENANCE DREDGING: (1) That when the work authorized herein includes periodic maintenance dredging, it may be performed under this permit for ____ years from the date of issuance of this permit (ten years unless otherwise indicated); and (2) That the permittee will advise the District Engineer in writing at least two weeks before he intends to undertake any maintenance dredging.

This permit shall become effective on the date of the District Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

Permittee

Date
By authority of the Secretary of the Army:

District Engineer

Date
Transferee hereby agrees to comply with the terms and conditions of this permit.

Transferee

Date

APPENDIX D—DELEGATION OF AUTHORITY TO ISSUE OR DENY PERMITS FOR CONSTRUCTION OR OTHER WORK AFFECTING NAVIGABLE WATERS OF THE UNITED STATES

MAY 24, 1971.

Pursuant to the authority vested in me by the Act of March 3, 1899, c. 425, Sections 10 and 14, 30 Stat. 1151, 1152, 33 U.S.C. Sections 403 and 408, and the Act of June 13, 1902, c. 1079, Section 1, 32 Stat. 371, 33 U.S.C. Section 565, I hereby authorize the Chief of Engineers and his authorized representatives to issue or deny permits for construction or other work affecting navigable waters of the United States. Except in cases involving applications for permits for artificial islands or fixed structures on Outer Continental Shelf lands under mineral lease from the Department of the Interior, the Chief of Engineers shall, in exercising such authority, evaluate the impact of the proposed work on the public interest. In cases involving applications for permits for artificial islands or fixed structures on Outer Continental Shelf lands under mineral lease from the Department of the Interior, the Chief of Engineers shall, in exercising such authority, evaluate the impact of the proposed work on navigation and national security. The permits so granted may be made subject to such special conditions as the Chief of Engineers or his authorized representatives may consider necessary in order to effect the purposes of the above Acts.

The Chief of Engineers and his authorized representatives shall exercise the authority hereby delegated subject to such conditions as I or my authorized representative may from time to time impose.

STANLEY R. RESOR,
Secretary of the Army.

APPENDIX E—DELEGATION OF AUTHORITY TO ISSUE OR DENY PERMITS FOR THE DISCHARGE OF DREDGED OR FILL MATERIAL INTO NAVIGABLE WATERS

MARCH 12, 1973.

Pursuant to the authority vested in me by Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 86 Stat. 816, P.L. 92-500, I hereby authorize the Chief of Engineers and his authorized representatives to issue or deny permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into navigable waters at specified disposal sites. The Chief of Engineers shall, in exercising such authority, evaluate the impact of the proposed discharge on the public interest. All permits issued shall specify a disposal site for the discharge of the dredged or fill material through the application of guidelines developed by the Administrator of the Environmental Protection Agency and myself. In those cases where these guidelines would prohibit the specification of a disposal site, the Chief of Engineers, in his evaluation of whether the proposed discharge is in the public interest, is authorized also to consider the economic impact on navigation and anchorage which would occur by failing to authorize the use of a proposed disposal site. The permits so granted may be made subject to such special conditions as the Chief of Engineers or his authorized representatives may consider necessary in order to effect the purposes of the above Act, other pertinent laws and any applicable memoranda of understanding between the Secretary of the

Army and heads of other governmental agencies.

The Chief of Engineers and his authorized representative shall exercise the authority hereby delegated subject to such conditions as I or my authorized representative may from time to time impose.

KENNETH E. BELIEU,
Acting Secretary of the Army.

MARCH 12, 1973.

APPENDIX F—DELEGATION OF AUTHORITY TO ISSUE OR DENY PERMITS FOR THE TRANSPORTATION OF DREDGED MATERIAL FOR THE PURPOSE OF DUMPING IT INTO OCEAN WATERS

Pursuant to the authority vested in me by Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, 86 Stat. 1052, PL 92-532, I hereby authorize the Chief of Engineers and his authorized representatives to issue or deny permits, after notice and opportunity for public hearings, for the transportation of dredged material for the purpose of dumping it in ocean waters. The Chief of Engineers and his authorized representatives shall, in exercising such authority, evaluate the impact of the proposed dumping on the public interest. No permit shall be issued unless a determination is made that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In making this determination, those criteria for ocean dumping established by the Administrator of the Environmental Protection Agency pursuant to Section 102(a) of the above Act which relate to the effects of the proposed dumping shall be applied. In addition, based upon an evaluation of the potential effect which a permit denial will have on navigation, economic and industrial development, and foreign and domestic commerce of the United States, the Chief of Engineers or his authorized representative, in evaluating the permit application, shall make an independent determination as to the need for the dumping, other possible methods of disposal, and appropriate locations for the dumping. In considering appropriate disposal sites, recommended sites designated by the Administrator of the Environmental Protection Agency pursuant to Section 102(c) of the above Act will be utilized to the extent feasible. Prior to issuing any permit, the Chief of Engineers or his authorized representative shall first notify the Administrator of the Environmental Protection Agency or his authorized representative of his intention to do so. In any case in which the Administrator or his authorized representative disagrees with the determination of the Chief of Engineers or his authorized representative as to compliance with the criteria established pursuant to Section 102(a) of the above Act relating to the effects of the dumping or with the restrictions established pursuant to Section 102(c) of the above Act relating to critical areas, the determination of the Administrator or his authorized representative shall prevail. If, in any such case, the Chief of Engineers or his Director of Civil Works finds that, in the disposition of dredged material, there is no economically feasible method or site available other than a dumping site the utilization of which would result in non-compliance with such criteria or restrictions, he shall so certify and request that I seek a waiver from the Administrator of the Environmental Protection Agency of the specific

requirements involved. Unless the Administrator of the Environmental Protection Agency grants a waiver, the Chief of Engineers or his authorized representative shall not issue a permit which does not comply with such criteria and restrictions. The permits so granted may be made subject to such special conditions as the Chief of Engineers or his authorized representatives may consider necessary in order to effect the purposes of the above Act, other pertinent laws, and any applicable memoranda of understanding between the Secretary of the Army and the heads of other governmental agencies.

The Chief of Engineers and his authorized representative shall exercise the authority hereby delegated subject to such conditions as I or my authorized representative may from time to time impose.

KENNETH E. BELIEU,
Acting Secretary of the Army.

APPENDIX G—TABLE OF CONTENTS AND LIST OF APPENDICES TO § 209.120

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[FR Doc.75-19455 Filed 7-24-75;8:45 am]

APPENDIX B

CONDITIONS AND PRIORITIES OF PERMIT
ACTIONS WITH OTHER GOVERNING AUTHORITIES

Regulations indicate that:

"Permits will not be issued where certification or authorization of the proposed work is required by State and/or local law and that certification or authorization has been denied. Initial processing of an application for a Department of the Army permit will proceed until definitive action has been taken by the responsible State to grant or deny the required certification and/or authorization. Where the required State certification and/or authorization has been denied and procedures for reconsideration exist, reasonable time not to exceed 90 days will be allowed for the applicant to attempt to resolve the problem and/or obtain reconsideration of the denial. If the State denial of authorization cannot be thus resolved, the application will be denied in accordance with procedures noted in the regulations.

Where officially adopted State, regional or local land use classifications, determinations, or policies are applicable to the land or water areas under consideration, they shall be presumed to reflect local factors of the public interest and shall be considered in addition with the other national factors of the public interest identified above.

A proposed activity in a navigable water may result in conflicting comments from several agencies within the same State. While many States have designated a single State agency or individual to provide a single and coordinated State position regarding pending permit applications, where a State has not so designated a single source, District Engineers will elicit from the Governor an expression of his views and desires concerning the application, or, in the alternative, an expression from the Governor as to which state agency represents the official state position in this particular case. Even if official certification and/or authorization is not required by state or Federal law, but a state, regional, or local agency having jurisdiction or interest over the particular activity comments on the application, due consideration shall be given to those official views as a reflection of local factors of the public interest.

If a favorable State determination is received, the District Engineer will process the application to a conclusion in accordance with the policies and procedures of this regulation. In the

absence of overriding national factors of the public interest that may be revealed during the subsequent processing of the permit application, a permit will generally be issued following receipt of a favorable State determination provided the concerns, policies, goals, and requirements as expressed in the regulations above, the guidelines (40 CFR 230), and the following statutes have been followed and considered: the National Environmental Policy Act; the Fish and Wildlife Coordination Act; the Historical and Archaeological Preservation Act; the National Historic Preservation Act; the Endangered Species Act; the Coastal Zone Management Act; the Marine Protection, Research, and Sanctuaries Act of 1972; and the Federal Water Pollution Control Act.

If the responsible State agency fails to take definitive action to grant or deny required authorizations or to furnish comments as provided above within six months of the issuance of the public notice, the District Engineer shall process the application to a conclusion.

The District Engineer may, in those States with ongoing State permit programs for work or structures in navigable waters of the United States or the discharge of dredged or fill material in navigable waters, enter into an agreement with the States to jointly process and evaluate Department of the Army and State permit applications. This may include the issuance of joint public notices: the conduct of joint public hearings, if held: and the joint review and analysis of information and comments developed in response to the public notice, public hearing, the environmental assessment and the environmental impact statement (if necessary), the Fish and Wildlife Coordination Act, the Historical and Archaeological Preservation Act, the National Historic Preservation Act, the Endangered Species Act, the Coastal Zone Management Act, the Marine Protection, Research, and Sanctuaries Act of 1972, and the Federal Water Pollution Control Act. In such cases, applications for Department of the Army permits may be processed concurrently with the processing of the State permit to an independent conclusion and decision by the District Engineer and appropriate State agency.

Thus far, those "factors in the public interest" (fish, wildlife, esthetics, etc.) are defined to the extent that approval, denial or conditioning of permits is based on:

- o Consideration of information provided by each applicant.

APPENDIX C

STANDARD CONDITIONS

APPENDIX C
STANDARD CONDITIONS

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to Sections 301, 302, 306 and 307 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge or deposit of dredged or fill material into navigable waters, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the permittee agrees to make every reasonable effort to prosecute the work authorized herein in a manner so as to minimize any adverse impact of the work on fish, wildlife and natural environmental values.

e. That the permittee agrees to prosecute the work authorized herein in a manner so as to minimize any degradation of water quality.

f. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

g. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

h. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

i. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the District Engineer that immediate suspension of the activity authorized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the District Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified or revoked.

APPENDIX C
STANDARD CONDITIONS (continued)

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not stated on or before _____ day of _____, 19____, (one year from the date of issuance of this permit unless otherwise specified) and is not completed on or before _____ day of _____, 19____, (three years from the date of issuance of this permit unless otherwise specified) this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

q. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

r. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

s. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition v hereof, he must restore the area to a condition satisfactory to the District Engineer.

t. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

u. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

v. That this permit may not be transferred to a third party without prior written notice to the District Engineer, either by the transferee's written agreement to comply with all terms and condition of this permit or by the transferee subscribing to this permit in the space provided below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

APPENDIX D

RELATED LEGISLATION

APPENDIX D

RELATED LEGISLATION

Federal Water Pollution Control Act

Section 401 of the Federal Water Pollution Control Act (PL 92-500; 86 Stat. 816, 33 U.S.C. 1411) requires any applicant for a Federal license or permit to conduct any activity which may result in a discharge into navigable waters to obtain a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility.

Coastal Zone Management Act of 1972

Section 307(c)(3) of the Coastal Zone Management Act of 1972 (PL 92-583, 86 Stat. 1280, 16 U.S.C. 1456(c)(3) requires any applicant for a Federal license or permit to conduct an activity affecting land or water uses in the State's coastal zone to furnish a certification that the proposed activity will comply with the State's coastal zone management program. Generally, no permit will be issued until the State has concurred with the applicant's certification. This provision becomes effective upon approval by the Secretary of Commerce of the State's coastal zone management program.

Marine Protection, Research, and Sanctuaries Act of 1972

Section 302 of the Marine Protection, Research, and Sanctuaries Act of 1972 (Pub. L. 92-532, 86 Stat. 1052, 16 U.S.C. 1432) authorizes the Secretary of Commerce, after consultation with other interested Federal agencies and with the approval of the President, to designate as marine sanctuaries those areas of the ocean waters or of the Great Lakes and their connecting waters or of other coastal waters which he determines necessary for the purpose of preserving or restoring such areas for their conservation, recreational, ecological, or esthetic values. After designating such an area, the Secretary of Commerce shall issue regulations to control any activities within the area. Activities in the sanctuary authorized under other authorities are valid only if the Secretary of Commerce certifies that the activities are consistent with the purposes of Title III of the Act and can be carried out within the regulations for the sanctuary.

APPENDIX D

(continued)

The National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) declares the national policy to encourage a productive and enjoyable harmony between man and his environment. Section 102 of that Act directs that "to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall * * * insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations * * *" See also paragraph (1) of this section on environmental statements.

The Fish and Wildlife Act of 1956

The Fish and Wildlife Act of 1956 (16 U.S.C. 742a, et seq.), the Migratory Marine Game-Fish Act (16 U.S.C. 760c-760g) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c) and other acts express the concern of Congress with the quality of the aquatic environment as it affects the conservation, improvement and enjoyment of fish and wildlife resources. Reorganization Plan No. 4 of 1970 transferred certain functions, including certain fish and wildlife water resources coordination responsibilities, from the Secretary of the Interior to the Secretary of Commerce. Under the Fish and Wildlife Coordination Act and Reorganization Plan No. 4, any Federal Agency which proposes to control or modify any body of water must first consult with the United States Fish and Wildlife Service, the National Marine Fisheries Service, as appropriate, and with the head of the appropriate State agency exercising administration over the wildlife resources of the affected State.

The Federal Power Act of 1920

The Federal Power Act of 1920 (41 Stat. 1063; 16 U.S.C. 791a et seq.), as amended, authorizes the Federal Power Commission (FPC) to issue licenses for the construction, operation and maintaining of dams, water conduits, reservoirs, power houses, transmission lines, and other physical structures of a power project. However, where such structures will affect the navigable capacity of any navigable waters of the United States (as defined in 16 U.S.C. 796), the plans for the dam or other physical structures affecting navigation must be approved by the Chief of Engineers and the Secretary of the Army. In such cases, the interests of navigation should normally be protected by a recommendation to the FPC for the inclusion of appropriate provisions in the FPC license rather than the issuance of a separate Department of the Army permit under 33 U.S.C. 401 et seq. As to any other activities in navigable waters not constituting construction, operation and maintenance of physical structures licensed by the FPC under the

APPENDIX D

(continued)

Federal Power Act of 1920, as amended, the provisions of 33 U.S.C. 401 et seq. remain fully applicable. In all cases involving the discharge of dredged or fill material into navigable waters or the transportation of dredged material for the purpose of dumping in ocean waters, Department of the Army permits under section 404 of the Federal Water Pollution Control Act, or under section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 will be required.

The National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 (80 Stat. 915, 16 U.S.C. 470) created the Advisory Council on Historic Preservation to advise the President and Congress on matters involving historic preservation. In performing its function the Council is authorized to review and comment upon activities licensed by the Federal Government which will have an effect upon properties listed in the National Register of Historic Places.

The Interstate Land Sales Full Disclosure Act

The Interstate Land Sales Full Disclosure Act (15 U.S.C. 1701 et seq.) prohibits any developer or agent from selling or leasing any lot in a subdivision unless the purchaser is furnished in advance a printed property report including information which the Secretary of Housing and Urban Development may, by rules or regulations, require for the protection of purchasers. In the event the lot in question is in a wetlands area, the report is required by Housing and Urban Development regulation to state that no permit has been granted by the Corps of Engineers for the development under Section 10 of the River Harbor Act of 1899.

The Water Resources Planning Act

The Water Resources Planning Act (42 U.S.C. 1962 et seq.) provides for the possible establishment upon request of the Water Resources Council or a State of river basin water and related land resources commissions. Each such commission shall coordinate Federal, State, interstate, local and non-governmental plans for the development of water and related land resources in its area, river basin, or group of river basins. In the event the proposed Corps of Engineers permits to non-governmental developers or other agencies under section 10 of the River and Harbor Act of 1899 and section 404 of the Federal Water Pollution Control Act may affect the plans of such river basin commissions, the permits will be coordinated with the appropriate concerned river basin commissions. The same is true of Corps of Engineers authorizations to private persons or corporations to improve navigable rivers at their own expense under section 1 of the River and Harbor Act of 1902.

APPENDIX E

LAWS WHICH CONTROL PERMITS

APPENDIX E

LAWS REQUIRING AUTHORIZATION OF STRUCTURES OR WORK (IN NAVIGABLE WATERS OR OCEAN WATERS)

Section 9 of the River and Harbor Act

Section 9 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401) prohibits the construction of any dam or dike across any navigable water of the United States in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army. Where the navigable portions of the waterbody lie wholly within the limits of a single State, the structure may be built under authority of the legislature of that State, if the location and plans or any modification thereof, are approved by the Chief of Engineers and by the Secretary of the Army. The instrument of authorization is designated a permit. Section 9 also pertains to bridges and causeways but the authority of the Secretary of the Army and Chief of Engineers with respect to bridges and causeways was transferred to the Secretary of Transportation under the Department of Transportation Act on October 16, 1966 (80 Stat. 941, U.S.C., 40 1165g(6)(A)).

Section 10 of the River and Harbor Act

Section 10 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavation from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters are unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated a permit or letter of permission. The authority of the Secretary of the Army to prevent obstructions to navigation in the navigable waters of the United States was extended to artificial islands and fixed structures located on the outer continental shelf by section 4(f) of the Outer Continental Shelf Lands Act of 1953 (67 Stat. 463; 43 U.S.C. 1333(f)).

Section 11 of the River and Harbor Act

Section 11 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1151; 33 U.S.C. 404) authorizes the Secretary of the Army to establish harbor lines channelward of which no piers, wharves, bulkheads, or other works may be extended or deposits made without approval of the Secretary of the Army. Regulations (ER 1145-2-304) have been promulgated relative to this authority and published at 209.150. By policy stated in those regulations effective May 27, 1970, harbor lines are guidelines only for defining the offshore limits of structures and fills insofar as they impact on navigation interests. Except as provided in paragraph (e)(1)

APPENDIX E

(continued)

of this section below, permits for work shoreward of those lines must be obtained in accordance with section 10 of the same Act, cited above.

Section 13 of the River and Harbor Act

Section 13 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1152; 33 U.S.C. 407) provides that the Secretary of the Army, whenever the Chief of Engineers determines that anchorage and navigation will not be injured thereby, may permit the discharge of refuse into navigable waters. In the absence of a permit, such discharge of refuse is prohibited. While the prohibition of this section, known as the Refuse Act, is still in effect, the permit authority of the Secretary of the Army has been superseded by the permit authority provided the Administrator, Environmental Protection Agency, under sections 402 and 405 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1342 and 1345).

Section 14 of the River and Harbor Act

Section 14 of the River and Harbor Act approved March 3, 1899 (30 Stat. 1152; 33 U.S.C. 408) provides that the Secretary of the Army on the recommendation of the Chief of Engineers may grant permission for the temporary occupation or use of any seawall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States. This permission will be granted by an appropriate real estate instrument in accordance with existing real estate regulations.

Section 1 of the River and Harbor Act

Section 1 of the River and Harbor Act of June 13, 1902 (32 Stat. 371; 33 U.S.C. 565) allows any persons or corporations desiring to improve any navigable river at their own expense and risk to do so upon the approval of the plans and specifications by the Secretary of the Army and the Chief of Engineers. Improvements constructed under this authority, which are primarily in Federal project areas, remain subject to the control and supervision of the Secretary of the Army and the Chief of Engineers. The instrument of authorization is designated a permit.

Section 404 of the Federal Water Pollution Control Act

Section 404 of the Federal Water Pollution Control Act (PL 92-500, 86 Stat. 816, 33 U.S.C. 1344) authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into the navigable waters at specified disposal sites. The selection of

APPENDIX E

(continued)

disposal sites will be in accordance with guidelines developed by the Administrator of the Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army. Furthermore, the Administrator can prohibit or restrict the use of any defined area as a disposal site whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife or recreational areas.

Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972

Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (PL 92-532, 86 Stat. 1052, 33 U.S.C. 1413) authorizes the Secretary of the Army to issue permits, after notice and opportunity for public hearings, for the transportation of dredged material for the purpose of dumping it in ocean waters. However, similar to the EPA Administrator's limiting authority cited in paragraph (b)(7) of this section, the Administrator can prevent the issuance of a permit under this authority if he finds that the dumping of the material will result in an unacceptable adverse impact on municipal water supplies, shellfish beds, wildlife, fisheries or recreational areas.

Section 122 River and Harbor Act of 1970

Section 122 of the River and Harbor Act of 1970 requires an assessment of the environmental impact of proposed Corps of Engineers actions.

APPENDIX F

STUDY STAFF AND ACKNOWLEDGEMENTS

STUDY STAFF

Much of the inventory material and all the graphics were prepared by Howard, Needles, Tammen & Bergendoff (HNTB).

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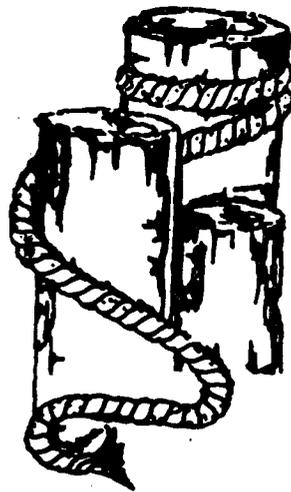
* * *

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*No longer with Oregon Department of Fish and Wildlife.

APPENDIX G

QUESTIONNAIRE AND
SUMMARY RESULTS OF THE
PUBLIC OPINION SURVEY
SILETZ/ALSEA WETLANDS REVIEW

Portland District
U.S. Army Corps of Engineers

April 1975

The results presented here are the raw scores obtained from the public response to the questionnaire. The individual responses have been analyzed in detail by computer and the detailed responses of various groups compared in a separate printout available from the Corps on request.

Analysis of Specific Questions

Question I. This question was intended to introduce the respondent to the subject matter. The responses for the Alsea, the Siletz and the Coast in general were fairly evenly distributed. However, a greater number of answers were given to questions affecting the Alsea than the Siletz since, as explained earlier, a larger percentage of phone subscribers in the Alsea area were solicited than in areas near the Siletz.

Question II. Responses were received from nearly 4 percent of Lincoln County's full time resident population of 25,000. The views of full time residents, part time residents and frequent visitors, compared in Question III and Question IV, show differences in attitudes depending on length of residency. Responses from full time residents outnumbered those from part time residents and frequent visitors by a ratio of 3 to 1. This indicates that the total response is not unduly weighted by the large seasonal population which can ordinarily be expected in the study area during the summer months. Responses from first-time visitors number only 4.

Question III. This question was intended to indicate the respondent's perceptions of the estuary's most important uses (Table 28). The choices were not intended to be exclusive of each other; therefore, a respondent may have checked any number of "yes" or "no" answers depending on the intensity of his own interest. The relative importance of each resource use option was estimated by comparing the number of "yes" and "no" answers for each option, on the presumption that the greater the preponderance of "yes" answers over "no," the more widely accepted is the resource use. Results must be considered in light of the number of respondents who did not answer a "yes" or "no" to particular propositions. The following results are shown in percentages, i.e., the percent of those who answered a proposition compared to total responses to the entire question. For example, 59.3 percent of 1,092 respondents felt that it would be best if the bay and river were kept pretty much the way they are as opposed to 9.6 percent who felt it would not.

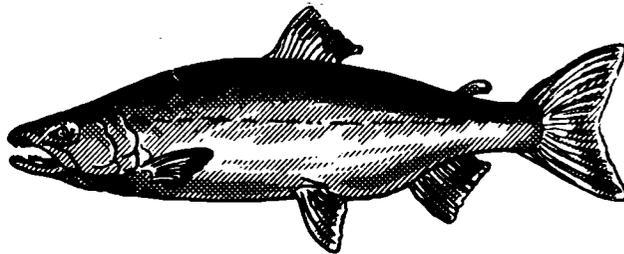


TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

ALSEA RIVER

QUESTION III - I THINK IT WOULD BE BEST IF THE BAY AND RIVER WERE:

Responses by Group Identification	Total Responses	#1		#2		#3		#4		#5		#6		#7		#8	
		Yes	No	Yes	No												
ALL RESPONDENTS	1,092	59.3	9.6	26.0	34.1	31.4	28.1	13.9	44.4	26.7	36.8	68.2	6.7	59.9	8.2	1.9	0.8
II. Full Time Resident	958	33.6	6.3	15.7	20.4	14.7	19.2	9.3	26.0	15.0	22.1	40.6	3.1	34.8	4.3	0.9	0.4
Part Time Resident	116	62.1	6.9	25.0	33.6	37.9	21.6	11.2	46.6	19.8	39.7	62.9	7.8	64.7	5.2	2.6	2.6
Frequent Visitor	163	58.9	6.7	20.2	36.2	29.4	29.4	11.7	44.2	22.1	39.3	63.8	8.6	66.9	6.7	1.8	1.2
First Time Visitor	4	50.0	25.0	50.0	25.0	0.0	75.0	50.0	25.0	75.0	0.0	50.0	25.0	75.0	25.0	0.0	0.0
IV. Shoreline Property Owner	486	61.2	7.7	21.9	36.0	31.2	24.2	11.2	46.1	24.6	37.6	62.2	10.0	63.3	6.6	3.3	0.6
Non-Shoreline Property Owner	568	59.3	10.7	26.2	35.9	29.2	31.0	14.4	46.1	25.9	39.8	71.3	5.8	62.0	8.6	1.8	0.7
VI. Coastal Resident	870	59.5	9.8	26.4	34.5	32.5	26.9	14.5	44.0	28.3	35.7	70.0	5.7	58.5	8.3	1.7	0.8
Non-Coastal Resident	166	60.8	9.0	21.7	33.7	26.5	31.9	9.6	47.6	18.1	43.4	66.9	8.4	73.5	6.0	3.6	1.2
IX. (Livelihood)																	
Directly Dependent	84	67.9	8.3	34.5	39.3	31.0	32.1	20.2	47.6	38.1	36.9	63.1	7.1	57.1	13.1	1.2	0.0
Indirectly Dependent	303	57.1	13.2	30.7	36.0	32.7	30.7	19.8	43.6	32.3	37.6	70.3	9.6	58.7	13.5	2.6	1.0
Unaffected	632	59.5	8.2	23.3	33.5	30.9	26.7	10.4	45.4	22.9	37.7	69.6	4.7	62.0	5.5	1.7	0.9
X. (Select Occupations)																	
1. Retired	344	58.1	7.3	22.1	26.7	31.4	19.8	11.3	39.0	25.0	31.4	67.2	4.7	55.5	5.2	2.0	0.0
2. Housewife	28	50.0	14.3	21.4	32.1	21.4	25.0	7.1	39.3	28.6	25.0	67.9	3.6	60.7	7.1	3.6	0.0
3. Student	69	73.9	11.6	20.3	56.5	26.1	44.9	2.9	71.0	17.4	56.5	62.3	13.0	68.1	11.6	0.0	1.4
4. Forestry	104	59.6	12.5	27.9	43.3	32.7	33.7	25.0	43.3	34.6	42.3	76.9	6.7	57.7	11.5	3.8	1.0
5. Agriculture	33	66.7	9.1	39.4	24.2	39.4	18.2	27.3	39.4	36.4	27.3	69.7	9.1	63.6	9.1	3.0	0.0
6. Public Employee	84	64.3	9.5	21.4	39.3	25.0	36.9	16.7	45.2	31.0	36.9	63.1	8.3	64.3	8.3	1.2	3.6
7. Professional	101	59.4	11.9	27.7	37.6	36.6	29.7	9.9	52.5	18.8	46.5	61.4	14.9	70.3	8.9	2.0	2.0
8. Artist/Craftsman	21	61.9	4.8	14.3	38.1	9.5	33.3	0.0	42.9	14.3	33.3	81.0	4.8	81.0	4.8	0.0	0.0
9. Commercial Fisherman	34	52.9	5.9	11.8	41.2	29.4	35.3	23.5	35.3	44.1	29.4	64.7	2.9	55.9	5.9	0.0	2.9
10. Marine Business	22	63.6	13.6	45.5	36.4	36.4	36.4	27.3	45.5	40.9	36.4	81.8	4.5	63.6	13.6	0.0	0.0
11. Real Estate	36	58.3	13.9	50.0	25.0	61.1	19.4	22.2	50.0	33.3	33.9	83.3	11.1	52.8	22.2	0.0	2.8
12. Retail Sales	47	51.1	10.6	31.9	29.8	17.0	34.0	10.6	44.7	23.4	36.2	66.0	4.3	53.2	4.3	2.1	0.0
13. Wholesaling	8	75.0	0.0	12.5	50.0	37.5	25.0	0.0	62.5	12.5	50.0	75.0	0.0	50.0	0.0	12.5	0.0
14. Tourism	28	32.1	10.7	53.6	7.1	46.4	14.3	17.9	28.6	46.4	21.4	67.9	0.0	46.4	17.9	3.6	0.0
15. Other	79	59.5	8.9	19.0	41.8	24.1	35.4	8.9	51.9	19.0	45.6	72.2	3.8	65.8	3.8	1.3	0.0
XII. (Economic Needs)																	
Adequately Met	518	69.1	6.2	23.6	38.6	31.7	30.3	10.6	48.6	21.8	42.3	71.4	5.8	66.4	5.8	2.1	1.2
Met With Difficulty	185	56.8	12.4	31.4	34.1	33.5	28.6	20.5	41.6	36.2	31.9	71.4	7.0	49.7	13.0	1.1	0.0
Inadequately Met	133	24.8	26.3	39.8	21.1	32.3	21.8	30.1	30.1	51.1	15.0	68.4	5.3	38.3	19.5	3.0	0.0

^a Question #1 - stay as is; #2 - attract tourists; #3 - more residential; #4 - more industrial; #5 - sea-going commercial port; #6 - primarily recreation; #7 - primarily natural estuaries; #8 - no opinion.

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

III. I THINK IT WOULD BE BEST IF THE ALSEA BAY AND RIVER WERE:

	Percent of 1,092 Responses			
	Yes	No	Percentage Point Difference Yes and No	No Response
1. Kept pretty much the way they are	59.3	9.6	49.7	31.1
2. Developed somewhat more to attract tourists	26.0	34.1	8.1	39.1
3. Developed somewhat more as residential communities	31.4	28.1	3.3	40.5
4. Developed somewhat more for industrial uses	13.9	44.4	30.5	41.7
5. Developed somewhat more as a sea-going commercial port	26.7	36.8	10.1	36.5
6. Managed primarily for fishing, hunting and other outdoor recreation	68.2	6.7	61.5	25.1
7. Managed primarily as natural estuaries	59.9	8.2	51.7	31.9
8. No opinion	- - - - -	- - - - -	2.7%	- - - - -

On the basis of the approximate ratio of "yes" to "no" answers, the responses can be ranked as follows:

- o Fish, Hunting and Recreation - "Yes" by 10 to 1
- o Natural Estuary - "Yes" by 7 to 1
- o Keep the Same - "Yes" by 6 to 1
- o Industrial Use - "No" by 3 to 1
- o Commercial Port - Inconclusive
- o Tourism - Inconclusive
- o Residential - Inconclusive

* Local interest in providing groins and jetties at the inlet is high. These facilities would allow ocean access for sport fishing vessels. The results of the question regarding commercial ports should in no way be interpreted as being applicable. The purpose of the questionnaire was to determine public attitudes on resources, not to conduct a poll on specific proposals. The degree of public acceptance or rejection of groins and jetties would have to be determined in the course of preparing a separate environmental impact statement, as recommended in the Wetlands Review Study.

Total responses for the following three propositions are statistically inconclusive:

- o Commercial port uses
- o Greater tourist development
- o Greater residential development

As shown in Table G , however, distinct groups had very definite attitudes for and against these propositions. The response of each group can be compared to the total response. Some interesting distinctions in attitudes are apparent. For example, part time residents and frequent visitors were less willing than full time residents to see commercial port development although both groups are generally opposed. Group responses are identified by length of residency, property ownership, coastal or non-coastal residency, dependency on the bay and river for livelihood, occupation and perception of economic needs.

Question IV. The views of owners and managers of properties on the immediate shorelines of the bays and rivers were tabulated for both Question III and Question VII. For the propositions offered in Question III, the views of shoreline owners and managers are consistent with the majority of responses, except for the following: non-property owners and managers were more willing than the majority to see further residential development on the Alsea and less willing than the majority to see further residential development on the Siletz. (Table G.) This difference is related to the fact that opportunities for further residential development are greater on the Alsea than the Siletz, where neighborhood patterns have been established for a longer period of time.

Question V. The views of those who have applied or plan to apply for a Corps of Engineers permit were not tabulated as a separate group. The data could be derived, however, from the computer program established by the Portland District.

Question VI. Residency was broken down into coastal and non-coastal groups and tabulated separately for Question III (Table G) and Question VII. "Coastal" was defined as including all areas except Portland, the Willamette Valley, Oregon east of the Cascades, elsewhere in Oregon and out of State. (See Exhibit 34.) Approximately 244 respondents identified themselves as non-coastal residents; about 1,000 respondents were from Lincoln County and other coastal areas. As indicated in Question VII, non-coastal residents generally perceived development as a greater threat to the bays and rivers than the average respondent. However, a comparison of Questions III and VII, as expected, reveals that non-coastal residents do not see their own willingness to permit shoreline development as contributing to the negative changes in the bays and rivers, about which they have expressed concern.

Question VII. The responses to Question VII are summarized in Table G . The percentages shown in this table, which are derived from a

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 1: THE IMMEDIATE SHORELINES SHOULD BE SAVED FOR MARINAS, PARKS, FISHING SITES AND OTHER PUBLIC PURPOSES NEEDING ACCESS TO WATER.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,225	61.5%	26.5%	12.0%
II. Full Time Resident	859	64.5	24.0	11.5
Part Time Resident	154	48.7	36.3	14.9
Frequent Visitor	177	56.5	32.2	11.3
First Time Visitor	2	- - - - - Statistically Inconclusive - - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	186	50.5	37.1	12.4
Siletz	90	52.2	34.5	13.3
Ocean	208	61.5	25.0	13.4
Non-Shoreline Property Owner/Manager	635	66.6	22.7	10.7
VI. Coastal Resident	974	63.1	25.2	11.8
Non-Coastal Resident	222	53.2	33.3	13.5
X. (Select Occupations)				
Retirees	369	68.8	22.3	8.9
Marine-Oriented Business	23	52.2	34.8	13.0
Property Management/Real Estate	52	57.7	30.8	11.5
Tourism	37	59.4	24.3	16.2
XII. (Economic Needs)				
Adequately Met	563	58.1	28.8	13.1
Met with Great Difficulty	216	72.7	18.1	9.3
Inadequately Met	152	71.7	17.1	11.2

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 2: SHORELINES SHOULD BE SAVED TO KEEP THE BAYS AND RIVERS IN A RELATIVELY NATURAL STATE.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,264	85.4%	9.2%	5.4%
II. Full Time Resident	870	84.5	9.4	6.1
Part Time Resident	166	88.0	9.6	2.4
Frequent Visitor	187	88.7	7.5	3.7
First Time Visitor	3	-----Statistically Inconclusive-----		
IV. Shoreline Property Owner/ Manager	.			
Alsea	192	82.8	8.3	8.9
Siletz	93	91.4	7.5	1.1
Ocean	221	88.2	7.2	4.6
Non-Shoreline Property Owner/Manager	647	85.3	9.1	5.6
VI. Coastal Resident	997	85.0	9.6	5.4
Non-Coastal Resident	238	87.8	6.3	5.8
X. (Select Occupations)				
Retirees	384	88.8	6.5	4.6
Marine-Oriented Business Property Management/Real Estate	24	87.5	8.3	4.2
Tourism	52	73.1	19.3	7.7
	33	69.7	18.2	12.1
XII. (Economic Needs)				
Adequately Met	592	89.0	6.6	4.4
Met with Great Difficulty	206	81.5	12.1	6.3
Inadequately Met	155	71.0	19.4	9.7

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 3: IF THERE WERE MORE MARINAS, PUBLIC MOORAGES OR CENTRAL DOCKING FACILITIES, PEOPLE COULD BE REASONABLY RESTRICTED FROM BUILDING SO MANY PRIVATE DOCKS ALONG THE BAYS AND RIVERS.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,208	46.9%	37.7%	15.3%
II. Full Time Resident	840	47.8	37.2	14.9
Part Time Resident	158	43.7	38.6	17.7
Frequent Visitor	174	44.3	40.8	15.0
First Time Visitor	3	- - - - - Statistically Inconclusive - - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	186	30.7	52.1	17.3
Siletz	90	48.9	41.1	10.0
Ocean	204	51.0	32.3	16.6
Non-Shoreline Property Owner/Manager	628	49.7	36.0	14.3
VI. Coastal Resident	952	46.6	38.5	14.9
Non-Coastal Resident	230	49.6	33.1	17.3
X. (Select Occupations)				
Retirees	353	50.1	35.4	14.5
Marine-Oriented Business	25	40.0	52.0	8.0
Property Management/Real Estate	52	46.1	40.4	13.4
Tourism	35	48.6	31.4	20.0
XII. (Economic Needs)				
Adequately Met	557	45.3	40.4	14.3
Met with Great Difficulty	208	45.2	40.4	14.4
Inadequately Met	153	54.9	29.4	15.7

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 4: PEOPLE WHO LOCATE OR BUY LAND ALONG THE BAYS AND RIVERS SHOULD GENERALLY BE WILLING TO ACCEPT THE AREA AS IT IS (I.E., NO FILLING OF MARSHES OR TIDELANDS OR MAJOR FLOOD CONTROL PROJECTS).

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,264	74.9%	17.2%	7.9%
II. Full Time Resident	881	74.2	17.9	7.8
Part Time Resident	163	76.7	16.0	7.3
Frequent Visitor	183	78.2	14.2	7.6
First Time Visitor	3	- - - - -Statistically Inconclusive- - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	195	65.7	26.7	7.7
Siletz	90	80.0	15.6	4.4
Ocean	224	80.8	11.2	8.0
Non-Shoreline Property Owner/Manager	651	75.7	16.8	7.5
VI. Coastal Resident	1,000	74.1	18.0	7.9
Non-Coastal Resident	236	79.7	11.9	8.4
X. (Select Occupations)				
Retirees	383	81.2	12.8	6.0
Marine-Oriented Business Property Management/Real Estate	25	52.0	32.0	16.0
Tourism	52	59.6	32.7	7.7
	34	67.7	20.5	11.8
XII. (Economic Needs)				
Adequately Met	594	82.5	12.7	4.8
Met with Great Difficulty	212	66.1	25.0	8.9
Inadequately Met	150	54.6	31.3	14.0

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 5: PEOPLE NEED MORE INFORMATION AND EDUCATION ABOUT OREGON'S ESTUARIES IN ORDER TO UNDERSTAND THEIR USE AND PRESERVATION.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,234	92.1%	3.3%	4.7%
II. Full Time Resident	856	91.8	3.9	4.6
Part Time Resident	158	95.5	0.6	3.8
Frequent Visitor	183	90.2	3.3	6.6
First Time Visitor	3	- - - - -Statistically Inconclusive- - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	191	88.0	3.1	8.9
Siletz	88	96.6	2.2	1.1
Ocean	213	93.9	2.3	3.7
Non-Shoreline Property Owner/Manager	640	92.5	3.6	3.9
VI. Coastal Resident	975	91.9	3.6	4.5
Non-Coastal Resident	231	93.1	2.6	4.3
X. (Select Occupations)				
Retirees	364	90.1	3.0	6.8
Marine-Oriented Business Property Management/Real Estate	23	95.6	4.3	0.0
Tourism	51	92.2	5.9	2.0
	36	88.9	8.4	2.8
XII. (Economic Needs)				
Adequately Met	571	92.5	3.3	4.2
Met with Great Difficulty	207	92.8	4.8	2.4
Inadequately Met	153	87.6	3.9	8.5

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 6: UNLESS SOMETHING IS DONE SOON ABOUT DEVELOPMENT PRESSURES, THE RIVERS AND BAYS AS WE KNOW THEM WILL BE RADICALLY CHANGED FOR THE WORSE.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,265	79.2%	13.4%	7.4%
II. Full Time Resident	881	78.6	13.7	7.7
Part Time Resident	165	82.4	13.3	4.2
Frequent Visitor	181	79.6	12.1	8.3
First Time Visitor	3	- - - - -Statistically Inconclusive- - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	199	72.9	17.0	10.0
Siletz	90	84.5	13.4	2.2
Ocean	223	81.6	12.1	6.2
Non-Shoreline Property Owner/Manager	647	79.9	12.3	7.7
VI. Coastal Resident	1,002	78.1	14.2	7.8
Non-Coastal Resident	234	84.6	9.4	5.9
X. (Select Occupations)				
Retirees	381	84.8	9.5	5.8
Marine-Oriented Business	25	72.0	24.0	4.0
Property Management/Real Estate	52	57.7	30.8	13.7
Tourism	33	57.6	36.4	6.1
XII. (Economic Needs)				
Adequately Met	591	81.7	10.5	7.8
Met with Great Difficulty	206	75.7	18.9	5.3
Inadequately Met	160	70.0	23.1	6.8

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

TABLE C

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 7: THINGS ALONG THE BAYS AND RIVERS ARE UNDER CONTROL AND PROGRESSING REASONABLY WELL.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,177	27.2%	52.2%	20.5%
II. Full Time Resident	808	27.7	51.1	21.1
Part Time Resident	156	26.3	54.5	19.3
Frequent Visitor	177	24.9	56.4	18.6
First Time Visitor	3	- - - - Statistically Inconclusive - - - -		
IV. Shoreline Property Owner/ Manager				
Alesia	182	33.5	47.2	19.2
Siletz	84	27.4	53.6	19.1
Ocean	205	25.9	51.3	23.0
Non-Shoreline Property Owner/Manager	609	24.7	53.9	21.3
VI. Coastal Resident	922	28.5	50.3	21.3
Non-Coastal Resident	226	18.6	62.4	19.0
X. (Select Occupations)				
Retirees	333	29.7	49.8	20.4
Marine-Oriented Business Property Management/Real Estate	23	26.1	47.8	26.1
Tourism	51	39.2	47.1	13.7
	34	38.3	47.1	14.7
XII. (Economic Needs)				
Adequately Met	546	31.3	48.2	20.5
Met with Great Difficulty	204	26.4	54.4	19.1
Inadequately Met	145	22.1	55.9	22.1

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alesia Wetlands Review, April 1975.

TABLE G

SUMMARY OF PUBLIC ATTITUDE SURVEY BY PERCENTAGE

QUESTION VII, ITEM 8: NO FURTHER DEVELOPMENT ON THE IMMEDIATE SHORELINE OF THE BAYS AND RIVERS.

<u>Responses by Group Identification</u>	<u>Total Responses</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
ALL RESPONDENTS	1,240	53.0%	30.7%	16.3%
II. Full Time Resident	862	53.9	31.4	14.7
Part Time Resident	160	47.9	28.7	21.2
Frequent Visitor	182	51.7	30.8	17.5
First Time Visitor	3	- - - - - Statistically Inconclusive - - - - -		
IV. Shoreline Property Owner/ Manager				
Alsea	192	41.1	42.2	16.6
Siletz	90	52.3	31.1	16.6
Ocean	215	52.1	27.9	20.0
Non-Shoreline Property Owner/Manager	640	57.6	27.5	14.9
VI. Coastal Resident	977	52.9	31.7	15.4
Non-Coastal Resident	233	54.5	24.1	21.4
X. (Select Occupations)				
Retirees	366	61.2	21.8	16.9
Marine-Oriented Business Property Management/Real Estate	24	37.5	50.0	12.5
Tourism	50	12.0	68.0	20.0
	36	38.8	41.7	19.4
XII. (Economic Needs)				
Adequately Met	579	60.1	25.0	14.8
Met with Great Difficulty	213	44.6	41.8	13.7
Inadequately Met	148	38.5	43.9	17.5

Source: U.S. Army Corps of Engineers, Public Opinion Survey, Siletz/Alsea Wetlands Review, April 1975.

computer tabulation shown in the Appendix, are categorized according to total responses; residency; shoreline ownership; coastal or non-coastal residency; perception of economic needs; and select occupations, specifically, retirees, marine-oriented interests, real estate and property management, and tourist-related businesses. These responses can be evaluated in several ways: 1) by comparing the response of a particular group to the total of all responses, 2) comparing the degree of intensity of feeling between "agree" and "disagree" within the same group and 3) comparing the responses of the same group to each of the eight propositions presented.

The following conclusions are based on all responses. The proposition with the greatest consensus is Item #5, "People need more information and education about Oregon's estuaries in order to understand their regulation, use and preservation," followed by Item #2, "Immediate shorelines should be saved for marinas, parks, fishing sites and other purposes needing access to the water." The least consensus was shown for propositions #8, "No further private development on the immediate shoreline of the Bays and Rivers," and #3, "If there were more marinas, public moorages or central docking facilities, people could be reasonably restricted from building so many private docks along the Bays and Rivers." The ranking of propositions by the magnitude of the consensus is shown on the following page.



Citizen comments identify Lint Slough as having educational value.

VII. PLEASE INDICATE HOW YOU FEEL ABOUT THE FOLLOWING STATEMENTS FOR SILETZ AND ALSEA BAYS AND RIVERS:

<u>Rank</u>	<u>Proposition</u>	<u>Strongly Agree or Generally Agree</u>	<u>Strongly Disagree or Generally Disagree</u>	<u>Need More Information or No Opinion</u>
1	5) People need more information and education about Oregon's estuaries in order to understand their regulation, use and preservation.	92.1%	3.3%	4.7%
2	2) Shorelines should be saved to keep the Bays and Rivers in a relatively natural state.	85.4	9.2	5.4
3	6) Unless something is done soon about development pressures, the Rivers and Bays as we know them will be radically changed for the worse.	79.2	13.4	7.4
4	4) People who locate or buy land along the Bays and Rivers should generally be willing to accept the area as it is (i.e., no filling of marshes or tidelands or major flood control projects).	74.9	17.2	7.9
5	1) The immediate shorelines should be saved for marinas, parks, fishing sites and other public purposes.	61.5	26.5	12.0
6	7) Things along the Bay and Rivers are under control and progressing reasonably well.	27.2	52.2	20.5
7	8) No further private development on the immediate shoreline of the Bays and Rivers.	53.0	30.7	16.3
8	3) If there were more marinas, public moorages or central docking facilities, people could be reasonably restricted from building so many private docks along the Bays and Rivers.	46.9	37.7	15.3

Question VIII. Public expectations of the Corps of Engineers in granting, denying or conditioning permits are expressed in Question VIII. A total of 1,352 responses to this question were received. An approximate consensus on the importance of each factor is obtained by adding the percentage scores checked for the column "most sensitive to" to the percentage scores for the column "somewhat more concerned about." (See the Appendix.) It was assumed that the higher the percentage, the greater the consensus. This assumption was tested by comparing the percentage rankings for the factors checked in the column "least concerned about." The areas of concern were ranked as follows:

<u>Item #</u>	<u>Factor</u>	<u>Most Concerned or Somewhat More Concerned</u>	<u>Least Concerned</u>
1	Protect fish, wildlife	98.3%	1.7%
10	Protect scenic values	97.3	2.7
3	Eliminate filling of marshes	91.8	8.2
14	Keep down man-made silt	95.7	4.4
9	Stabilize eroding shorelines	91.8	8.2
13	Enforce environmental regulations	90.2	9.8
6	Control development pressures	88.1	11.9
12	Deepen channels	81.0	19.0
4	Eliminate flood hazards	83.4	16.6
8	Maintain residential character	80.1	19.9
11	Economic concerns	72.1	27.9
15	Live and let live	68.5	31.5
5	Increase tax base	37.4	62.6
7	Provide tourism	45.1	54.9
2	Provide local housing	26.9	73.1

It should be noted that these scores must be conditioned by three additional facts. Some respondents may have checked a particular answer, knowing that this action was outside the primary responsibility of the Corps of Engineers but wishing to bring it to the attention of some governmental agency. Others may have been cognizant of the limitations of Corps of Engineers permit authority and therefore checked only those factors over which the Corps would have primary responsibility. Finally, some respondents may have had a particular bay or river (either the Siletz or the Alsea) in mind in checking their answers; it is possible that responses may have been different if a distinction had been made in the questionnaire between the two areas. Nonetheless, the rankings do show those factors that are most important to the total number of respondents.

Question IX. The views of those whose livelihoods are dependent on the Alsea and/or Siletz estuaries have been tabulated separately for Question III (Table G). A separate evaluation for Question VII was not made for this report but can be obtained through the Portland District, Corps of Engineers. In general, a larger number of people whose livelihoods were not directly or indirectly dependent on the estuaries answered

the questionnaire (by a ratio of 2 to 1).

Question X. Views by occupational groups were tabulated separately for both Questions III and VII. It should be noted that the "student" group consists primarily of the senior class at Waldport High School; these students were polled during a presentation on the Wetlands Review Study. Whether or not these occupational groups are representative of Lincoln County would have to be statistically tested against census information. It should be noted that retirees, those in forestry, and professionals answered in greater numbers than other occupations.

Question XI. As expected, the areas of greatest familiarity at the Alsea and Siletz are concentrated near the immediate coastline. On the Siletz, the areas near Tidewater and the Butterfield riffles were mentioned more often than mid-stream areas---an indication of the lack of public access that actually exists for much of the river. On the Alsea, Drift Creek tends to be used for fishing and hunting, lending support to another study finding that the area is recognized as providing outstanding recreational opportunities that should, according to local sentiment, be publicly acquired.

Question XII. The views of those who felt their economic needs were adequately met, inadequately met or met only with great difficulty were tabulated separately for Questions III and VII. It is important to note that a respondent's perception of his economic condition should not be taken as a measure of affluence or poverty, as defined by census statistics. Such a correlation would have to be subjected to statistical testing. Nonetheless, it is assumed that levels of economic satisfaction play an important role in public motivations toward resource use and protection. For example, of all of the groups tabulated in Questions III and VII, those who perceived their economic needs as being inadequately met were consistently more willing than others to accept resource tradeoffs necessary for specific developments. (See Table G.)

Question XIV. It is noted that 83.3 percent of the respondents felt it was a good idea; 11.7 percent felt it could be improved; while 3.3 percent felt it was probably a waste of time.

Questionnaire Results

SINGLE CLASSIFICATION RESULTS

QUESTION I TOTAL RESPONSES FOR EACH ITEM
 AREA OF MOST IMMEDIATE CONCERN

N/R	ALSEA	SILETZ	BOTH	COAST	ALSEA+COAST	SILETZ+COAST	ALL
45	451	309	107	349	61	54	35

QUESTION II TOTAL RESPONSES FOR EACH ITEM
 RESIDENTIAL STATUS IN THE AREA

N/R	FULL-TIME	PART-TIME	FREQUENT-VISIT	FIRST-TIME
58	977	174	202	4

QUESTION III TOTAL RESPONSES + PERCENT BY ITEM
 LAND USE PREFERENCES

ITEM NO.	ALSEA				SILETZ			
	YES	%	NO	%	YES	%	NC	%
1	648	45.9	105	7.4	502	35.6	90	6.4
2	284	20.1	372	26.3	217	15.4	308	21.8
3	343	24.3	307	21.7	231	16.3	279	19.7
4	152	10.8	485	34.3	120	8.5	395	28.0
5	292	20.7	402	28.5	193	13.7	344	24.3
6	745	52.7	73	5.2	586	41.5	62	4.4
7	654	46.3	90	6.4	556	39.3	63	4.5
8	21	1.5	9	0.6	11	0.8	10	0.7

RESPONSES AS PERCENT OF TOTAL VALID RESPONSES

ITEM NO.	% YES	% NO	% YES	% NC
1	59.3	9.6	37.0	6.6
2	26.0	34.1	16.0	22.7
3	31.4	28.1	17.0	20.6
4	13.9	44.4	8.9	29.2
5	26.7	36.8	14.2	25.4
6	68.2	6.7	43.2	4.6
7	59.9	8.2	41.0	4.6
8	1.9	0.8	0.8	0.7

TOTAL VALID RESPONSES FOR QUESTION III
 1092

1355

QUESTION IV TOTAL RESPONSES FOR EACH ITEM
 PROPERTY OWNERSHIP IN THE AREA

N/R	ALSEA	SILETZ	OCEAN	NONE	ALSEA+SILETZ	ALSEA+OCEAN	SILETZ+OCEAN
70	219	100	246	717	2	22	36

QUESTION V TOTAL RESPONSES FOR EACH ITEM
 PERSONAL PERMIT HISTORY FOR THE AREA

ITEM NO.	N/R	YES	NO	POSSIBLY
1	254	87	1055	19
2	222	27	1045	121

QUESTION VI TOTAL RESPONSES FOR EACH ITEM
 AREA OF ACTUAL RESIDENCE

ITEM NO.	NO. OF RESPONSES
1	160
2	39
3	28
4	65
5	238
6	158
7	42
8	247
9	102
10	59
11	66
12	74
13	6
14	11
15	28

QUESTION VII
 GENERAL OPINIONS ON USE AND DEVELOPMENT

ITEM NO.	TOTAL RESPONSES	STRONGLY AGREE	%	GENERALLY AGREE	%	GENERALLY DISAGREE	%	STRONGLY DISAGREE	%	NEED MORE INFORMATION	%	NO OPINION	%
1	1225	386	31.5	367	30.0	184	15.0	141	11.5	130	10.6	17	1.4
2	1264	761	60.2	318	25.2	79	6.3	37	2.9	52	4.1	17	1.3
3	1208	227	18.8	340	28.1	277	22.9	179	14.8	129	10.7	56	4.6
4	1264	618	48.9	329	26.0	125	9.9	92	7.3	80	6.3	20	1.6
5	1234	790	64.0	347	28.1	27	2.2	14	1.1	25	2.0	31	2.5
6	1265	744	58.8	258	20.4	117	9.2	53	4.2	67	5.3	26	2.1
7	1177	57	4.8	264	22.4	352	29.9	262	22.3	178	15.1	64	5.4
8	1240	414	33.4	243	19.6	236	19.0	145	11.7	152	12.3	50	4.0

THE TOTAL NUMBER OF VALID RESPONSES FOR QUESTION VII WAS 1347

QUESTION VIII
SENSITIVITY TO SPECIFIC SUBJECTS

ITEM NO.	TOTAL RESPONSES	MOST	%	SOMEWHAT	%	LEAST	%
1	1171	1014	86.6	137	11.7	20	1.7
2	682	66	9.7	117	17.2	499	73.2
3	1045	812	77.7	147	14.1	86	8.2
4	844	431	51.1	273	32.3	140	16.6
5	637	110	17.3	128	20.1	399	62.6
6	913	630	69.0	174	19.1	109	11.9
7	718	118	16.4	206	28.7	394	54.9
8	654	305	46.6	219	33.5	130	19.9
9	922	667	72.3	180	19.5	75	8.1
10	899	718	79.9	156	17.4	25	2.8
11	687	267	38.9	228	33.2	192	27.9
12	812	465	57.3	193	23.8	154	19.0
13	794	570	71.8	146	18.4	78	9.8
14	803	598	74.5	170	21.2	35	4.4
15	635	279	43.9	156	24.6	200	31.5

1352 TOTAL VALID RESPONSES FOR QUESTION VIII

QUESTION IX TOTAL RESPONSES FOR EACH ITEM
DEPENDENCY ON THE AREA FOR LIVELIHOOD

N/R	DIRECTLY	INDIRECTLY	UNAFFECTED
113	92	382	827

QUESTION X TOTAL RESPONSES FOR EACH ITEM
OCCUPATIONAL POSSIBILITIES

ITEM NO.	NO. OF RESPONSES
1	450
2	33
3	71
4	115
5	36
6	95
7	147
8	29
9	38
10	25
11	55
12	78
13	10
14	39
15	108

QUESTION XI
 AREAS OF FAMILIARLTY AND USE WITHIN THE ESTUARIES
 ALSEA SILETZ

ITEM NO. 1

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	390	27.6	179	12.7
2	612	43.3	337	23.8
3	372	26.3	387	27.4
4	212	15.0	173	12.2
5	49	3.5	49	3.5
6	57	4.0	34	2.4
7	95	6.7	24	1.7
8	45	3.2	16	1.1
9	16	1.1	8	0.6
10	37	2.6	15	1.1
11	89	6.3	21	1.5
12	93	6.6	53	3.8
13	87	6.2	50	3.5
14	72	5.1	59	4.2
15	70	5.0	0	0.0

ITEM NO. 2

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	30	2.1	19	1.3
2	38	2.7	20	1.4
3	47	3.3	37	2.6
4	37	2.6	10	0.7
5	10	0.7	7	0.5
6	18	1.3	5	0.4
7	14	1.0	4	0.3
8	21	1.5	1	0.1
9	7	0.5	1	0.1
10	2	0.1	6	0.4
11	12	0.8	5	0.4
12	12	0.8	18	1.3
13	15	1.1	14	1.0
14	17	1.2	9	0.6
15	24	1.7	0	0.0

ITEM NO. 3

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	224	15.9	72	5.1
2	320	22.6	150	10.6
3	208	14.7	156	11.0
4	105	7.4	105	7.4
5	14	1.0	46	3.3
6	27	1.9	24	1.7
7	81	5.7	14	1.0
8	38	2.7	17	1.2
9	11	0.8	5	0.4
10	26	1.8	12	0.8
11	68	4.8	13	0.9
12	67	4.7	39	2.8
13	69	4.9	43	3.0
14	54	3.8	49	3.5
15	50	3.5	1	0.1

ITEM NO. 4

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	224	15.9	37	2.6
2	369	26.1	132	9.3
3	176	12.5	126	8.9
4	49	3.5	22	1.6
5	4	0.3	1	0.1
6	3	0.2	3	0.2
7	7	0.5	0	0.0
8	3	0.2	1	0.1
9	0	0.0	0	0.0
10	3	0.2	2	0.1
11	2	0.1	0	0.0
12	0	0.0	0	0.0
13	2	0.1	0	0.0
14	2	0.1	1	0.1
15	1	0.1	0	0.0

ITEM NO. 5

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	97	6.9	14	1.0
2	121	8.6	39	2.8
3	103	7.3	43	3.0
4	39	2.8	11	0.8
5	1	0.1	3	0.2
6	4	0.3	1	0.1
7	7	0.5	0	0.0
8	9	0.6	1	0.1
9	2	0.1	0	0.0
10	1	0.1	0	0.0
11	2	0.1	0	0.0
12	5	0.4	0	0.0
13	2	0.1	2	0.1
14	2	0.1	2	0.1
15	4	0.3	0	0.0

ITEM NO. 6

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	165	11.7	66	4.7
2	189	13.4	143	10.1
3	108	7.6	143	10.1
4	53	3.8	49	3.5
5	18	1.3	11	0.8
6	23	1.6	8	0.6
7	18	1.3	6	0.4
8	14	1.0	5	0.4
9	7	0.5	2	0.1
10	8	0.6	2	0.1
11	17	1.2	1	0.1
12	19	1.3	7	0.5
13	23	1.6	11	0.8
14	23	1.6	14	1.0
15	24	1.7	0	0.0

ITEM NO. 7

AREA NO.	NO. OF RESPONSES	%	NO. OF RESPONSES	%
1	120	8.5	49	3.5
2	125	8.8	107	7.6
3	96	6.8	122	8.6
4	55	3.9	35	2.5
5	6	0.4	8	0.6
6	11	0.8	5	0.4
7	19	1.3	3	0.2
8	10	0.7	1	0.1
9	6	0.4	2	0.1
10	6	0.4	2	0.1
11	10	0.7	3	0.2
12	15	1.1	7	0.5
13	13	0.9	10	0.7
14	13	0.9	11	0.8
15	4	0.3	0	0.0

QUESTION XII TOTAL RESPONSES AND PERCENT STATUS OF INDIVIDUAL ECONOMIC NEEDS

ADEQUATELY	%	WITH DIFFICULTY	%	INADEQUATELY	%
638	45.2	236	16.7	181	12.8

QUESTION XIV OPINION OF THIS QUESTIONNAIRE

GOOD IDEA	%	WASTE OF TIME	%	COULD BE IMPROVED	%
1059	74.9	47	3.3	165	11.7

APPENDIX H

PUBLIC WORKSHOP



DEPARTMENT OF THE ARMY
 PORTLAND DISTRICT CORPS OF ENGINEERS
 P. O. BOX 2946
 PORTLAND, OREGON 97208

REPLY TO
 ATTENTION OF:

NPPEN-EQ

28 March 1975

TO WHOM IT MAY CONCERN:

The Corps of Engineers is conducting wetlands reviews of the Siletz and Alsea Rivers. Several weeks ago, you filled out a questionnaire concerning the wetlands review. The results of the questionnaire are a major input to the study and we appreciate your time and interest.

We are planning several public workshops to further explain the wetlands reviews and to receive your comments on a more personal level. We hope that you will be able to attend one of these workshops.

Workshops on the Alsea River will be held Thursday, April 17, at the Senior Citizens Center in Waldport, at 9:00 a.m. and 7:00 p.m.

Workshops on the Siletz River will be held Friday, April 18, at the Community Club in Gleneden Beach at 9:00 a.m. and 7:00 p.m.

The program will be presented by the Corps of Engineers and the consulting firm of Howard, Needles, Tammen and Bergendoff (HNTB) which is conducting the study for the Corps. The general program will be as follows:

<u>Time</u>	<u>Program Item</u>	<u>Responsible Element</u>
10 Min.	Introduction	Corps and HNTB
30 Min.	Presentation, slides	HNTB
5 Min.	Questions	Corps and HNTB
60 Min.	Table Discussions	Discussion Leaders
60 Min.	5 Min. Table Reports	Discussion Leaders
15 Min.	Summation, Questions	Corps and HNTB

For the Table Discussions, the audience will be divided into groups of 10 to 12 people so every individual will have ample opportunity to express his ideas and opinions.

Inclosed is a summary draft report of the wetlands reviews. You may find it helpful to review this draft prior to the workshops. Following the workshops the draft report will be revised and a final report prepared.

Again, we appreciate your interest in the wetlands reviews.

Sincerely yours,

L. J. STEIN
 Chief, Engineering Division

Incl
 As stated

Discussion Guide
Public Workshops
Alsea Wetlands Review
April 17, 1975
Waldport, Oregon

Table Moderator: Name _____
Session AM _____ PM _____

1) The principle criteria used in recommending "Wetlands of Importance" (pages 3, 4, 5 and 58, 59, 60) are primarily biological. Are there additional areas which should be recommended because of other factors such as aesthetics recreational use and so forth? (i.e., the tideflats at the 101 bridge) That is, should permits be ordinarily denied in other wetland areas not recommended in the report or are the areas recommended adequate?

11) The report makes several policy and procedural recommendations to the Portland District, Corps of Engineers. Are there strong feelings within the group about anyone or all of them? Are there others which could be recommended?

A) Support a local "clearinghouse" on the estuary. (Page 9 and 54)

B) "Estuary Plan" (Pages 9, 10 and 55). If so, are there other items which the plan could take up in addition to those listed on pages 55 and 56?

C) Develop uniform permit application form between Corps, Division of State Lands, Lincoln County and Land Conservation and Development Commission? (Page 57)

D) Upgrade Corps field officer functions to include public education, liaison and technical assistance? (Page 55)

III) The report makes tentative recommendations and identifies alternatives for distinct reaches of the bay and river. Are there any which the group feels strongly about? Or have questions about?

- A) The Inlet (pages 64 and 65)
- B) Bayshore Spit (pages 66, 67, and 68)
- C) Waldport (pages 69,70)
- D) North Terrace (page 71)
- E) Bayview/Sheppard Point (page 72)
- F) Marshes/Tideflats (pages 73, 74, 75)
- G) Main Channel (pages 76, 77, 78)
- H) North Channel (page 78)
- I) Drift Creek (pages 79, 80)
- J) McKinney Slough (pages 83, 84)
- K) Middle Lint Slough (pages 83, 84)
- L) Mouth of Eckman Slough (pages 85, 86)
- M) South Bank From RM 5.5 to 8 (pages 87, 88)
- N) South Bank From RM 2 to 3.5 (pages 89, 90)
- O) South Bank From RM 3.5 to 5.5 (pages 90, 91)
- P) Barclay Meadows (pages 92, 93)
Alder Springs acres (pages 93, 94)
- Q) North Bank RM 8 to Head of Tide (pages 95, 96)
- R) North Bank RM 5.5 to 6.5 (page 98)
- S) Steep Banks - South Bank RM 8 to Head of Tide (page 99)
- T) Port Docks/Lint Slough (pages 100, 101)
- U) Disposal Sites (page 102)
- V) Historic Sites/Facilities (page 103)
- W) Transportation Corridors (pages 104, 105)

IV) Are there other issues or activities that should be discussed in the report or that should be discussed differently? Errors? Additions? Suggestions?

V) One of the issues for the Corps of Engineers is whether the Wetlands Review overall is a good approach. How does the group feel about it irrespective of specific recommendations in the report? (i.e., should the Corps apply the approach to other estuaries?)