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Appendix A

COASTAL ZONE
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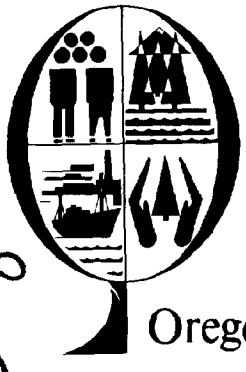
Oregon Coastal Conservation and Development Commission

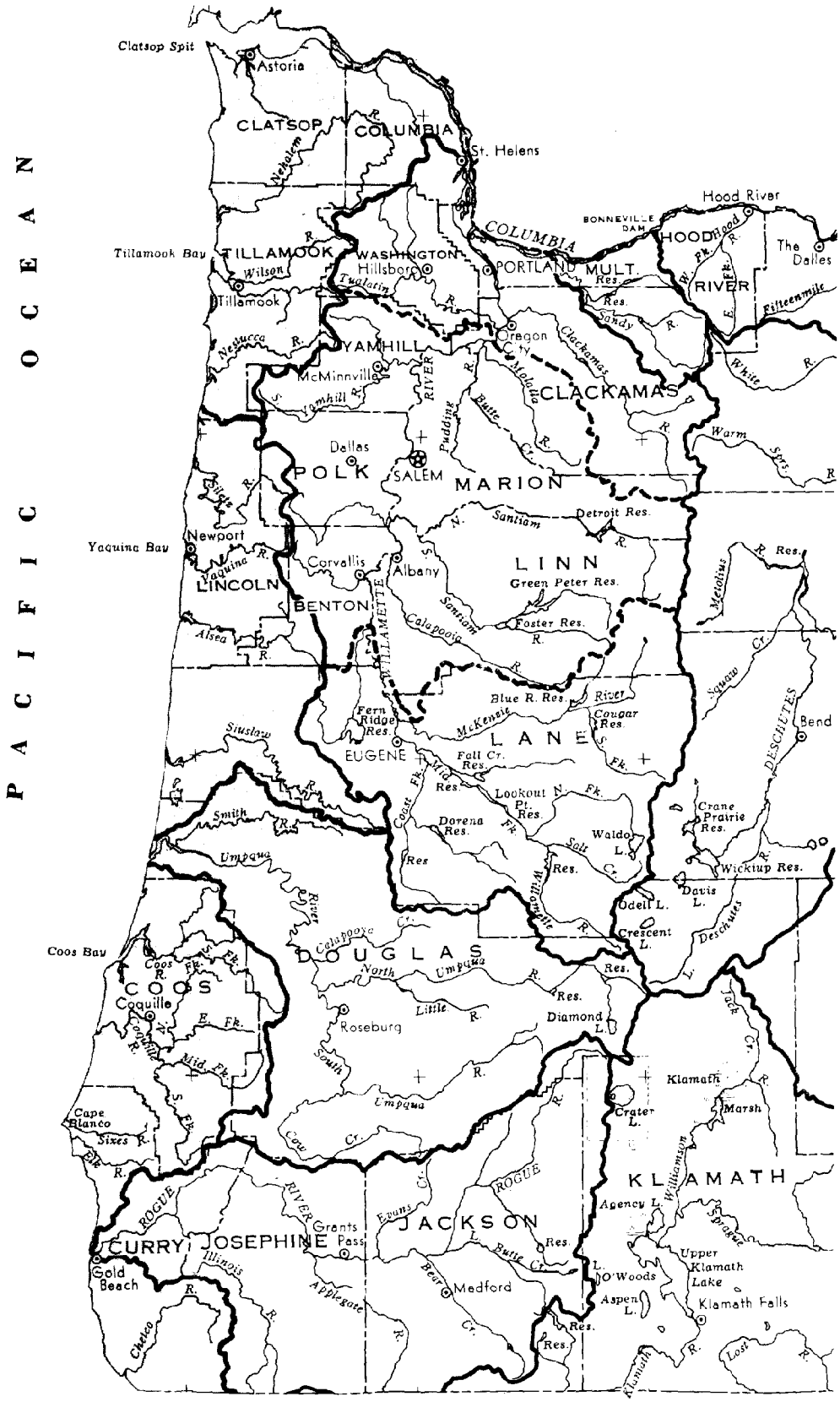
Oregon Coastal Conservation and Development Commission

FINAL REPORT

March 1975



Oregon Coastal Conservation & Development Commission



OREGON COASTAL ZONE

North

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

——— COUNTY LINE

——— WATERSHED BASIN LINES

COASTAL ZONE
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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

WILBUR TERNYIK, CHAIRMAN
JEFF BRENNAN, VICE CHAIRMAN
ROBERT YOUNKER, SECRETARY-TREASURER
JAMES F. ROSS, EXECUTIVE DIRECTOR

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March 31, 1975

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To the Governor and the 58th Legislative Assembly of the State of Oregon

On behalf of our Commission and the countless others who contributed, we submit this report with a certain amount of pride and some misgivings. The pride comes from knowing that our Commission made every effort to reach an impossible goal of balancing conservation and development of Oregon's coastal zone resources. However, living on the coast, one becomes accustomed to facing an impossible situation with optimism. The misgivings relate to the recognized lack of adequate time or funds to do a complete environmental and economic analysis of possible impacts of implementing this coastal zone management proposal.

To my knowledge, the open process used by our Commission was certainly responsible for the popular support of our program. The involvement of local elected officials on the Commission has produced intergovernmental coordination and cooperation between counties, cities and ports that never existed before. Many of those units of government are now using portions of the enclosed program to solve current resource management problems. Through the Commission's advisory committee, comprised of environmental and industry representatives, a balanced input was made by the private and public sectors. The result is a program proposal that clearly identifies a multitude of resource management problems and suggested possible solutions.

Our Commission believes that the program reflects a general consensus approach. There is a strong indication from our members that because of the unknown impacts of this program, legislative review and approval of all sections should take place before requiring compliance through local comprehensive plans. The job of working this involved program into our present law system belongs with one body, the Oregon Legislature.

We thank you for the opportunity to prepare this planning proposal and encourage the Legislature to support needed refinement and updating of the OCC&DC resource inventories so they can be used by local decision makers in the coastal zone.

Sincerely,

Wilbur E. Ternyik
Chairman

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

Oregon Coastal Conservation and Development Commission
HT393.07 0742 1975
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ACKNOWLEDGMENTS

The Oregon Coastal Conservation and Development Commission wishes to express its gratitude to the hundreds of people who have contributed to the development of this coastal zone management program. Many local, state and federal government representatives worked closely with the Commission from the beginning of its work program. The Commission's Environment, Conservation and Economic Concerns Advisory Committee provided a broad range of ideas which assisted the Commission in completing its work. Also, many of the state's citizens, both within and outside of the coastal zone, made significant contributions through the Commission's public workshops and through participation at Commission meetings. The work of the Commission's professional and secretarial staff during the last three years was especially noteworthy.

Much of the success of the Commission's program stems from the dedication and involvement of all of these people. The Commission is grateful for this effort and extends its thanks and appreciation.

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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1975

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1973-1975

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1971-1975

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TABLE OF CONTENTS

		Page
I.	INTRODUCTION	
	A. LEGISLATIVE CHARGE	1
	B. GENERAL HISTORY	2
	C. CHRONOLOGY OF SPECIFIC COMMISSION ACTIVITIES	4
II.	THE POLICY DEVELOPMENT PROCESS	8
	A. POLICY DEVELOPMENT - PHASE I	9
	1. The Public Involvement Program	10
	2. Resource Specialists Involvement	11
	3. Existing Policy	12
	4. Phase I Policy Evaluation	12
	B. PROGRAM GOAL AND OBJECTIVES	13
	C. POLICY DEVELOPMENT - PHASE II	14
	1. Analysis of Phase I Policies	14
	2. Coastal Resource Inventories	15
	3. Economic Analysis	16
	4. Phase II Policy Evaluation	17
	D. FINAL REVIEW AND ADOPTION OF THE POLICIES	18
III.	THE OCC&DC PROGRAM FOR MANAGEMENT OF COASTAL RESOURCES	20
	A. GOAL AND OBJECTIVES	22

Page

1. Goal 22
2. Objectives 22

B. POLICIES, NECESSARY ACTION AND RECOMMENDED ACTIONS 24
1. Incorporating Social Concerns in Planning and Decision Making 24
2. Providing Multiple Use of Natural Resources 25
3. Establishing Scientific and Natural Areas 26
4. Protecting the Visual Attractiveness of the Coast 32
5. Historical and Archaeological Resources in the Planning Process 39
6. Managing Urban Growth 43
7. Requiring Water Supply and Sewage Disposal for Development 46
8. Evaluating Development Proposals 48
9. Requiring Maintenance of Vegetative Cover 50
10. Evaluating Geologic Hazards in the Comprehensive Planning Process 51
11. Providing Information on Geologic Hazards 54
12. Regulating Uses in Geologic Hazard Areas 56
13. Regulating Flood Hazard Areas 59
14. Conserving and Regulating Energy Resources 63
15. Planning for Transportation Facilities 64
16. Evaluating Transportation Facility Proposals 65
17. Locating Utility Lines 66
18. Improving Employment Opportunities in the Coastal Zone 67
19. Providing for Recreational Demands 68
20. Providing Access to Public Lands and Waters 72
21. Preventing Over Use of Recreational Resources 74
22. Regulating Off Road Use of Vehicles 76
23. Promoting Economic Development of Fishery Resources 78
24. Managing Fish and Wildlife Resources on a Sustained Yield Basis 79
25. Protecting Significant Habitats of Fish and Wildlife Resources 82

Page

26. Maintaining Values and Uses of Water Resources 87
27. Developing Potential Water Supplies 92
28. Providing Flow Protection to Maintain Values of Water Resources 94
29. Maintaining Values and Uses of Estuarine Areas 97
30. Managing Estuarine Areas within the Comprehensive Planning Process 102
31. Regulating Alterations of Estuarine Areas 106
32. Designating Geographic Boundaries of Shorelands 108
33. Managing Shorelands within the Comprehensive Planning Process 112
34. Regulating Alterations of Shorelands to Avoid Geologic Hazards 117
35. Maintaining Values and Uses of Sand Areas 118
36. Regulating Uses in Sand Areas 125
37. Regulating Modifications of Foredunes 129
38. Managing Continental Shelf Resources 133
39. Regulating Mineral Resource Development on the Continental Shelf 136
40. Conserving Forest Lands 138
41. Reserving Productive Agricultural Lands 143
42. Implementing the OCC&DC Management Program 147

C. GLOSSARY 149

D. IMPLEMENTATION 158

1. Introduction 158
2. Recommended Organizational Structure for Plan Implementation 160
   a. The OCC&DC Implementation Study Committee Proposal 160
   b. Alternative Implementation Proposals 162
   c. Resolution of Intent to Create the Oregon Coastal Conservation and Development Association 163
3. Recommended Criteria and Methods for Plan Implementation 165

Page

a. Toward Positive Resource Management 167
(1) Evaluation of "Net Social Benefits" 168
(2) Carrying Capacity as a Criterion in Resource Management 169
(3) Improvements in Local Regulations and Planning 170
(4) Designation of Areas and Activities of Statewide Concern 170
(5) Implementation Methods Unique to Natural Resources 171
(6) A Need for Incentives 173
(7) Improve Assessment and Taxation Practices 173
(8) Compensating Loss in Land Values 173
(9) Public Acquisition of Lands 174
(10) Enforcement of Existing Regulations 176
(11) Coordination of Agency Activities 176
(12) The Need for Resource Education Programs 178
(13) Efficiency in Administrative Activities of Application, Compliance and Enforcement 178
b. Distribution of Costs and Benefits 179
c. Protection Against Possible Lawsuits 180
4. Method of Evaluating Resource Use Decisions 180
5. An Approach to Developing a System of Preferences 180
6. Funding for Implementation of Oregon's Coastal Zone Management Plan 181

E. NATIONAL INTEREST IN THE COASTAL ZONE 183

F. AREAS OF CRITICAL STATE CONCERN 184
1. Definition 184
2. Distinction from Resource Areas 185
3. Process 185
a. Basis for Selection of Areas 186
b. Reasons for Designation 187
4. Case Studies 188
a. Netarts Bay 188
b. Tansy Point 203

Page

5. Recommendations for Designations in the Coastal Zone 228
a. Areas Recommended by Nomination 229
b. Areas from Inventories 229
6. Management 233

G. THE ROLE OF INFORMATION IN THE OCC&DC PROGRAM 236
1. Development of Information in OCC&DC Policies and Inventories 236
a. Natural Resources 240
b. Coastal Values 245
c. Constraints on Coastal Zone Management 246
d. Other Inventories 247
2. Information Needs for Management and Decision Making 250
3. Development of a Land Use/Resource Information System 252

IV. BIBLIOGRAPHY 256

V. APPENDICES 262

A. The OCC&DC Testimony to U.S. Senate Committee on Commerce Supporting SB1988 Extending U.S. Fishing Jurisdiction 263

B. Resource Specialist Teams 270

C. A Bill For An Act, LC1480, Draft 273

D. A Bill For An Act, LC1041, Draft 280

E. Memoranda: An Approach to Establishing a System of Preferences and Example Application 296

F. Letter Requesting Development of Beaches and Dunes Inventory 302

G. Identified Research and Information Needs 304

H. Environmental Impact Assessment 315

I. Economic Impact Assessment 333

Page

J. Estuarine Resources of the Oregon Coast

K. Coastal Wetlands of Oregon

L. Beaches and Dunes of the Oregon Coast

M. Shore-Process Corridor - A Pilot Study

N. Freshwater Resources - Oregon Coastal Zone

O. Resource Analysis of Oregon's Coastal Uplands

P. Fish and Wildlife Resources - Oregon Coastal Zone

Q. Historical and Archaeological Resources of the Oregon Coast

R. Visual Resource Analysis of the Oregon Coastal Zone

S. Geologic Hazards Inventory of the Oregon Coastal Zone

T. Inventory of Development Pressures

U. Economic Survey and Analysis of the Oregon Coastal Zone

V. Oregon Coastal Zone Management Plan Implementation

Introduction

INTRODUCTION

LEGISLATIVE CHARGE

The Oregon Coastal Conservation and Development Commission (OCC&DC) was created by the State Legislature in 1971, at the request of the Oregon Coastal Conservation and Development Committee,[1] to prepare a natural resource management plan for the Oregon coastal zone. ORS 191.150 states that "such a plan shall be prepared in a form designed to be used as a standard against which proposed uses of the natural resources of the coastal zone may be evaluated." ORS 191.140 directs the Commission to submit to the Governor and the 58th Legislative Assembly "... a proposed comprehensive plan for the preservation and development of the natural resources of the coastal zone ...".

In conformance with that legislative charge, the OCC&DC is pleased to present this report to the Governor and the 1975 Session of the Oregon Legislature. Enclosed are a series of policies for the management of Oregon's coastal resources, and a series of recommendations for their implementation.

[1]The Committee formally organized in December, 1970 electing officers and adopting goals and objectives. It was composed of coastal county, city, and port elected representatives.

GENERAL HISTORY

The Commission is able to look back on a number of accomplishments over the past three and one-half years. Among these are the support it provided for the enactment of the state's fill and removal law and the determination of the current level of planning on the coastal zone. The major element of the Commission's work program, however, has been the development of natural resource management policies, associated resource inventories and an economic survey and analysis of the coastal zone.

In June of 1972 the Commission sponsored a two-day conference involving Commission members, Advisory Committee personnel, local planning staff members, and state and federal natural resource agency personnel. The purpose of the conference was to identify the major natural resource management problems being experienced within the coastal zone (these problems are summarized in the Commission's Interim Report - 1973). The results of the workshop set the groundwork for the Commission's overall program design. A series of natural resource categories, coastal values, and developmental obstacles were identified as being of "critical concern" in the development of the state's coastal zone management program:

1. Estuaries and Wetlands
2. Beaches and Dunes
3. Shorelands
4. Freshwater Areas
5. Uplands (Agriculture, Forest, Urban and Recreation Lands)
6. Continental Shelf
7. Geological Hazards (including Floodplains)
8. Fish and Wildlife Habitats
9. Visual Resources
10. Scientific Natural Areas
11. Historical and Archaeological Sites

The Commission has developed natural resource management policies for each of these categories. The policies are designed to meet the legislative intent of ORS 191.150, as well as correspond to the Statewide Planning Goals and Guidelines authorized under ORS Chapter 197. The policies are supported by an extensive public input and review process, a series of natural resource inventories for each policy category and an environmental and economic impact assessment.

The policy development process was divided into two separate phases, based primarily upon the availability of funding and manpower.

Phase I: March, 1973 to February, 1974

Limited funding during this period of time prevented development of an extensive work program. To gather input regarding resource management problems and suggested management policies, the Commission sponsored 17 public workshops in the coastal zone and four in the Willamette Valley, involving over 1,000 people. To augment the public input, the Commission established technical resource teams for each policy category, made up of state and federal natural resource agency technicians and individuals from private enterprise involved in managing natural resources on a day-by-day basis. In addition to these inputs, the OCC&DC compiled detailed information regarding existing policy and statutes at the local, state and federal levels in order to provide an accurate assessment and understanding of what was presently "on the books". The combination of these three inputs (public, technical, and existing statutes) provided the ingredients for the OCC&DC to assemble over 300 "Phase I" natural resource management policies.

Following Commission approval, the "Phase I" policies were circulated for general public and agency review. Over 1,800 copies of the policy packets were distributed. Public and agency comments were evaluated and the approximately 300 "Phase I" policies were integrated and combined into 95, which covered the range of concerns expressed in the Phase I process.

Phase II: March, 1974 to Date

In March of 1974 the State of Oregon received, along with the states of Maine and Rhode Island, the first Coastal Zone Management grant funds under the Coastal Zone Management Act of 1972. These funds ($250,132) allowed the OCC&DC to commence the majority of the natural resource inventories needed to provide support and evaluation of the policies generated in "Phase I".

Also, an economic survey and analysis of the coastal zone was developed to provide additional data for evaluation of the economic impact of management policies.

(NOTE: The economic study, funded by the Pacific Northwest Regional Commission ($35,000) and the State of Oregon Department of Economic Development ($5,000) provided the first comprehensive economic profile and analysis of the entire coastal zone.)

Upon completion of the inventory data and economic information (and using the evaluative comments from public review) the OCC&DC compiled Phase II policies, which have been subsequently adopted by the Commission and are being referred to the Legislature and the Governor.

CHRONOLOGY OF SPECIFIC COMMISSION ACTIVITIES

1971

1. The Commission was instrumental in resolving the issue of the Oregon Coastal Highway between Neskowin and Pacific City which had been a major conflict for seven years. An inland route was chosen in favor of construction over a sand spit. The Commission held numerous meetings in the area and testified at a public hearing at the request of the State Highway Commission.

2. The Commission retained a consulting consortium of Hart/Krivatsky/Stubee and Bradwell/Reynolds to develop a study design. The consultants were unable to agree on a precise course of action for the OCC&DC and developed two work programs. Although these work programs provided some useful information, they were not used in subsequent program management by the Commission.

3. The Commission supported the enactment and implementation of the state's fill and removal law.

1972

1. The Commission prepared Initial Report of Local, State, Federal and Private Studies and Planning Activities in Oregon's Coastal Region. This report became a useful document in determining the current level of planning in the coastal zone.

2. In June, 1972 an Executive Director was hired for the Commission, becoming the first full-time employee. In November, a Chief Planner and Information Specialist were also added to the professional staff.

3. In late June of 1972, the Commission held a two-day conference at Salishan and identified the major natural resource concerns and conflicts in the coastal zone. From the proceedings of the two-day conference, the OCC&DC overall program design was developed over the next six months.

4. The Interim Report required by ORS 191.140 was prepared and submitted to the Legislature and the Governor. The Interim Report outlined the Commission activities from 1971 to December of 1972 and outlined the Commission's work program for the two remaining years.

5. The Commission played a major role in the formation of three local estuary planning groups. As a result, plans are being completed for the Tillamook, Siuslaw and Umpqua estuaries. To assist local

efforts the Commission prepared the Estuary Planning Guidelines, which have been requested by numerous states, U.S. territories and foreign countries.

1973

1. The OCC&DC prepared a 23-minute slide presentation outlining resource management concerns in the coastal zone. The presentation has been shown approximately 125 times on the coast and in the valley, to some 3,000 adults and students. Three video-tapes of the presentation have also been prepared and shown on television and to public meetings statewide.

2. Extensive public involvement workshops were held within the coastal zone and Willamette Valley. Close to 1,000 hours were spent on the effort by staff and Commission members. These workshops were the initial step in the development of the natural resource management policies which are the "backbone" of the OCC&DC natural resource management plan.

3. The Commission began the publication of a monthly newsletter which now has a distribution of over 1,800 individuals, agencies and units of government.

4. The first OCC&DC natural resource inventory was completed. An inventory of coastal wetlands, was completed with financing provided by a HUD "701" planning grant.

5. The Commission recommended that all state natural resource agencies, counties, cities and port commissions protect all salt marsh areas from irreversible acts until the OCC&DC proposes standards for these areas.

1974

1. Based upon the overall program design developed by the OCC&DC, the State of Oregon was awarded one of the first planning grants in the nation under the Coastal Zone Management Act of 1972 (March 17, 1974).

2. The OCC&DC helped coordinate local groups in expressing their interest in establishing an estuarine sanctuary and assisted in writing a grant application. As a result, the State of Oregon was awarded the first estuarine sanctuary grant in the nation under the Coastal Zone Management Act of 1972.

3. Speaking in behalf of the OCC&DC, the Chairman of the Commission gave testimony to the U.S. Senate Committee on Commerce in support

of extending the United States fishing industry (full text of the testimony is provided as Appendix A).

4. The Commission recommended that all state natural resource agencies, counties, cities and port commissions protect all active foredunes from acts which will cause safety hazards or costly damage to private or public property until the OCC&DC can develop standards for these areas.

5. The OCC&DC completed development of 300 Phase I natural resource management policies. These policies were distributed to over 1,800 agencies, individuals and units of government for review and comment.

6. The OCC&DC completed Phase II management policies.

7. The OCC&DC, with assistance of various state and federal agencies, completed natural resource inventories and special reports for coastal resources, entitled as follows:

   a. Estuarine Resources of the Oregon Coast;
   b. Coastal Wetlands of Oregon;
   c. Historical and Archaeological Resources of the Oregon Coast;
   d. Geologic Hazards Inventory of the Oregon Coastal Zone;
   e. Oregon Coastal Zone Management Plan Implementation;
   f. An Inventory of Development Pressures;
   g. Fish and Wildlife Resources - Oregon Coastal Zone;
   h. Visual Resource Analysis of the Oregon Coastal Zone;
   i. Economic Survey and Analysis of the Oregon Coastal Zone;
   j. Beaches and Dunes of the Oregon Coast;
   k. Resource Analysis of Oregon's Coastal Uplands;
   l. Freshwater Resources - Oregon Coastal Zone; and
   m. Shore-Process Corridor, A Pilot Study.

8. The OCC&DC developed a process for the identification of areas of critical statewide concern. The Commission also identified specific candidate areas of critical statewide concern within each natural resource inventory. The Commission recommends this process and a number of candidate areas to the Legislature as discussed in detail subsequently in this report.

9. The OCC&DC prepared three public service announcements for television and radio urging citizen awareness of coastal resource values and the role of the OCC&DC in preparing a resource management plan.

1975

1. The Commission distributed Phase II management policies to over 1800 agencies and individuals for review and comment.

2. Based upon final public comment, the OCC&DC adopted final policies for the management of coastal natural resources on March 14 and 21.

3. The OCC&DC staff evaluated two candidate areas of critical state concern as examples of using a process adopted by the Commission on August 9, 1974.

The accomplishments listed above are the major activities of the OCC&DC. There have been numerous other small projects and occasions or instances where the Commission has had an opportunity to solve problems "within the coastal zone" of regional or statewide significance, or assist in resolving problems for local units of government. Also, the Commission supported the budgets of those state agencies that assisted it in developing resource inventories.

Although Oregon's Coastal Zone Management Plan includes a number of single-purpose laws enacted previous to the establishment of the OCC&DC, the policy development process remains the central focus of the program.

The Policy Development Process

THE POLICY DEVELOPMENT PROCESS

As introduced previously, the OCC&DC developed a two-phase process for preparing and adopting coastal management policies. In the first phase the Commission sought ideas and suggested policy statements from the public, from resource specialists, and from various existing laws and policies. The Commission evaluated each policy statement derived from this process and made Phase I policies available for public review. The purpose of the second phase was to re-assess Phase I policies in terms of scientific and economic information and an informal legal review. The OCC&DC staff prepared background statements and supporting information for policies to assist the Commission in review and approval of Phase II policies. The policy program appearing in this report was adopted by the OCC&DC March 21, 1975 following a second extensive review by federal, state and local governments and numerous private individuals. This section provides a description of how the policies evolved. The flow chart (Figure 1) summarizes the major elements of the policy development process.

In June of 1972, the Commission sponsored a two-day conference to identify the major natural resource management problems occurring within the coastal zone (these problems are summarized in the OCC&DC Interim Report - 1973). The conference participants included members of the OCC&DC and its Advisory Committee, local planners, representatives of state and federal natural resource agencies, and concerned citizens. Conference participants identified a list of natural resource categories, coastal values and development obstacles of critical concern in coastal zone management. These categories provided the basic framework for developing the management policies.

POLICY DEVELOPMENT - PHASE I

The Commission pursued a work program which included involvement of the public and resource specialists and a review of existing policies. Policies were developed separately for each of the following nine categories:

1. Estuaries and Wetlands
2. Beaches and Dunes
3. Fish and Wildlife
4. Freshwater and Shorelands
5. Continental Shelf
6. Uplands
7. Floodplains
8. Geological Hazards
9. Historical and Archaeological Resources.

The following discussion details the elements of Phase I of the policy development process.

The Public Involvement Program

The OCC&DC public involvement program was based on the principle that those people most affected by a resource management plan should have the opportunity to participate in forming the plan. In addition, the Commission believed public involvement would create a level of awareness, understanding and commitment that would help establish and implement a meaningful, responsive program.

The public involvement program was a cooperative effort between the OCC&DC and the Oregon State University Extension Service. A series of workshops were held in each of the seven coastal counties and four locations in the Willamette Valley. Approximately 1,000 people participated in the 21 OCC&DC workshops. Attendance lists reveal representation from a cross section of interests including environmental, business, industry, resource management, government (local, state and federal), outdoor recreation, civic, and education. Most Commission members attended workshops in their area. People had been informed of the workshops by invitation from county extension agents and by mass media appeals.

Workshops began with a 20-minute slide program to provide information about coastal resource and development issues and information about the OCC&DC. Participants learned that they would have a significant advisory role to the OCC&DC. They also were told they would have

further opportunities for contributing to the program by commenting on the Commission policy proposals which would be based, in part, on the results of the public workshops.

Workshop participants then broke into formal discussion groups of eight to ten people, including a discussion leader and recorder. Each discussion group was purposely balanced to insure a broad cross section of economic and environmental interests. Two distinct discussion formats were employed:

1. In the coastal workshops a workbook, characterizing the importance of specific natural resource categories, was used. Participants entered comments regarding their concerns in these workbooks. This approach usually took two or three sessions to complete.

2. The Willamette Valley sessions were less structured and employed a problem consensus method. Members of discussion groups were asked to express concerns and suggestions verbally. The groups then prioritized the five most important statement which were then written down by the group recorder. These workshops were completed in one evening.

   An interesting outcome of this arrangement was that the developer and environmentalist usually found that they actually shared similar concerns. The discussion groups helped improve communication between these interests.

All workshop comments were sorted by policy category. Staff members combined similar comments wherever possible and worded the statements as policies. The workshop source was coded in the Synopsis of Public Input so that reference to the original comments could be made if necessary. The Commission kept workshop participants informed of the OCC&DC's progress by mailing them the OCC&DC Newsletter and copies of Phase I and Phase II policies for review and comment.

Resource Specialists Involvement

The OCC&DC convened resource specialist teams for each of nine Phase I policy categories. The resource specialist team members were chosen to represent a broad range of interests and expertise. Participants came from local, state and federal government agencies, universities, businesses, industries and public interest groups that work with the particular resource on a day-to-day basis. Most teams also included an OCC&DC member. A list of the technical resource teams is included as Appendix B.

Individual staff members prepared materials for the teams including a synopsis of public comments and organized meetings. Resource

specialists concentrated on preparing a set of policies for the OCC&DC program. Most teams met in four or five all-day sessions to identify specific problems and needs and to write and review evolving team policies. The resulting policies represented team consensus on the resource management needs for the particular coastal resource.

Existing Policy

Many existing laws and policies are relevant to the OCC&DC management program. The state has a significant amount of legislation to protect and manage beaches, wetlands, water resources and fish and wildlife. The OCC&DC completed a preliminary report on state natural resource agency statutory policies in May, 1973. The OCC&DC also gathered policy information from local government and federal agencies. Existing policies were grouped by the applicable resource category. This enabled the Commission to compare present laws with the identified concerns of the public and resource specialists.

Phase I Policy Evaluation

Phase I policies represented a combination of the three elements just described. The Commission reviewed a complete evaluation package including Phase I policy statements, the Synopsis of Public Input, resource specialist policies and existing laws and policies. Each policy was coded as to its origin. When two or more of the sources agreed, the consensus was shown in the code. Conflicting statements from different sources were grouped so the Commission could address the complete issue and determine the desired policy.

The OCC&DC evaluated each policy twice. At the first meeting, commissioners reviewed policies in three small discussion groups. The audience and Advisory Committee also formed groups and made recommendations. Comments and suggested rewordings resulting from these meetings were summarized. The OCC&DC gave tentative acceptance or rejection to policies at the following meeting.

PROGRAM GOAL AND OBJECTIVES

Although the Commission operated within the framework of its legislative charge while developing Phase I policies, Phase II policy evaluation required a specific statement of the overall intent of the Coastal Zone Management Program.

On August 9, 1974 the OCC&DC adopted a program goal and four objectives. Several laws and documents (including ORS 191 creating the OCC&DC, ORS 197 creating the LCDC, the federal Coastal Zone Management Act of 1972, the OCC&DC Interim Report - 1973 and Program Development Grant, the Memorandum of Understanding between the LCDC and the OCC&DC and the Phase I policies) provided the basis for the goal and objectives. The Commission also approved several background statements to clarify the intent of the goal and objectives. The revised program goal and objectives appear in a subsequent part of this section.

The Commission used the adopted goal and objectives to determine whether Phase I policies were within the intended scope of the program and whether the entire group of policies would be sufficient to meet the goal and objectives.

POLICY DEVELOPMENT - PHASE II

The purpose of Phase II of the policy development process was to critically appraise and revise the policies in light of resource inventories, economic information and public comments. Phase II policies were prepared in a format that included policy statements, necessary actions, recommended actions, and background information. Economic analysis and resource inventories suggested some additional policy or action statements.

Analysis of Phase I Policies

Preparing the Phase I policies for this evaluation consisted of three major steps:

1. Identification of duplication, inconsistencies and contradictions among the Phase I policies, and identification of interrelations and issues, through the use of a so-called sort matrix;
2. Review of comments on the policies by various agencies and organizations including a critical appraisal by members of the Ocean Resources Law Program, University of Oregon Law School and by a WICHE student intern to the staff economist; and
3. Preparation of a two-page worksheet for each policy or group of similar policies describing why the policy is considered necessary, who or what is the target of the policy, how well the policy conforms to the Commission's goal and objectives, and finally identification of problems which exist with the policy as worded.

As a result of the sort process, the various inputs and the worksheet analysis, approximately 300 approved Phase I policies were reduced in number to 95 without deleting or changing the meaning of Phase I policies. The 95 policies as revised were distributed among the following categories:

1. General Policies
2. Visual Resources
3. Historical and Archaeological
4. Scientific and Natural Areas
5. Geologic Hazards (including Floodplains)
6. Fish and Wildlife
7. Estuaries and Wetlands
8. Freshwater

9. Shorelands
10. Beaches and Dunes
11. Continental Shelf
12. Agriculture, Forest, Urban and Recreation Resources

The policies were evaluated in terms of the support available from natural resource and economic inventories.

Coastal Resource Inventories

The OCC&DC, with assistance of state and federal agencies, completed ten coastal resource inventories and one pilot study for shorelands management between August, 1973 and December, 1974. The inventories were designed to provide a basis for the development and evaluation of sound resource management policies. Other functions were to designate the geographic location of particular resources and describe how inventory data could or should be used to make management decisions.

Each inventory defines the resource and describes its natural functions, capabilities and values. Inventories also describe major human uses of the resources and the way those uses relate to each other and affect the value of the resource. The reports discuss resource management concepts suggested by the information collected. Geographic information is shown on uniform 1:62,500 scale maps with the exception of estuaries, wetlands, and continental shelf information, which are at 1 inch equals 1,000 feet and 1:250,000 scales. This report contains a brief summary of each resource report, and the complete documents are included as Appendices J through T.

The Commission took an active part in the development of resource inventories through subcommittees that interviewed consultants and reviewed the progress of all reports that were contracted to private consultants. Authors of the inventories presented findings to the Commission at regular OCC&DC meetings. These presentations gave Commission members an understanding of the information available to be applied to policy development.

The inventories served two purposes in Phase II of policy development, one of defining resources and associated issues and a second of defining the geographic locations where certain policies apply. Inventory narratives substantiated the need for several Phase I policies. In some cases inventories defined problems or needs that had not been recognized in the previous policy work. Management suggestions and resource information gave new emphasis and more substance to some resource policies. Inventories were used as direct references in seven policies. However, individual philosophies of consultants or agencies who prepared inventories were not necessarily supported by the Commission.

Where geographic relationships to management policies are not identified, the inventories suggest methods of making the geographic designation (e.g., shorelands, visual resources, scientific natural areas). The inventory maps are resource materials and as such are not intended to be part of the policy statements. However, accurate mapping may clarify and simplify future implementation of policies. Without eventual specific designations, the protection of resources through a policy plan will be very difficult.

The inventories gained their strength from the emphasis on providing a general understanding of the characteristics and extent of the resources. Although far greater detail is available for certain aspects of particular locations, detailed site specific information would not have provided the Commission with a balanced overview. In the future, local planners will need more refined studies of their area to fully implement a coastal zone management program. However, this will require additional research in many instances.

Economic Analysis

The Commission funded a special study team to prepare an economic study of the coastal zone (Appendix U). The OCC&DC established the Economic Study Steering Committee, consisting of four Commission members and six economic development representatives, to monitor the work of the study team. The report provided a data base from which an initial economic analysis of the policies was made.

The Commission also hired an economist to provide a specific economic analysis of the policies. The economist described likely economic impacts of each of the 95 consolidated Phase I policies and identified the information that would be needed to provide an accurate and complete determination of economic impacts. The economist also prepared an economic analysis of the Phase II policies, necessary actions and recommended actions which included the following three types of comments.

1. Analysis - raising those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. In addition, when answers were available from basic knowledge or from inventories, they were recorded. If the information was not readily available, the economist estimated the effort that would be required to provide the answer.
2. General Reaction - giving the economist's personal evaluation of the likely economic impact. This reaction was provided at the specific request of members of the Economic Study Steering Committee.
3. Suggested Rewordings - alternative ways of stating a policy or action so that adverse impacts identified in the analysis may be avoided or reduced.

Supporting information to most Phase II policies included a brief summary of economic impacts. The Commission reviewed the economic analysis as part of its review of Phase II policies.

Phase II Policy Evaluation

The Phase II policies format approved by the Commission was substantially different from the Phase I format. The Commission made a distinction between a policy statement and associated necessary actions (which, when combined, may become statewide planning goals for the coastal zone) and associated recommended actions (which are intended to have the same status as planning guidelines). Goals carry the force and authority of law while guidelines are optional methods a local unit of government may use to carry out a goal.

In addition to the policies, necessary actions and recommended actions, the Commission received the supporting information including background, implementation suggestions, projected impacts, glossary and suggested areas of critical state concern. The background statements explained reasons for the policies and contained relevant information from the OCC&DC reports and other significant sources. Implementation sections suggested functions for different levels of government and specific agencies in implementing policies. The section on projected impacts outlined anticipated economic, social and environmental effects of the policies. Although the section could not be a complete statement of what would happen if a policy were implemented, it did provide a future means of monitoring how well a policy is working. The glossary of terms used in the policies provided further clarification of the intent of specific statements.

The Commission also considered written alternative wordings for Phase II statements which were suggested by the general public, industry and government agencies. The policies and actions were considered by the Commission as a whole at regular OCC&DC meetings. At the meetings, individuals in the audience (representing government, industry, and public and private concerns) contributed to the policy review. The Commission considered but did not specifically review and adopt the supporting information. Upon completing analysis, the Phase II policy program was approved for public review.

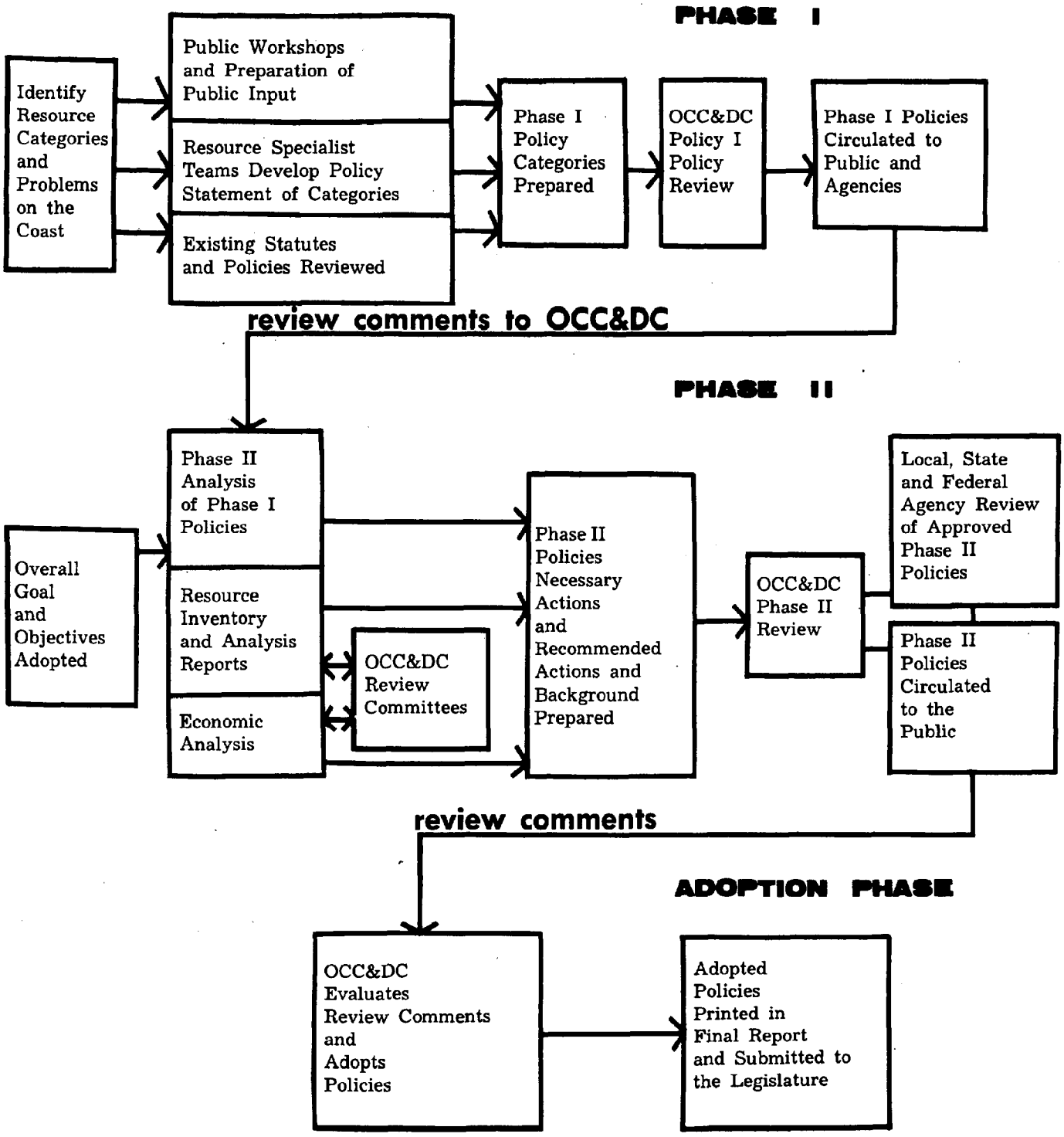
FINAL REVIEW AND ADOPTION OF POLICIES

The Commission began preparing for the final review of the policies in November, 1974 with the release of the first of a series of three television and radio spot announcements. The purpose of the announcements was to increase public awareness of the Commission and its program. The announcements were followed by a full page newspaper advertisement summarizing the Commission's responsibility and the need for coastal planning and listing the Phase II approved policy statements. The Commission distributed approximately 1,800 copies of the entire policy package to people receiving the OCC&DC Newsletter, government officials and to people requesting copies in response to the mass media presentations.

The agency review of policies involved responses from five units of local government, 16 state agencies, 29 regional or federal officies, and the University of Oregon Ocean Resources Law Program. The Commission reviewed written responses from agencies, organizations and individuals, and evaluated all comments suggesting rewordings in the policies. The Commission also considered comments from the audience before taking final action.

Because the Commission has maintained an open process for developing policies, the policy program which follows is a significant step toward developing an effective and publicly acceptable coastal zone management program.

OCC&DC
Policy Development Process



The OCCDC Program for Management of Coastal Resources

THE OCC&DC PROGRAM
FOR
MANAGEMENT OF COASTAL RESOURCES

The OCC&DC program consists of an overall goal and four objectives and several policies, necessary actions and recommended actions. It also includes implementation recommendations, process and case studies on selecting areas of critical state concern, and identified information needs. The goal expresses the end toward which state efforts in managing coastal resources is directed. The objectives define in specific measurable terms some of the overall accomplishments necessary to achieve the goal. The policies provide a guiding principle or process for making coastal zone management decisions that will lead toward achieving the state goal and objectives. Necessary actions identify specific measurable actions or accomplishments that must occur for a policy to be effective. The policies and necessary actions may become specific statewide planning regulations for land use in the coastal zone.

Recommended actions suggest means or activities that decision makers and agencies should consider implementing to achieve a policy. The OCC&DC proposes recommended actions as guidelines rather than state regulations for one of the following reasons: the impact of the action is primarily local; the action is intended to provide government with new innovations or alternatives for carrying out policies but not to restrict the alternatives used; or the action, although significant, is of lower priority than policies and necessary actions in terms of funding for implementation.

The Commission considered the background material and footnotes that appear along with the policies as explanatory material to help understand and interpret the intent of the program. The Commission did not specifically adopt the background and footnotes.

The OCC&DC program is concerned with the preservation, conservation, development and restoration of natural resources of the coastal zone for the benefit of all people. Policies address the following land and water resource features: freshwater, estuaries, wetlands, shorelands, continental shelf, sand areas, uplands, and fish and wildlife habitats. These resources will be managed under constraints based on cultural, recreational, historical, archaeological and aesthetic values; on economic needs for income, employment, urban, agricultural and forest land; and on natural obstacles to development such as floodplains and other geologic hazards.

GOAL AND OBJECTIVES

Goal

It is the goal of the State of Oregon

(a) to preserve, conserve, develop and restore the natural resources of the coastal zone in such a way that there is created and maintained a balance between conflicting public and private interests that shall assure the greatest benefits to this and succeeding generations of Oregonians; and

(b) to develop and implement a coastal zone management program that is consistent with (a) above; and

i. that shall guide public and private uses of natural resources of the coastal zone so that pollution is controlled and irreversible damage to the ecological and environmental qualities of the coastal zone is prevented;

ii. that shall reflect a balancing of the conservation and the orderly development of the natural resources of the coastal zone; and

iii. that shall protect the unique character of life on the coast that is reflected in cultural, historic, and esthetic values.

Objectives

1. To insure substantive statewide citizen involvement in management of the coastal zone's resources.

2. To insure coordination of coastal resource planning management and administration with local, state and federal agencies through clearly established authorities and responsibilities.

3. To manage the natural resources of the coastal zone on an evolving experimental and flexible basis so that as experience with and knowledge of the coastal zone increases, revision and improvement of the program can be effected and so that irreversible actions are avoided and thus future options are retained, and specifically:

   a. To encourage, monitor and sponsor research on the coastal zone that is relevant to and consistent with the goals and objectives of management program;

   b. To identify, coordinate, store, retrieve and disseminate information that is both necessary and sufficient for the continuing implementation of the management program by means of a system that is compatible with present and emerging information systems; and

c. To establish an organizational structure to conduct the coordination, storage, retrieval and dissemination of information that is sufficient for the management progam but does not duplicate or supersede existing activities.

4. To establish a system of preferences such that conflicts among uses of the natural resources of the coastal zone may be resolved.

POLICIES, NECESSARY ACTIONS AND RECOMMENDED ACTIONS

1. Incorporating Social Concerns in Planning and Decision Making

Policy Statement

State and local governments shall base modifications, approval or disapproval of proposed developments, plans and programs on the short and long term economic, ecological, cultural, aesthetic, historic and recreational effects on all Oregonians. If it is determined that the proposed action and its effects are a national concern or exclusively a local concern, then the nation or the locality shall be the relevant constituency.

Necessary Action

The appropriate state agency shall require a written evaluation of social costs and social benefits for proposed developments, plans and programs that are likely to affect adversely areas of critical state concern. The state agency in cooperation with units of local government shall determine those developments, plans and programs that are likely to affect adversely areas of critical state concern.

Background

This policy guides decision makers to incorporate the full range of social concerns into the decision making process. In the past, decisions have often been based only on short term economic (and other easily quantifiable) factors. In some cases this has led to developments or activities that have significantly decreased the social benefits derived from the natural resources of the coastal zone.

In areas of critical state concern the state will have a responsibility to protect and maintain the values of the area. Many ecological, and other values of natural resources have been identified in the OCC&DC resource inventories. The OCC&DC reports also describe the cultural and economic heritage of the coastal zone and several long term, chronic and secondary impacts of specific activities. These reports can serve as a first source for identifying the less quantifiable factors of a particular proposed development or use.

The OCC&DC system of preferences, to the extent that it is adopted, will establish a process of resolving conflicts using objective information to the greatest extent possible.

2. Planning and Providing for Multiple Use of Natural Resources

Policy Statement

State and local government through planning and management shall provide for multiple uses of natural resources on public lands and shall encourage multiple uses on private lands. When several uses are proposed in the same location, state and local governments shall provide for multiple use based on the demands of each user, the degree of compatibility among various uses, and the effects of each use and combined uses on the natural resources.

Background

The concept of multiple use has been used in the management of forest and water resources for many years. Multiple use in this policy reference does not mean that all uses should be allowed in all locations. Most uses in some way affect other uses either beneficially, as some timber harvest practices do for deer hunting; or adversely, as waste disposal does on aquatic life habitat. The compatibility of uses usually depends on the intensity of each use. Uses which are compatible or even mutually beneficial at lower intensities become less compatible at higher use intensities. When incompatible uses are proposed for the same area, decisions will have to be made about which use or uses should predominate. In the interest of maintaining a diversity of uses of natural resources provisions should be made to allow a place for each socially desirable use.

The uplands inventory (p. 76-81) describes a means of selecting which (if any) of the broad use categories; forestry, agriculture and recreation should predominate on different types of uplands. In addition, each resource inventory gives an analysis of preference of uses based on resource impact. The Beaches and Dunes Inventory and the Visual Resource Analysis show compatibility ratings for several uses. The major determinants in providing for multiple uses will be the impacts, compatibilities and desired intensities of the several uses.

3. Establishing Scientific and Natural Areas

Policy Statement

State and local units of government, in cooperation with the federal government and the private sector, shall:

a. *acquire, designate or otherwise establish scientific and natural areas, not to exceed more than one percent of the total coastal area for any one major ecosystem type;*[1]

b. *maintain the established areas in a condition suitable for developing the baseline data needed to evaluate the effects of use and management of similar areas;*

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[1]On May 31st, 1974, the Environment, Conservation, and Economic Concerns Advisory Committee made the following recommendation to the Commission:

> "That OCC&DC adopt a policy, and recommend to the Legislature that they implement said policy, to preserve some areas representing specific coastal ecosystems. Such areas (intertidal, estuarine, sloughs, dunes, marshlands, bogs, unique soil and geological formations, and others to be further defined) shall be preserved in their natural condition in order to provide baseline data by which to evaluate the effect of man's activities on similar areas."

The ecosystems in the coastal zone needing representation have been further defined and identified in the preliminary draft of Research Natural Area Needs in the Northwest - A Contribution to Land Use Planning, by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Portland. This document outlines a minimal Research Natural Area system needed to provide adequate field laboratories for ecological, environmental, and land management research.

c. *develop and adopt methods, guidelines, and criteria for the preservation and management of scientific and natural areas and include these considerations within the comprehensive planning process;*[2] *and*

d. *develop a net social benefit cost analysis for each proposed scientific and natural area to demonstrate that such a designation is in the public's best interest.*

Necessary Actions

1. *The state and local units of government, in cooperation with the federal government and the private sector, shall:*

   a. *continue the process of inventorying the coastal zone to identify and describe potential scientific and natural areas; and*[3]

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[2]The method chosen to protect a specific area should be determined by: (1) an analysis of the location, extent and characteristics of the natural feature to be protected; (2) the compatibility of various uses (either existing or potential) of the area; (3) the compatability of surrounding uses; (4) the relative importance of the areas values and potentials in fulfilling the intent of the preserves system; and (5) the levels of management capability existing in government and the private sector. Potential methods include, but may not be limited to: acquisition of fee or interest, establishment of use limitations, dedication, registration, and integrated land and water use management.

[3]Both the Nature Conservancy and the State Natural Area Preserves Advisory Committee have recently initiated inventory work in the coastal zone. The Nature Conservancy has completed an inventory of Clatsop County and the NAPAC has conducted a survey of state-owned lands throughout the coastal zone. The completion of an inventory of coast-wide application could be facilitated by using the information OCC&DC has collected in regards to other resource inventories. However, because of the field checking, level of detail and documentation necessary to identify and describe a potential area much more work needs to be completed.

b. designate scientific and natural areas for certain levels of management within the comprehensive planning process;[4] with just compensation for any loss incurred by the private sector for maintenance.

2. The appropriate state agency shall coordinate with the public and private sector:

a. the development and adoption of management methods, guidelines, and criteria; and

b. the process of inventorying and establishing scientific and natural areas.

3. The appropriate state agency, in cooperation with local and federal government, shall:

a. maintain the designated scientific and natural areas according to the specified management methods and guidelines; and

b. include the adopted management methods and guidelines in the state and local comprehensive planning process.

Recommended Actions

1. The State of Oregon should seek the necessary funds, from the Office of Coastal Zone Management and other sources, to complete an inventory and to retain the continuity of this work element with other parts of the Coastal Zone Management Program.

2. The appropriate state agency should coordinate the development and adoption of management guidelines which reflect the various management responsibilities appropriate to each level of government.

3. The appropriate state agency should establish a process in which the information gained from scientific and natural areas is incorporated within the coordinated information storage and retrieval program to facilitate future planning and management.

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[4]The different levels of management refer to the interests, concerns, and responsibilities of: (1) federal resource agencies; (2) state resource agencies; (3) the local units of government; and (4) private organizations.

Background

Scientific and natural areas, depending on their purposes for designation, intended uses, and level of management, contribute to general resource management and environmental quality programs through the:

(1) provision of sites for collecting baseline data and monitoring changes;

(2) maintenance of the diversity of natural systems;

(3) preservation of stocks of plants and animals, including those that are threatened or endangered; and

(4) provision of opportunities for scientific research and education.

In the coastal zone, the interactions of the land, air, and waters with plant and animal life forms have resulted in a diverse number of ecosystem types such as salt marshes, bogs, estuaries, forests, etc. Because of man's activities, ecosystems have been and continue to be altered or modified from their pre-existing condition. In some cases they may be eliminated entirely.

An adequate system of ecosystem preserves would serve to maintain the number and kinds of ecological communities by assuring the continued existence of representative samples of the various ecosystem types. Such areas provide the opportunity to develop an understanding of the ecological processes of a broad range of communities through research and monitoring.

Detailed descritpive and experimental studies could establish baseline data which enables the comparison of natural and man-manipulated systems. Information regarding ecological processes provides the resource manager and decision maker with the knowledge necessary for developing alternative plans for timber and agricultural production, aquatic and wildlife management, water yield and quality, etc. In addition, these areas provide monitoring locations for the measurement of levels of pollutants which may build up in the soil, water, and living organisms; and which, eventually may enter food-chains with the possibility of contaminating human food sources.

Natural areas act as reservoirs for plant and animal stocks. This is important not only to preserve the genetic stock of species that are threatened or endangered, but also, to assure a source of wild species of potential value to man for food, materials, and medicinal substances.

Finally, these areas act as outdoor laboratories for the training of natural scientists and biologists who need to observe natural communities under undisturbed conditions in order to interpret both the beneficial and detrimental changes of the environment.

Additionally, such areas also stimulate public appreciation and understanding of natural phenomena when nondestructive activities are permitted or interpretive displays, signs, and programs are provided.

The role of scientific and natural areas may be identified by the way in which they would contribute to the coastal zone management program. Through the development of baseline ecological measurements, scientific and natural areas serve as experimental controls to determine change and to identify how other similar resource areas may be managed. This basic informational purpose relates directly to:

(1) the adopted objective of the Commission to revise and improve the management program as experience with and knowledge of the coastal zone increases;

(2) the Commission's adopted policies; and

(3) the system of preferences required by OCC&DC's legislation to resolve conflicting uses of the natural resources.

Information is a contributing link in the decision making processes of management. Its function is to provide a factual base for decision making and for understanding and evaluating the consequences of management actions. The Commission's objective of a responsive management program implicitly recognizes the need for increased knowledge. A representative system of scientific and natural areas provides the means through which resource functions and values may be identified and the success of management actions may be judged and further refined.

This basic role relates in more detailed manner when considering the policies and the system of preferences. The approved Phase II policies have attempted to reflect the beneficial and adverse consequences, of their application, to the economy and environment. Also, many of the policies call for the development and application of guidelines and criteria regarding the use of specific resources. The baseline information provided by scientific and natural areas would facilitate the development of guidelines and criteria and provide the means to judge their sufficiency when applied.[5]

[5]Because a system of scientific and natural areas would be representative of coastal ecosystems, this process could be carried out for the relevant policies and specific resource situations.

The system of preferences suggested to the Commission attempts to provide the structure and basic criteria for choosing among alternative land uses by specifying a relationship between the use to which a site (or resource) might be put and the social values society derives from that use. The Commission has indicated what characteristics should be considered in making such a decision and these include economic, ecologic, cultural, historical, aesthetic and recreational values. Again, a system of scientific and natural areas would play a role in aiding the definition of ecological values. And, because the system of preferences calls for detailed information and a provision for updating it, such a system would provide continuity in the development of ecological information.

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[6]Because of the complexity of ecological processes and the scientific methods used to develop valid information, areas used for research purposes are generally assured a level of protection that makes thorough investigation, over time, possible.

4. Protecting the Visual Attractiveness of the Coast

Policy Statement

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.

Necessary Actions

1. *State and local governments, in cooperation with the private sector, shall identify and designate open space, scenic vistas and scenic corridors in comprehensive plans with particular attention within areas of exceptional or strong visual association with coastal processes.*[1]

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[1]The OCC&DC Visual Resource Analysis provides the framework upon which further identification and analysis of the visual attractiveness and character of the coast can be developed. Local knowledge and concerns about these values and inputs from other studies (and the appropriate state agencies) are needed to develop a more detailed level of information for use in land use decision-making processes at both the local and state level.

The OCC&DC inventory presents a visual evaluation system with five "image region" classifications based on the extent to which the landscape evokes a coastal related experience. Those areas where the association with the ocean is stronger were regarded as being more dynamic and more significant to the visual experience of the coast. Therefore, the areas identified in the inventory as image regions with exceptional or strong coastal associations (Special Image Region and Image Region 1) require special management consideration because their value to the visual experience of the Oregon coast is of greater than local significance.

2. *State government, in cooperation with local units of government and the private sector, shall develop planning criteria[2] for protection of visual values and shall require that these criteria be considered in local comprehensive planning as well as in state agency programs.*

3. *State government, in cooperation with local units of government and the private sector, shall establish criteria[3] for evaluating the impact of development proposals on the visual quality and character in areas of exceptional or strong visual association with coastal processes. An evaluation of the net social benefits should be included as one of the criteria.*

4. *State governments shall compensate any private owner for land designated as open space, scenic vistas or scenic corridors.*

5. *State and federal agencies shall cooperate and comply with the OCC&DC recommended criteria concerning outdoor signs.*

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[2]Planning criteria would include guidelines and procedures to follow in identification and designation of spen space, scenic vistas and scenic corridors in areas of exceptional of high visual significance. The landscape and feature classifications in the OCC&DC Visual Resource Analysis (pg. 43-53) provide basic information to the identification process which can be supplemented by local knowledge and other studies. Designation of these areas and sites requires assessment of their significance and can again refer to the OCC&DC inventory to begin. Because of the visual importance in these areas, state-wide concerns as well as those of local residents must be considered.

[3]In the case of management criteria, the guidelines and procedures would be directed toward the review of development proposals. The Recommendations section (pg. 73-75) and the description of landscape structure, processes and values for each landscape type in the Technical Appendix of the OCC&DC Visual Resource Analysis; and the policy and recommended actions for the protection of visual values represent initial steps toward the development of this criteria.

Recommended Actions

1. County governments should consider establishing a design review process[4] 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 the coastal zone management program.

2. Local governments, in cooperation with the private sector, should review undeveloped open space areas and scenic vistas and designate certain ones for reservation.

3. State and local governments should identify and provide special protection to those historical and archaeological resources which contribute to the visual attractiveness and character of the coast. (Visual and Historical and Archaeological Inventories)

4. State and local governments should develop programs to encourage private maintenance and enhancement of the visual attractiveness and character of the coast, particularly in open space areas.

5. State and local governments should remove or cause to be removed abandoned and dilapidated structures when they are found to detract from the visual and cultural character of the landscape, unless it is demonstrated that the net social benefits of removing the structures are less than the net social benefits of not removing the structures.

6. State and local governments should control outdoor advertising signs in non-urban areas and should regulate all signs to protect the visual attractiveness and character of the Oregon coast.

7. State governments in cooperation with local government should develop public education programs which interpret the natural environment and cultural heritage of the coastal landscape to encourage greater understanding of its visual character and values.

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[4]The county design review board should be made up of people knowledgeable in community goals, aesthetics, history and professional designers (i.e., architects, landscape architects, engineers). One member of each county board would sit on a coast-wide design review board and assist the state in review of development proposals which are of greater than local significance.

Background

Every natural resource and functional category being considered in the management of the Oregon coastal zone has visual implications. The quality and character of the visual experience in the coastal environment affects and is a concern to both residents and visitors, but management is complicated because perceptions about and recognition of these values vary greatly.

The visual attractiveness and character of the coastal landscape is not an optional amenity. Protection, maintenance and enhancement of visual values in the natural landscape and in historic, recent and proposed development has a profound effect on the quality of daily life for those who live and work on the coast. Because the coastal economy and lifestyle have beentraditionally and remains highly resource-dependent,[5] the natural and cultural landscape reflects the heritage and values of coastal people.

The OCC&DC Visual Resource Analysis examines and documents the range and quality of visual experience generated by the landscape[6] of the Oregon coast; the inventory begins to probe the issues of development and other human activity in relation to the protection, maintenance and enhancement of potential for visual experience. Based on the visual characteristics and values of the various landscape types, the inventory recommends management considerations for each landscape type and classifies them into 5 image regions. These

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[5]Logging, fishing, shipping, and agriculture related activities are the primary industries on the coast; their influence has helped to shape the coastal landscape and, therefore, contributes significantly to the diversity and richness of potential for visual experience.

[6]The inventory describes, analyzes, and evaluates the coastal landscape and recommends management considerations based on visual characteristics and values. Coastal landscapes are separated into three categories:

(1) those which are either too small, too frequent, or too dynamic inventory;
(2) those which are small in size but are highly important to experiencing the coast were identified as features; and
(3) those of sufficient extent were delineated as representative landscape types.

The features include: lighthouses, coves, arch rocks, sea cliffs, important vegetation (e.g., Darlingtonia bogs), offshore rocks, shipwrecks, streams crossing beaches, jetties and harbors; twenty-six landscapes designated included: coastal lakes, headlands, terraces, sand areas, pastoral areas, estuaries, and uplands, gently rolling and bottom lands.

image regions range from those with strong and obvious associations with the ocean or coastal processes to those which are only weakly associated and there is a special category for those areas with exceptional potential for visual experience.[7]

The landscapes of the Oregon coast are diverse, ranging from expansive stretches of sandy beaches to heavily timbered uplands, but those landscapes which evidence the dynamic and unique character of the interface between land and the ocean hold a special fascination. The variety of opportunities for experience gain importance from the expressive and tenuous relationships which exist at the coastal edge. These experiences are heightened further by the cyclic and unpredictable nature of the ocean and climate. Even though a coastal lake may be very beautiful, its visual significance is surpassed by the uniquely coastal character of a dune lake which is surrounded or blocked by a ridge of a open sand. Similarly, historic features such as lighthouses and old bay front communities express this strong sense of coastal experience.

The public interest in protection of the visual attractiveness and character of the state is evidenced by the efforts of the Travel Information Council,[8] the Scenic Areas Board,[9] the state parks and

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[7]The special image category occasionally includes landscapes with less obvious or weak associations to the coast whose protection is essential because they strongly influence and support a more visually significant area.

[8]The Travel Information Council is authorized to control on-premise signs outside incorporated cities and to provide for motorist information signs on highway right-of-way, rest areas and sign plazas. No new signs are allowed along interstate highways except in commercial and industrial zones. To date the state has spent $4.2 million in order to remove existing signs and erect "logo boards" (i.e., signs that inform the public of the location of various services such as camping, gas stations, restaurants, etc. in a less obtrusive manner). Although these efforts have been largely focused on Interstate 5, Highway 101 is also a high priority. Travel information centers financed by various commercial interests will also be erected to inform the public and eliminate the need for outdoor advertising signs.

[9]The 1961 Legislature created the Scenic Area Board to establish scenic areas adjacent to or along public highways. The designated acenic areas include segments of highway within state and federal parks, and sites of historical significance or unusual natural beauty and once designated no new sign permits can be issued. Many scenic roadway corridors in the coastal zone have already been identified by this process.

scenic waterway programs,[10] and the Oregon Bottle Law which gained its initial popularity as anti-litter legislation. The statewide concern for the coast generated the Oregon Beach Law which affirms the public right to use of the beaches and cites the public need for aesthetic surroundings and natural scenic and recreational resources. More recently, the public outcry for protection of Cape Kiwanda reaffirms the significance of the visual quality of the coast to the state as well as local residents, especially in those areas with strong coastal associations.

The number and popularity of state parks and waysides, county and city parks and the recreational opportunities provided on federal lands evidence the importance of outdoor recreation on the coast (OCC&DC Uplands Inventory). Because much of the recreation on the coast is resource-oriented, visual amenities often contribute significantly to the quality and diversity of experience available to the recreationist. Good recreational opportunities and the protection of visual amenities are linked, both are essential to the quality of life for coastal residents and to tourists and second home owners who generally experience the coast as recreationists.

Uses which conflict significantly with the visual character and values of the landscape can threaten the health, safety, comfort and general welfare of the local community and generate a negative overall effect on the region. The intent of this policy is to protect adjacent property owners and the public from injury, not to restrict creativity or self-expression. Inappropriate development or use reduces the potential for appropriate use in the surrounding area by damaging property values, discouraging maintenance and unbalancing the relationship between the taxable value of real property and the cost of public services (e.g., sewer and water service).

Existing and proposed controls upon use of coastal resources already provide some degree of protection for visual amenities, but only as a secondary effect. These controls include air and water quality protection, regulation of objectionable smells and noise levels, minimization of disturbance of vegetation and landform, and preservation of wildlife and aquatic life habitat. Cultural, recreational, educational and scientific opportunities also affect the quality and character of the visual experience. However, at present, there is no integrated or comprehensive approach being made toward protection of coastal visual values.

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[10]The Scenic Waterways System in the state includes approximately 72 miles of the Rogue River with a significant section within the boundaries of the coastal zone. The Nehalem River, whose entire watershed is in the coastal zone, is under consideration for scenic waterway status; studies will be made to determine its suitability.

Recognition of visual values is needed in planning and resource management throughout the coastal zone. By designating open space, scenic vistas and scenic corridors especially in those areas with the greatest visual significance and evaluating the visual impact upon them by proposed development or uses, social, economic and environmental costs can be minimized. Through this designation and evaluation process the public interest can be defined and protected more successfully. Criteria are needed to assist decision makers in analysis of the impact of development on visual values. These criteria should allow for the variability in the quality and character of potential visual experience on the coast.

Because of the difficulty in setting standards for protection of visual values, many areas in the country[11] have established design review boards to consider proposed development or uses. In Oregon, the cities of Gresham and Beaverton have design review boards and many other jurisdictions have special ordinances and review procedures for planned unit developments, signs and other uses. Guided by visual impact evaluation criteria, a coastal design review process would allow greater protection of visual values and greater flexibility and a more equitable response to individual proposals than other management techniques.

[11]Notable examples on the west coast include King County, Washington and the design review process proposed by the California Coastal Commission.

5. Historical and Archaeological Resources in the Planning Process

Policy Statement

State and local governments shall protect historical and archaeological resources through the following process:

a. *National Register and other appropriate sites and areas, identified in the OCC&DC Historical and Archaeological Resources Inventory,*[1] *shall be incorporated into comprehensive plans; and*

b. *State and local governments shall assure that development within or near those historical and archaeological sites and areas that are incorporated into comprehensive plans is avoided, or that where development is allowed, special restrictions (appropriate to the extent, characteristics, and relative importance of the site) are established to maintain or enhance the historical and archaeological values of the sites and areas.*

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[1]The OCC&DC Historical and Archaeological Resources Inventory identifies the location, characteristics and relative significance of 304 sites in the coastal zone. Five of these are designated sites within the National Register of Historic Landmarks. These sites must be acknowledged by state and local governments in planning any project which involves federal funds of licensing in the National Register site area. Other sites are identified as being of national significance, although they are not included in the National Register. Remaining sites are identified according to levels of significance as well. The classification system in the inventory includes:

a. National Register sites;

b. districts and areas with a large number of sites of national and state significance;

c. areas with a large number of sites of state and county significance;

d. all other sites predominantly of concern to the county and city; and

e. highly significant resource types scattered along the coast (e.g., lighthouses).

Necessary Action

Prior to proceeding with any archaeological digging (in an Indian site) written permission shall be received from tribal descendants, if any, and county governments and a hearing shall be held to identify concerns.

Recommended Actions

1. State government should establish a system for the protection of historical and archaeological resources through the coordination of planning and management activities conducted by state and federal agenices, local units of government, and private citizens and organizations.

2. State government should continue to maintain and develop a historical and archaeological inventory of the Oregon coastal zone, with particular attention to initiating a comprehensive archaeological survey. Local and federal governments, historical and archaeological societies, college and private efforts should be informed of the inventory and encouraged to expand the state files.

3. State and local governments should use discretion in the use and distribution of the OCC&DC Historical and Archaeological Resources Inventory to protect the sites and the property owner from harassment, vandalism, and theft.

4. State and local governments should review existing state building codes, taxing policies, and other laws and enforcement policies which affect historical and archaeological resources and propose reasonable adjustments and new legislation to provide more complete protection to these resources (such as that which is provided under federal law).

5. State and local governments should not allow excavation or removal of materials of a historical or archaeological nature unless by qualified persons[2] or groups with professional guidance.

6. State and local governments and private efforts should seek and use all funds potentially available (from state, federal, and private sources) for surveys, planning, management, acquisition and development of historical and archaeological resources.

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[2]Archaeologists and historians.

7. State and local governments and private efforts should be coordinated to identify, prioritize, and reserve historical and archaeological sites which are particularly suited for anthropological, historical or scientific study, especially those which are easily accessible to education or recreational facilities or already in public ownership. Appropriate use alternatives should be recommended for those sites which are not considered a high priority for reservation.

8. State and local governments and private efforts should formulate a priority for historical and archaeological resources which are threatened by development and determine whether reservation is practicable for these areas.

9. State and local governments and private efforts should be coordinated to develop educational and interpretative programs to foster public recognition, understanding, and appreciation of historical and archaeological resources.

Background

Protection of historical and archaeological resources is in the public interest because these features reflect the diversity and richness of the human experience on the Oregon coast, and provide opportunities for cultural, educational, scientific, and esthetic experiences for all Oregonians. Management of these resources is complicated by the diversity of types, which include Indian middens, natural landmarks, bridges, lighthouses, historic buildings, and sites of significant past occurrences. These are identified and described in the OCC&DC Inventory of Historical and Archaeological Resources in the coastal zone.

Alteration, destruction, and disturbance of historical and archaeological resources is a process which is diminishing the heritage of the Oregon coastal zone. One of the most serious problems is the lack of a comprehensive archaeological survey of the coast. The Oregon Archaeology Society estimates that within 10 to 25 years, virtually all archaeological sites will have vanished unless they are further protected. The State Antiquities Act is not adequate to protect Indian occupation sites from degradation by artifact hunters, according to the Society. The Act deals only with removal of artifacts, and not with disturbance of sites, and provides protection only for sites located on state-owned land. There is no supervisory agency to deal with provisions of the Act, and present funding is set at only $3,000 per year for archaeological research and preservation state-wide. In addition, there is a need to contact the descendants of the coastal Indians prior to archaeological work to ensure that it is conducted in a manner satisfactory to them and that the artifacts are shared with the local area. Historical sites are being lost

through neglect, incompatible development, and a lack of funds for maintenance and acquisition. A basic problem is the lack of identification and understanding of historical and archaeological resources.

A statewide system is needed for collection, storage and retrieval, and distribution of historical and archaeological information to coordinate the efforts of federal, state, and local agencies as well as private groups in protection of these resources. Discretion must be used in dissemination of this information to avoid additional threats to the property or property owner. Building codes and taxing policies must be redirected so that they do not unwillingly create constraints upon protection of historical and archaeological resources.

The Oregon coast is a microcosm of the influences and events which shaped the Northwest; the diversity and richness of the prehistoric and historic past offer a wide variety of opportunities for interpretative work and exhibits.

6. Managing Urban Growth

Policy Statement

Local government shall restrict urban uses to designated urban growth areas.

Necessary Action

Local government shall designate urban growth areas in comprehensive plans based on a process that evaluates the following factors according to the criterion of maximum social benefits:

a. *Social and economic factors including but not limited to projected increases in population and demand for developable land.*

b. *Physical factors including but not limited to topography, soils, drainage, and physical obstacles.*

c. *Natural resource factors including but not limited to the protection of fish and wildlife habitats, productive agricultural or forest land, air and water quality and aesthetics.*

d. *Public service factors including but not limited to the availability of water and sewerage services and transportation facilities.*

e. *Use factors including but not limited to existing land use and ownership.*

f. *The locally adopted growth policy which expresses the desired rate and direction of urban growth.*[1]

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[1]The OCC&DC Inventory of Development Pressures uses a process that includes physical, governmental, and use factors. With this study as well as other OCC&DC resource inventories (e.g., Fish and Wildlife, Visual, Estuaries and Wetlands) and the OCC&DC Economic Survey and Analysis, local units of government can begin to identify urban growth areas — areas where urban uses should be allowed. Local elected officials should use the factors a through e to develop a policy establishing the desired rate and direction of urban growth. With the guidance of this policy, the information obtained from evaluating the various factors could be used to designate urban growth areas within the comprehensive plans.

Recommended Actions

1. Local governments should identify lands suitable and environmentally acceptable for industrial and commercial uses, including economically viable mineral, rock, and petroleum resource removal, and should conserve sufficient quantities of this land to allow for location of new or expansion of existing industrial and commercial uses.

2. Local government should disapprove residential developments proposed for areas identified as best suited for other than residential use unless the developer demonstrates that the net social benefits justify the residential development.

3. Local government should control the development of commercial, recreational, and industrial uses along primary highways to the extent necessary to allow for efficient provision of transportation, water, and sewer services, and to retain visually attractive roadside scenery.

4. Local government should prohibit strip or dispersed development unless it is demonstrated that the net social benefits associated with clustering of structures, separated by preserved open space, are less than the net social benefits generated by continuation of scattered development practices.

Background

Early in the OCC&DC policy development process the lack of urban growth management was identified as a problem which the OCC&DC should address. The concept of urban growth management does not refer only to local control of urban development but to the management of a regional and state resource-developable land. It is recognized that the economic and social needs of the coastal zone depend upon an adequate supply of developable land. At the same time it is apparent that other resources such as agricultural and forest lands and wildlife habitats have to be protected from incompatible urban development.[2] To provide for management of urban growth the policy suggests a process that first identifies land areas best suited for urban uses and then maintains these areas for urban uses.

[2]Nearly all of the OCC&DC resource inventories and many of the Commission's policies identify the need to control urban type development to conserve coastal natural resources.

The OCC&DC Inventory of Development Pressures represents one of the necessary steps in identifying urban growth areas. However, it is only one step. Demand for developable land, natural resource considerations, and the needs and desires of respective urban communities must also be evaluated and included in the identification process. Once identified, these land areas can be managed to provide for the most efficient and environmentally acceptable use of the land.

Areas designated for urban growth should be flexible so that as experience with and knowledge of the coastal zone increases, the boundaries can be revised to accommodate necessary growth.

7. Requiring Water Supply and Sewage Disposal for Development

Policy Statements

1. *The issuance of building permits shall be contingent upon proof from the builder that safe and adequate water supply and approved sewage disposal methods are available for the building site.*

2. *Permit granting agencies shall allow developments which require the use of water distribution and sewage collection systems (for the supply and treatment of water and sewage) only in designated urban growth areas where these services are available or will be made available concurrently with construction.*

Necessary Action

State government in cooperation with units of local government shall develop criteria for evaluating the safety and adequacy of water supplies.

Background

Water supply and sewage disposal are essential requirements for development. At present the new statewide building permit system under the Department of Commerce does not require evidence of waste disposal or water supply capabilities. Each coastal county except Coos County requires approval of subsurface disposal for issuance of building permits. The Coos County subsurface disposal program is being carried out by the Department of Environmental Quality and is not tied directly to the building permit system. Only a few counties also require approval of water supply before issuance of permits. The state has a mandated responsibility to assure safe water supplies and to protect water resources from contamination, however, no uniform criteria for determining adequate and safe private water supplies have been established.

The OCC&DC freshwater inventory characterizes the majority of the coastal zone as having limited groundwater supplies both from the standpoint of quantity and quality. The major quality problems are dissolved mineral content especially iron, high acidity, decomposed vegetation and contamination from inadequate sewage treatment. Areas with productive and good quality groundwater supplies occur in the sand dune areas and in the alluvial ground along main rivers. A person building on the coast under the assumption that water will

be available may find that a supply can only be provided at very high cost. This policy is directed at protecting the public from construction that cannot be adequately serviced.

The OCC&DC report on Identification of Areas Suitable for Urbanization states "Water and sewerage service inadequacies were identified in 93 (77%) and 97 (80%) of the 121 subareas, respectively". Higher density developments require collection, distribution and treatment systems for water supply and sewage disposal. These services represent a significant public investment. Allowing high density development to precede water and sewer systems leads to nonorderly development and urban sprawl with excessive public costs and inefficient systems. This policy would alleviate that problem by requiring development to occur within designated areas having such systems or in areas where planned growth will be accompanied by necessary capital investment.

8. Evaluating Development Proposals

Policy Statement

The local evaluation of proposed residential, commercial, industrial and recreational development in the coastal zone shall be based in part on the following factors:

a. the compatability of the proposed use with existing and planned uses of the site and the surrounding area;

b. the physical suitability and limitations of the proposed site;

c. the demand for and availability of adequate public services including: water, sewage disposal, schools, police, fire protection and open space;

d. the demand for parking and commodity-storage areas on the development site; and

e. the adequacy of transportation access and linkage to transportation facilities and availability of alternate means of transportation.

Background

Resource specialist identified a need to provide some consistency in evalatuing development proposals to protect the public interest. This policy describes some of the basic elements of public concern in land use planning and decision making.

Item (a) reaffirms the importance of consulting comprehensive plans which contain the expressed desires of the community in land use. Item (b) refers to physical factors which often place constraints on development. Those physical factors include slopes, soils, drainage, flood hazards and geological hazards. These factors should be evaluated in order to prevent development that will cause excessive public costs. Item (c) refers to the demand for public service that accompanies most urban development. The local government should consider the added burden a development will place on the community and determine whether the benefits of the development

justify additional costs (if any) to the community.[1] Specific requirements for water and sewage approval were made in the preceeding policy. Larger developments often demand substantial parking and storage areas (Item (d)). If adequate space is not allotted for parking and storage, undue pressure may be placed on neighboring uses resulting in conflicts. Item (e) transportation linkages and access is also important in larger developments. If the access to a development site is inadequate for the anticipated demand or if traffic would disrupt existing land uses, the additional public cost of providing adequate transportation for development should be considered.

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[1]Recent Oregon case studies have been completed determining actual monetary costs and benefits of additional development to local government. See Pattie, Preston, Impacts of Urban Growth on Local Government Costs and Revenues, OSU Extension Service, Special Report 423, November, 1974.

9. Requiring Maintenance of Vegetative Cover

Policy Statement

The appropriate authority shall require developers to minimize the disturbance of vegetative cover during development and shall require developers to re-establish an acceptable cover for all exposed earth within a period of time specified by the authority.

Background

Development, of necessity, requires the removal of vegetative cover for both construction and access to the construction site. There are several examples on the coast where clearing of vegetation has occurred far in advance of construction. In other cases, large land areas have remained exposed for long periods following construction.

The rate of wind and water erosion from exposed earth is far greater than the rate from vegetated land. Eroded material often finds its way into water bodies, creating excessive sediment loads. Sediments have major advise impact on estuaries, freshwater and inland marsh habitat.[1] Lack of vegetative cover aggravates problems of slope instability. Excessive vegetation removal also detracts from scenic and wildlife habitat values.

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[1]OCC&DC, Fish and Wildlife Resources of the Oregon Coastal Zone.

10. Evaluating Geologic Hazards in the Comprehensive Planning Process

Policy Statement

State and local governments shall assure that development in geologically hazardous areas is avoided, or that special limitations to protect life and property are established for development allowed in these areas.

Necessary Actions

1. *Local governments shall adopt and implement a geologic hazards element of the comprehensive plan which includes an identification of the geologic hazards that exist within the unit's jurisdiction, and the limitations on the use of these hazard areas.*

2. *State government, in cooperation with local governments, shall develop planning criteria (policies and procedures) for geologic hazards and shall require that these criteria be included in the geologic hazard element of local comprehensive plans.*

Recommended Actions

1. In developing comprehensive plans for geologically hazardous areas, local governments should evaluate the degree of hazard present and designate uses which in their sum total effect will not exceed the short- or long-term limitations of the areas.[1]

2. In developing comprehensive plans for floodplain areas, state and local governments should:

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[1]Engineering solutions may allow a wide range of activities in most cases.

a. consider both structural and non-structural alternatives for reducing flood damage;[2]

b. designate low-density uses (as appropriate in the floodway and floodway fringe areas) which are subject to least loss of life and property damage due to flooding, such as forestry, agriculture, recreation (e.g., golf courses and public hunting);

c. prohibit public facilities (such as buildings, roads, highways, or sanitary systems) that would increase the propensity of individuals and private or public organizations to initiate or continue uses that would exceed the limitations established for the floodplain areas unless specific steps are taken in the provision of the public facilities to avoid such effects;

d. conserve for public or private recreational development those areas within floodplains that have been identified as having exceptional recreational potential (in preference to other areas of comparable recreational potential); and

e. reserve an unrestricted floodway for passage of major floods.

Background

The OCC&DC Geologic Hazards Inventory records 22 types of geologic hazards in the coastal zone. Reports published by Oregon's Department of Geology and State Water Resources Board document loss of life and property resulting from inappropriate development in and near these areas. Flooding is an annual, and particularly serious problem in the coastal zone, because of the potential coincidence of heavy runoff, ocean storms and high tides. The State Water Resources Board reports that flood damages in seven of the major coastal drainages have a total average of about 3½ million dollars a year. In addition, the geologic hazards inventory documents severe hazards from ground movement, coastal and stream erosion, and tsunamis. To date, there has not been a consistent response of government to these problems. Although some cities and

[2]The State Water Resources Board recommends the adoption of floodplain management programs which combine regulatory controls, watershed treatment and protective structures. The Department of Geology bulletins regarding the coastal zone suggest that protective structures are not appropriate in many coastal areas, except that some diking may be beneficial in lower tidal areas.

counties have adopted policies regarding flooding and local erosion hazards, a need for direct and coordinated action is apparent.[3] The majority of land use decisions in areas of geological hazards are now and will continue to be, made by local government. City and county officials increasingly are recognizing the need for management of these areas.[4] The State of Oregon also has a direct interest in certain geologic hazard concerns, but there is at present inadequate coordination of state and local efforts to prevent or reduce loss of life and property in geologically hazardous areas.[5]

State government should develop planning criteria (policies and procedures) for geologic hazards and should require that these criteria be included in the geologic hazard element of local comprehensive plans.

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[3]See "Existing Statutory and Adopted Policies", Floodplain Management and Geological Hazards (OCC&DC Phase I Policies); and, OCC&DC Development Pressures and Status of Planning Inventory for local policies and controls.

[4]See OCC&DC Geologic Hazards Inventory; also, each coastal county is in the process of applying or qualifying for eligibility in the National Flood Insurance Program. The influence of the "Sheffet Decision" of the Los Angeles Superior Court might also affect local government in Oregon. In this decision, the County was held to be responsible for damages resulting from a landslide, because it had issued a building permit in a hazardous area.

[5]The State has the responsibility to assure adequacy of planning, and to regulate activities and areas of state-wide significance.

11. Providing Information on Geologic Hazards

Policy Statement

State and local governments shall make readily available information concerning the location, type and characteristics of geologic hazards.

Recommended Actions

1. The Oregon Department of Geology and Mineral Industries, in cooperation with federal and local governments, should complete geologic hazard investigations of western Douglas, Coos and Curry Counties, and make findings of these studies available to the general public.

2. Local governments in the coastal zone should (through the planning commission and the assessor's office) provide information on identified geologic hazards within their jurisdictions to the general public.

3. Deeds for property located within areas identified as geologic hazards should include a statement that the area has been identified as hazardous, and a reference for more detailed information.[1]

4. For those transactions involving land in which geologic hazards exist, the Real Estate Division should require disclosure of the existence and nature of such geologic hazards to be included in land sales reports.

Background

Lack of information on the location, extent, and nature of geologic hazards has resulted in loss of life, damage to property, and financial losses to unwary purchasers of property. Inadequate information regarding the magnitude of given hazards could lead to

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[1]Some states require such disclosure for subdivision plats and other transactions. A Michigan law requires:
"When any part of a subdivision lies within or abuts a floodplain area, the plat shall include and show...the floodplain with a contour line...and the area shall be clearly labeled on the plat with the words 'floodplain area'." (No. 288, 1967, Mich. Pub. & Loc. Acts 489)

overreactions and an unnecessary restriction of growth and development.[2] The necessity for adequate reconnaissance studies of geologic hazards to support local and regional planning has been recognized, and several of these investigations have been completed. It is important that geological hazard studies for the remainder of the coastal zone be completed, and that information regarding the location, nature, and severity of these hazards be widely distributed within the coastal zone. In this way, development pressures on hazard areas by a public unfamiliar with the risks or restrictions associated with these areas will be lessened.

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[2]OCC&DC, Geologic Hazards Inventory

12. Regulating Uses in Geologic Hazard Areas

Policy Statement

A. *State and local governments shall base, in part, approval or disapproval of development in identified geologically hazardous areas[1] upon a geologic and soils report, provided by the applicant and prepared by a qualified[2] geologist, engineering geologist, soil scientist or civil engineer. The report shall include an evaluation of the potential geologic problems and the capability of the site to support the proposed development without endangering life, property and environment.*

B. *Local governments shall disapprove development proposals which will exceed the geologic hazard limitations of the site[3] unless the applicant agrees to safeguards recommended and certified by a qualified engineering geologist or civil engineer that adequately protect life, property and environment.*

Necessary Action

When development involving activities of statewide significance or other uses characterized by high densities or a major investment of public funds are proposed for areas in which there exist geologic hazards, then in addition to the regulations imposed by local governments, the State of Oregon shall assure public safety by reviewing, approving or disapproving the geologic evaluation of the project.

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[1]As identified in geologic hazard inventories of the coastal zone, with the exception of stream, ocean and tsunami hazard areas, which are treated in Policy 13.

[2]Oregon does not license geologists. A list of qualifications for those conducting site evaluations should be based on overall education, experience, and knowledge of the area being evaluated.

[3]In an area of identified geologic hazards.

Recommended Actions

1. State or local governments which review site evaluations in areas of geologic hazards shall state findings of fact which substantiate either the approval or disapproval of a development proposal.

2. State government should develop criteria for the geologic and soils reports that are used in evaluating development proposals in geologically hazardous areas.[4]

3. State government should develop a statement of qualifications for professional engineers and geologists to assist local governments and the public in selecting individuals to conduct evaluations of projects in geologically hazardous areas.

4. Local governments should not approve development of structures on the ocean front in areas identified as subject to "critical coastal erosion"[5] unless a geologic or engineering investigation has determined that the structure has an adequate setback, in consideration of the rates of erosion and the possibility of extensive cliff failure.[6] (Ocean front for purposes of this recommended action lies behind the vegetation line and outside the area covered by the Beach Program, ORS 390).

Background

Policies for geologically hazardous areas must be somewhat general. However, many uses and activities may take place in specific hazard areas depending on the types of hazards, the potential impacts of the hazards, the variation of impacts as a function of land use, and the types of engineering and planning solutions available. Although policies are designed in part to protect the public, they should not be based on overreactions arising from inadequate information regarding the magnitude of given hazards. Although

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[4]Actual review is a local matter, except for developments of regional impact. The appropriate agency should consult with the Department of Geology and Mineral Industries to develop criteria for geologic and soils reports.

[5]On maps accompanying Department of Geology Bulletins 74, 79, 81 and 85.

[6]Approval also should not be dependent on construction of protective structures along the beach which would interfere with natural process.

general decisions (such as planning and zoning) require only generalized study, site-specific decisions - particularly those involving large or high-density developments - should be based on rigorous investigation.

13. Regulating Flood Hazard Areas

Policy Statement

State and local governments shall adopt and enforce the following specific regulations for known and designated flood hazard areas within the coastal zone:[1]

a. *Developments housing restrained or incapacitated persons (hospitals, rest homes and jails) and emergency service structures (police and fire stations) shall be prohibited in floodplains;*

b. *Residential structures shall be prohibited in floodways and other structures and fills shall be permitted in floodways only if measures are taken to insure that there will be no increase in flood level, downstream erosion, or flood damage potential due to the development;*[2]

c. *Structural developments shall be permitted in flood fringe areas only if designed to safely provide floor elevations or flood proofing to a height above that of the 100-year flood;*[3] *and*

d. *The coastal high hazard area*[4] *shall be identified, and no land below the level of the 100-year flood in this area may be structurally developed unless the new construction or substantial improvement:*

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[1]As identified in the OCC&DC Geologic Hazards Inventory, these include stream, tidal and tsunami hazard areas.

[2]To be consistent with the National Flood Insurance Program, the concept of the floodway as applied here means that "the area chosen for the floodway must be designed to carry the waters of the 100-year flood, without increasing the water surface elevation of that flood more than 1 foot at any point". (Federal Regulations, Land Use 1910.3)

[3]The National Flood Insurance Program requires that residences in the floodway fringe must be elevated above the 100-year flood level; and, that other structural developments may be allowed if they are floodproofed to the 100-year flood level. It is not considered feasible financially to floodproof residences.

[4]That area along the coast subject to ocean flooding from storms and high tides, as described in the OCC&DC Geologic Hazards Inventory. These areas will be delineated as part of investigations in local jurisdictions applying for eligibility in the National Flood Insurance Program.

(1) is located landward of the beach zone line as defined in ORS Chapter 390;

(2) is elevated on adequately anchored piles or columns to a lowest floor level above the 100-year flood level and securely anchored to such piles or columns; and

(3) has no basement and has the space below the lowest floor free of obstructions so that the impact of abnormally high tides or wind-driven water is minimized.

e. Transportation facility developments that encroach on floodplains shall be designed to permit conveyance of the basic flood without causing significant change to the highway, the stream, body of water, or other property, in accordance with FHWA guidelines in Instructional Memorandum 20-1-67.

Recommended Actions

1. Unless it is demonstrated that the net social benefits of the following actions are less than the net social benefits of inaction, then federal, state and local government should:

   (a) remove, or cause to be removed, from floodways any natural or man-caused obstructions which threaten increased flood damage;

   (b) evaluate the design of all developments proposed or constructed in floodplains with special emphasis on achieving the least adverse hydraulic effect considering expected regional flood levels and debris, and should base approval on the evaluation; and

   (c) apply, or cause to be applied, floodproofing measures to existing facilities in order to reduce flood damage potential.

2. Cities and counties in the coastal zone having flooding or mudslide hazards within their jurisdictions should become eligible for the National Flood Insurance Program.

Background

Policy No. 10 addresses flooding hazards within the comprehensive planning process, and states the basic concepts of avoidance of or

safeguards for development in geologically hazardous areas. However, a specific policy for flooding hazard areas in the coastal zone is considered necessary because:

(1) physical factors (including location, climate, and topography) make flooding hazards both more severe and more frequent in the coastal zone than in other regions of the State:

(2) regulation of land uses (as included within the comprehensive planning process) is only one of several procedures considered necessary for sound floodplain management by the State Water Resources Board; and

(3) all counties and several cities in the coastal zone are participating in the National Flood Insurance Program, which requires detailed procedures for management of flooding hazards.

Policy No. 10 requires evaluation of special hazard areas and the provision of safeguards for development proposed in these areas. This policy requires similar procedures for flooding hazard areas. However, this policy was not incorporated into Policy No. 10 because

> ". . . the flood hazard at a particular site usually cannot be estimated by physical examination of the site. Relevant hazard indicators are often well-hidden and difficult to identify. . . . Flooding depends not only upon characteristics of the site and adjacent watercourses, but also upon runoff characteristics of the entire watershed."[5]

Flooding of the streams (in Clatsop and Tillamook Counties) is an annual winter occurrence and some streams may overflow their banks several times a year.[6] Stream flooding is an annual problem in Lincoln County and often occurs more than once a year.[7] The coastal streams (of Lane County) flood frequently and sometimes more than once in one year. Large damaging floods are less frequent but occur on an average of about every 5½ years. Flooding along the coast is caused by . . . large winter storms coming from the ocean, . . . immediate runoff because of steep canyons, short streams with high gradients, and because the underlying bedrock in most of the

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[5]U.S. Water Resources Council, Regulation of Flood Hazard Areas to Reduce Flood Losses, Vol. I, Parts I-IV. Washington, D.C., Government Printing Office, 1971.

[6]Department of Geology, Bulletin 74.

[7]Department of Geology, Bulletin 81.

area is composed of impermeable sedimentary rocks. A major contributing factor to flooding is the effect of high tides generated by winter storms. Published tide tables do not consider the effect of wind, which can push a normal 6 or 7 foot tide to a height of 12 feet and more. When this occurs, the effects of the flood are extended greatly.[8]

Tsunamis (waves generated at sea by earthquakes or particularly violent volcanic activity) are an infrequent, but serious hazard. Damage along the Oregon coast from the 1964 Alaska earthquake amounted to $700,000 and 4 drownings.[9]

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[8]Department of Geology, Bulletin 85.

[9]OCC&DC, Geologic Hazards Inventory.

14. Conserving and Regulating Energy Resources

Policy Statement

State government in cooperation with federal and local governments shall conserve all energy resources, including nuclear, fossil fueled, hydroelectric, geothermal, wind, solar and other sources, through land use and resource planning and regulation, and shall develop criteria for regulation which maximizes net social benefits to this and succeeding generations of Oregonians.

Recommended Actions

1. State and local governments, within their legal jurisdictions, should develop site selection criteria (including landscaping, methods of development and the maximization of net social benefits) for all sources of energy generated in the coastal zone.

2. State and local governments should encourage use of renewable energy sources and recycling and resource recovery of renewable and non-renewable resources.

Background

The provision of energy has become a critical issue of national concern. Each state and unit of local government through its planning and development affects the consumption of energy resources. Major power generating sources almost always have a high social and ecological impact. State and local governments could, through regulations, influence the design and siting of energy generating facilities.

15. Planning for Transportation Facilities

Policy Statement

State and local government shall estimate existing and future demand for highway, rail, trail, pedestrian, air, water, and mass transit facilities in state transportation plans and comprehensive plans for the coastal zone.

Recommended Actions

1. Transportation plans should provide for more than one mode of transportation, where applicable.

2. A compatible system of long-range hiking and bicycle trails, urban trails, and trails connecting population centers with recreation attractions should be planned for the coastal zone in cooperation with local, state and federal agencies and interested public groups.

3. Transportation plans should consider the demand for public transit facilities, including: continuous bus service along the coast, intra-urban transit for the non-driving population, commuter air and water service, and east-west bus and rail connections to recreation areas and key coastal communities.

4. State government should support improvements to water transportation, as outlined in the Oregon Coastal Ports Development Plan, which are environmentally acceptable and have a desirable benefit-cost ratio.

Background

Transportation facilities have a major impact on the location of urban development and recreational use of the coast. According to the Inventory of Development Pressures "the degree or level of accessibility can usually be directly related to the density of urban development". Coastal residents and recreation users have differing demands for transportation on the coast. Transportation plans must fit with state and local plans and policies. There is an increasing need to consider all modes of transportation when planning for the future. In any case an estimation of present and future demand for transportation facilities is essential for planning.

16. Evaluating Transportation Facility Proposals

Policy Statement

State and local government shall base decisions to construct or improve transportation facilities on the demand of the entire affected region as identified in state transportation plans and local comprehensive plans and on the projected impacts and costs of alternative designs and locations, including consideration of the desirability of making no change.

Recommended Action

Plans for construction or improvement of federal and state highways in the coastal zone should include consideration of the need for community by-pass routes and access control.

Background

Transportation facilities have major social and environmental impacts. Construction of transportation corridors and navigation improvements has high primary and secondary impacts on estuaries[1] and wetlands.[2] Road construction and maintenance is listed as having a major impact on all coastal zone fish and wildlife habitats.[3] Transportation construction has destroyed some important archaeological sites which could have been avoided by allowing preconstruction excavation or other measures.

Proposed transportation development will often affect several units of government which may have differing transportation goals and demands. Each planning area involved should be consulted, so the overall best alternative can be selected.

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[1] OCC&DC, Estuarine Resources of the Oregon Coast.

[2] OCC&DC, Coastal Wetlands of the Oregon Coast.

[3] OCC&DC, Fish and Wildlife Resources of the Oregon Coastal Zone.

17. Locating Utility Lines

Policy Statement

State and local governments shall require that utility and communication structures be located on or adjacent to existing public or private rights of way, unless it is demonstrated that an alternative location would provide greater net social benefits and new facilities shall be designed and located consistent with land and water use plans.

Background

Utility and communication structure siting is of public concern both from the stand point of conserving land and minimizing visual impact. New facilities should be located in a way that will not interfere with or detract from planned uses of the land. Visual impact, though possibly separate from the use of existing rights of way, has become an issue in utility line siting. The Visual Resource Analysis evaluates the visual impact of utility lines in each of its designated landscape types.

18. Improving Employment Opportunities in the Coastal Zone

Policy Statement

The state through the Department of Economic Development shall make efforts to increase the number of year-round or winter season commercial, industrial and recreational employment opportunities which are compatible with the character of the coastal zone, as long as it is demonstrated that such efforts do not decrease per capita income or increase the rate of unemployment on the coast.

Background

The coastal economy is dominated by the resource oriented industries of forest products, agriculture, recreation and fishing. Each of those industries have substantially lower employment rates in the winter. The seasonality of employment is seen as causing social and economic problems in coastal communities. However, caution is essential in making efforts to stimulate the economy. Simply reducing the seasonality of employment or increasing the number of year-round jobs will not necessarily increase the economic welfare of coastal residents. For example, if the total demand for goods and services on the coast were to remain constant, then increasing the number of year-round jobs would come at the expense of seasonal jobs. The resulting interference with the private market could actually cause no improvement or even decrease the earnings on the coast. Even with no overall change in the average income, the coast would be worse off because of the added cost of supporting a program that didn't accomplish its goal.

The change in income and employment due to economic development programs is very difficult to predict. If the Department of Economic Development can increase the demand for coastal products, the likelihood that the economic well-being of the coast will improve is much greater.

19. Providing for Recreational Needs

Policy Statement

State and local governments shall plan for diverse opportunities for outdoor recreation to satisfy present and future demand for recreation in the coastal zone.

Necessary Actions

1. *State government, in cooperation with local government, shall estimate the present and future demand for recreation in the coastal zone.*

2. *State government, in cooperation with local government, shall establish criteria to be taken into account by local government in identifying areas having exceptional potential for recreational opportunities.*[1]

3. *Local government shall identify those areas that have exceptional potential for recreational opportunities taking into account state criteria including the physical capabilities and limitations of the areas and the identified recreational*

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[1]The OCC&DC inventory, Resource Analysis of Oregon's Coastal Uplands, identifies five classes of recreational resources in the coastal zone. The methodology used in the inventory provides initial criteria by which local governments can identify exceptional recreation areas. The classification process includes an evaluation of the physical "suitability" of the land to support recreational uses and the "significance" of the land in regard to irreplaceability or cultural value. Variables involved in the concept of "significance" include: recreation experience, visual impact, uniqueness of resource, proximity to water, variation of terrain, vegetation and view. Variables involved in the concept of suitability include: accessibility, degree of slope, ownership, proximity to public services and current or zoned use. Class 1 - recreational lands - unique and not replaceable; and Class 2 lands - having high significance and suitability - are considered to be "areas having exceptional potential for recreational opportunities".

demands, and shall designate those areas so identified in comprehensive plans for public or private recreational development.[2]

4. *State and local governments shall encourage the private sector to develop recreational opportunities in preference to public facilities where economically feasible.*

Recommended Actions

1. In the planning, acquisition and development of areas for outdoor recreation, state and local governments should recognize the high recreational value of shorelands consistent with carrying capacity.

2. State and local governments and the private sector should coordinate planning and development of recreational opportunities.

3. State and local government and the private sector should include opportunities for education and interpretation of the unique natural and cultural resources of the coastal zone in the development of recreational sites.

Background

The OCC&DC Economic Survey and Analysis identifies the travel industry as the third largest employer on the coast and indicates that its importance to the coastal economy is increasing. A greater number of travelers, an increasing use of recreational facilities, greater amounts being spent per visitor and increasing

[2]The Recreation classification system described in the OCC&DC Uplands Inventory depicts a preliminary analysis of all lands in the coastal zone and a more extensive analysis of the state-owned lands. Land areas are not classified for their potential to support each type of recreational activity, but rather their capability to support recreation in general. The preliminary analysis provides a broad aerial or regional view and identifies areas that deserve closer attention. In order for local government to designate areas of recreation potential in comprehensive plans, two other steps must be taken. First, the best areas identified in the preliminary analysis must be looked at more closely to determine number and types of attractions. Second, a more detailed site analysis must be conducted to allow boundary lines to be drawn.

employment in the industry are all expected in the future.[3] In order to maintain this industry's role in the coastal economy, it is necessary to provide sufficient recreational opportunities to meet the demand.

The coastal zone is a state and national recreational resource. Its climate, topography (variety of landforms and marine-land interfaces), ocean artifacts and cultural significance all contribute to a rare and valuable recreation environment. Much of the value from all coastal natural resources comes from existing and potential recreational uses.

There is a wide range of recreational activities that may take place in the coastal zone most of which require the provisions of facilities whether it be as little as access or waysides or as much as boat marinas, campgrounds, and condominiums.[4] Providing a sufficient amount of these facilities in the best location to obtain the desired psychological, social, educational and economic benefits of recreational resources is the management task.

The policy and necessary actions are directed at first identifying the various recreational needs and then designating those resource areas with greatest potential for meeting these needs. The OCC&DC recreation inventory, as noted, provides some initial criteria for use in identifying areas of exceptional potential. Proximity to water is emphasized as one of the more significant factors.

The limited amount of shorelands in comparison with the large, diverse demand for these areas makes them a critical recreational resource. The inventory generally identifies shorelands as one of the highest classes of the recreational resource.[5]

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[3] OCC&DC Economic Survey and Analysis, pp. 19, 25, and 35.

[4] The OCC&DC Resource Analysis of Coastal Uplands, recreation section describes and inventories many of these.

[5] Resource Analysis of Coastl Uplands.

Another point emphasized in the inventory as well as in the various policy inputs (public workshops and resource specialist teams) is the need for coordination among the providers of outdoor recreation. There are roles and responsibilities at all levels of government. "The major public providers must know what their counterparts are doing and where new recreational development is planned in order to avoid duplication of facilities and services and improper use of public resources."[6] Of course the private providers should also be included in this coordinative process. The private sector should be encouraged to provide recreational facilities.

[6]Resource Analysis of Coastal Uplands.

20. Providing Access to Public Lands and Waters

Policy Statement

State and local governments shall plan for access to public lands and waters to satisfy present and future demand for such access, and they shall assure that the access provided is consistent with the carrying capacity of the site.

Necessary Actions

1. *State and local governments shall estimate the present and future demand for public access to public lands and waters in the coastal zone.*

2. *State and local governments shall estimate the carrying capacity of public lands and waters.*

Recommended Action

Local government should require new shoreland development to dedicate easements for public access to lakes and streams if the local governments determine the easements are necessary.

Background

Access to public lands and waters is a subject that has general application to nearly all natural resource categories under consideration by the OCC&DC. The policy is included in the recreation category because access is most often desired for recreation purposes.

Several of the OCC&DC inventories identify access as one of the major impacts on natural resources. Access needs to be controlled or properly designed so that the carrying capacity – the capability of the environment to support that activity – is not exceeded. Damage to vegetation water quality and habitat as well as harassment of wildlife should be avoided. In addition, care must to taken so that the resource values that cause the demand for access are not damaged by providing that access.

Public access to shorelines and water bodies is the most in demand. The State Highway Division has an ocean beach access program with a goal providing access at 1½ to 3 mile intervals. However,

public access to many of the coastal lakes and streams and their shorelines is severely limited due in part to surrounding private ownerships.

21. Preventing Over-Use of Recreational Resources

Policy Statement

State and local governments shall require that public and private recreational development and the expected maximum use of recreation areas do not exeed the carrying capacity of the natural recreational resource.

Necessary Action

State and local governments shall develop criteria and procedures to be used by both state and local governments in evaluating carrying capacity of existing and planned recreational areas.

Recommended Action

State and local governments should prevent adverse environmental effects of excessive seasonal use of recreation facilities through management, education, and public information programs.

Background

The resource specialist team that assisted the OCC&DC in developing recreation policy statements suggested the following goal:

> "To maximize the opportunities for quality outdoor recreation in the coastal zone, consistent with the necessity of protecting natural, scenic, economic and human resources."

In addition, five Phase I policy statements in the Uplands and Freshwater and Shorelands categories identified the necessity of environmental protection while using or developing the recreation resource. Three of these statements used the term "carrying capacity".

This concern for carrying capacity — the environmental capability of the resource to support continuing recreational use in an undeteriorated environment — is further described in the OCC&DC Economic Study and Uplands Inventory. The Economic Study discusses the costs of the travel industry as those of congestion, pollution, and seasonal over use of facilities.[1] The inventory calls for a

[1] Economic Study and Analysis, pp. 29-33.

consideration of carrying capacity in describing impacts and management needs. "The dual problem of preserving the recreation resource while providing for its use and enjoyment must be considered. For this to occur, it is necessary to know the carrying capacity of each existing and potential recreation area ..., including:

(1) the impact of the recreational environment on people;

(2) the impact of people on the recreational environment; and

(3) management procedures to modify these reciprocal impacts."[2]

The policy and necessary action are directed at developing criteria and procedures for evaluating carrying capacity and then applying these procedures and criteria to the acquisition and development of recreational resources.

[2]Resource Analysis of Coastal Uplands.

22. Regulating Off Road Use of Vehicles

Policy Statement

In order to limit damage to land, water, wildlife and vegetation and avoid conflicts with other activities, federal, state, and local governments shall restrict recreational, off the road use of vehicles (including ORV's as defined) on public lands to designated seasonal roads and off-road areas.

Necessary Action

Federal, state, and local governments shall identify and designate seasonal roads and off-road areas on public lands where vehicles may be used for recreation.[1]

Recommended Action

State and local governments should regulate off-road-vehicles by a permit system or special licensing program which applies the fees to applicable regulation and education programs, impact studies and maintenance of use areas for recreation and other purposes.

Background

Off the road, recreational use of vehicles is recognized as a significant problem confronting the management of our natural resources. The U.S. Forest Service is engaged in a process (started in 1973) to establish controls over use of off-road vehicles on all lands it administers.[2] The Forest Service program

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[1]Designation of areas should be based on standard criteria developed by the state. These criteria should include an analysis of the impact of vehicular use on: wildlife and wildlife habitat; domesticated animals and livestock; vegetation; water quality and watershed run-off, erosion and flood control; noise levels; air quality; state and local land use plans and ease of enforcement.

[2]Rules and Regulations for Use of Off-Road Vehicles, Part 295 of Title 36; Federal Register Volume 38, No. 185 - Tuesday, September 25, 1973.

is an outgrowth of a 1972 executive order to set up a system of controls which would minimize damages to natural resources, protect public safety and reduce conflicts among users on public lands. Recognition of this problem at the state level is evidenced by House Bill 2282 which was considered by the 1973 Oregon Legislative Assembly,[3] and by House Bill 2764 which was introduced to the 1975 Regular Session. Both bills call for limiting use of public lands by off-road vehicles to areas specifically designated for such use. In addition, House Bill 2764 includes a requirement for registration of off-road vehicles. At the local level, Multnomah County recently adopted an ordinance which would limit off-road vehicle use to designated areas on public land and would require written permission from private landowners to operate on private land.

In the OCC&DC policy development process, twelve Phase I policies and recommended actions concerning off the road, recreational use of vehicles were suggested by both public sources and resource specialist teams. These statements were included in fish and wildlife, uplands and beaches and dunes resource categories. The OCC&DC beaches/dunes and estuaries inventories identified off-road use of vehicles as having major impacts on vegetation, wildlife habitats, wildlife and public safety in these resource areas.

The policy and necessary action is directed at a designation of areas in public lands where vehicles can be used for recreational purposes and a restriction of this use from other areas. The policy is intended to cover only recreational use of vehicles and not law enforcement, emergency, agriculture or forestry uses. Seasonal road restrictions are included to reduce erosion and sedimentation damage which results from winter use of these roads.

[3]Engrossed House Bill 2282 including amendments by the Committee on Environment and Land Use passed in the House, but was allowed to die in the Senate Transportation Committee.

23. Promoting Economic Development of Fishery Resources

Policy Statement

The state shall improve the economic conditions for utilization of the fishery resources, as long as it is demonstrated that such efforts do not decrease per capita income or increase the rate of unemployment on the coast.

Necessary Action

The Fish Commission, in cooperation with the Sea Grant Program and with commercial fishing industry, shall study and evaluate alternative programs for increasing per capita income and decreasing unemployment on the coast by using fishery resources.

Recommended Actions

1. The state and federal governments should encourage improvements in processing methods, marketing techniques and financing for commercial fisheries.

2. The state and federal governments should encourage private development of aquaculture in coastal waterways.

Background

The fishing industry, including aquaculture, has not developed to its potential because of many political, economic and social factors. One reason for inefficiency is that fish are considered a common property resource, that is, property rights for fish are not defined and the number of people fishing is not limited. The number of people and the investment in equipment included in harvesting "free goods" tends to exceed the most efficient level. That can lead to either overuse of the resource or low economic return from the fishing effort or both. A second major reason for inefficiency is that government regulations of fisheries often prevent the application of technological improvements.[1]

Also, the commercial fishing industry in many ways has not followed processing and marketing practices that stimulate a high demand for seafood products.

[1] Economic Survey and Analysis of the Oregon Coastal Zone, page D-4.

24. Managing Fish and Wildlife on a Sustained Yield Basis

Policy Statement

The State Fish and Wildlife Commissions, using evolving scientific principles of resource management, shall plan and manage the use of both aquatic life and wildlife resources so that the optimal yield of these resources will be sustained in perpetuity. The criterion of optimality is maximum net social benefits accruing to Oregonians.

Necessary Action

The State of Oregon, through the Oregon Fish and Wildlife Commissions, shall determine procedures for establishing harvests for those fish and wildlife species of commercial and recreational importance according to the criterion of maximum net social benefits accruing to Oregonians in perpetuity, taking into account the impacts of harvest levels, the impacts of land and water uses on fish and wildlife resources, and the biological factors that determine supply.

Recommended Actions

1. The Oregon Fish Commission should determine:
   a. why certain species of fish have remained unutilized or underutilized; and
   b. if it would benefit Oregonians for there to be governmental encouragement of the exploitation of these unutilized or underutilized species.
2. The Oregon Fish and Wildlife Commissions should initiate an expanded program of research to develop the additional biological information needed to establish harvest levels and should, thereafter, increase the monitoring of impacts of harvest, and of land and water uses on the supply of fish and wildlife resources.
3. The Oregon Fish Commission should cooperate with the federal government in conducting studies to identify the causes for the decline in natural salmon populations and methods to correct it.

NOTE: While salmon populations in general suffer from many problems there exist geographical differences and a mix of species which require special attention and particular management treatment. The salient difference, expressed geographically, exists between the salmon populations of coastal watersheds and those of the Columbia River watersheds.

4. The federal and state governments, as well as private individuals, should supplement wild fishery stocks with hatchery stocks as long as diseases are controlled and genetic stocks are not mixed indiscriminately.

5. Sea Grant should encourage and fund research on the expanded use of unexploited fish stocks.

6. The State of Oregon should expand research, educational, and enforcement programs to help in carrying out the intent of aquatic life and wildlife regulation and management of the resource on a sustained yield basis.

7. The State of Oregon should update the system of fines for game law violations. Present fines are inadequate to deter poaching. The state should consider loss of license privileges as a penalty.

Background

The OCC&DC Fish and Wildlife Inventory identifies a number of particular species of high commercial and recreational value. It also indicates that some of these species are now depleted or face depletion due to (1) overharvest, and (2) habitat modifications.

The overharvest of fish and wildlife resources, due to increasing demand for a biologically limited supply, is most apparent among the commercially and recreationally valuable fish species in ocean waters. Inadequate and unenforceable international constraints such as gear restrictions, seasons, and catch-limits, allow foreign fishermen to exceed reasonable harvest levels.

Fish and wildlife species in the coastal zone thrive best where there is a suitable habitat providing the proper balance of food, water, and cover. Although natural limitations may cause an imbalance in one or more of these basic requirements, most degradation of habitat quality comes from man-made development and land use practices.

Many of the uses and impacts affecting habitat areas are identified in the inventory.[1] The magnitude of impact, of course, will vary with each instance and some uses or practices having negative impacts on some species will have positive impacts on other species. However, habiat modifications that degrade or create an imbalance of food, water, and cover contribute to depletion of the fish and wildlife resources and, therefore, should be controlled.

The concept of sustained yield harvest (i.e., the consumption of fish and wildlife resources at a rate which does not impair the ability of the species to perpetually replace individuals through natural reproduction) is employed in the management of biological resources to assure their continued supply. For the scientific application of this concept, both the stock of resources and their rate of renewal are important factors and are determined by the productivity of habitats and the biological characteristics of the species being managed. Therefore, in order to avoid depletions of aquatic life and wildlife resources, their management on a sustained yield basis must include consideration for the diverse characteristics and requirements of the resources; as well as the factors relating to or controlling their use.

[1]The OCC&DC inventory report provides a narrative description of uses and impacts by habitat types and displays them in matrix form for all habitats, pp. 15 and 16.

25. Protecting Significant Habitats of Fish and Wildlife Resources

Policy Statement

1. *State and local governments shall protect the significant aquatic life and wildlife habitats of the Oregon coastal zone, defined and described in the OCC&DC inventory,[1] through the management, planning, and regulation of uses that would adversely affect these areas. Furthermore, the state shall develop programs and incentives for improvement and restoration of potentially significant habitat areas.*

2. *State and local governments shall manage habitats of threatened and endangered species, and other species of special interest, as defined in the OCC&DC inventory,[1] in such a manner to preserve these species in the Oregon coastal zone.*

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[1]Within the OCC&DC Fish and Wildlife Inventory eleven criteria are used to evaluate habitat values and identify those habitats considered to be critical to the viability of fish and wildlife in the coastal zone and, therefore, in need of special management considerations. Among a total of 29 habitat types inventoried in the coastal zone 14 are in this group; these habitat types are: (1) kelp beds, (2) benthic rock, (3) rocky intertidal, (4) sandy beach, (5) estuarine systems including submerged lands, coastal tidelands, eelgrass beds, coastal salt marshes, (6) rivers and streams subject to low summer flows, (7) lakes and reservoirs, (8) water-related upland habitat including inland marsh, wet meadows, riparian vegetation, and (9) evergreen hardwood. In addition, the inventory, as well as Phase I policies, identify the following areas as appropriate for special management in order to protect related species of special interest: (1) marine mammal haul-out grounds, (2) elk wintering areas, (3) snowy plover nesting areas, (4) blue heron rookeries, (5) eagle nests, (6) osprey nests, (7) spotted owl nests, (8) clam beds, (9) herring and anadromous fish spawning areas, and (10) band-tailed pigeon watering areas. As a result of interpretation of both inventory and Phase I policy direction, the above are considered "significant habitat areas" where sustaining the natural resource characteristics is important, or essential, to the production and maintenance of identifiable aquatic and wildlife populations, as well as threatened, endangered and other species of special interest; and are those areas referred to in policies 1 and 2.

NOTE: It is not the thrust of these policies to provide protection for only a select group of habitats or wildlife species. Rather, it is the intent of the policies to focus attention upon particular habitats and species both because of their relatively greater sensitivity to use and impacts and social importance. It should be recognized that few, if any, areas are devoid of some species of wildlife or aquatic life and that all areas are subject to impacts. Therefore, while significant habitats, threatened and endangered and other special interest species are to receive particular protective consideration within the comprehensive planning process, it is also important to consider the impacts of land and water use decisions on all habitats and species in general.

Necessary Actions

1. *Local units of government shall incorporate in comprehensive land and water use plans consideration for significant habitat areas, habitats of threatened and endangered species and species of special interest, and shall specify use limitations which are sufficient for the protection of these habitat areas.*

2. *State government, in cooperation with local government, shall develop planning and management criteria for both the preservation of species and the regulation of adverse impacts in significant habitat areas and shall require that these criteria be included in local comprehensive plans.*[2]

[2]The intent of this necessary action is to assure the incorporation of essential habitat values within the planning process. The basic process of planning for fish and wildlife habitat involves (1) identifying those uses of significant habitat areas which do not conflict with established values; and (2) eliminating, minimizing, or compensating for adverse impacts resulting from development designated for these areas. Criteria established by the State of Oregon shall emphasize the planning process and major issues and concerns of state significance. Resolving the many problems of trade-offs and applying policies to issues of strictly local significance are now, and will continue to be, the primary concern of local government.

Recommended Actions

1. The State of Oregon, through the Oregon Wildlife and Fish Commissions and Sea Grant, should conduct studies to determine the recreational, non-appropriative, and economic values of fish and wildlife to assist in planning and decision making.

2. The State of Oregon should cooperate with the local units of government in developing and carrying out habitat improvement and restoration programs. In particular, state and local governments should create, enhance and restore spawning and rearing areas in coastal streams according to the criterion of net social benefits.

3. The Oregon Fish Commission should establish a program for the management of marine vegetation.

4. The State of Oregon and local units of government should prohibit agricultural, forestry, and urban development practices which threaten significant aquatic life and wildlife habitats unless it is demonstrated that the net social benefits of alternative practices are less than the net social benefits of the practices that threaten significant aquatic life and wildlife habitats.[3]

5a. The State of Oregon and local units of government should provide public access in appropriate habitat areas for hunting, fishing and wildlife observation in a manner that:

   a. assures quality experience; and

   b. provides for public health and safety.

5b. In particular, when any access is provided to significant habitat areas it should be done in a manner which minimizes adverse effects on aquatic life and wildlife resources.

6. The appropriate state agency should not permit the introduction of new plant or animal species to the continental shelf or inland coastal zone waters unless it is demonstrated that the introduction of the new species will not reduce the ecological values of those waters.

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[3]Alternative practices are described within the Oregon Forest Practices Act; by the Oregon Department of Environmental Quality for collection and treatment of agricultural wastes; and by the Soil Conservation Service, for urban development and general watershed treatment.

7. The state, in cooperation with local government, should:

   a. develop explicit criteria for identifying fish habitats which are appropriate for enhancement;

   b. identify, by the criteria the state has developed, those fish habitats in the coastal zone that should be enhanced; and

   c. develop and implement techniques that enhance fish habitats.

Background

The coastal zone, from a fish and wildlife resource point of view, consists of air, land, and water and critical areas of contact between these basic elements of the environment. Therefore, the coastal zone cannot be defined precisely from a biological standpoint. There are zones and gradations of physical and biological processes which result in a great variety of habitat types and species.

The variety and interrelationships of these areas makes possible the abundance, distribution, and diversity of aquatic and wildlife resources. Particular habitat types, because of their productivity and value, uniqueness, relative scarcity, vulnerability and strategic locations are of special concern in the management of fish and wildlife resources.

The traditional concern of Oregonians for fish and wildlife has been expressed in laws and regulations regarding individual species of wildlife. In recent years, however, the major concern has been for managing wildlife habitat. The growth and development of the coastal zone has included some land use and management practices which have adversely affected fish and wildlife values. As discussed in the OCC&DC Fish and Wildlife Inventory, these inlcude the impacts of: (1) chemical pollution and spraying (in the uplands), overfishing, erosion, waste disposal, mineral extraction, and sedimentation of valuable offshore fishing areas; (2) dredging, filling, waste disposal, log storage, diking and draining, and other alterations of estuaries; (3) flow depletions, channel alterations, removal of aquatic and riparian vegetation, and siltation in rivers and lakes; and (4) loss of wintering range and critical habitats in upland areas.

Many of these problems cannot be solved by single-purpose and specie-oriented regulations. Rather, solutions depend on day-to-day decisions regarding land and water use by local planning commissions, state agencies, private industry and the general public. The fact remains that the key to the preservation, maintenance, or enhancement of a fish or wildlife species is directly

dependent upon the condition and extent of its habitat — the productive land and water required for its existence. Until concern for aquatic and wildlife species and their habitats is incorporated into state and local land and water use plans, unnecessary and unwarranted loss and disruptions of this resource will continue to occur.

Therefore, the focus on significant habitat areas is necessary because: (1) the commercial and recreational[4] uses of fish and wildlife resources are of particular importance to the coastal economy and social well-being of this and succeeding generations; and (2) varying types and degrees of impacts have adversely affected the values of these areas.

[4]The OCC&DC inventory indicates that more than 3.5 million recreation days are spent annually in pursuit of fish, game, and shellfish in the coastal zone; resulting in expenditures well in excess of $60 million. Commercial production of fish and shellfish is valued annually at between 27-30 million dollars at the fisherman's level. (P. 4 and Table 1, OCC&DC Fish and Wildlife Inventory.)

26. Maintaining Values and Uses of Water Resources

Policy Statement

State and local governments shall maintain and enhance the values of the water resources of the coastal zone in a manner consistent with the adopted policy of the State of Oregon to:

a. *promote, secure, and control the water resources for multiple purposes and maximum beneficial uses;*[1]

b. *conserve and protect adequate and safe supplies of water for human consumption while conserving supplies for other beneficial uses;*[2]

c. *improve water quality for the propagation of wildlife, fish and aquatic life and for domestic, industrial, municipal, recreational and other legitimate beneficial uses; and*[3]

d. *provide that any wastes discharged into state waters receive adequate treatment or other corrective action to protect the other legitimate uses of the water resources according to the standards and policies of the Department of Environmental Quality and the Environmental Protection Agency.*

Necessary Actions

1. *State and local governments, in cooperation with federal agencies, shall develop and adopt guidelines and criteria which apply to the different levels of management within the comprehensive planning process;*[4]

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[1]Existing State Water Resources Board policy (ORS 536.220).

[2]Existing State Water Resources Board policy (ORS 536.220).

[3]Existing Department of Environmental Quality policy (ORS 449.077).

[4]The different levels of management refer to the interests, concerns, and responsibilities of:

(a) federal water and related land resource agencies;

(b) state water resource management and regulatory agencies; and

(c) the units of local government.

and which take into account the different geographic, physical, cultural, historic, aesthetic, recreational, environmental and economic characteristics associated with the development and use of the water resource.

2. *The appropriate state agency shall coordinate and expedite the activities of state and federal agencies which administer programs dealing (directly or indirectly) with the management of water resources, in order to: (a) eliminate duplication and conflicting activities; and (b) provide a clear and integrated direction to local units of government regarding water resource development and compliance with state and federal management policies.*

Recommended Actions

1. Within the comprehensive planning process, state and local government should provide for:

   a. the reduction of contamination of groundwater and surface waters by septic tanks and other sources by establishing density recommendations; and

   b. the reduction of adverse or negative effects on the character and use of surface freshwaters caused by groundwater withdrawals up to that point where net social benefits no longer increase.

2. The state and federal government should continue to improve control of industrial waste discharges; including control over releases and accidental spills.

3. The state and federal government should develop or cause to be developed, for the use of local government, practical and satisfactory methods of controlling waste disposal from water craft; and they should control waste disposal from water craft, except in emergencies, by imposition of fees or regulations or both.

4. Appropriate agencies should consider the net social benefits of land storage vs. water storage prior to the approval of water storage of any material; and, that alternative with the highest net social benefits shall be authorized.

5. The state should develop standards, implement programs and finance the regulatory actions to reduce the pollutional effects of storage and handling of materials in public waters.

6. The state should investigate and encourage beneficial uses of thermal discharges as well as prevent damaging discharges.

7. Proposed uses which may significantly alter water quality, hydraulics, tidal prism, surface area or volume should be studied to determine the probable consequences, and these should be evaluated by state and local governments according to the criterion of maximum net social benefits before approval or disapproval is given for the proposed uses.

8. The State of Oregon should determine the impact on water quality of land runoff from urban, agricultural and forest lands, irrigation return waters, water impoundment (supply) reservoirs, and should develop procedures such as treatment methods and design controls to reduce adverse impacts from these sources.

Background

In Oregon, policies for the management of water use are administered by the State Water Resources Board.[5] Policies for the management of water quality are established by state law, and by federal law, and are administered by the Oregon Department of Environmental Quality.[6] At present, no single policy exists for the entire coastal zone. Rather, basin programs, much in the fashion of land use plans, are a culmination of the policies for smaller areas such as sub-basins or stream sections. The Water Resources Board prepares water use programs by basin; the Department of Environmental Quality prepares or coordinates water quality management plans by basin.

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[5]In 1909, the State of Oregon declared by statute that all water from all sources of water supply belongs to the public. In 1955, the legislation creating the Water Resources Board emphasized that state sovereignty over water resources should be preserved and protected in all cooperative water programs (ORS 536.310(10)). This legislation concurrently established the State Water Resources Board with responsibilities to: (1) progressively formulate an integrated, coordinated program for the use and control of all water resources of the state; and (2) to devise plans and programs for development of the state's water resources.

[6]The State of Oregon's first comprehensive water control laws were approved by the voters in 1938 and modified by the State Legislature in 1961. In 1969, the Oregon State Legislature created and assigned to the Department of Environmental Quality the responsibility for water quality control. This legislation emphasized the need for conserving, protecting and improving the quality of the state's water and for treating water discharged into water bodies in order to control pollution.

In addition, the regulation of other water uses and related factors has been established by legislative-statute for the Health Division, the State Engineer, and the Fish and Wildlife Commissions.

The Health Division is authorized to set standards, rules and regulations to prevent domestic water contamination; examine plans for supply sources to insure their purity; notify responsible agencies about conditions which are dangerous to the public health; and demand corrections within a reasonable time.

The State Engineer, among other responsibilities, accepts applications for rights to appropriate water, issues permits, licenses, and certificates authorizing use of public water; regulates critical ground water areas and enforces water well standards; and adjudicates relative rights to the waters of any lake, stream or ground reservoir.

The Fish and Wildlife Commissions review proposals for water development projects for their impact on fish and wildlife resources. Also, these agencies make recommendations to the State Water Resources Board regarding minimum stream flows as part of the Board's responsibility to develop water use programs and the classification of unappropriated water for beneficial uses.

Within the coastal zone severe water quality and quantity problems exist. These relate to factors including land use, waste disposal practices, and the great number of small, independent, underfinanced, and uncoordinated water supply, distribution and treatment systems of local government.

Part of the problem, as described in a case study conducted for the Local Government Relations Division, is indicated by the fact that: (1) many supply systems draw from unimproved sources; (2) there has been inadequate water treatment; (3) distribution systems have insufficient capacity; and (4) a lack of bacteriological control creates hazardous health conditions.

The OCC&DC Inventory of Development Pressures indicates further, that "The availability and quality of water and sewerage services is one of the most important factors in determining where urbanization will occur. In few, if any, locations will sizable areas of urban development be found unless these services are available". The report further states that "Water and sewerage service inadequacies were identified in 93 (77%) and 97 (80%) of the 121 subareas (of the coastal zone) respectively. Of these locations, the limitations were considered severe in 37 and 54 instances respectively, pointing out the critical need for service improvements."

Further problems associated with water quality and quantity involve other multiple uses of the resource. As indicated in the OCC&DC Fish and Wildlife Inventory, chemical pollution, waste disposal, dredging, water storage of materials and commodities, erosion,

sedimentation, and inadequate stream flows have impacts on fish and wildlife habitats and reduce their productivity.

The OCC&DC inventory, Estuarine Resources of the Oregon Coast, also indicates that these impacts may be compounded in estuaries because of estuarine resource sensitivities, water circulation characteristics, and the nature of shoreland activities.

Particular problems are also connected with the maintenance of water quality in the coastal lakes, which are recognized by the State Water Resources Board as being highly important for fish, wildlife, and recreation uses, as well as municipal and industrial water supplies.

The Department of Environmental Quality's Water Quality Survey of Selected Coastal Lakes in the Sand Dune Region of Western Lane and Douglas Counties indicates that sedimentation, due to watershed development activities creates problems with water quality and lake productivity. Construction sites for homes, road building, boat launching and docking facilities result in areas stripped of topsoil and vegetative cover and allow soil and debris materials to waste directly into the lakes; this results in turbidity, nutrient enrichment, and shoaling of lake waters.

In this regard the OCC&DC Freshwater Resources Inventory states that "The sensitivity of the coastal lakes is not readily apparent... (because they) are constantly undergoing physical, chemical, and biological change; usually in response to some naturally or culturally initiated occurrence."

The report indicates that man plays the most dramatic role in the lakes life cycle. Through extensive use of the resource, and surrounding watershed lands, increased nutrient enrichment accelerates eutrophication of the lake, which thereby reduces both water quality and the lake's value for many uses. In addition, excessive withdrawal of groundwater can cause critical reductions in the depth of the water table, which could result in adverse effects such as salt water intrusion and lowered lake levels, and thus negatively affect the lakes character and uses.

The responsibility for these diverse problems cannot be placed entirely upon local government. Rather, they have come about because of the myriad of decisions made by the private sector and all levels of government. Particularly, in the past, these problems have been complicated by the number of governmental functions, indicated earlier, and by where, how much, and the way in which, development has taken place in the coastal zone, and the impacts it generates on water related resources. Therefore, the above policy is proposed for adoption to reassert and assure coordination of water resource management decisions in protecting the multiple beneficial uses of the water resource.

27. Developing Potential Water Supplies

Policy Statement

State and local governments shall develop or cause to be developed regional water supplies, as defined and described in the OCC&DC inventory, to meet present and future demand for water; and furthermore, shall establish or cause to be established adequate and reliable water storage and groundwater sources of supply where additional direct diversions from natural stream flows would result in unreliable sources of water supply.

NOTE: The unification of water supply districts, while possibly desirable from an economic viewpoint, is not the thrust of this policy. Rather, the development of regional water supply potentials is intended, in part, to organize the wholesale of water to individual districts which may continue the retail distribution of water in their local areas, and thus retain control of their districts.

Necessary Actions

The appropriate state agency, in cooperation with local units of government, shall identify, evaluate, and designate suitable water sources for regional supply development (either groundwater or surface storage).

Local governments shall designate, within the comprehensive planning process, those areas in need of service from regional supply systems and select the most appropriate of the identified suitable regional water supply sources.

State and local governments shall coordinate and estimate present and future demands for water, taking into account limitations or needs for water established by application of the carrying capacity concept.

Background

The development of regional water supply potentials is a concept which includes the development of major water supply systems on a regional basis. It thus relates the development of storage and distribution systems for the high volume demands of municipal and industrial users; and subsequent collection and treatment systems

as these may be influenced by: (1) the area wide potential availability of water; (2) regional topography; and (3) the location of present and future demand in developed urban areas and areas identified as being suitable for urbanization. In this regard the OCC&DC Freshwater Resources Inventory states that "the development of regional water supply potentials is an attempt to solve water supply problems in the Coastal Zone in harmony with the water resource capability and at the same time provide opportunity for growth, development, and protection of the existing fishery and other resources." Further information pertaining to water storage and regional water supply development is contained in the Background statement to policy 28.

28. Providing Flow Protection to Maintain Values of Water Resources

Policy Statement

The state shall maintain or cause to be maintained coastal stream flows with levels sufficient to support aquatic life, to enhance recreation, or to abate pollution, or to accomplish all three purposes up to that point where net social benefits no longer increase.

Necessary Actions

1. *The appropriate state agency shall coordinate the appropriation of water rights; the development of basin plans for water quality management; and shall assure maintenance of adequate stream flows by implementing legal withdrawals, stream use classifications, or the establishment of minimum flows. All these actions shall be directed to maximizing the net social benefits associated with the use of water resources by Oregonians.*

2. *The local governments in the coastal zone shall designate, within the comprehensive planning process, land and water uses for specific areas in a manner consistent with developing regional water supply potentials, meeting stream flow requirements and maintaining in-stream water quality.*

3. *The state shall develop funding mechanisms and shall share with local government the capital costs of water storage development projects where regional and statewide benefits will accrue.*

4. *The state shall identify and consider alternatives for low flow augmentation; and shall suppport that alternative or project, including the no-augmentation alternative, which provides the maximum net social benefits.*

Recommended Actions

1. State and local governments should, according to the criterion of maximum net social benefits, identify those sites suitable for reservoir development and should protect them from incompatible development.

2. The state should encourage the development and use of water conservation measures and water re-use techniques to reduce the demands for new water supply development.

3. The state should acquire, through adjudication, purchase, or other means of transfer, water rights on streams where flows exist that are insufficient to protect aquatic life.

4. The state should conduct a surveillance and metering program to assure that the current level of water withdrawals is consistent with the level of withdrawals designated for appropriative rightholders.

Background

Within the coastal zone, the major consumptive uses of water are for municipal, industrial and irrigation purposes while maintenance of aquatic life and recreational use are the major nonconsumptive uses of water. In regards to the supply of water, the OCC&DC Freshwater Inventory states that on an annual yield basis, there is sufficient water to satisfy all existing and future needs for designated beneficial uses.

Water availability, however, is constrained by seasonal distribution characteristics where requirements in excess of seasonal flows result in insufficient supplies in many of the coastal streams during the low flow summer months. This supply problem is also compounded, in many locations, by limited supplies of potable groundwater.

Such problems are further complicated by the fact that low flows in many streams occur during the July through October period. These months, generally, are those of highest water use when the available supply must meet greater demands from increased summer populations and municipal, industrial and agricultural uses. This results in stream flows that are less than the minimum flows needed to sustain aquatic life, support water-based recreation, and maintain in-stream water quality.

When these low flows occur, there is an insufficient amount of water to meet the needs consisting of present legal appropriations and the minimum flows recognized as needed to sustain aquatic life. Thus, the combination of natural flow occurrence and level of use under legally established water rights determine the amount of water available for future use.

Since coastal development has outpaced water supply development and because many streams are fully appropriated further growth in consumptive water uses will raise acute conflicts with recreation and aquatic life along the entire coast in future years. Expanding

industrial, municipal, and perhaps irrigation, demands will be in direct conflict with maintenance of the region's recreation potential and the anadromous fishery; both of which are important components of the coastal economy.

Therefore, to fully provide for human uses of the water resource, maintain water quality and water based recreation, and to meet the flow requirements of aquatic life, augmentation of existing flows through the development of storage on selected coastal rivers and streams will be necessary.

29. Maintaining Values and Uses of Estuarine Areas

Policy Statement

State and local government shall maintain and where appropriate enhance the values of Oregon's estuarine areas by guiding public and private uses of these areas to assure:

a. *a balancing and an equitable allocation of present and future uses of estuarine areas;*

b. *a reasonable high level of environmental quality protection for all estuarine areas, based on the impact of human uses on the physical and biological system;*[1] *and*

c. *consideration of the interests of the diverse groups of people who depend on or use estuarine areas.*

Necessary Actions

1. *State and local government shall establish a permanent management center on or near each major estuarine area or group of estuarines to coordinate information about planning and regulation and to provide for data storage, interpretation, research*

[1]The term "system" as used herein refers to the physical components of estuarine areas (open waters, tidelands, marshes, sand spits, and adjacent shorelands), to the biological components and to the processes which interrelate these components (such as tides and currents, water quality, and fresh water inflow).

education activities, meetings and hearing procedures. The management center recommended herein could be established as part of an existing office such as the county planning department.[2]

2. *State and local government shall assure that developments proposed for estuarine areas conform to the following criteria:*

   a. *uses shall be water-related, essential to the support of water-related uses, or interim uses which will not substantially interfere with the future development of water-related uses unless it is demonstrated that the net social benefits generated by applying this criterion exceed the net social benefits of not applying it;*

   b. *development on piling shall be required unless it is demonstrated that the net social benefits of locating the development on fill exceed the net social benefits of locating the development on piling; and*

   c. *appropriate agencies shall consider the net social benefits of land storage vs. water storage prior to the approval of water storage of any material; and, that alternative with the highest net social benefits shall be authorized.*

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[2]The purpose of the management center is to provide, in one location, a complete identification of all activities taking place in the estuarine area. The center is a "clearinghouse" where the decisions taking place at the local, state and federal level may be evaluated in terms of short- and long-term impacts (both environmental and economic). Because fragmentation of decision making has been identified as a basic problem in estuarine management, it is assumed that such a center (operating for each major estuary, although one county office may work with several estuarine areas) would provide coordination information important to decisions being made at all levels. References to activities which would be filed at the center would primarily involve physical alterations and shoreland uses, water quality, and major alterations of the watershed. Funds for the maintenance of the center would be provided by those local, state and federal agencies which would benefit from the coordination activities provided. Coastal zone management funds from an implementation grant could be used for such a project.

3. *Federal, state, and local governments shall develop disposal plans which include a designation of necessary and environmentally acceptable sites for the disposal of dredged materials and such plans shall be an integral part of estuarine plans.*

Recommended Actions

1. State and local governments should maintain the character of historic, unique, and scenic waterfront communities.[3]

2. State and local governments should prohibit transit corridor, roadbeds, and other transportation facilities in estuarine areas, unless the net social benefits associated with using alternative routes; including those benefits associated with preserving the estuarine area, are less than the net social benefits of locating the transportation facilities in the estuarine area.

3. Where dredging is necessary in estuarine areas, state government should permit disposal of dredged material in a proposed estuarine area only if one of the following conditions exists:

   a. the disposal site is within an area designated for that purpose in a state and locally approved estuary plan; or

   b. the net social benefits of the total dredging operation, including estuarine disposal, exceed the net social benefits of the total dredging operation, including non-estuarine disposal or alternative uses of dredged material.

Background

Estuarine areas are among the most productive environments on earth because of the natural abundance of nutrients available for plant growth and animal consumption. Estuarine areas provide a diversity of habitats within a small area. Estuarine areas have distinct

[3]Although the criterion of water-relatedness for the location of uses in estuarine areas is recognized as being of major importance, many coastal residents choose to live in waterfront communities. These waterfront communities constitute a resource of major economic, esthetic and cultural value. The redevelopment and improvement of these communities is considered consistent with the intent of the policy, which discourages random, dispersed development of non resource-related uses in estuarine areas.

components, defined within the OCC&DC estuary inventory as including tide flats, salt marshes, sand spits, fresh water inflow and associated shoreland and watersheds. Each component plays a significant role in determining the biological and physical characteristics of the entire estuarine area. The relative productivity and significance as habitat depends on the condition and extent of each component. Many important aquatic animals depend on physical, chemical, and biological conditions within estuarine areas at various stages of life.

Estuarine areas have historically been centers for development in the coastal zone because of opportunities for transportation of logs and wood products, for commercial fishing and fish processing, and for farming the floodplains and diked marshes. These development activities have also produced significant impacts on the natural values of estuarine systems.

The OCC&DC report Inventory of Development Pressures indicates that most of the incorporated cities and many unincorporated communities of the coastal zone are located in estuarine areas. Urban growth will continue in many estuarine areas. Population growth, as well as increased demand for the economic benefits and amenities that estuarine areas provide will require increased concern in management. Urbanization has four main impacts on estuarine areas:

(1) competitive demand for existing waterfront land increase;

(2) urban land costs accelerate proposals and pressure to fill lands within estuarine areas for development:

(3) waste disposal problems become greater as the amount of waste and overall urban runoff increases; and

(4) the number of space-demanding power, land and water transportation and waste-disposal facilities increases dramatically.[4]

The development of railroads and highways opened the coast to the population centers of the Willamette Valley and stimulated the use of estuarine areas for recreation. Recreational uses, while having some adverse impacts on estuarine areas, derive their value from the quality and productivity of the estuarine system as a whole, rather than characteristics of a single component of estuarine areas, such as marshland for agriculture or deep water for navigation.

[4]Reference to impacts of urbanization derived from the U. S. Department of the Interior, National Estuary Study.

Within the OCC&DC report Fish and Wildlife Resources of the Oregon Coastal Zone, estuarine areas are identified as the most abused habitat type in the coastal zone, and the most vulnerable to damage. Estuarine areas are in essence "catching basins" for nearly all of the land use activities in the watershed. This includes effects of logging, log storage, road construction, chemical spraying, dredging and filling, and agricultural practices. In developing navigation channels, much of the habitat of estuarine areas has been destroyed by the deposition of dredged spoil on tideflats and marshes. Estuarine areas have been used as dumping grounds for domestic and industrial wastes. Channel alteration, filling for residential, commercial, and industrial development, many having no specific relationship to marine activities, have all contributed to the degradation of Oregon's estuarine areas.

Some of the most significant changes in estuarine areas have been the result of rapid man-caused sedimentation diking of tidal marshes, degradation of water quality, and the alteration of the circulation pattern and water surface area at particular locations. Many impacts can be lessened, or prevented, without prohibiting a specific use. Planning, and using practices which are based on the physical, biological and temporal characteristics of estuarine areas will result in avoidance of major impacts. (For example, clustering of shoreland uses will provide the same total development in many cases as strip development of shorelands but usually at lower cost in service facilities, and clustering will at the same time maintain a large amount of open shoreline.)[5]

This policy is proposed to protect the natural resource values of estuarine areas, while providing for controlled development of important economic and social activities.

[5]Reference to clustering derived from Bella and Klingman, General Planning Methodology for Oregon's Estuarine Natural Resources.

30. Managing Estuarine Areas Within the Comprehensive Planning Process

Policy Statement

State and local governments shall designate certain estuarine areas for different levels of management, within the comprehensive planning process, ranging from intensive development to preservation, consistent with sound principles of conservation.

Necessary Actions

State and local government shall designate within the comprehensive planning process:

a. *those estuarine areas which are to be managed in a high state of development;*

b. *those estuarine areas which are to be managed for a moderate level of development;*

c. *those estuarine areas which are to be managed for preservation in as close to natural conditions (undeveloped) as possible, while providing for certain appropriate, beneficial uses; and*

d. *those estuarine areas which are to be managed for restoration, to provide greater benefits from resources which have been destroyed, damaged, or degraded by some natural or man-made process.*

Recommended Actions

1. The State of Oregon should establish within the state coastal zone management program, a process for coordination of planning for estuarine areas by local government and federal and state agencies.[1]

2. State and local government should provide special consideration in planning for significant salt (tidal) marsh areas within the estuarine system, such as protective zoning for these areas and upland areas immediately adjacent to them.

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[1]The state coastal zone management program will be the basis for coordinating estuary planning with local comprehensive plans and the programs of other state and federal agencies, including the wetlands plans of the Corps of Engineers.

In particular, state and local governments should consider the establishment of a "marsh bank" within each estuary, areas of undisturbed tidal marsh to assure the provision of materials to the estuarine and marine food chain for continued productivity. "Marsh bank" production units could include the following large tracts and marsh islands:[2]

a. Columbia River - Cathlamet Bay islands within the proposed lower Columbia River National Wildlife Refuge;
b. Necanicum River - Remaining salt marsh areas;
c. Nehalem Bay - Lazarus Island, West Island, Dean Point marshes;
d. Tillamook Bay - Wilson River-Kilchis River Delta marshes;
e. Netarts Bay - South end of bay and east side of sand spit;
f. Nestucca Bay - Marsh at confluence of Nestucca and Little Nestucca;
g. Salmon River - All remaining undiked areas;
h. Siletz Bay - Undisturbed protions of Siletz Keys and all islands;
i. Yaquina Bay - Poole's Slough, McCaffrey Slough, Boone Point and point upstream of Boone's Slough, marsh near Marine Science Center;
j. Alsea Bay - Mouth of Drift Creek and islands lying downstream of it, Eckman State Park salt marsh area;
k. Siulsaw River - Cox Island and adjacent tideland west of the railroad trestle, undiked marshes in lower North Fork;
l. Umpqua River - The Point and land inside the Cutoff, Bulter Creek;
m. Coos Bay - North Slough, Coalbank Slough, Coos River Delta, upper end of Haynes Inlet;
n. Coquille River - Islands and shorelands southwest of Highway 101 on the southeast side of river;
o. Roque River - None, no significant areas of marsh; and
p. Chetco River - None, no significant areas of marsh.

In all cases local inventories should be conducted to identify areas for protection.

[2]Some of these areas (such as McCaffrey and Poole's Slough in Lincoln County) are already managed in the manner recommended by local government.

Background

The designation of estuarine areas for different levels of management is a critical component of the state coastal zone management program for the following reasons:

a. the present system of management of coastal resources - particularly estuarine areas - is hampered by a diversity of agencies having responsibility and jurisdiction over different aspects of the system and a limited knowledge of the resource system;

b. the state, by law and accepted practice, represents a key management unit for estuarine resources;

c. the land and water resources of estuarine areas are so linked biologically and physically that they can and should be considered as parts of a single system; and

d. under the present system of management the functions of the estuarine system and the existing social system are not compatible.[3]

Cities and counties are designating permissible land and water uses for particular geographic areas within comprehensive plans. Oregon's coastal harbor, waterway, and port developments have contributed to the economic growth of the coastal area and Oregon. Economic and employment impacts of ports show considerable variation among coastal counties. Impacts in Clatsop and Coos Counties are greater than the impacts in other coastal counties. With respect to the future, Astoria and Coos Bay's ports have an excellant potential to increase their economic importance; however, Astoria's port is expected to attract most of the future growth. The other coastal ports are expected to diversify their function concentrating on recreation, industrial, and commercial development. A few ports, however, will continue to handle a significant amount of cargo.[4]

The policy requires local comprehensive plans to reflect the regionally desirable level of estuary management ranging from intensive development to preservation. The regionwide determination would be based on existing development, the state's interest in conserving estuarine resources and maintaining the state's coastal zone management program and wetland plans being prepared by the Corps of Engineers. This policy does not specify the

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[3]Derived from the U.S. Department of Interior National Estuary Study.

[4]Derived from the Pacific Northwest River Basins Commission (draft) Economic Survey and Analysis of the Oregon Coastal Zone.

particular uses which would take place in given areas, but rather the level of management with which particular uses should be consistent.

High development designations would imply that trade-offs between natural productivity (and other natural functions and values of the estuarine area) and the economic benefits provided by navigation, commerce, or other developed uses should be facilitated by local, state and federal government. If regional designations for management are adopted, increased attention could be brought to bear on easing restrictions, expediting permits, and providing services to designated development areas.

From an economic point of view, management on a regional basis would allow for a proper prioritization of preservation and development designations. What is required is a procedure for assigning conservation priorities for various sections of the coastline. Since the value of ecological resources of any particular coastal wetland will depend in part on the amount of wetlands still in existence elsewhere along the same coast, the conservation priority assignment must be performed on a comprehensive coastwide basis. It is very important to recognize here: (1) that a planning scheme will be found acceptable by investors and landowners only if it is stable, and not subject to frequent change; and (2) that it can be stable only if it takes basic economic factors into account, for if it does not it will be forced to yield and change due to economic pressures. Consequently, planning should, if at all possible, avoid assigning high preservation priorities to areas with major economic potential.[5]

Managing the estuarine areas of the Oregon coastal zone on a comprehensive regional basis will provide economic, environmental and institutional advantages. Management for designated levels of development will make it possible to consider the carrying capacity of each area in terms of present and future planned uses.

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[5]Derived from Walter Isard, Ecologic-Economic Analysis for Regional Development.

31. Regulating Alterations of Estuarine Areas

Policy Statement

State and local governments shall prohibit alterations of estuarine areas[1] unless all the following conditions are found to exist:

a. *the proposed alteration satisfies existing statutes, administrative rules and permit criteria of the Oregon Division of State Lands;*[2]

b. *the alteration will be the minimum amount required for the proposed uses;*

c. *the proposed use of the alteration is in conformance with adopted estuary plans, unless such a plan does not exist at the time of application (in which case this condition does not apply);*[3] *and*

d. *the net social benefits of the alteration is demonstrated to exceed the net social benefits of not making the alteration.*

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[1]This policy is intended to apply primarily to the open waters, submerged and submersible land, and tidal marshes of estuarine areas. It should not be applied to estuarine shorelands, except in those cases (if they ever occur) when altering shorelands would have a direct and measurable impact on estuarine waters, submerged or submersible lands, or tidal marshes which are intended for preservation or conservation in the public interest.

[2]Under the Miscellaneous Water Laws of the State of Oregon, proposed fills must be:

a. consistent with the paramount policy of the state to preserve the use of its waters for navigation, fishing and public recreation;
b. in conformance with sound principles of conservation, and consistent with the public health and safety;
c. in conformance with existing public uses of the waters; and
d. consistent with duly enacted zoning and land use plans.

[3]At present, no policy specifically requires the adoption of estuary plans. However, under existing state legislation, cities and counties are required to prepare comprehensive plans. An estuary plan which was completed by cooperation between jurisdictions which are adjacent to a particular estuarine area should then be adopted within the existing comprehensive plans.

Background

Filling of estuarine areas prompted coastal zone management legislation in several states, and was responsible for the great interest in the creation of an agency to manage San Francisco Bay. In Oregon, state regulation of fill and removal of material from the beds and banks of public waters existed before the passage of coastal zone management legislation. ORS 541.605 to .990 provides the Division of State Lands with permit authority over the deposit or removal of over 50 cubic yards of material. In the OCC&DC public workshops and resource specialist team meetings, alterations of estuaries continued to be addressed as an area of concern.

The OCC&DC estuaries inventory indicates that filling is a "high impact" activity in each of the twelve types of Oregon estuarine areas identified in the inventory. Filling is also the most "irreversible" action which may affect estuarine areas. Also, as a dominating physical alteration of the estuarine area, filling may bring about changes in components or natural processes throughout the estuary which are not predictable in terms of the extent, location or time of occurrence.

Detailed descriptions of recorded fills (up to 1971) are available from the Inventory of Filled Lands prepared by the Oregon Division of State Lands.[4] Others fills have gone unrecorded and many acres of marsh have been cut off from the estuary for agriculture by dikes and tide gates. Local government and the general public are generally unaware of the extent to which filling is taking place throughout Oregon's estuarine areas.

The OCC&DC Estuaries Inventory also rates dredging and other alterations as having medium to high impact depending on the type of estuary. A careful examination of proposed alterations is important.

[4]The Division of State Lands has provided OCC&DC with a list of fills applied for in the past two years and with a description of the uses proposed for fills and with the disposition (approval or denial) of the applications.

32. Designating Geographic Boundaries of Shorelands

Policy Statement

State and local governments shall establish a process to cooperatively[1] *describe and designate on maps the geographic boundaries of the shorelands of the coastal zone.*[2] *Such designation shall be based predominantly upon identification of landforms*[3] *that limit or control the hydraulic action in the water course or in the periodically wetted fringes of the water course, such as wetlands and floodplains.*[4]

Recommended Action

State and local governments, in identifying and designating the shoreland areas of the coastal zone, should:

(a) compile a map or series of maps depicting existing land uses, ownerships patterns, topography, and similar information which lends itself to presentation in graphic form; and

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[1]Local government will have important responsibilities in identifying specific boundaries, while the state will provide financial and technical assistance, and will evaluate the adequacy of boundaries in terms of the public interests in shorelands. Roles and responsibilities will be detailed in the Implementation Section of this report.

[2]Boundaries will be designated on maps of a scale adequate to allow local landowners to recognize them clearly regarding their own property.

[3]Classification of landforms of the Shore-Process Corridor, "shoreforms", are detailed in the pilot study.

[4]As is shown on a series of aerial photographs which accompany the pilot study, the width of the corridor varies extensively with the type, size and stage of development of the water course. Areas characterized by extensive wetlands and broad floodplains would have a large shoreland zone designated.

(b) prepare a series of descriptive analyses of the water characteristics and of the natural features of the shorelands. The descriptive analyses should be done on an area-by-area (e.g., using shore process zones described in the pilot study, drift sectors and/or a vegetation and soil classification system) basis and should be keyed to the map element in a clear and direct manner.[5]

Background

This policy deals with the identification and designation of what might be termed the "immediate shoreland areas" of the coastal zone. This area, as defined, must be distinguished from "shorelands" as defined within the Coastal Zone Management Act of 1972 (as interpreted in Paragraph 923.10, 15 CFR Part 923, August 21, 1974). The federal interpretation of the term means all lands extending inland from shorelines to the boundaries of the coastal zone (which, in the case of Oregon, is the crest of the Coast Range). Other resource management categories for which policies are being developed by OCC&DC treat these "upland" areas.

Shorelands, as discussed here, are those lands immediately adjacent to the ocean, rivers, lakes and estuaries, which have an influence on coastal waters which is considered "direct and significant". The process for identification of these areas is based on the "Shore-Process Corridor" system outlined by Wolf Bauer in a pilot study conducted for OCC&DC. The process is designed to identify the boundaries of shoreland landforms (fully described in the pilot study) which limit or control hydraulic and biological activities in the water course. It must be recognized at this time that the shoreland boundaries which would be set by application of this system may not respond to each and every management problem discussed in Policy 2. Policy 2 requires a flexible approach to boundary definition. Yet, in reviewing discussions of shorelands problems which have prompted legislation elsewhere, it is apparent that many are related to the physical and biological processes of the waters. Because of this, and the fact that water use and water quality have been established as matters of state concern, defining the physical boundaries of the corridor system[6] appears to offer the best methods of establishing

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[5]Derived in part from The Shoreline Management Act of 1971, of the State of Washington.

[6]Such a system, based on physical and biological processes, seems to be consistent with other management boundaries established in Oregon (i.e., in the Beach Bill and the fill and removal statutes).

a "baseline" which would include a majority of management concerns. Other concerns such as visual values, or particular issues of access or development, may require the setting of a more extensive boundary which includes the "functional" concern.

In the process of defining boundaries based on the Shore-Process Corridor system, certain other modifications may be considered appropriate. For example, a boundary may be modified to:

(1) include a significant coastal resource, which has been identified as an area or category of concern by OCC&DC;

(2) exclude a series of permanent structures which intrude into the corridor (and the properties are fully developed); and

(3) coincide with a two-lane primary highway which roughly parallels the shore.[7]

A more technical and detailed description of the corridor appears in the pilot study prepared for the OCC&DC:

> The Shore-Process Corridor represents a zonal belt that not only straddles the extreme surge-limits[8] of riverine, estuarine, lacustrine[9] and marine waters, but which includes those aquatic and terrestrial outer fringes on each side that can effect, or are affected by, the prevailing geo-hydraulic system. In terms of marine shores for example, the central portion of the corridor forms the extreme intertidal zone. The aquatic fringe is that immediate offshore border which receives the geo-hydraulic backlash effects of bottom wave motion, and fine sedimentation around sea grass and kelp bed habitat. The terrestial fringe, on the other side of the surge zone, may constitute a sloping terrace, secondary dune, or it may include the top of a receding sea cliff. In the example of a riverine environment, the central surge zone of the corridor covers both floodway and floodplain. The aquatic fringe, in this case, constitutes the perenially wetted summer channel, while the occasionally activated terrestial fringe includes any outer floodplain escarpments, or stream-impinged valley bluffs. The width of the Shore-Process Corridor

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[7] Derived in part from Sedway/Cooke's Tri-County Coastline Study.

[8] The area wetted by the combined action of river flow and incoming tide. The surgeplain is discussed on p. 17 of Coastal Wetlands of Oregon.

[9] Pertaining to lakes.

can vary greatly. The landward boundary of the marine corridor may coincide with the high tide coastline, as in the case of a rocky cliff coast that has no backshore. In that instance, the corridor is composed of a narrow suge zone (inter-tidal) without a terrestial fringe zone. At other locations, the corridor boundary may be a half-mile from the high tide line because the backshore consists of a broad deflation plain, or an extensive high marsh.

The Shore-Process Corridor also has lateral boundaries (up- and down-stream, or longshore). These would not be defined as part of the implementation of Policy 1. However, they would be of major importance in addressing specific management problems in some areas.

33. Managing Shorelands Within the Comprehensive Planning Process

Policy Statement

State and local governments shall identify shorelands within the comprehensive planning process,[1] *and shall designate permissible uses for these areas based on:*

a. recognition of the critical inter-relationships between shorelands and the freshwater, estuarine and marine resources of the coastal zone;

b. promotion of the concept of shorelands as "environment corridors" where there is a coincidence of natural resources and land use concerns in which there is a major public interst;

c. consideration of the needs and desires of landowners who maintain or propose uses reasonable and appropriate for shoreland location;

d. consideration of shoreland uses related to the public interest in navigation and other water dependent activities; and

e. adherence to the objective of maximizing net social benefits accruing to this and suceeding generations of Oregonians.

Necessary Actions

1. State government shall coordinate shoreland planning and management activities in cooperation with appropriate federal agencies in order to implement shorelands management policies and to provide more specific and unified guidance to local governments.[2]

2. State government, in cooperation with local governments, shall provide criteria for designating uses consistent with maximizing net social benefits for shorelands in comprehensive plans prepared by local governments. The criteria shall provide for:

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[1]Some shorelands management concerns may require specific regulations and controls more specific than the use designations within land use plans. It is assumed the plans would form the basis for these implementing regulations.

[2]Such a process is facilitated by approval of a state's coastal zone management program by the Secretary of Commerce.

(a) identification and designation of shorelands of regional or statewide concern;

(b) conservation of natural character and amenities of waterways;

(c) increased public access where needed;

(d) increased public recreational opportunities where needed;

(e) continuance of forest and agricultural uses without restriction except as otherwise provided by law;[3]

(f) retention of shoreland vegetation (including tree species) in as natural a state as possible and restoration of desirable vegetation without delay after disturbance in order to protect water quality, aquatic life, and wildlife habitat; and

(g) regulation of building sites, placement of buildings, and location of septic tank disposal fields to control pollution.[4]

Recommended Actions

1. State and local governments should prohibit channelization and use of seawall and similar bulkhead methods of bank stabilization unless it is demonstrated that the net social benefits of that type of construction are greater than the net socials benefits of alternative actions, including the alternative of leaving the waterway in its natural form.

2. State and local governments should regulate timber and vegetation zones along streams exclusively for the purposes of maintaining optimal water quality, stream protection, and aquatic life and wildlife habitats unless it is demonstrated that the net social benefits accruing to Oregonians can be increased by accommodating additional purposes.

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[3]Derived from HB 3210 (1973 Oregon Legislature).

[4]Department of Environmental Quality subsurface sewage disposal rules have presently established this requirement at 100 feet from the high water line.

3. State and local governments should encourage where appropriate developers of residential, commercial, and industrial sites on shorelands to allow for needed water-related public recreational opportunities.

Background

Although OCC&DC has not conducted an inventory of the shorelands of the coastal zone to document (1) resource characteristics and values; and (2) current problems affecting the management of these resources; information is available from other sources to support the general considerations of this policy. These sources include the OCC&DC resource inventories for fish and wildlife, estuaries, freshwater, uplands, beaches and dunes, and wetlands; publications concerning the waterways and submerged and submersible lands of Oregon; and proposed legislation and ordinances at the state and local level.

A major concern for shorelands derives from the statement in the Coastal Zone Management Act which requires "control" of those activities on shorelands which have a "direct and significant impact on coastal waters". This relationship is discussed in detail by John Clark:

> The primary ecological consideration in coastal management is control of water. This applies not only to coastal waters but to the upland drainageways and to land surfaces. It implies that the natural patterns of land vegetation and drainage are to be retained in land development. It is necessary to respect this basic ecological principle: Water provides the essential linkage of land and sea elements of the coastal ecosystem.
>
> One must start with the presumption that shoreland development will have adverse effects on coastal ecosystems by modifying runoff patterns and thereby reduce the capability of the land to both store and regularize the release of rainwater from the watershed, and to cleanse it enroute to coastal waters. Clearing the land of vegetation has many effects. One is a decrease in the watershed's ability to hold back storm waters. Another is an increase in the total volume of freshwater delivered to the estuary caused by one or both of these factors: (1) a lesser fraction is transpired to the atmosphere because there is less vegetation, and (2) a lesser fraction is evaporated to the atmosphere because the water moves to rivers faster over cleared land.

Because of the inter-relationships between the coastal waters and activities on shorelands, management becomes essential to protect the public interest in coastal waters. Thus, there must be a

working relationship between shorelands management, and legislation at the federal and state level, the purpose of which is to protect "navigation, fish and wildlife, conservation, aesthetics, ecology, and the general public interest".

Shorelands are also of major significance in the coastal zone because these areas are "environmental corridors" relatively narror bands of diverse, valuable and fragile resources which traverse a coastal environmental dominated by steep topography and dense forests. A rigorous overlaying process, or even a general perusal, of the OCC&DC resource inventories indicates the extent to which natural and cultural resources are concentrated in these shoreland corridors.

Because of the concentration of resource values, shorelands have become increasingly sought after for a variety of developments in recent years. Pressures for access to the public waters, for development of new marinas and other recreational facilities, and for continuing the historical process of shoreline residences (for recreation and retirement) are mounting. The OCC&DC estuarine policies also point out the need to consider some shoreland areas as essential for the future commercial and industrial development of the coastal zone. Conflicts between uses of shorelands have been increasingly apparent to the people of coastal Oregon. This is becoming especially true of the coastal lakes, which are at the same time, recreational, residential, biological, and water supply resources.

Despite desirability for "view lots" shorelands are often part of a physical environment which presents hazards for development. Flooding, ponding, erosion, unstable soils, and high ground water tables are often associated with these areas. For example, the State of Michigan is restricting shoreland development specifically based on geologic hazard concerns.[5] The Oregon Soil and Water Conservation Commission has completed an inventory of shoreland erosion in Oregon which documents the extent and nature of that problem, which may be seriously affected by development.

A principle concern on shorelands is the protection of riparian vegetation as wildlife habitat. As stated in the OCC&DC Fish and Wildlife Inventory:

> Riparian habitat occurs along the edges of all water areas and is usually in a dense, narrow band. It is a concentration point for a great variety of game and

[5]Interview with representative of Michigan Department of Natural Resources, Coastal Zone Management Program.

non-game species, providing food and cover near water. It also protects the quality and quantity of water for wildlife, and often is important shelter and food source for fish, especially panfish. Riparian vegetation also permits greater utilization of open grassland and agricultural areas suitable as wildlife feeding areas by providing the necessary cover. Most of the furbearers inhabit this zone. It also provides important nesting areas for songbirds, osprey, and wood ducks. Elk and deer use it for shade cover. The endangered Columbian white-tailed deer are associated with this habitat along the lower Columbia River.

There are about 25,000 acres of riparian habitat, representing 0.4% of the coastal zone.[6] A wide variety of man's activities have had adverse impacts on riparian vegetation. Logging, road construction, and stream channel alterations have been and will continue to be serious threats to conservation of this form of habitat. Land use planning should encourage "buffer" strips of riparian habitat along waterways. Waters of recreational significance should be provided with public access through these riparian areas. Because streams and lakes are attractive areas for recreation and development, and of great social values, they should be given high priority for public use in land use plans.

[6]Figure does not include riparian vegetation along estuaries.

34. Regulating Alterations of Shorelands to Avoid Geologic Hazards

Policy Statement

Federal, state, and local governments shall control construction on or modification of shorelines so that it will not interfere with natural processes to the extent that geologic hazards are created, unless it is demonstrated that the net social benefits of such construction or modification exceed the net social benefits of prohibiting the construction or modification.

Recommended Actions

1. State government should support and encourage studies and surveys of erosional, transport, and depositional processes in shoreline areas.[1]

2. Federal, state and local governments should conduct engineering investigations, or shall require engineering investigations to be conducted, prior to the construction of shoreland and channel structures (such as groins, jetties, breakwaters, seawalls and navigation channels) to determine if geologic hazards will result from the modification of natural processes.

Background

Erosion of stream, estuarine and ocean shorelands has been identified as a geologic hazard which results in undercutting of structures, interruption of linear developments, loss of topsoil in forestry and agriculture areas, increased sediment load, degradation of water quality and the destruction of spawning grounds. "The nature of a shoreline, whether erosional, depositional or in equilibrium, is largely controlled by natural proesses. Shoreline construction, whether in the form of shoreline control or development, alters the natural balance. Modification of these natural processes can be effected only locally. Generally, modification of one stretch of shoreline causes a corresponding change in another shoreline area.[2]

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[1]Oregon State University Sea Grant is currently funding a project regarding longshore drift on the Oregon coast. The U.S. Army Corps of Engineers maintains information on particular sites (stored at the Portland District office and Ft. Belvoir, Va.).

[2]Fisher, et.al., Environmental Geologic Atlas of the Texas Coastal Zone.

35. Maintaining Values and Uses of Sand Areas[1]

Policy Statement

State and local governments shall maintain or enhance the values[2] of Oregon's sand areas[3] by assuring that public and private uses do not exceed the carrying capacity[4] of these areas.

Necessary Actions

1. *Local governments shall include within their comprehensive plans an identification of the various types of sand areas (as defined in the OCC&DC Beaches and Dunes Inventory) and shall designate for each type of sand area uses that do not exceed the physical and biological limitations peculiar to each type of sand area.*

2. *State government, in cooperation with local units of government and with the requested assistance of the U.S. Soil Conservation Service, shall develop*

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[1]Public recreational use regulations and values at all beaches are controlled by the Oregon Beach Law (Act 601 - 1967) which affirms the public right to use of the beaches (waterline to vegetation line). This law is administered by the State Parks and Recreation Office and includes the following requirements:

(a) Improvements on beaches; removal of sand, rock, mineral, marine growth and other natural products; and laying of pipe, cable, or conduit across beaches require permits. Permits are based on the following considerations, among others:

(1) The public need for healthful, safe, aesthetic surroundings and conditions; the natural scenic, recreational and other resources of the area; and the present and prospective need for conservation and development of those resources.

(2) The physical characteristics of the changes in the physical characteristics of the area and the suitability of the area for particular uses and improvements.

Footnotes (continued)

(3) The land uses, including public recreational use if any, and the improvements in the area, the trends in land uses and improvements, the density of development and the property values in the area.

(4) The need for recreation and other facilities and enterprises in the future development of the area and the need for access to particular sites in the area.

(b) No deposit of debris, logs, rubbish, or refuse is allowed.

(c) Use of motor vehicles or aircraft on beaches is restricted to varying degrees along the coast.

[2]Sand area values include: areas of significant wildlife habitat; storage and recharge of ground water; aesthetics; foredune protection of property and environment from wind erosion, high tides, storms and tsunamis; and opportunities for recreation and development.

[3]Sand areas can be classified into four categories: active, recently stabilized, interdune, and stabilized. Active sand areas include: beaches, open sand dunes (oblique, parabolas and transverse dunes), hummocks, and active foredunes; recently stabilized sand areas include: conditionally stable foredunes, inland foredunes, conditionally stable open sand dunes, younger stabilized dunes and dune complexes (the latter which evidences a variety of forms within a small area); interdune sand areas include: deflation plains and wet interdune areas (in some cases lakes, streams, floodplains and surge plains are also interdune forms but they are excluded from this definition because these are addressed in other resource categories); stabilized sand areas include other stabilized dunes and older foredunes. Sand spits are not identified as a separate type because they may have the characteristics of all categories.

[4]In the OCC&DC Beaches and Dunes Inventory (Beaches and Dunes of the Oregon Coast) a total of twenty different types of sand landforms are identified and discussed. The distinguishing characteristics of each landform type are evaluated in regard to their suitability for recreation, development, wildlife habitat and a wide range of human activities. The tolerance ratings for specific activities and matrix of activity compatibility presented for each landform (Tables 3 and 4, Beaches and Dunes Inventory) provide basic information for assessing the carrying capacity (the stability of the landform is generally of paramount importance) of a sand area for a particular use.

planning criteria[5] *for sand areas and shall require that these criteria be used in the local comprehensive planning process as well as in state and federal agency programs.*

Recommended Actions

1. State and local governments should approve proposed recreational uses of those sand landforms identified as having high value for recreation use (as defined in the OCC&DC Beaches and Dunes Inventory) unless it is demonstrated that the net social benefits of approving an alternative proposed use exceed the net social benefits of disapproving it.[6]

2. State and local governments should designate certain sand areas for preservation in their natural state in order to allow for continuance of natural dune processes for the purposes of scientific study and protection of scenic, recreation and wildlife habitat values.

3. State and local governments should designate sand areas within the comprehensive planning process which are suitable for development without a thorough site investigation.

4. Local governments should require that dune stabilization be conducted in conformance with use designations included in comprehensive plans.

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[5]Criteria would include guidelines and procedures to follow in designating sand areas for particular uses. The OCC&DC inventory Beaches and Dunes of the Oregon Coast and the policies and recommended actions addressing this resource category represent the first steps in developing criteria that can be used by local and state governments in developing/revising plans and regulations.

[6]Three OCC&DC inventories: Beaches and Dunes of the Oregon Coast, Visual Resource Assessment of the Oregon Coast, and the recreation section of Resource Analysis of Oregon's Coastal Uplands discuss the outstanding recreational values of sand areas, particularly active open sand areas and beaches. This statement is also reinforced by OCC&DC General Recreation Policies which recognize the need for preservation of areas having outstanding potential for recreation and the need for use limitations based on the capability of the resource to support that use.

5. State and local governments, in cooperation with the Soil Conservation Service, should encourage and support additional studies of sand area carrying capacity, including the impact of motor vehicles, pedestrians and livestock.

6. State government should develop and implement, with the cooperation of concerned agencies, an education program to explain beaches and dune processes to the general public and to schools.

Background

Long shore currents, sand supply, wave action, vegetation and wetness are the principle natural processes influencing the sand area resource. Littoral drift[7] is deposited on the beach by currents and wave action. As this beach sand dries, it is carried inland by the wind. European beachgrass and other plants which have established themselves in the open sand up to the normal storm tideline reduce the velocity of the surface wind and the inland movement of the sand. Sand deposited in the vegetation forms a continuous sand ridge parallel to the shoreline. Directly behind the foredune, the wind currents scour the area down to the water table and form a low wetland called a deflation plain. The sand laden wind continues to move inland depositing the sand which creates sand area landforms.

Oregon has approximately 314 miles of ocean shoreline which includes 255 miles of beaches and 195 miles associated with the dune building process. In total, the dune areas include approximately 164,380 acres of the coastal zone with 19,750 acres of active sand areas, 23,575 acres which are conditionally or semi-permanently stable, 38,980 acres of interdune areas, and 82,075 acres which are stabilized sand areas (Table 2, Beaches and Dunes Inventory). The degree of stabilization[8] of the landform is generally the primary factor in determining the level of suitability or tolerance of a sand area for a particular use. Most sand areas are stable or conditionally stable. However, this stability can be damaged and the area can be returned to an active condition if the natural limitations of the landform are exceeded. Therefore, uses allowed in sand areas should be based upon the requirements of the use and its compatibility with the effected landform type.

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[7]Littoral drift is the movement of material such as gravel or sand by waves and currents (long shore transport) through the littoral (close-in water) zone. The material comes from the watersheds of coastal rivers and streams and erosion of the ocean shoreline.

[8]Stabilization is determined in part by the lack of active sand movement or dune migration because of vegetative cover as well as soil development, soil moisture, and the degree of stabilization in adjacent areas.

Recreational opportunities in sand areas are diverse and essential to the experience of being on the coast. The dynamic interface between land and sea has always held a fascination for man. Oregon's beaches are being managed as a public recreational resource. The majority of the parks and many of the recreational developments on the coast occur in or adjacent to sand areas. Although beaches are probably the area that most recreationists associate with the coast, the dunes, particularly the open sand areas, are also highly popular. Off-the-road-vehicle (ORV) use, hiking, horseback riding, hang gliding, hunting, wildlife observation and innumerable other recreational activities occur in these areas. Beaches and open sand areas are generally well suited for undeveloped recreational uses because these landforms will tolerate high levels of human impact. However, in some areas conflicts may arise between the activities themselves (Table 4, Beaches and Dunes Inventory). For example, public safety hazards and annoyance factors indicate that ORV's are often incompatible with pedestrian and equestrian use of sand areas.[9] Other sand area landforms have less capacity to tolerate human impact. For example, conditionally stable open sand and hummocky areas are particularly fragile.[10] Also, foredunes can be damaged by the breaching and trampling of recreationists. Therefore, recreational access and the types and levels of use should be based upon the capacity of the landform type.

Sand areas also possess outstanding natural beauty and evidence of the dynamic forces of nature. The diversity in their character ranges from the openness and broad vistas of active open sand areas to the dense forest cover of an older stabilized dune. This variety allows an extraordinary richness of experience within a small area. Changes in season, tides, weather and time of day add another dimension to the dynamic character of sand areas. In the OCC&DC Visual Inventory, 10 of the 26 representative landscapes of the coastal zone were related to sand areas and received high ratings in the visual evaluation.[11]

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[9]One of the OCC&DC General Recreation Policies states the ORV use should occur in designated areas and that these areas should be selected according to their physical suitability for that use.

[10]Fragile in terms of stability and also significant wildlife values in the case of hummocky areas. Disturbance of the vegetation areas can return them to an active, blowing sand condition.

[11]Eight of the ten representative landscapes in sand areas were placed in the highest classification because of their obvious and strong association with the ocean and the "coastal experience". The Clatsop Plains, much of the Coos Bay dune sheet, Sand Lake and the sand spits on the Nehalem, Tillamook, Netarts, Salmon River, Alsea Bay, Sixes, Elk and Euchre Creek were identified as being of exceptional visual (experiential) importance.

Many of the areas identified as suitable for urbanization are associated with sand areas (OCC&DC Inventory of Development Pressures). Because most sand areas are in a stable condition, this does not represent a significant problem for urban development except where water and sewer services are not available. Use of septic tanks will create pollution problems due to the high vertical and horizontal (iron banding) permeability of older dunes. The vital role of the vegetation in retaining the stability of these landforms must also be recognized. If the vegetation is removed or sufficiently disturbed (root damage and moisture loss) and no preventive measures are taken to re-establish cover, then an older stabilized dune can be reactivated.

There are several types of sand area landorms which are unstable and generally unsuited for development. Active or conditionally stable foredunes, which are subject to ocean undercutting, are highly unstable due to wind erosion and blowing sand and wave action. Open sand areas and dry and wet hummocks are also unstable due to active dune migration. Open sand conditionally stable areas represent a fire hazard as well as being highly susceptible to renewed instability, but can be developed under careful management. Deflation plains and wet interdune areas are not well suited for development because they are highly significant wildlife habitat areas and present problems from flooding and ponding, compressible soils and surface and sub-surface pollution. The suitability of some of these unstable areas for various uses can be improved by careful management. However, individual site evaluations would be necessary.

Erosion of the ocean shoreline contributes to littoral drift. Rates of ocean undercutting of shoreline landforms are influenced by resistance of the material to erosion and the slope and vegetative cover. Hence shoreline erosion of coastal terraces and the unconsolidated sediments of sand area landforms is more rapid than a basaltic headland. Ocean undercutting becomes a hazard to development and other uses when the rebuilding action of summer waves fail to replace the sand lost by the erosion of winter storms. Ocean undercutting is a serious problem, especially on parts of the central coast. Bulkheading of the shoreline reduces the available sand supply to sand areas. Natural and artificial barriers to littoral drift such as headlands, rivers and jetties also interfere with the sand supply and the continuance of nearby sand areas. Some beaches on the central coast seem to be deficient in sand, therefore, studies are needed to determine the impact of bulkheading, the relative importance of other local sand sources and project future shoreline erosion and accretion trends.

Active dune migration or dune advancement sometimes threatens public works such as road and navigation channels and public and private property. However, these active dune processes also are valuable recreational and aesthetic resources. Therefore, conflicts arise over whether or not artifical dune stabilization should occur.

In Honeyman State Park, for example, the expanse of open sand area and the lake are the primary recreational features, but the active dune movement is closing the outlet of the lake and will cause the water to become stagnant unless part of the open sand area is artificially stabilized. The decision to stabilize an active dune should be done in conformance with comprehensive plans to make sure public benefits and costs are adequately considered.

There are many areas of significant wildlife habitat in sand areas. The stabilized dune forests contain the greatest species diversity, but the deflation plains, wet interdunes and hummocky areas provide more significant habitat values. Waterfowl and special interest species such as Whistling Swan depend on the deflation plain as a feeding, and resting habitat. Snowy Plover require the driftwood area adjacent to foredunes.

36. Regulating Uses in Sand Areas

Policy Statements

A. *In sand areas other than older stabilized dunes and older foredunes (as defined in the OCC&DC inventory), state and local governments shall base approval or disapproval of uses, in part, on a site investigation report which has been prepared by a qualified sand specialist*[1] *and provided to the applicable unit of government by the developer. The report shall evaluate the capability of the site to support the proposed development without endangering life, property or environment and shall describe:*

(1) the type of development (use) proposed;

(2) the temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation; and

(3) the methods for protecting the surrounding area from adverse effects of the development and stabilization.

B. *State and local governments shall not approve any proposed use of a sand area that is likely to cause any of the following conditions unless it is demonstrated that the net social benefits of approving the use in the sand area exceed the net social benefits of disapproving the use:*

(1) excessive damage to existing desirable vegetation including moisutre loss and plant root damage;

(2) exposure of stable and conditionally stable areas to erosion;

(3) slope instability;

(4) pollution or excessive drawdown of ground water which would lead to loss of vegetation or intrusion of salt water into water supplies; and

[1] A sand specialist could be a soil scientist, geologist or another individual qualified to conduct site evaluations based on overall education, experience and knowledge of the type of area being evaluated.

(5) interference with significant wildlife habitats.[2]

Recommended Actions

1. State government, after consultation with local governments and the Soil Conservation Service, should specify those data that must be included in the site investigation reports used in evaluating development proposals in sand areas.

2. State government, in cooperation with local governments and the Soil Conservation Service, should develop a statement of qualifications for sand specialists to assist local government and the public in selecting individuals to conduct evaluations of projects in sand areas.

3. State and local governments should control or design access into or through sand dune areas, particularly conditionally stable dunes and dune complexes, so that the stability of the area is maintained, scenic values are protected, and fire hazards avoided.

4. Local governments should allow cutting and removal of timber and understory vegetation or ground cover in sand areas only if the planned method for removal will not threaten the survival of the adjacent desirable plant communities due to subsequent moisture loss, or root damage.

5. State and local governments should permit removal of sand from sand areas only when it is necessary to protect private or public property from sand damage or when such removal will not adversely affect the environment or the stability of adjacent areas as determined by a site investigation.

6. State and local governments should regulate driftwood removal from sand areas and beaches for both individual and commercial purposes so that scenic values and the dune building process are not adversely affected.[3]

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[2]The most significant habitats in sand areas as described by the OCC&DC Beaches and Dunes Inventory are in the deflation plains. Up to 92 wildlife species use these areas. Of special note is the Whistling Swan which is dependent on this habitat.

[3]In the Beaches and Dunes Inventory log debris is credited with playing a part in the formation of foredunes.

7. Local governments should regulate grazing of domestic animals on stabilized dune areas on an assigned density basis as determined by site investigations to be compatible with sustained carrying capacity.

8. In developing structures that might cause excessive diminishment of sand supply or interruption of the longshore transport of littoral drift, the developer should investigate and where possible provide methods of sand by-pass.

Background

Policy #1 provides the general framework for management of the sand area resource. The planning that is guided by this policy will provide general use designations for the various types of sand landforms based on inventory information and state developed criteria. Certain sand landforms such as older stabilized dunes and older foredunes may be designated for development or other intensive uses. However, due to the physical and biological limitations (carrying capacity) of other sand landforms, additional site-specific information is needed prior to approving or disapproving proposed uses of them. Therefore, to complete the recommended management approach for sand areas, it is necessary to establish a regulatory procedure which requires site investigations in applicable sand areas.

Many uses may be possible on a particular sand site depending on the landform type, the potential impact of the proposed use and the ability to alter the natural limitations encountered. A site investigation in providing site-specific information will allow for a needed flexibility in making the complex decisions related to use of these sand areas.

The physical and biological capabilities (carrying capacity) of most types of sand areas vary in relation to the existence and interaction of sand supply, wind and wave forces, water and vegetation. The existing vegetation or potential for establishing vegetation is critical to the use suitability and capability of the site. The stability of a site, its resistance to wind, erosion, ocean undercutting and mass wasting, most often depends on how well the vegetative cover is established and protected. Therefore, sand area stabilization and protection and maintenance of existing vegetation are important elements of resource management.[4] The inventory emphasizes this point and the proposed policies include it as a major evaluative criteria.

[4]The absence of vegetation (i.e., unstabilized sand areas) is important to many of the recreational uses and scenic values of sand areas and, therefore, proper management would not always require stabilization programs.

The presence of water is essential to the existence of healthy vegetation. Accordingly, uses which would threaten moisture loss need to be regulated so that enough water is available to sustain the vegetation and maintain stabilized conditions. Cutting and removal of vegetation as well as excessive drawdown of ground water could affect the available moisutre in the soil.

The ground water supplies in sand areas also are important as a source of domestic water for both communities and individual users. However, care must be taken to not exceed yield limitations of these supplies. Over withdrawal of freshwater could lead to intrusion of salt water into the wells.[5] In addition, ground water in sand areas is highly susceptible to pollution from surface or subsurface waste discharges due to the vertical and horizontal permeability (high infiltration rates) of sand landforms.[6]

A continuing sand supply is important in the dune building process, particularly that of foredunes which protect property and environment from sand damage. The recreational values of open sand areas (oblique and transverse dunes and beaches) are also dependent on a continuing supply of sand. Therefore, removal of sand and interference with the natural sand supply process should be controlled so that protective and recreational values are retained. The longshore transport of sand (littoral drift) is a major part of this natural process.[7]

The criteria recommended for evaluating proposed uses of sand areas and several of the recommended actions pertaining to specific uses are directed toward maintaining the appropriate (depending on management objective) interaction of sand supply, water and vegetation.

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[5] Geologic Hazards Inventory of the Coastal Zone, (p. 28).

[6] Beaches and Dunes of the Oregon Coast, (p. 56, 59, 62).

[7] Beaches and Dunes of the Oregon Coast, (p. 16).

37. Regulating Modifications of Foredunes

Policy Statements

A. *State and local governments shall permit development on active foredunes and on conditionally stable foredunes which are subject to serious ocean undercutting only when it is demonstrated that the net social benefits of development on these sand areas exceed the net social benefits of prohibiting such development.*

B. *State and local governments shall allow breaching of foredunes only on a temporary basis for emergency purposes (e.g., fire control, cleaning up oil spills) and shall require that these foredunes be restored once the emergency passes, unless it is demonstrated that the net social benefits of permanent breaching of the foredune exceed the net social benefits of prohibiting permanent breaching.*

C. *The U.S. Forest Service shall allow permanent breaching of foredunes located in the Dunes National Recreation Area when necessary to maintain a continuing supply of sand to inland recreational areas.*

Necessary Action

The state, in cooperation with local governments and state and federal agencies, shall establish criteria and procedures governing breaching of foredunes and restoration of breached foredunes.

Recommended Actions

1. State and local governments should investigate all known methods of inducing foredunes artifically on the continental shelf and should encourage federal agencies to use appropriate methods to protect developments threatened by undercutting erosion of present foredunes.

2. State and local governments, in cooperation with federal agencies, should develop criteria for construction of beach front protective structures, and one of the criteria should be an evaluation of the net social benefits.

Background

Both Policy #1 and #2 apply to foredunes as one of the landforms within sand areas. However, separate policies directed specifically at active and certain conditionally stable foredunes are considered necessary because:

(1) these foredunes have very little, if any, tolerance for most activities that might occur in sand areas with the exception of undeveloped pedestrian access and wildlife habitat.[1]

(2) the potential for a rapid change in the foredune landform due to wind and wave erosion is ever present.

(3) foredunes provide a valuable protective function keeping sand laden wind from penetrating further inland and damaging property, facilities and wildlife habitat.

(4) the foredunes are an area of geological hazard due to wind erosion, ocean undercutting, and tsunamis.[2]

There are some 1,385 acres of active foredunes and 2,055 acres of conditionally stable foredunes stretching 138 miles along the Oregon coast. Many of these dunes are a direct result of some of man's first efforts in sand stabilization during which European beachgrass was introduced.[3] Other foredunes are the outcome of the naturalization of European beachgrass and its growth along the sand areas of the coast. This vegetation provides one of the key elements of a dynamic dune building process. The ocean deposits sand on the beaches and the wind carries it inland until its velocity is reduced by the vegetation at which point the sand is deposited. The vegetation then grows up through the sand and the process repeats itself until a sand ridge (the foredune) is established.

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[1]Table 3 of the OCC&DC inventory Beaches and Dunes of the Oregon Coast describes tolerance levels of active foredunes and recently stabilized foredunes (conditionally stable).

[2]The Geologic Hazards Inventory of the Oregon Coastal Zone describes these hazards and their relationship to dune lands.

[3]Between 1910 and 1935 sand stabilization projects were initiated in the Coos Bay dune sheet using European beachgrass and in 1935 the U.S. Soil Conservation Service and the Civilian Conservation Corps began stabilization projects on the Clatsop Plains.

Interference with this process will directly affect the characteristics of the foredune. If the vegetation is removed or not allowed to continue its growth and the sand is exposed, a blowout or rapid wind erosion may occur causing encroachment of sand on previously protected property and wildlife habitats.

Although few species of wildlife use the beachgrass on foredunes as habitat, modification of the foredunes may have adverse effects on the adjacent habitats of the Snowy Plover[4] as well as some 54 species of wildlife found on the landward side of the dune and 98 species of wildlife inhabiting the deflation plain.

Developments such as housing on active foredunes may result in wind erosion of the dune, damage to the development of adjacent property, and hazards to human life. The damages of housing construction on active foredunes in Clatsop, Tillamook and Lincoln Counties are illustrated in the inventory (p. 38-43). Rapid movement of sand by the wind not only damages the development itself but causes damage and maintenance costs to be increased for adjacent property owners. On conditionally stable foredunes where wind erosion may not be a major problem there is still the threat of ocean undercutting and seismic sea waves (tsunamis). The undercutting of wind stable foredunes and active foredunes in Salishan Spit, Lincoln County during the winter of 1972-1973 and on Bay Ocean Spit, Tillamook County during 1930-1952 are prime examples of ocean undercutting.[5] The past and potential effects of tsunamis are described within the Beaches and Dunes Inventory (p. 46-50) and within the Geologic Hazards Inventory of the Oregon Coastal Zone (p. 39-41).

As indicated, the growth and stability of active foredunes or of conditionally stable foredunes is dependent on sand supply, water, vegetation cover, and wind velocity. The uses that affect or modify these controlling elements need to be managed if the protective function of this resource is to be preserved.

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[4]The Snowy Plover is dependent on the beach-driftwood habitat which lies adjacent or parallel to foredunes.

[5]Figures and references to these occurrences are on p. 46 of the Beaches and Dunes Inventory.

In some special cases the protection of the foredune may not be desirable. For example, where inland sand areas are considered best used for recreational purposes that require large expanses of open sand, removal of the foredune to allow replenishment from the beach sand supply may be necessary. However, such a situation is not likely to occur except within the Dunes National Recreation Area.

In most cases, removal or serious alteration to the protective foredunes will mean that: "substantial sand deposition damage will result to man's existing developments and public works, lakes, wildlife areas, agricultural land and forests. In other words, the active foredunes or those foredunes conditionally stable provide a protective wind barrier to what exists landward of them and the removal of the barrier will increase wind erosion and sand deposition in the landward area."[6]

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[6]USDA Soil Conservation Service, Beaches and Dunes of the Oregon Coast, (prepared for the OCC&DC), March, 1975, p. 50.

38. Managing Continental Shelf Resources

Policy Statement

The appropriate state agency shall coordinate with state agencies, other states and federal agencies to manage continental shelf resources so food production, water quality, recreation and navigation values are conserved and enhanced.

Necessary Actions

1. *Oregon shall support:*

   a. *National efforts to extend the contiguous fishing zone to 200 miles offshore to protect coastal and anadromous species from overexploitation;*

   b. *National efforts to establish effective international fisheries management agreements; and*

   c. *Completion of continental shelf resource inventories by the appropriate state and federal agencies.*

2. *The appropriate state agency shall appoint a technical advisory committee with members from private industry, from local, state and federal agencies, and from other interested groups including the public in general to advise on the management of continental shelf resources.*

Recommended Actions

1. The state should require the developer to provide an inventory of the biological resources of a proposed development area and the inventory should be an explicit part of ecological and economic impact statements also provided by the developer, to determine whether the development should be approved.

2. The state should cooperate with the Coast Guard to assure that adequate state contingency plans are developed and resources are available to contain and clean up spills of oil and other harmful substances in the ocean.

3. The state should encourage and review federal regulations that require vessels carrying hazardous substances in Oregon waters to meet strict design, operation and maintenance standards which would reduce the risk of damage to the natural resources.

4. The state should require that disposal of materials offshore will meet Environmental Protection Agency ocean dumping regulations.

Background

The continental shelves of the world contain about 90% of the ocean's biological resources and nearly all of the ocean's chemical and geological resources. The shore and ocean also have exceptional visual and aesthetic values.

Management of the continetnal shelf resources is complicated by the differing jurisdictions of states and the nation. Oregon, through the State Land Board, owns three miles of continental shelf immediately offshore, and the Department of Interior, Bureau of Land Management manages the lands of the rest of the continental shelf for the federal government. Legal constraints and jurisdictions to some extent limit Oregon's power to provide effective management. It is in the state's interest to promote cooperative management of continental shelf in a manner that protects the values of main concern to the people of Oregon. Those values have been identified as food production, water quality, recreation and navigation.

The OCC&DC did not complete an inventory of continental shelf resources. Such an inventory would contribute greatly to the general understanding of this resource and could lead to improved management.

The Commission expressed strong concern about the impact of foreign fishing on the fish resources of the continental shelf. At the April 19, 1974 meeting in Tillamook, commissioners drafted and unanimously passed the following resolution:

> Because of the emergency nature in the coastal fishing industry created largely by unrestricted and long-term damage to the total fishery resource of the continental shelf of Oregon caused primarily by various foreign-owned fleets and because current federal consideration is being given this issue, therefore OCC&DC declares an interim policy supporting 200 miles U.S. jurisdiction over coastal fishing and urges federal adoption of this policy.

The OCC&DC Chairman was authorized to appear before the U.S. Senate Hearing to support a federal bill to extend the U.S. contiguous fishing zone to 200 miles offshore.[1]

[1]Complete text of the hearing testimony from the OCC&DC Chairman is included in Appendix A.

39. Regulating Mineral Resource Development on the Continental Shelf

Policy Statement

The state shall allow exploration for, extraction of, and transfer stations for mineral resources on the continental shelf only if the developer demonstrates that such activities will increase the net social benefits of Oregonians and that the methods employed minimize the adverse impacts of the ecological, cultural and aesthetic values of the ocean and its shorelands.

Necessary Action

The state shall require a developer to obtain a permit from the appropriate state or federal agency for exploration for, extraction of, or transfer stations for mineral resources on the continental shelf. Before approval is granted, appropriate state and federal agencies and the public shall review the permit application to determine if the proposed development is within the public interest. The permit application shall:

a. designate areas which will be off limits to exploration and extraction;

b. specify methods and equipment to be used;

c. require that the developer will finance monitoring and inspection of the exploration, extraction or transfer operations by the appropriate state and federal agency;

d. require that pollution abatement methods to be used reflect the best economically available and proven technology;

e. require that the developer is liable for individual or public damage caused by the mining operations and will post necessary bonding to cover damages;

f. specify the extent of restoration that will be accomlished when the mining operations are finished; and

g. specify that the state or federal government may revoke or modify a permit to prevent or halt damage to the environment.

Background

The pressure for developing mineral resources of the Oregon continental shelf is increasing because of the "energy crisis" and federal outer continental shelf programs. Oregon has not set up specific policy or regulations to control development of the continental shelf. Accidents and problems occurring elsewhere on the nation's continental shelf areas during mineral resource development have aroused public concern for protecting the values of the continental shelf. This policy establishes a low priority for mineral resource development off Oregon and describes social and environmental criteria for offshore mineral resource development which are aimed at protecting the state's interest.

40. Conserving Forest Lands

Policy Statement

State and local governments shall conserve for forest uses[1] all lands in the first three classes of forest land defined by the OCC&DC Uplands Inventory and shall conserve those forest lands in class four, defined by the OCC&DC Uplands Inventory, that are capable of growing at least 20 cubic feet of usable wood fiber per acre per year.[2]

Necessary Actions

1. *Local government shall identify forest lands within comprehensive land use plans in a manner consistent with the classes of forest land defined by the OCC&DC Uplands Inventory and shall designate for forest uses all lands in at least the first three classes and those capable of growing at least 20 cubic feet of usable wood fiber per acre per year.*[3]

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[1]Forest uses, as defined in the glossary and described in the OCC&DC inventory, include: production and related processing of trees for the diversified wood products industry; provision of natural water reservoirs or watersheds; fish and wildlife habitats; outdoor recreation; and provision of scenic buffers, open space, and grazing of livestock.

[2]The RESOURCE ANALYSIS OF OREGON'S COASTAL UPLANDS describes five classes of forest land: Class 1 - those forested lands where resource protection, scenic, and research values pre-empt all other uses due to potential or existing ecological problems and aesthetic reasons; Class 2 - those forest lands suited for provision of community water supply or for high-use recreational activities as well as for timber production; Class 3 - those forest lands suited for the commercial exploitation of wood or other forest products; Class 4 - those forest lands producing less than 20 cubic feet of usable wood fiber per acre per year that may be capable of producing greater than 20 cubic feet of usable wood fiber per acre per year under alternative management practices; and Class 5 - those forest lands capable of producing at least 20 cubic feet of usable wood fiber per acre per year (without intensive management practices) that instead are devoted to other uses such as farming, mining, and power transmission.

[3]Local governments' identification and designation of forest lands should be based on criteria provided by the state through the LCDC and the State Department of Forestry.

2. *Lands conserved or designated for forest uses shall not be converted to other than forest uses unless it is demonstrated that the net social benefits of conversion exceed the net social benefits of retaining them in forest uses.*

Recommended Actions

1. State government should encourage intensive management practices that allow realization of the multiple use of forest lands with a minimum of undesirable ecological impact.

2. In order to improve timber production of forest lands, state government should: encourage rehabilitation of old cutover, burned or brush-covered forest lands; and support research and development of new methods of management.

3. In order to maximize the benefits accruing to Oregonians from the use of forest lands for wood production while at the same time avoiding erosion and sedimentation problems, forest landowners and managers should manage their lands in accordance with the Oregon Forest Practice Act Rules and the state should provide sufficient staff to adequately enforce these rules.

4. The state forester should conduct or support a study of the feasibility of coordinating timber harvesting by drainage basins, or by other means, in order to protect all forest uses and watershed values.

5. The state should encourage the development of land use plans for both public and private forest lands which would:
   a. designate high productive site timberland to be reserved for timber production, unless it is demonstrated that the net social benefits of conversion to other uses exceed the net social benefits of reservation;
   b. identify possible incentives to be used in conservation of forest lands for forest uses; and
   c. provide a means for coordination of timber harvesting to protect watershed values.

6. The state should conduct or support a study of the log exporting industry to determine the long- and short-term effects on forest reserves, reforestation and log costs and the capability of the areas involved to continue to provide a timber product of unimpaired quality as well as quantity.

7. State government should require road location and construction to be planned to minimize siltation and prevent mass soil movement by avoiding areas of easily erodible soils.

8. State government should develop a fire or natural disaster contingency plan to avoid creating extensive erosion and silt damage to watershed streams and estuaries and blockage of streams with debris from salvage operations.

Background

Approximately 90% of the coastal zone, over 4,300,000 acres, is in forest land.[4] Most of this land (approximately 85%) has value as commercial timberland and much of this timberland is considered to be the most productive in North America.[5] As such, these forest lands can provide a permanent major resource base for the continued future economic development of the coastal region. At present the forest products industry is the major economic force in the coastal zone, comprising about 1/5 of all direct employment.[6] Continuation of the forest products industry as a major part of the coastal economy will require conservation and intensive management of commercial timberland.[7] In addition, efforts should be made to improve the productivity of small farm and miscellaneous woodlots as well as large tracts of non-commercial timberland through increased investment and higher levels of management.

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[4] Economic Survey and Analysis of the Oregon Coastal Zone, OCC&DC November 1974, Table E-3, p. E 7 (western Lane and western Douglas estimated).

[5] Worell, Albert C., Forest Resources, Private Enterprise, and the Future, Industrial Forestry Association, Portland, 1967, OCC&DC Economic Survey, Table E-2,5 (interpreted). Over 50% of the forest land in western Oregon of which the coastal zone is a part is included in the top two productivity classes (capable of producing 121 or more cubic feet of wood fiber per acre per year).

[6] OCC&DC Economic Survey and Analysis.

[7] OCC&DC Economic Survey and Analysis, p. 73-89, discusses the future of the industry and possible future yields.

The future of the coastal forest products industry is dependent on and adequate supply of available raw materials. The major constraint to an adequate supply appears to be the level of management applied to both public and private forest lands. Conversion of forest lands to urban uses resulting in a substantial loss of commercial forest land available for timber production does not appear to be a major problem confronting the coastal industry.[8]

The Oregon Forest Practices Act provides rules and guidelines applicable to all forest owners and managers which will improve management. Immediate reforestation is one of the requirements included in the Act. However, rehabilitation of older (more than 10 years) cutover, burned, or brush covered forest lands is not included in the Act.

The values of forest lands are not only economic. The forest resource is a multiple use resource with many compatible functions. In addition to the material for the forest products industry, forest lands provide natural watershed, recreational sites, fish and wildlife habitats and quality of life factors such as open space, wilderness and visual quality.[9] Management of forest lands must not only be related to productivity and economic viability but also to conserving water quality and supply, habitat, recreation, and quality of life values.

The Forest Practices Act Rules address the problem of water quality by requiring proper logging procedures related to road construction, stream modification, stream buffers and skid trails. With sufficient staff to enforce these rules, the water supply function of forest lands would be protected. However, the Act does not provide for the protection of the recreational and quality of life funtions.[10] The Act should be broadened to provide additional forest resource protection by requiring specialized management techniques in areas of high recreation and scenic value.

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[8] OCC&DC Economic Survey and Analysis, p. 74, found that conversion of forest land to urban uses resulted in a loss of 29,000 acres between 1945-1970 or only 1.5% of all commercial timberland. The OCC&DC Inventory of Development Pressures, states that most forest land is not threatened by urbanization due to lack of physical suitability and there are only a few instances where public agencies or timber companies hold prime developable property.

[9] These diverse values and functions of forest lands are discussed in the OCC&DC Uplands Inventory, and within the OCC&DC inventories for fish and wildlife, recreation (part of Uplands), visual resources and water resources.

[10] The OCC&DC Uplands Inventory.

Of overall concern in managing the forest resource is the development of land use plans which would allow a higher degree of coordination among the various public and private forest managers as well as provide an opportunity for improved management of all coastal forest lands. Each agency, company or individual manages its part of the forest resource in accordance with its own goals and policies. Although the Forest Practices Act attempts to standardize the various management policies through its rules and guidelines, it does not provide for coordination and long range planning. Land use plans developed by the private sector as well as the public land managers could provide information which would maximize the benefits from the entire coastal forest resource. The private sector's willingness to make its plans public considering the competitive nature of the industry and the state's capability to coordinate and monitor planning are unknowns.

A more specific concern pertaining to the log export industry has been expressed. This sector of the timber industry has had a substantial growth in output in recent years.[11] However, there has been considerable controvery surrounding log export policies including suggestions that log exports be prohibited until it is determined that there are no adverse effects on forest reserves, reforestation and log costs. Neither the Uplands Inventory nor the Economic Survey support such a moratorium. However, a study of possible adverse effects should be conducted.

[11]The OCC&DC Economic Survey and Analysis, p. E-44.

41. Reserving Productive Agricultural Lands

Policy Statement

State and local governments shall reserve productive agricultural lands[1] *in the coastal zone, defined in the OCC&DC Uplands Inventory and in local comprehensive plans, for agricultural uses,*[2] *unless it is demonstrated that the net social benefits of conversion to other uses exceed the net social benefits of reservation.*

Necessary Action

Local government shall identify productive agricultural lands within comprehensive land use plans and shall designate these lands for agricultural uses.[3]

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[1]The OCC&DC inventory, Resource Analysis of Oregon's Coastal Uplands, describes five classes of agricultural land. Class 1 and 2 — those agricultural lands having the best conditions for agricultural production — should be preserved for agricultural uses. Class 3 — those agricultural lands, identified in the OCC&DC inventory, having fair production potential, if soil and/or water conditions are improved and competitive uses controlled — should be preserved in agricultural use only if case by case evaluations determine that soil and/or water improvements will be made and competitive uses will be controlled. Class 4 and 5 — those lands having little or no value for agriculture due to production limitations and competitive uses — are excluded from this policy.

[2]Agricultural uses, as defined in the glossary and described in the OCC&DC Uplands Inventory, include: raising and harvesting of crops; feeding, breeding and management of, or produce of, livestock, poultry, fur-bearing animals or honey bees; enhancement of quality of life through provision of open space, scenic vistas and opportunities for rural life style; and provision of fish and wildlife habitat.

[3]Local government identification and designation of agricultural lands should be based on criteria provided by the state through the LCDC (the OCC&DC inventory and economic survey provides initial guidance).

Recommended Actions

1. State government should develop and fund an incentive program to encourage the retention of agricultural lands in agricultural use through use of authority of the State Soil and Water Conservation Commission and soil and water conservation districts as specified in the Soil and Water Conservation District Act (ORS 568.210).[4]

2. Local government should protect agricultural lands by limiting uses of adjacent land to those which are compatible with agricultural activities.

Background

Approximately 10.4% of the land area within the coastal counties[5] is in farming use as compared to 29.3% for the state as a whole. The predominant farming activity on coastal agricultural land is forage (grass and hay) production and grazing of dairy cows and beef cattle. The production of speciality crops such as cranberries, greenhouse plants and lily bulbs is also of some signficance.[6]

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[4]Existing state law ORS 215 allows local government to establish an Exclusive Farm Use Zone for automatic special tax assessment under ORS 308.270. ORS 308.740 to 790 provides for special tax assessment of open space lands to discourage their forced conversion to more intensive uses. However, these incentives are not enough to keep productive agricultural lands in agricultural use. Programs which provide monetary incentives such as direct compensation or assistance in soil/water improvement should be developed.

[5]The OCC&DC Economic Survey and Analysis, p. C-2. "Coastal Counties" do not include western Lane or western Douglas because information for just the western portion of these counties was not available.

[6]The OCC&DC Resource Analysis of Oregon's Coastal Uplands.

At present, the agricultural industry is the second largest employer in the coastal zone. However, employment in agriculture continues to decline as it has over the last several decades. Production and income earned is increasing but this is due to increased yields per acre. The number of farms and the total amount of land in farm use is decreasing.[7]

The OCC&DC inventory of coastal uplands identifies several reasons for the reduction of the agricultural resource including changes in lifestyle; limitations of coastal agricultural land and climate; economics; management and competition from other uses. Land best suited for agriculture is generally flat, well drained, and has an available water supply. Such land is also the easiest to develop (and the most desirable) for housing and other urban uses. Economically, the monetary value for such land is greater for urban uses than agricultural uses. Forest uses of agricultural land also can have a higher monetary value than use for agriculture.

The agricultural resource is vulnerable. It occurs in a finite amount and is limited to specific locations. If it is considered desirable to preserve this coastal resource, a positive effort must be made to provide incentives and protection. Otherwise, agricultural uses will not be able to compete economically with urban and forest uses for the available land resource.

The functions and values of agricultural land, described in the inventory of coastal uplands, provide the rationale for preservation of productive agricultural lands. They include: production of food; improvement of soil stability; protection of watersheds; fish and wildlife habitats; recreation and education opportunities; open space; pollution abatement; employment; quality of life (visual attractiveness and character of the coast and opportunity for rural or part-time farming life style). These functions and values added together seem to justify preservation of the most productive, coastal agricultural lands.

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[7] During the period 1959-1969 there was a 28.7% (164,490 acre) decrease in the amount of land in farms in coastal counties as compared to 1.4% decrease for the state and a 38.1% decrease in the number of farms on the coast. OCC&DC Economic Survey and Analysis, pp. G-2,3.

Although there is limited potential for increasing the supply of highly productive agricultural land,[8] soil improvement, drainage and irrigation could result in improving the agricultural potential of some 185,499 acres of crop and pasture land.[9] Assistance and incentives to make these improvements should be provided as long as other values, such as wetlands, are not sacrificed.

[8]The OCC&DC Uplands Inventory, and the Economic Survey and Analysis, p. C-34.

[9]The OCC&DC Economic Survey and Analysis, p. C-37.

42. Implementing the OCC&DC Management Program

Policy Statements

1. *In as much as the entire OCC&DC coastal zone management proposal was developed for submittal to the 1975 Oregon Legislature, the OCC&DC recommends that legislative review and approval of all sections of this report take place before requiring compliance in the comprehensive planning process at the local level.*

2. *The Legislature shall designate a body that will bear the responsibility for estimating and evaluating the economic and other social consequences of the policies.*

3. *No policy shall be implemented until its economic consequences are estimated and evaluated by the state government, in cooperation with local governments, and that field-testing be an integral part of the evaluation.*

4. *The State Legislature shall appoint a body composed of equal representation from the governmental, industrial, and public sectors whose main responsibility will be to direct the expansion of the existing OCC&DC inventories to the level of comprehensiveness necessary to complement the policy statements and to reach fair and equitable land use identifications and designations in the coastal zone.*

   (The Executive Committee determined that the intent of the OCC&DC by adopting this policy was not to create another agency but to insure direct involvement of all sectors affected by the OCC&DC inventories and policies. To clarify this intent, the Executive Committee suggested the following rewording: State and local governments shall appoint bodies composed of equal representation from the governmental, industrial, and public sectors to direct the expansion of the existing inventories to the level of comprehensiveness necessary to complement the policy statements and to reach fair and equitable land use identifications and designations in the coastal zone.)

5. *State government shall assume responsibility for defending against lawsuits directed at units of local government as a result of their implementation of state mandated policies and planning goals and for paying compensatory costs that are awarded.*

6. *The state shall develop and implement a system for compensating landowners who demonstrate that they have incurred economic losses from land use regulations.*

Background

The OCC&DC, during its final meeting, adopted these general policies to guide the state in implementing the Coastal Zone Management Program. Policies 2 and 3 were recommended to the Commission by its Economic Steering Committee. The Committee felt that these provisions must accompany the resource management policies forwarded to the Legislature. Policies 5 and 6 were originally included only in the implementation section of this final report. However, the Commission felt that these recommendations required additional emphasis, and, therefore, adopted them as general policies.

In that the OCC&DC management plan expresses a state interest in the conservation and development of natural resources, the state should accept responsibility for the results of implementing all or any part of the plan. Management of natural resources requires certain land and water use restrictions and regulations. These additional restrictions may be interpreted by private property owners to be overly restrictive to the point of representing a taking of land without just compensation. If this becomes the case, units of local government may incur lawsuits in implementing state mandated policies and planning goals. Local governments are not in the best financial or legal position to respond adequately to such suits.

Throughout the OCC&DC work program, property owners in the coastal zone expressed to the Commission their concerns about the economic impacts of land use regulations. Many felt that they should be compensated when development on their land was prohibited or greatly restricted. The popular acceptability of land use management is essential to the effectiveness of the Coastal Zone Management Program. The possibility of achieving this acceptability can be improved if the state will continue the development of a land value adjustment mechanism.

GLOSSARY

Adjudicate: To hear and settle (a case) by judicial procedure.

Adverse Effects: Effects which can or have been measured and determined undesirable considering social, economic, or environmental factors.

Aesthetics: That in the natural or man-made environment which is pleasing to the senses.

Agricultural Lands: Lands for which the primary use is the growing and harvesting of agricultural products.

Agricultural Uses: Raising and harvesting of crops; feeding, breeding and management of, or produce of, livestock, poultry, fur-bearing animals or honey bees; provision of open space; farm woodlots.

Agriculture: Cultivation of the soil for the purpose of harvesting crops, raising livestock, or producing of any other useful commodity from the land. (Definition includes farming, which is the practice of agriculture as a business.)

Alteration: An artificial physical modification of submerged, submersible or dry land, including but not limited to fill, removal, excavation, channel changes, rip-rap, bulkheading, seawalls, groins, tide-gates, floating structures and jetties.

Aquatic Life: Those organisms whose usual habitat is in submerged or submersible areas.

Archaeological Resources: Those districts, sites, buildings, structures and artifacts which possess material evidence of human life and culture of the prehistoric and historic past and may be recovered and studied.

Areas of Exceptional or Strong Coastal Association: Areas of high visual significance because their quality and character evidence the influence of the coastal environment.

Beach: A gently sloping zone of loose material (sand) that extends landward from the low-water line to a point where there is a definite change in the material type or landform.

Breaching: Making a hole or gap in or breaking through.

Carrying Capacity: The maximum capability of an existing environment and the resources of that environment to support indefinitely a certain population or activity level without deterioration.

Channelization: The straightening and deepening of a shallow, braided or meandering stream, usually to facilitate passage of flood flows.

Coastal High Hazard Area: The area along the coast subject to ocean flooding from storms and high tides.

Conserve: To use natural resources wisely, consistent with long-range goals to prevent deterioration or destruction of the resources.

Contiguous Fishing Zone: An ocean area, starting at the outer edge of the territorial sea and extending to a specified distance offshore (12 nautical miles presently for the U.S.), in which complete control of fishing activities is exercised by the adjacent nation.

Continental Shelf: (Legal Definition) The territory seaward from the ocean shore to the distance where the average ocean depth is 200 meters.

(Physical Definition) The territory seaward from the ocean shore to the distance where the ocean floor slopes steeply to the deep sea floor.

Deflation Plain: A broad interdune area which is wind scoured to the level of the summer water table.

Design Review: A process by which proposed developments or uses are evaluated through a committee to determine their potential impacts on visual values.

Developer: Any individual who proposes or conducts development or any public or private entity or association (including corporations, governmental and private agencies, associations, firms, partnerships, joint stock companies and groups of the aforementioned) which proposes or conducts development.

Development: On land, in or under water, the placement or erection of any solid material or structure; grading, removing, dredging, mining, or extraction of any materials (not including agriculture or forestry activities); increasing the density or intensity of use of land, including, but not limited to, subdivision of land and increase in the intensity of use of water. As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

Development, Orderly: Well-considered, directed development in which the consideration and direction is embodied in comprehensive planning controlled by the public. The term does not rule out encouraged development, but it does not mean stimulated development in which private development is subsidized by the public.

Dune Complex: A sand area landform which contains a variety of dune types (including unstable areas) within a small area.

Dune, Conditionally Stable: A dune presently in a stable condition but vulnerable to becoming active due to fragile vegetative cover.

Dune, Oblique: Open sand areas characterized by a broad sloping ridge and a slip face oriented obliquely to both northwest and southwest winds.

Dune, Old Stabilized: A wind stable sand area landform, characterized by significant soil development and a diverse forest cover.

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

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

Dune, Transverse: An active, open sand landform composed of a sloping ridge and a slope face with low relief occurring in a wave-like pattern in the summer.

Ecosystem Types: Refers to the different and identifiable communities of living and nonliving things.

Endangered Species: Native fish or wildlife whose habitat is threatened with destruction, drastic modification, or severe curtailment, or whose survival is threatened by overexploitation, disease, predation, or other factors; or whose continued survival requires assistance.

Environmental Corridor: A linear tract of land (such as along a river or the edge of an estuary) on which there is a coincidence of natural resources (such as water, wildlife habitat, wetlands and riparian vegetation).

Erosion: The removal and transport of earth material by air, water or gravity.

Estuarine Area: The open waters, submerged lands, submersible lands and adjacent shorelands of an estuary.

Estuary: A semi-enclosed body of water where freshwater from streams meet and mix with saltwater from the sea. The estuary includes: (1) estuarine waters; (2) tidelands; and (3) tidal marshes.

Flood: A temporary rise in stream flow or stage that results in water overtopping stream banks and inundating the land adjacent to the channel.

Flood Fringe: The area of the floodplain lying outside of the floodway, but subject to periodic inundation from flooding.

Floodplain: The area adjoining a stream, tidal estuary or coast that is subject to inundation by a regional flood.

Flood Proofing: Any combination of structural additions, changes or adjustments to structures primarily for the reduction or elimination of flood damage potential to structures and contents of buildings.

Floodway: The normal stream channel and that adjoining area of the natural floodplain needed to convey the waters of a regional flood while causing less than one foot increases in upstream flood elevations.

Flow Augmentation: Increasing stream flows to desired levels for protection of aquatic life, maintenance of water quality standards, protection of recreational and aesthetic values: and to supply needs of designated water uses through water storage releases, efficient use of water resources and/or inter-basin water transfers.

Foredune: An active foredune which has become conditionally stable with regard to wind erosion.

Foredune, Active: A growing barrier ridge of sand paralleling the beach which lies immediately above the high tide line.

Foredune, Older: A wind stable foredune landform with a well developed soil profile.

Forest Lands: Lands dominated by trees of any age and capable of (a) producing wood or other forest products; (b) exerting an influence in the climate or in the water resources; or (c) providing shelter for livestock and wildlife.

Forest Uses: Include management, production and harvesting of forest products; provision of natural water reservoirs or watersheds; provision of open space and scenic buffers; fish and wildlife habitats, outdoor recreation; grazing land for livestock.

Geologically Hazardous Area: A land area where geologic conditions are unfavorable for certain kinds or intensity of development and may result in loss of life or property or environmental damages.

Ground Water: Water in the saturated zone beneath the earth's surface which is the source of water for wells and springs.

High Productive Site Timberland: Forest land capable of producing at least 121 cubic feet of wood fiber per acre per year.

Historical Resources: Those districts, sites, buildings, structures, and artifacts which have a relationship to events or conditions of the human past.

Hummock, Active: Partially vegetated (usually with beach grass) circular and elevated mounds of sand which are actively growing in size.

Hydraulic Action: The action of moving water on the beds, banks and shorelands of water bodies (streams, lakes, estuaries and the ocean).

Hydraulic Effects: Effects related to movement of water.

Intensive Management Practices: Methods of increasing the production of land such as thinning, soil improvement, irrigation, and genetic improvement.

Interdune Area: Low-lying areas between higher sand landforms which are generally under water during part of the year.

Irreversible Damage: Impairment of the usefulness or value of natural resources which can not be reversed or corrected.

Land and Water Use Plan: A plan prepared by local, regional, state or federal planning bodies in accord with respective policies, concerning area development and conservation.

Landslide: A general term covering a wide variety of mass movement landforms and processes involving measurable movement downslope by means of gravitational forces; the occurrence of such movement.

Littoral Drift: The material or movement of material such as sand or gravel by ocean currents (longshore transport) and waves through the littoral (close-in water) zone.

Marshland: That area between the mean high waterline and the line of nonaquatic vegetation. Wetlands.

Marine Vegetation: Those species of marine vegetation such as kelp and eelgrass which have a commercial harvest value or are an important component in the diet of aquatic life or wildlife.

Mineral Resources: Naturally occurring homogeneous substances (such as sand, gravel, sulfur, coal, petroleum, and natural gas) obtained for human use.

Minimum Streamflow (Requirement): The amount of streamflow necessary to sustain aquatic life.

Multiple Use: The coordination or integration of deverse uses or activities within one development or resource area in a manner that will conserve the basic resource values.

Net Social Benefits: Net social benefits are social benefits less social costs.

Non-Appropriative (Non-Consumptive) Fish and Wildlife Use: A manner of use of fish and wildlife resources which does not reduce any portion of them to personal possession or alters them from their natural state, such as viewing and photography.

Ocean Undercutting: Active erosion of the ocean shoreline by wave action.

Off-Road Vehicles: Any motorized vehicles designated for or capable of cross country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other terrain which would include, but not be limited to, such vehicles as four wheel drive, motorcycle, snowmobile, amphibious, and air cushion vehicles; except that such term excludes (1) any registered motorboat, and (2) any military, fire, emergency or law enforcement vehicle when used for official or emergency purposes.

Offshore Construction: Development of structures off the ocean shoreline for mineral extraction or other uses.

Open Space: Land used for agricultural or forest purposes and any land area, the preservation of which in its present use would:

(1) Conserve and enhance natural or scenic resources;

(2) Protect air or streams or water supply;

(3) Promote conservation;

(4) Conserve landscaped areas;

(5) Enhance the value to the public of abutting or neighboring areas;

(6) Enhance recreation opportunities;

(7) Preserve historic sites; or

(8) Promote orderly urban or suburban development.

Outdoor Advertising Signs: Signs which advertise goods, products and services not related to the premises on which the signs are located.

Preserve: To keep a resource from harm or damage.

Public Benefits (or losses): Those combined social, economic, and environmental gains (or losses) which accrue to (or are taken from) the public because of a use or activity and its subsequent resulting effects.

Regional (100 Year) Flood: A large flood occurring in an area as a result of inundation during periods of higher than normal streamflows, extremely high tides, high winds, rapid snowmelt, natural stream blockages, tsunamis, or combinations thereof, whose size has a one percent chance of occurrence in any one year.

Regional Water Supply: Major storage and distribution systems for the high volume demands of municipal and industrial users on a regional basis.

Reserve: To keep back or save for future use or a special purpose.

Restore: To bring back to or put back into a former or original state.

Riparian: Of, on or pertaining to the bank of a river, pond or lake.

Sand Areas: Sand landforms which are grouped into active, recently stabilized, interdune, and stabilized areas. Active sand areas include: beaches, open sand dunes, hummocks, and active foredunes; recently stabilized sand areas include: conditionally stable foredunes, inland foredunes, conditionally stable open sand dunes, younger stabilized dunes and dunes complexes; interdune sand areas include: deflation plains and wet interdune area; stabilized sand areas include: older stabilized dunes and older foredunes.

Sand Area, Active: A sand area which is growing, moving or both as a result of wind action. There is a broad range of active sand areas such as transverse dunes, oblique dunes, parabolas, active hummocks and active foredunes.

Sand Area, Stabilized: A sand area protected by vegetation or some other means from further movement or modification by the wind. Includes sand landform types - older stabilized dune and older foredune with a well developed soil profile (well cemented soils having more resistance to disturbance).

Sand Spit: A small point of land or narrow shoal composed of sand which projects from the shore into a body of water.

Scenic Corridor: The area adjacent to a roadway, river or other transportation route which is associated with the visually pleasing experience of traveling along the route.

Scenic Vista: A distant view which is visually pleasing and generally associated with a particular vantage point.

Scientific and Natural Areas: Naturally occurring physical or biological units of the landscape where human influence is minimal, and where representative ecosystem types and communities are preserved for the scientific and educational purposes of establishing baseline ecological data.

Shorelands: Those areas adjacent to a lake, stream, estuary or the ocean which have a direct and significant relationship to the water. Specific identification of shorelands on maps may be based on landforms which affect or are affected by the action of the water.

Shorelines: The non-submersible land area immediately adjacent to a body of water.

Shore-Process Corridor: A zonal belt which is bounded on the landward side or sides by the extreme surge-limits of river, estuarine, lake and marine waters, and where they exist, those aquatic and terrestial outer fringes on each side that can affect or are affected by the action of the water. The Shore-Process Corridor contains shorelands, and features of the watercourse.

Significant Habitat Areas: A land or water area where sustaining the natural resource characteristics is important, or essential, to the production and maintenance of identifiable species of aquatic life or wildlife populations.

Social Benefits: Favorable or positive effects on one or more of the following values: aesthetic, cultural, historic, ecological, recreational, and economic. Social benefits can accrue to individuals and to groups of individuals including society as a whole. Social benefits may be tangible or intangible, pecuniary or nonpecuniary, and they need not be measured by numerical data.

Social Costs: Those explicit cost outlays made by private individuals, firms and organizations, and by public institutions and organizations plus those implicit costs stemming from forgone opportunities for factors that might otherwise be used in alternative ways or activities. Social costs may be tangible or intangible, pecuniary or nonpecuniary, and they need not be measured by numerical data.

Species of Special Interest: Wildlife not considered threatened or endangered but of special concern because of their relative low abundance, particular habitat requirements or distribution.

Stability: Resistance to change or movement. In sand areas this refers to role of vegetative cover or mechanical means in protecting the landform from movement.

Stabilization: The process of controlling sand or soil activity (i.e., stilling the movement) by natural vegetative growth, planting of grasses and shrubs or use of artificial materials.

Surge: A term referring to the movement of water over the floodplain and other lands adjacent to a watercourse because of a combination of river flow (from the uplands) and tidal action (damming by a high or incoming tide).

Surge Limits: The extent to which waters would reach, on both sides of a watercourse, as a result of river and tidal flooding.

Sustained Yield Management: The consumption of fish and wildlife resources at a rate which does not impair the ability of the species to perpetually replace individuals through natural reproduction.

Tidal Prism: The total amount of water that flows into a harbor or estuary and out again with movement of a tide, excluding any fresh water flow.

Tsunami: A seismic sea wave created by a submarine earthquake abruptly elevating and lowering the sea bottom or creating a submarine landslide.

Urban Growth Area: A land area designated for future expansion and development of urban uses based on identified suitablility and need.

Urban Uses: Residential uses having a density of one or more dwelling units per acre and commercial, industrial, institutional and public uses which are related or comparable to these higher density residential uses.

Utility and Communication Structures: Structures which would include power or telephone transmission lines, towers and poles, substations and any other utility structures.

Water Characteristics: A term encompassing factors of water quality, hydraulics, water surface area and water volume.

Water-Dependent: A use which can be carried out only in areas adjacent to the waters of this state because of its reliance on the use of water for transportation, recreation, source of energy production or as a necessary element of manufacturing or processing.

Water-Oriented: A use which needs to be located in close proximity to water-dependent uses for financial viability or public benefit.

Water-Related: A term which encompasses both water-dependent and water-oriented.

Wetlands: Areas on which standing water, seasonal or permanent, has a depth of six feet or less and where the wet soil retains sufficient moisture to support aquatic or semi-aquatic plant life.

Wildlife: Those nondomesticated animals including game and nongame species, whose usual habitat is located above submersible areas.

IMPLEMENTATION

Introduction - Legislative Requirements

The legislation that created the Oregon Coastal Conservation and Development Commission (OCC&DC), Oregon Revised Statute 191.110 through 191.180, did not provide explicit direction as to how and by whom the Commission's "proposed comprehensive plan for the preservation and development of the natural resources of the coastal zone" should be implemented. The legislation did state, however, that the plan "shall be prepared in a form designed to be used as a standard against which proposed uses of the natural resources of the coastal zone may be evaluated." It also stated that in the event of conflicting uses "the plan shall establish a system of preferences between such conflicting uses." The Commission recognized that in order to use the proposed plan in such a manner, a strong implementation program would be necessary.

The Coastal Zone Management Act of 1972, under which the Commission has received program development grants, specifies certain basic requirements related to the implementation of a coastal zone management program. The Act requires that a management program include "an identification of the means by which the state proposes to exert control over land and water uses" and "a description of the organizational structure proposed to implement the management program, including the responsibilities and interrelationships of local, areawide, state, regional and interstate agencies in the management process." The Act states that the fundamental purpose of this legislation is to "broaden the perspective by which decisions affecting the coastal zone are made to incorporate a statewide view." To achieve this purpose and ensure state involvement in land and water use decisions in the coastal zone, the Act suggests the following three general techniques. Any one or combination of these would satisfy the state involvement requirement.

> (i) State establishment of criteria and standards for local implementation, subject to administrative review and enforcement of compliance;
> (ii) Direct state land and water use planning and regulation; or
> (iii) State administrative review for consistency with the management program of all development plans, projects, or land water use regulations, including exceptions and variance thereto, proposed by any state or local authority or private developer with proposer to approve or disapprove after public notice and an opportunity for hearings.

The Act leaves it up to the state to determine the appropriate role of local governments in administering its coastal zone program.

A possible alternative in developing an implementation program was available to the Commission through Oregon Revised Statute 197.005 to 197.430.

This legislation which created the Land Conservation and Development Commission (LCDC) provided the OCC&DC with a legislatively approved model for implementing a state developed land use planning program. The model includes statewide planning goals and guidelines developed by the state, with units of local government preapring and adopting comprehensive plans which are consistent with these goals and guidelines. The LCDC would then review comprehensive plans for conformance with statewide planning goals. In addition, this legislation included authority to: (1) issue permits for activities of statewide significance; (2) coordinate planning efforts of state agencies; (3) prepare model ordinances to guide implementation of statewide planning goals; and (4) recommend designation of areas of critical state concern.

The OCC&DC, taking into account these legislative influences on its natural resource management plan, included the development of an implementation system as a major element of its work program. The objective was: "to develop a system of implementation which enhances the decision making capabilities of general and special purpose governments and provides for sufficient flexibility." Recognizing that units of local government provide the much needed geographic familiarity, responsiveness to local values and opportunity for local public involvement, the OCC&DC was strongly committed to providing the maximum opportunity for local involvement in implementing the management plan.

In January, 1974 the OCC&DC Implementation Study Committee was appointed to study information pertinent to developing a system for implementing the OCC&DC coastal zone management plan and to make recommendations to the Commission concerning this matter.

The Committee decided to hire a consulting firm having experience with other coastal/shoreline management programs to develop alternative implementation programs. To guide the consultant in his work, the Committee identified certain elements to be included in each of the program alternatives. The elements identified were based on the implementation requirements included in the OCC&DC legislative charge and the federal Coastal Zone Management Act of 1972. Each alternative program was to include:

(1) a detailed procedure that provides for use of the adopted OCC&DC plan (policies, necessary actions and recommended actions) by local governments and state agencies to control use of coastal land and water resources;

(2) a description of the organizational structure needed to implement the OCC&DC management program, including responsibilities and interrelationships of local, regional, and state agencies in the management process;

(3) a designation of the agency or agencies to coordinate and monitor local, regional, and state action pertaining to coastal resources, and to review local planning for consistency with state and regional guidelines;

(4) a general identification of powers and methods to put the program into effect at the local, regional, and state levels including allocation of responsibilities; and

(5) a description of how the management plan should be used in order to serve as a standard against which proposed uses of natural resources of the coastal zone may be evaluated.

In summary, the major questions to be addressed in the consultant's report were:

(a) who should implement the OCC&DC natural resource management plan? and
(b) how should the plan be implemented?

Recommended Organizational Structure for Plan Implementation

During the period April-September 1974 the Implementation Study Committee met several times with the consultant to review the various phases of his study. The consultant's report Oregon Coastal Zone Management Plan Implementation (Appendix V) was completed and submitted to the Committee in October, 1974. It gave particular emphasis to the organizational structure for implementing the OCC&DC plan and recommended the following three alternatives:

1. Assumption of coastal planning and implementation responsibility by the Land Conservation and Development Commission (LCDC) with the options of reconstituting the OCC&DC as an advisory committee and creating a separate coastal staff division of the LCDC.

2. Extension of the OCC&DC or creation of a new and separate coastal planning agency.

3. Allocation of complementary coastal planning responsibilities among various levels of government.

The report included an evaluation of each of these options based on planning, governmental, legislative, procedural, political and fiscal-efficiency criteria. Each of the options ranked high with Option 1 receiving the highest rating.

The OCC&DC Implementation Study Committee Proposal

The Committee evaluated each of the consultant's options against the following criteria: (a) the organizational structure to be recommended should have the potential for effectively carrying out the OCC&DC plan; and (b) it should allow for the greatest amount of local government

involvement in management of the coastal zone. After careful study of the three organizational alternatives presented in the consultant's report, the Committee concluded that Alternative 1 - "assumption of coastal planning and implementation responsibility by the LCDC" with certain modifications and additions - came closest to satisfying these two criteria and was the best and most practicable choice for implementing the coastal zone management plan. In addition, the Committee recommended that a restructured OCC&DC be given statutory authority under ORS 197.005 through 197.430 to serve as an advisory committee to LCDC and that the OCC&DC staff form the nucleus of a coastal division within the Department of Land Conservation and Development, but with its office located in the coastal zone. To insure that valuable coastal planning experience and an understanding of coastal issues and problems would be included in the LCDC decision-making, the Committee recommended a strong advisory role for a restructured OCC&DC. The role visualized by the Committee was similar to that of a planning commission, with the LCDC acting the part of the governing body. In other words, the OCC&DC would have responsibility and authority for continuing the development of the coastal zone management plan, including goals and guidelines, and for making necessary revisions and refinements to the plan in coordination with local governments. This planning work would be recommended by the OCC&DC to the LCDC for adoption. In addition, the OCC&DC would advise LCDC on designation of "Coastal Areas of Critical State Concern" and "Activities of Statewide Significance"; on permit review decisions concerning these "Areas" and "Activities"; and on all appeals to the LCDC concerning actions of local governments. The LCDC would be required to show cause for any of its actions running counter to an OCC&DC recommendation.

In regard to the structure of the OCC&DC, the Committee recommended that it be made up of elected rather than appointed officials and that the great majority of these officials be from general purpose governments. The Committee also recommended that special districts and interested citizen groups be represented. The following structure was suggested:

three city elected officials
three county elected officials
one port district elected official
one school district elected official
one representative from a coastal environmental interest group

Every county in the coastal zone was to be represented by at least one member.

At the direction of the Commission the Committee's recommendations were drafted as "A Bill for an Act", LC 1480 (Appendix C) and presented to the Commission for its review.

Alternative Implementation Proposals

Two members of the Implementation Study Committee supported a minority report which recommended that the OCC&DC be designated the "regulatory agency" for coastal planning and implementation rather than the Land Conservation and Development Commission. The minority report also recommended that the structure of the OCC&DC be as follows:

one county commissioner from each county
one city official from each county
one port commissioner from each county
with an executive board of nine members elected by the full Commission

Members of the Commission's Environment, Conservation and Economic Concerns Advisory Committee recommended that the OCC&DC be established on a level comparable to the LCDC with the responsibilities for agency relationships, planning, appeal, referral, review and advice for the counties, subcounties, cities, and special districts within the coastal zone as defined in ORS 197.005 to 197.430. The Advisory Committee members also recommended that the Commission consist of members appointed as follows:

(a) the governing body of each county within the coastal zone shall appoint one person and one alternate from its own body;

(b) a joint convention of the governing bodies of cities from each county within the coastal zone shall appoint one person and one alternate from its own body;

(c) a joint convention of the governing bodies of port districts from each county within the coastal zone shall appoint one person and one alternate from its own body.

In support of these recommendations "A Bill for an Act", LC 1041, (Appendix D) was drafted and submitted to the Commission for its review. This proposed bill would have extended and restructured the OCC&DC in accordance with the Advisory Committee and minority report recommendations. The Commission would constitute a municipal corporation of the state, and a public, corporate and political body exercising public power as a unit of local government. The draft bill also provided that the Commission would have the advisory and coordinative functions assigned under Subsection (1) of ORS 197.190 to each county and city that is a member of the Commission.

After a brief review of the draft bill the Commission asked that the wording be revised. A motion was passed instructing Commission member Al Flegal to pursue the bill and have it drafted in an acceptable manner in the best interests of the coast.

Resolution of Intent to Create the Oregon Coastal Conservation and Development Association

The following "Resolution of Intent" was prepared by the Association of Oregon Counties, with the assistance of LCDC staff member Al Flegal, to provide a compromise between the two alternatives:

> Whereas, ORS 197.190 provides that "each county, through its governing body, shall be responsibile for coordinating all planning activities affecting land use within the county, including those of the county, cities, special districts and state agencies, to assure an integrated comprehensive plan for the entire area of the county, and
>
> Whereas, ORS 197.190 further provides that "for the purposes of carrying out ORS 197.005 to 197.430, 215.515, 215.535, and 453,345, counties may voluntarily join together with adjacent counties as authorized in ORS Chapter 190" for reviewing and coordinating plans, and
>
> Whereas, there has existed previous to, and during the existence, of the Oregon Coastal Conservation and Development Commission a history of cooperative efforts between coastal counties and a desire that matters of similar interest and common concern between such counties be handled through such cooperation, and
>
> Whereas, the coastal region is of particular concern not only to such coastal counties but also to the people of the state and nation, and
>
> Whereas, there continues to be a need to:
>
> 1. identify matters of similar interest and common concern in the coastal region,
> 2. prepare solutions for common coastal needs,
> 3. assure that the special coastal needs will be taken into account by state and federal agencies and other governmental units preparing land use plans and programs within the coastal region,
> 4. apply the results of the work done by OCC&DC, and
>
> Whereas, the LCDC has:
>
> 1. provided in its budget for the refinement of the statewide land use goals and guidelines

for each of the geographic regions of the state, including the coastal region,

2. included in their budget a request for local planning assistance grants for local governments, including the coastal zone and has expressed its intent to pass through a substantial majority of the Coastal Zone Management funds to coastal local governments,

3. and has, through its goals and guidelines, re-emphasized the importance of the local comprehensive plans in proper land use management.

Now, therefore, be it resolved that the undersigned counties do herby join together to create the Oregon Coastal Conservation and Development Association for the purpose of:

1. developing and helping to apply land use planning and management techniques for the specialized situations unique to the coastal region such as estuaries, ocean beaches, dunes, etc., and,

2. assisting with the development of the coastal zone management program, taking into account the local, coastal region, state and national interests,

3. assisting with the preparation of LCDC regional goals and guidelines for the coastal zone,

4. making recommendations to LCDC on local government needs and priorities for planning assistance grants,

5. performing such other tasks as may be mutually agreed to by the Association and LCDC.

Be it further resolved, that it is the intent of the coastal counties to include in the membership of the Association representatives from other governmental units within the coastal region, and

Be it further resolved, that the Association will conduct its own affairs, prepare its own by-laws and do whatever is necessary to carry out the responsibilities agreed to by the membership which may include preparing its own budget and hiring staff; and

> Be if further resolved, that the Association may perform those tasks which have been mutually agreed to by the Association and LCDC.

This proposed resolution would create, through an agreement among the coastal counties, an association of counties on the coast as a link between coastal units of government and the LCDC. The resolution was not intended to usurp or diffuse in any way the authority and responsibility of counties in the coastal region as authorized in ORS 197.005 to 197.430. Instead, the resolution was intended to create an association framework with its exact duties, responsibilities and authority decided upon by separate agreement among those counties and other units of government on the coast.

Through the efforts of Al Flegal, working within the Department of Land Conservation and Development, signatures of support for the resolution were obtained from all coastal counties except Lane County.

The OCC&DC, in studying the alternative organization structures proposed for implementation of its management program, recognized the intent of the Legislature to create LCDC as the single statewide planning agency with authority to coordinate planning within and without the coastal zone. The Commission also recognizes that the formation of a coastal association of counties under the Land Use Planning Act, ORS 197.190 could represent a reasonable compromise between the two draft "Bills of an Act", discussed above, and could provide a means by which coastal units of local government could continue to assure that special regional needs are considered in coastal land use planning.

Recommended Criteria and Methods for Plan Implementation

By recommending approval of the formation of a coastal association under ORS 197.190, the OCC&DC expresses its general support for the method of implementation established in the Oregon Land Use Planning Act (ORS 197.005 through 197.430). Under this Act, statewide planning goals become the basis for coordinating the plans of units of local government and state and federal agencies. The Act states that:

> Cities and counties shall exercise their planning and zoning responsibilities in accordance with the Act, and the statewide planning goals and guidelines approved under this Act. Each city and county shall (1) prepare and adopt comprehensive plans consistent with the statewide planning goals and guidelines approved by the Commission; and (2) enact zoning, subdivision and other ordinances or regulations to implement their comprehensive plans. (ORS 197.175)

This implementation approach conforms with one of the general techniques recommended within the Coastal Zone Management Act rules and regulations.

It also conforms with the Commission's objective of ensuring local government involvement in implementation.

Most of the Commission's "policies", "necessary actions" and "recommended actions" are consistent with presently adopted statewide planning goals and guidelines. Because they are based on coastal resource inventories and economic analyses, they also provide specific, regionalized guidance to coastal governments and state agencies. Adoption of some of these statements as statewide planning goals will help the state qualify for implementation funding available under Section 306 of the Coastal Zone Management Act of 1972. *Therefore, the OCC&DC recommends that the state after review and study adopt the appropriate "policies" and "necessary actions" as statewide planning goals for application in the coastal zone.*

The following approach should be followed in implementing recommended policies and necessary actions as statewide planning goals:

(a) a body designated by the Legislature estimates and evaluates (in part through field-testing) the social, economic and environmental consequences of implementing statewide planning goals;

(b) the State adopts and, in cooperation with state agencies, the coastal association, and units of local government, further develops these goals as planning and management criteria;

(c) the State requires units of local government and state agencies to include these criteria in the development of their land use and resource management plans;

(d) the State monitors the development of state and local plans;

(e) the State enforces complaince with these criteria.

In addition to the Land Use Planning Act, the State should use the following statutes to exert control over land and water uses in the coastal zone:

(1) The Oregon Ocean Shores (Beach Bill) Legislation (ORS 390.605) administered by the Oregon Department of Transportation;

(2) The Scenic Waterway Legislation (ORS 390.805) administered by the Oregon Department of Transportation;

(3) The Natural Areas Preserves Act (ORS 273.562) administered by the Oregon Division of State Lands;

(4) State Regulation of Removal of Historical and Other Valuable Materials from Public Lands (ORS 273.705 - .715);

(5) State Fill and Removal Law (for estuaries and navigable rivers) (ORS 541.625) administered by the Oregon Division of State Lands;

(6) The Oregon Forest Practices Act (ORS 527.610 to 527.730 and 527.990(1)) administered by the State Department of Forestry;

(7) Oregon Water Use Laws (ORS 536.220) administered by the State Water Resources Board;

(8) State Water Use Laws (ORS 449.077) administered by the State Department of Environmental Quality; and

(9) Acquisition of Scenic and Historic Places Law (ORS 390.110) administered by the Oregon Department of Transportation.

The necessity to obtain additional permits for use of natural resources should be kept to a minimum. Accordingly, only a few of the policies and necessary actions recommended by the Commission require the issuance of new permits. However, several policies require that additional criteria be included for consideration in issuing the permits now required by the above statutes. *The Commission recommends that the Legislature and the responsible state agencies after appropriate review and study consider amending the applicable statutes and administrative rules and regulations to incorporate revisions called for in these "policies" and "necessary actions".*

The resource information and management criteria provided in the OCC&DC inventories and economic analysis (Appendices J-T) enables state agencies and units of local government to begin now to implement most of the resource management policies recommended by the Commission. However, there are some policies for which units of local government will require additional information and technical assistance to implement. These information and assistance requirements are specified in the applicable "necessary actions". In addition, "policies" which call for the improvement and restoration of natural resources will require state financial and technical support. *The OCC&DC recommends that the state develop and coordinate programs to provide needed information and technical assistance to units of local government.*

Toward Positive Resource Management

The Oregon Land Use Planning Act provides for use of comprehensive plans and zoning, subdivision and other ordinances or regulations to implement statewide planning goals. The Act also allows:

(1) issuance of permits for activities of statewide significance;

(2) coordination of planning efforts by state agencies; and

(3) recommendations for the designation of areas of critical state concerns. Other state statutes which remain in effect provide for preferential tax assessments, acquisition of land and issuance of permits. All of these provisions can assist in implementing the state's coastal resource management plan.

In developing policies, necessary actions and recommended actions for the management of coastal natural resources, the Commission recommends various criteria, methods and procedures for implementing these policies and actions. For the most part, the recommended methods correspond with those listed above. However, several recommendations require alterations to the above methods. Others call for special procedures and methods which are not presently used in the state and which may require legislative approval. The Commission's objective is to assure that the coastal zone management plan is implemented in an effective and positive manner consistent with both the economic and resource conservation needs of the coastal zone and its citizens. Management of coastal resources should be generally understood and accepted by the public. To achieve this objective, the Commission strongly recommends the following implementation criteria, methods and procedures:

(1) Evaluation of "Net Social Benefits". Contained in nearly all the recommended policies is the requirement that the applicant seeking approval for a use that might damage coastal resources has the burden of proving why the use should be allowed. More specifically, the action required by the policy must be adhered to unless the applicant demonstrates that the net social benefits (see Glossary) of the required action are less than the net social benefits of diverging from the policy requirement. The use of this criterion insures that divergence from policies will be based on systematic, case-by-case analysis of specific social, economic and ecological factors.

The criterion can be applied immediately to the evaluation of land-use alternatives. Among the values to be examined (i.e., aesthetic, cultural, historic, ecological, recreational and economic), ecological, recreational and economic values are probably the easiest to evaluate, because there exist examples of conventional cost-benefit analysis of these values.

Evaluating the other values (i.e., aesthetic, cultural, and historic) is a less familiar exercise. Consider historic values, for example. At the least (and in the immediate future) perhaps all that should be necessary is that planners evaluating the historic values of a site and the impact a proposed change in land use might have on the historic values should read the history of the site. As another example, consider aesthetic or scenic values. In the initial applications of the criterion of net social benefits, planners would have to look at the site and decide how important the scenic values were and what changes in those scenic values would be effected by the proposed use.

The immediate value of this approach is that it offers a specific number of values to be considered in evaluating proposed land use changes or exceptions to policies and comprehensive plans. The procedures of comprehensive planning would be made more explicit, and values that were frequently ignored in the past would be included in evaluations.

The longer-run value of this approach is its offering of an opportunity to update and improve the techniques of evaluation by taking advantage of the professional development in cost-benefit analysis. *It is for this reason that the Commission recommends that the Legislature delegate responsibility to be shared by state and local governments, for the continuing development of methodology for determining the social costs and benefits of natural resource management decisions including field-testing as an integral part of the methodology.*

(2) "Carrying Capacity" as a Criterion in Resource Management. As the OCC&DC developed policies for various resources in the coastal zone, it attempted to determine the suitability of particular areas for specific uses. This required the consideration of two interrelated concepts: carrying capacity (and the related idea of sustained-yield management in perpetuity) and environmental quality. The Commission defines carrying capacity as:

> the maximum capability of an existing environment and the resources of that environment to support indefinitely a certain population or activity level without deterioration.

A closely related definition is included as part of the LCDC's adopted statewide planning goals:

> Level of use which can be accommodated and continued without irreversible impairment of natural resources productivity, the ecosystem and the quality of air, land and water resources.

The concept of carrying capacity, is not intended to refer to only a fixed or determined number of individuals (a population carrying capacity) but rather a flexible system of setting goals based on:

(1) the requirements of the state for natural resources to sustain levels of employment and income;

(2) the capacities and suitabilities of resources for satisfying demands; and

(3) the capabilities of resources to support demands without a significant deterioriation of resource quality.

The system depends on the analysis of resources in terms of the factors stated above, and the desires of Oregonians for certain levels of environmental quality or "liveability".

Many policies, particularly those concerning access, recreation and use of wildlife habitats, sand dune areas and geologic hazard areas, require that state and local governments determine and adhere to carrying capacity limitations. In addition, policies for geologically hazardous and sand dune areas require that state and local governments evaluate on-site investigations and reports of findings as part of their consideration of development proposals. These types of investigations, conducted by specialists, would provide one means of obtaining carrying capacity information on a case-by-case basis.

The OCC&DC recommends that the state, in cooperation with federal agencies and local governments, develop criteria and procedures to evaluate carrying capacity. Once the criteria and procedures are developed, local governments should be required to use them in evaluating private development proposals and in developing comprehensive plans and land use regulations.

(3) Improvements in Local Regulations and Planning. In order to implement several of the policies recommended by the Commission, it will be necessary for units of local gvernment to include additional review criteria in subdivision, zoning and building inspection ordinances. In some cases, new types of zoning will be necessary. *The State should include these additional criteria in the model ordinances it prepares to guide state agencies, cities, counties and special districts in implementing statewide planning goals.*

In order to conserve natural resources, the implementation of comprehensive plans should include an identification of urban growth areas. Designating specific areas for future urban growth and restricting development to these areas would reduce pressures on natural resources and minimize conflicts between preservation and development decisions. At the same time it would establish the local growth policy and identify for private interests those areas considered most suitable for development. *The Commission's policy on management of urban growth recommends a process that local governments should follow to designate urban growth areas.* Included in this process as well as in several other policy statements is the recommendation that *planning for and construction of capital improvements such as transportation facilities, water supplies and sewage services should be in conformance with locally adopted comprehensive plans.*

(4) Designation of Areas and Activities of Statewide Concern. The OCC&DC strongly supports the designation of "activities of statewide significance" and "areas of critical state concern" by the state as provided for in ORS 197.040(2)(b), 197.400, 197.410 and 197.450.

The Commission has identified nine estuarine areas as "areas of tentative critical state concern" and has identified other management areas in each of the resource categories as potential "areas of critical state concern". In addition, the Commission has adopted a definition of "areas of critical

state concern" and a process for designating these critical areas. The list of areas, definition and process are described in a subsequent chapter of this report.

The designation of "areas of critical state concern" and "activities of statewise significance" and the special management that is required for such areas are essential tools in the management of natural resources in the coastal zone. *Therefore, the Commission recommends that the state actively pursue this means for implementing the costal zone management plan.*

(5) Implementation Methods Unique to Natural Resources. Several special methods and procedures are recommended for implementing particular parts of the coastal zone management plan. One example is the classification of estuarine areas for certain levels of development. This classification system is based on a variety of physical, biological and developmental characteristics which were considered in the OCC&DC inventory of estuarine areas. The following are estuarine areas in the Oregon coastal zone which should be designated for different levels of management.

1. Potential areas to be managed for a high level of development:

   a. Type IV's - Isthmus Slough, Shinglehouse Slough, Skipanon Waterway;

   b. Type V's - Coos Bay, Coos River;

   c. Type VIII's - Young's Bay, Necanicum River, Chetco River;

   d. Type XII's - Yaquina Bay;[1]

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[1]Inclusion in the management category is based on these criteria:
(a) large size;
(b) partly-mixed to well-mixed;
(c) low to moderate marine biological value (which is based on the anadromous fish runs of the estuary, which is actually more a measure of the productivity of the watershed);
(d) low to moderate terrestrial biological values;
(e) low to moderate percentage of eelgrass and tidelands (which is superior to the anadromous fishery as a measure of productivity); and
(f) a moderate to high level (intensity) of development.

2. Potential areas to be managed for a moderate level of development, with appropriate controls to protect renewable natural and environmental resources:

   a. Type VI's - Catching Slough, Lint and Eckman Slough;

   b. Type X's - Alsea, Coquille, and Nehalem Rivers;

   c. Type XI's - Nestucca Bay, Rogue River;

   d. Type XII's - Siletz, Tillamook, Umpqua/Smith, Siuslaw Rivers,[2]

3. Potential areas to be managed for preservation in as close to natural conditions (undeveloped) as possible, while providing for certain, appropriate beneficial uses:

   a. Type II's - Netarts Bay, and Sand Lake;

   b. Type VII's - McCaffrey and Poole's Sloughs, North and Haynes Sloughs, South and Joe Ney Sloughs, and South Slough of the Siuslaw;

   c. - Little Nestucca River, Salmon River.[3]

Another example is that establishment of a central location where all information regarding a particular estuary (and its watershed) may be coordinated. The center should be in the local area of the estuary and each local, state or federal action regarding physical alterations would be reported to the local center. Actions could then be evaluated for the significance of impacts or as indicators of incremental changes. This local estuarine area management center would become the data storage, educational and information facility regarding the existing and proposed uses of the estuarine area.

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[2]Based on the following criteria:
(a) not small in size;
(b) partly- to well-mixed and two-layered systems;
(c) moderate to high marine biological value;
(d) moderate terrestrial biological value;
(e) low to moderate percentage of eelgrass and tidelands; and
(f) a moderate level (intensity) of development.

[3]Based on the following criteria:
(a) small size;
(b) blind and bar-built, and drowned river valleys;
(c) moderate to high marine biological value;
(d) moderate to high terrestrial biological value;
(e) moderate to high percentage of eelgrass and tidelands; and
(f) low to very low level development.

The state should investigate all methods of managing coastal resources including the ones described above and others suggested in the OCC&DC policies and necessary actions. Methods that provide the greatest equity, flexibility, protection and economic consideration should be adopted. However, prior to adoption, these new methods should be evaluated by appropriate state agencies and units of local government to avoid creating excessive burdens on the implementing authority.

(6) A Need for Incentives. To implement the coastal zone management plan in a positive manner, incentives should be provided to encourage private landowners to protect and enhance such resources as historical and archaeological sites, visual values and wildlife habitats. Incentives also should be provided to encourage the improvement and continued uses and to make areas of high recreational value accessible to the public. *The state should develop and put into effect incentives to encourage private landowners to participate in recommended resource conservation programs.*

(7) Improve Assessment and Taxation Practices. One of the basic resource problems and concerns identified in the OCC&DC Interim Report 1973 was that of land appraisal and assessment practices.

> The assessment practices in the coastal zone encourage transfer of agricultural lands, view property and open space to more intensive development. These practices often result in premature or inappropriate development ... (They) also work to the disadvantage of certain economic activities such as agriculture and forestry, which are key elements of the coastal economy.

Although a comprehensive review of land assessment practices and an identification of their adverse impact on natural resources was beyond the scope of the OCC&DC work program, the Commission recognizes these practices as an important factor in implementing the coastal zone management program. Since the management program will be placed into effect primarily through local comprehensive planning, the Commission believes that assessment and taxation practices can serve as positive tools in natural resource management if they are made consistent with comprehensive land use planning. Therefore, the Commission recommends the following policy:

> *The State shall assure that the effects of property assessment and taxation on land use are consistent with local comprehensive land use planning.*

(8) Compensating Loss in Land Values. Throughout the OCC&DC work program, property owners in the coastal zone expressed to the Commission their concerns about the economic impacts of land use regulations. Many felt that they should be compensated when development on their land was

prohibited or greatly restricted. Coastal people were not the only ones interested in compensation. Late in the 1973 legislative session, the Land Value Adjustment Act of 1973, Senate Bill 849, was introduced bringing the issue of compensation to the legislators. The Bill recognized that public regulatory action is "necessary to promote the orderly development...and general environmental livability of this state" but that "such regulation in its present forms disregards resultant economic impact upon landowners." The Bill further declared that "compensation of landowners for economic loss resulting from such regulation is a valid public purpose." No legislative action was taken on SB 849. However, there was strong public interest in the bill.

In August, 1974, the State Executive Department published a report titled Inroads Toward Positive Land Use Management - A Land Value Adjustment Proposal. The two major concepts discussed in the report are:

> First, the landowner who suffers a monetary loss as a result of government action should be compensated to some degree for the forced change in his expectations. Second, it is equally important for the public to capture some of the benefit from government decisions which increase land value.

This report proposes compensating losses caused by public regulations with the funds received during the overall recapture of benefits caused by public action. Considerable detail as to how the compensation/taxation mechanism would work is provided in the report.

The popular acceptability of land use management is essential to the effectiveness of the coastal zone management program. The possibility of achieving this acceptability can be improved if the state will continue the development of a land value adjustment mechanism. Therefore, the Commission recommends the following policy:

> *The state shall develop and implement a system for compensating landowners who demonstrate that they have incurred economic losses from land use regulations.*

(9) Public Acquisition of Land. In order to meet the federal requirements for implementation of Oregon's coastal zone management plan, the state, acting through its chosen agency or agencies, must have the power to acquire fee simple and less than fee simple interests in lands, waters and other property through condemnation or other means where necessary to achieve conformance with the management program.

Public acquisition of land is a necessary tool in achieving the objectives of coastal zone management. However, this tool should be used only after alternative means have been examined and found to be unsatisfactory. Over 50% of the land in the coastal zone is in public ownership. This means that the tax base for support of basic public services and the

opportunities for private development are limited. Further public acquisition without regard for the private sector's ability to provide for the public interest will only worsen this situation.

Alternatives to acquisition of the total interest (fee simple) in the land should be used. Easements, purchase of development rights and purchase and lease-back are a few of the alternatives that would allow private ownership or use to continue while achieving resource management objectives. In any case, the public acquisition should be for the minimum amount of land or interest necessary to accomplish the stated purpose. The OCC&DC recommends that:

a. *Federal, state and local governments, through coordinated programs, should acquire full or partial interest in land and water resources when necessary to achieve one or more of the following purposes:*

   (1) *prevent destruction of fragile lands and insure ecological balances;*

   (2) *preserve historic or archaeological buildings, structures or sites;*

   (3) *minimize potential damage from floods and other natural disasters;*

   (4) *protect areas with scenic or recreational values; or*

   (5) *provide for needed public development.*

b. *Federal, state and local governments should not acquire lands unless it is demonstrated that the net social benefits of public acquisition exceed the net social benefits of no public acquisition.*

c. *Federal, state and local governments should assure that the public acquisition or disposition of land is consistent with federal, state and local planning programs and policies.*

d. *In areas where the coastal county or coastal portion of a county is already owned 50% by the public, any further public acquisition should be made only by land exchanged within the tax district affected; or the public body acquiring the land should be required to make payments in lieu of taxes.*

(10) Enforcement of Existing Regulations. The need for consistency of enforcement of resource management regulations at the local, state and federal levels was identified during several of the public workshops sponsored by the Commission. In addition, the guidelines accompanying the Coastal Zone Management Act of 1972 require that the state ensure compliance with the adopted management program by all state and sub-state agencies, local governments and private interests conducting activities affecting the state's management program. The Act also requires that the activities of federal agencies be consistent with the adopted coastal zone management program.

> Each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs. (Section 307(c)(1))

In order to assure effective implementation of its resource management program:

> *The state should assure that all individuals, organizations and units of government, including state and federal agencies, are subject to state regulations and policies directed at the conservation and development of natural and cultural resources.*

(11) Coordination of Agency Activities. Coordination is a major theme expressed by national and state legislation dealing with land and water resources. Land and water use planning is a concurrent and shared concern and obligation of each level of government. In essence this recent legislation calls for a "single system" of land use planning which assigns a role to local, state and federal levels of government.

The Congressional intent of the Coastal Zone Management Act of 1972 is to provide assistance to states to develop, "in cooperation with federal and local governments and other vitally affected interests" land and water use programs for the costal zone. The Act also states that "with respect to implementation of such management programs it is the national policy to encourage cooperation among the various state and regional agencies... ." Furthermore, in order to gain federal approval of its coastal zone management program, the state must establish an effective means of continuing consultation and coordination with local governments, interstate agencies, regional agencies and areawide agencies within the coastal zone.

The State of Oregon through the creation of the OCC&DC and the LCDC also expressed its interest in establishing a planning partnership among state agencies and between state and local government. Oregon Revised Statute 197 requires that the LCDC "coordinate planning efforts of state planning agencies to assure conformance with statewide planning goals and compatability with city and county comprehensive plans." This legislation also requires the director of the department to coordinate activities

and functions of the Department of Land Conservation and Development with the functions of federal agencies, other state agencies, cities, counties, and special districts.

One of the objectives adopted by the OCC&DC is:

> to insure coordination of coastal management planning and administration with local, state and federal agencies through clearly established authorities and responsibilities.

In working towards this objective, the Commission followed a program development process that included the active involvement of representatives of local governments and state and federal agencies. Resource specialist teams that advised the Commission on policy development included many of these agency representatives. The Commission also asked for and received comments from these agencies concerning its overall work program. All of the Commission's resource inventories were either completed by federal, state or local agencies or were dependent upon information obtained from them. Finally, the Commission has reviewed all interim products with these agencies and units of government and has incorporated suggested revisions as appropriate.

The implementation of nearly all of the Commission's recommended policies is dependent on coordination among agencies and between state and local governments. For example, decision-making regarding estuaries involves local general purpose governments (cities and counties) single-purpose agencies (port and sanitary districts), and numerous state and federal agencies. Permit systems for estuarine areas are currently operated by the U.S. Army Corps of Engineers and the Oregon Division of State Lands. These activities must be coordinated with a flexible process which is responsive to the diverse groups involved within estuarine uses in order to effectively manage estuarine resources. Also, the expertise and concerns of various state and federal agencies and local governments must be included in the management process developed by the LCDC. Coordination is necessary to accomplish this.

The federal/state agency coordination committee which has been formed by the LCDC can provide a basis for the necessary coordination among agencies. The LCDC is also developing methods for continuing citizen involvement and for coordinating activities with local governements. The Oregon Coastal Conservation and Development Association, operating as a regional coordinating body, can assist in these efforts. In support of this process of coordination and consultation, the OCC&DC recommends the following policy:

> *The state shall continue to coordinate and consult with local governments, regional associations, state and federal agencies to assure their full participation in carrying out and improving the state's coastal zone management program.*

(12) The Need for Resource Education Programs. The OCC&DC has found that in nearly every natural and cultural resource category that it considered there is a need for education programs to assist in the implementation of resource related policies. It is important that the public understand the ecological processes and the characteristics of the coastal natural resources. With this understanding, the people using coastal resources will be able to recognize the need for resource management and the reasons for regulating uses. The appreciation of resource values and the familiarity with resource management requirements are necessary parts of gaining public support for the coastal zone management program.

Education is especially important for the decision-makers who will be responsibile for implementing the policy plan adopted by the state. The success of policy implementation will depend to a large degree on how well these decision-makers understand and appreciate the intent of the policies.

The OCC&DC with the assistance of the Oregon State University Cooperative Extension Service has conducted education and public information activities to gain a greater public awareness of the coastal resources and the OCC&DC management program. In order to complete this work:

> *State and local governments should continue to inform the decision-makers and public of the nature, extent and potential consequences of the OCC&DC coastal zone management plan. The public information programs should describe new, adopted state and local policies and regulations along with the reasons for them and the impact of the policies on personal expectations for resource use and development. The state should describe the alternative methods of carrying out policies and the long-term economic, social and environmental need for and benefit from the proper management of natural and cultural resources.*

(13) Efficiency in Administrative Activities of Application, Compliance and Enforcement. With such recommendations as the establishment of "estuarine centers" and the coordination of various agencies and units of government, the Commission has attempted to provide for efficient administration of its policies. The Commission suspects, with good reason, that this is insufficient to maximize efficiency among the various administrative activities associated with the coastal zone management program. What is necessary is first a rigorous description of the present system of application (for a permit), compliance and enforcement. A very useful step in this direction has been taken by the Division of Local Government Relations with Project P.A.S., but the data contained in the report are not in a form that can be translated easily to costs of the administrative activities.

Given that the state and local governments intend to control land use and given that one of the tools they intend to use is the permit-approval

system, then they should minimize the administrative costs of these activities. The Commission, therefore, recommends the following.

> *The state, with the cooperation of local governments, shall conduct a rigorous analysis of the entire permit approval system such that the private and social costs of the system are described, their causes are explained, and the means of reducing these costs are identified.*

Distribution of Costs and Benefits

One of the issues associated with resource management on the coast and identified in the OCC&DC Interim Report 1973 concerned the costs of providing needed services for an ever-increasing transient population in the coastal zone. Several problems relate to this issue. First, since there are valuable natural and recreational resources on the coast, much of the land is owned publicly and therefore is not available for local taxation which supports basic public services. Second, the seasonal fluctuations in visitors cause peak-load problems for public facilities. For example, if there exist regualtions that require a community to provide, say, water service sufficient for the peak two or three days in August, it is not clear that the revenues generated by tourists are adequate to pay for the increase in service generated by their demand. Finally, and more generally, many coastal residents feel that the benefits generated by natural resources and recreational facilities of the coastal zone are consumed disproportionately by non-coastal residents, while the costs of maintaining these public goods are distributed disproportionately to coastal residents. If the date support this hypothesis, then a strong case can be made for a transfer of state funds to the coastal zone, i.e., a subsidy.

Although many coastal and non-coastal residents have strong opinions on each of the problems and issues described above, there is in fact no resolution of any of them, because no rigorous estimation of the distribution of the relevant costs and benefits has been made. The Commission feels such an estimation should be made and, therefore, recommends that such an estimation be made and the following action be taken:

> *If it is demonstrated that the costs generated by conserving natural resources and by developing and providing recreational facilities in the coastal zone are borne disproportionately by coastal residents while the benefits generated by these activities are enjoyed disproportionately by non-coastal residents, then the costs of these activities should be shared by the state as a whole.*

Protection Against Potential Law Suits

In that the OCC&DC management plan expresses a state interest in the conservation and development of natural resources, the state should accept responsibility for the results of implementing all or any part of the plan. Management of natural resources requires certain land and water use restrictions and regulations. These additional restrictions may be interpreted by private property owners to be overly restrictive to the point of representing a taking of land without just compensation. If this becomes the case, units of local government may incur law suits in implementing state mandated policies and planning goals.

Local governments are not in the best financial or legal position to respond adequately to such suits. Therefore, the OCC&DC strongly recommends the following:

> *State government shall assume responsibility for defending against law suits directed at units of local government as a result of their implementation of state mandated policies and planning goals and for paying compensatory costs that are awarded.*

Method of Evaluating Resource Use Decisions

The OCC&DC management plan begins to provide a standard against which proposed uses of the natural resources of the coastal zone may be evaluated. The policies, necessary actions and recommended actions with footnotes and brief background identify criteria for developing comprehensive plans and revising state administrative decisions. The resource inventories, economic analyses and impact evaluations, supporting the policies, provide information concerning characteristics and management needs of each coastal resource category.

The plan, if implemented in an effective and positive manner, will begin to provide the necessary balance between conservation and development interests with respect to coastal natural resources.

In the event the plan is unable to resolve conflicting uses, the state should rely on a system of preferences.

An Approach to Developing a System of Preferences

The OCC&DC enabling legislation (ORS 191.150) requires that a "system of preferences" be established so that conflicts among uses of the natural resources of the coastal zone may be resolved. On 9 August 1974, the Commission adopted this legislative charge as one of its major objectives.

Although the Commission was unable to completely develop a system of preferences, an approach to the development of such a system is recommended. This approach details a two level institutional structure. The first tier would be some type of land use board responsibile for making the land use decisions and for managing and updating the system of preferences. The second level would be an appellate body to which disputed decisions could be referred for mediation or arbitration.

The system of preferences is a specified relationship between the use to which a site might be put and the social value a society derives from that use. The use is identified by the various characteristics it exhibits such as the number of employees or significance as a wildlife habitat. Therefore, an objective function which specifies the benefits as a function of per capita income, employment, ecological value, cultural value, historical value, and aesthetic value is suggested. These various characteristics are taken from the goal and objectives adopted by the Commission. Another variable representing recreational value is also included. Each of these variables is given a weight so that its importance in relation to the other variables can be specified. The technical memorandum further describing this procedure is contained in Appendix E.

After considering an example of how the system might actually work, (Appendix E) the Commission adopted this method as an approach fulfilling the legislative charge. The Commission stresses that this is only a beginning.

> *The state should use this approach in further developing a system of preferences to resolve conflicts among uses of natural resources.*

Funding for Implementation of Oregon's Coastal Zone Management Plan

The OCC&DC policies have been developed on a "coast-wide" basis, and require interpretation for application in specific localities. It is important that the information and local expertise available through local planning commissions and their staffs, as well as other local resource specialists, be brought to bear in this process. Therefore, the State should coordinate with the Coastal Association in following a process of:

1. working with county planning commissions regarding the nature and consequences of OCC&DC policies in the local planning process;

2. evaluating and integrating specific, unpublished data available from a number of local sources into the coastal zone management program and using this information in the application of policies;

3. coordinating with the draft goals (and guidelines for comprehensive planning) of the LCDC to assure one-time coordination with local units of government for these new state-level requirements; and

4. providing special assistance on problem areas which require additional work to include within the management system.

After coastal zone management policies are adopted, state and federal agencies and local units of government will begin specific activities to integrate those policies into local comprehensive plans and agency programs. It will be necessary to provide coordination of the sequence and timing of many of these actions in order that state and federal manpower may be used efficiently to assist local units of government, and so that small local organizations are not overloaded with a heavy coincidence of agency requests for coordination assistance. It is anticipated that one or more coordination conferences will be necessary to facilitate a wide understanding of the individual roles and responsibilities of those involved in the implementation of the coastal zone management program.

The funding and staff expertise needed by units of local government to integrate policies and goals into their comprehensive plans and to implement the coastal zone management plan will create demands on presently meager local resources. To alleviate that situation funding may be obtained from the Coastal Zone Management Act of 1972 (Section 306) for direct pass-through to assist in implementation. The funds may be used to provide the staff and technical assistance necessary to bring local plans and ordinances and management procedures into conformance with the requirements of the coastal zone management plan.

Therefore, it is imperative that the state make every effort to qualify for coastal zone management implementation funding.

NATIONAL INTEREST IN THE COASTAL ZONE

The Coastal Zone Management Act of 1972 requires states to consider the national interest in the development and adoption of coastal zone management programs. Specifically, the Act states:

> Requirement. A management program which integrates the siting of facilities meeting requirements which are of greater than local concern into the determination of uses and areas of statewide concern, through development of a body of information relating to the national interest involved in and such siting through consultation with cognizant Federal and regional bodies, as well as adjacent and nearby States, will meet the requirements of section 306(c)(8).
>
> This policy requirement is intended to assure that national concerns over facility siting are expressed and dealt with in the development and implementation of state coastal zone management programs.

Specific to this requirement, the OCC&DC has adopted a recommended action regarding the siting of power plants in the coastal zone, and has recommended that the areas designated as suitable for power plant siting (by the Oregon Nuclear and Thermal Energy Council) be considered as possible areas of critical state concern.

However, the concern of the OCC&DC for the national interest extends beyond the issue of power facilities siting. In the development of Phase I policies a separate report was drafted listing all pertinent federal laws and policies regarding particular resources. These laws and policies were integrated, where appropriate, into the policy statements. For example, a Bureau of Land Management policy regarding the maintenance of streamside vegetation was incorporated directly into a Phase I policy, and eventually, into an adopted policy statement of the OCC&DC. Resource specialist teams were used extensively in policy development, and these included a number of representatives from federal agencies.

In each policy category a section entitled "Consideration of the National Interest" was included as supporting information. In these sections a statement was presented to indicate the current perception of the OCC&DC regarding the national interest in the particular resource in the coastal zone.

Finally, the completed Phase II policies were sent to each appropriate federal agency prior to adoption by the OCC&DC. Commission staff met with several federal agency representatives to assure that concerns were included. While there may not be in every case a direct relationship between the national interest and agency concerns, it is assumed that federal resource agencies speak for a majority of the issues of national significance. Federal agency comments were integrated into the final policies adopted by the OCC&DC.

AREAS OF CRITICAL STATE CONCERN

The interest of the OCC&DC in areas of critical state concern derives from two main sources:

(1) the Coastal Zone Management Act of 1972; and
(2) the Memorandum of Understanding between the OCC&DC and the LCDC.

The Coastal Zone Management Act of 1972 states that:

> In order to fulfill the requirements contained in section 305(b)(3), the management program must show evidence that the State has made an inventory and designation of areas of particular concern within the coastal zone. Such designations shall be based upon a review of natural and man-made coastal resources and uses, and upon consideration of state-established criteria.

Under ORS 197.405, the LCDC is charged with recommending the designation of areas of critical state concern to the state legislature. Under the Memorandum of Understanding, the OCC&DC agreed to provide the LCDC with an identification of areas of critical state concern in the coastal zone.

After the signing of the Memorandum of Understanding in February of 1974, the OCC&DC developed a process for identifying potential areas of critical state concern. This section includes, in regards to areas of critical state concern, a discussion of:

(1) the designation process used by the OCC&DC:

(2) two specific examples of how areas are selected using the process; and

(3) candidate areas of concern selected from individual OCC&DC inventories.

Definition

The OCC&DC adopted the definition of critical areas contained within the proposed National Land Use Bill of 1974:

> Areas of critical state concern are areas defined and designated by the state where uncontrolled or incompatible development could result in serious damage to the environment, life, or property, or the long term public interest which is of more than local significance.

Distinction from Resource Areas

Areas of critical state concern as defined by the OCC&DC are drawn primarily from the natural resource categories for which policies have been developed. The distinction between critical areas and the policy categories is based on the intensity of state interest. In the resource areas (such as beaches and dunes) the state has an interest in the control of particular functions and uses. In a critical area, the state interest is more direct and complete. Critical areas may also be limited in terms of time or space, while resource categories will be of continuing concern. That is, a critical area may be subject to a decision that would irreversibly alter natural resources. Or, the area may be in proximity to (or may be the site of) a major facility of regional, state or national significance.

Process

The OCC&DC recommends that areas of critical state concern be identified using a process which includes:

(1) public involvement;

(2) the evaluation of scientific, legal, and other pertinent information regarding the site and the issue of designation;

(3) preliminary approval by the Land Conservation and Development Commission;

(4) detailed inventory and review by a resource specialist team composed of state agency, university, industry, local government and public interest group representatives; and

(5) final review and adoption by the Joint Committee on Land Use of the Oregon Legislature.

An important element of the identification and designation process is that the initial impetus for establishing a critical area should be derived from either (or both) an inventory process or the recommendation of citizens, a unit of government, or any other organization. A petition of nomination for a critical area may be submitted to the LCDC for review; or, the LCDC or another state agency may identify a potential critical area through the technical analysis of scientific information, aerial photography, or an overlay process of natural resource inventories. This element is important because some critical areas (such as scientific monitoring sites) are primarily identifiable through a review of technical information; and others, such as outstanding scenic features, are largely determined by public desires as expressed to state officials. Final adoption should be in the hands of the Legislative Committee on Land Use. The legislators should have at their disposal a detailed evaluation of the site and the designation issue, and a recommendation

for designation from the Oregon Land Conservation and Development Commission.

Basis for Selection of Areas:

Areas should be selected on the basis of identified public concern, and an evaluation of scientific information regarding the issue. In the Oregon Coastal Zone Management Plan, public concern has been documented for the following resource areas:

(A) Natural Resources of the Oregon Coastal Zone

(1) estuaries;
(2) wetlands;
(3) freshwater and shorelands;
(4) uplands (forest, agricultural, urban and recreational lands);
(5) the Continental Shelf;
(6) beaches and dunes;

(B) Coastal Values

(1) visual resources;
(2) fish and wildlife habitat areas;
(3) historical and archaeological sites;
(4) scientific natural areas;

(C) Constraints on Coastal Zone Management

(1) geological hazards (including floodplains); and
(2) development pressures and conflicts.

From the OCC&DC legislative charge to balance preservation and development of coastal resources, two additonal criteria are included in the process:

(A) identification of areas of significant natural value or importance (relating to the preservation of resources); and

(B) identification of areas of significance for development of activities, uses or facilities of more than local significance.

Applying these two criteria to the identification of resource areas in the coastal zone, and adding a consideration of the factors of what is critical identified in the Coastal Zone Management Act, provides the following detailed framework for selecting areas of critical state concern in the coastal zone:

Natural Resource Areas (identifications derived from inventories of estuaries, wetlands, freshwater and shorelands, uplands, continental shelf, beaches and dunes, and the coastal economy):

(1) areas of high natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well-being;

(2) areas of substantial recreational value and/or opportunity;

(3) areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters;

(4) areas of unique geologic or topographic significance to industrial or commercial development; and

(5) areas needed to protect, maintain or replenish coastal lands or resources, such areas including coastal floodplains, aquifer recharge areas, sand dunes, reefs, beaches, offshore deposits and other areas.

Coastal Values (identifications derived from inventories of visual resources, fish and wildlife, historical and archaeolgoical sites and scientific natural areas):

areas of unique, scarce, fragile, or vulnerable natural habitat, physical features, historical significance, cultural value, and scenic importance.

Constraints on Coastal Zone Management (derived from inventories of geological hazards and development pressures; and, status of planning in the coastal zone):

(1) areas of urban concentration where shoreline use and water use are highly competitive; and

(2) areas of significant hazard if developed, due to storms, slides, floods, erosion, settlement.

It must be emphasized that this is a guide to the classification of types to facilitate the designation process. If a petition of nomination were submitted for an area which did not fit into one of these classifications, such an area should certainly receive serious considerations. However, this classification provides a useful framework for selection of areas from an inventory process.

Reasons for Designation

An additional step in the critical area process is the description of

why an area is considered critical, and the requirements for management of the area. Specifically, these steps would include:

(1) a description of the criteria used and the reason for the proposed designations;

(2) the damages that would result from uncontrolled development within the area;

(3) the reasons for the implementation of state regulation for the proposed area; and

(4) suggested state regulation to be applied within the designated area.

Case Studies

To demonstrate the process whereby the OCC&DC inventories may be used to identify and designate areas of critical state concern in the coastal zone, the following two examples are presented:

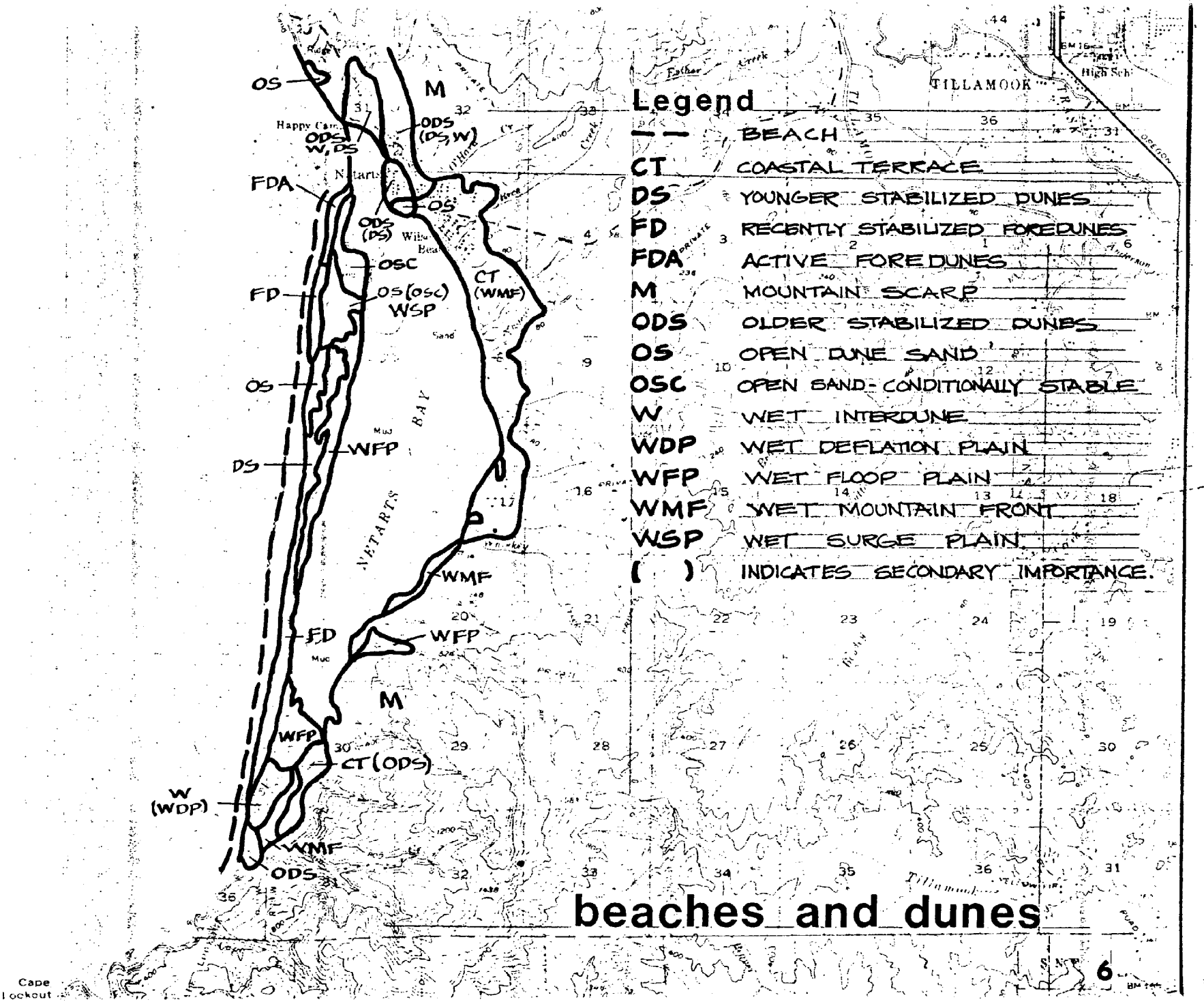
Netarts Bay

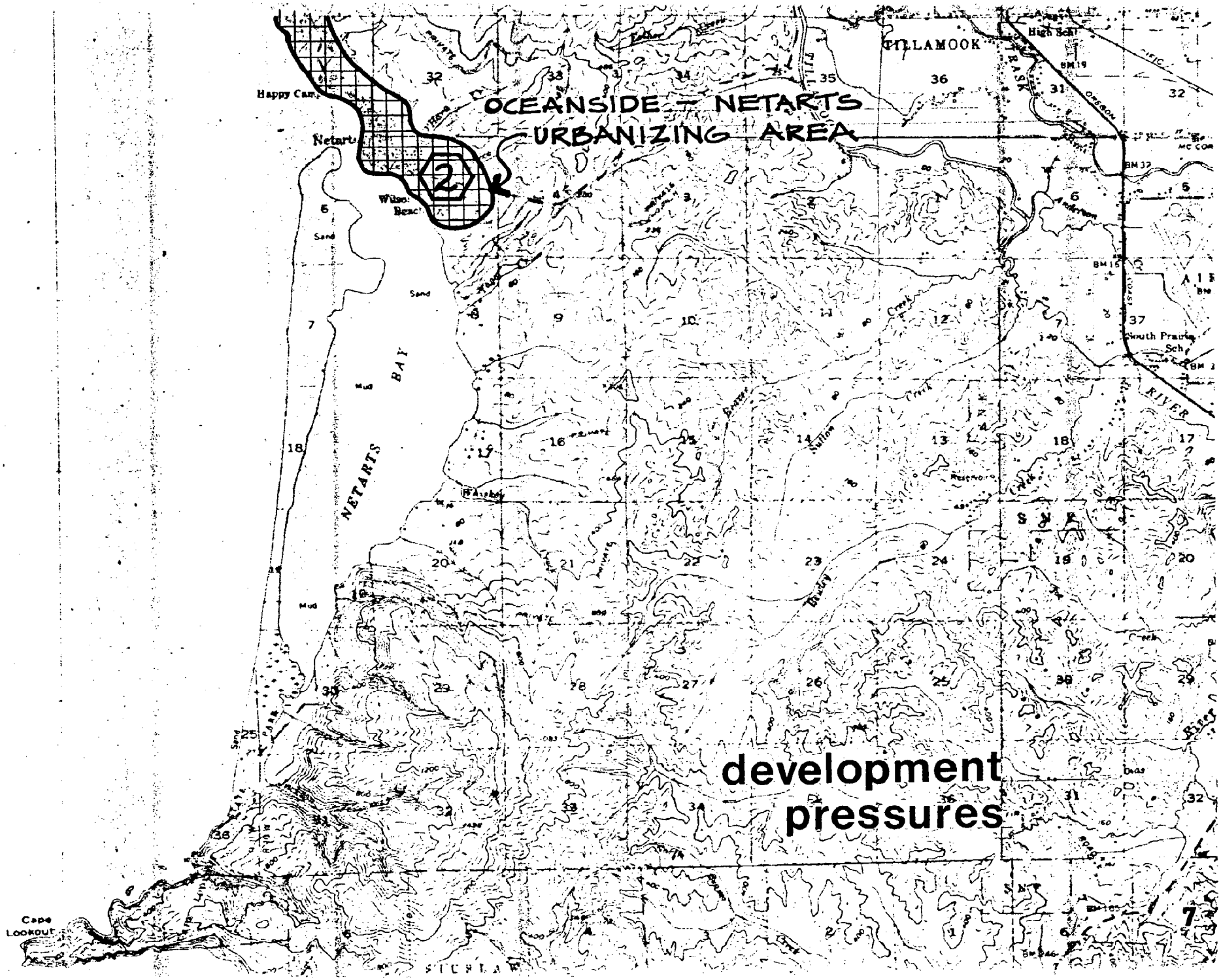
One of the criteria for selection of critical areas is the identification of "areas of high natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well being". Although there are many estuarine areas in Oregon which may be regarded as productive, Netarts Bay has become generally recognized as an area where there is a significant concentration of resource values. The area was first identified by the OCC&DC Estuarine Sanctuary Committee, and as such, is one of the areas designated by the OCC&DC as tentatively critical. The following narratives from the OCC&DC inventories describe the characteristics of the Netarts Bay area.

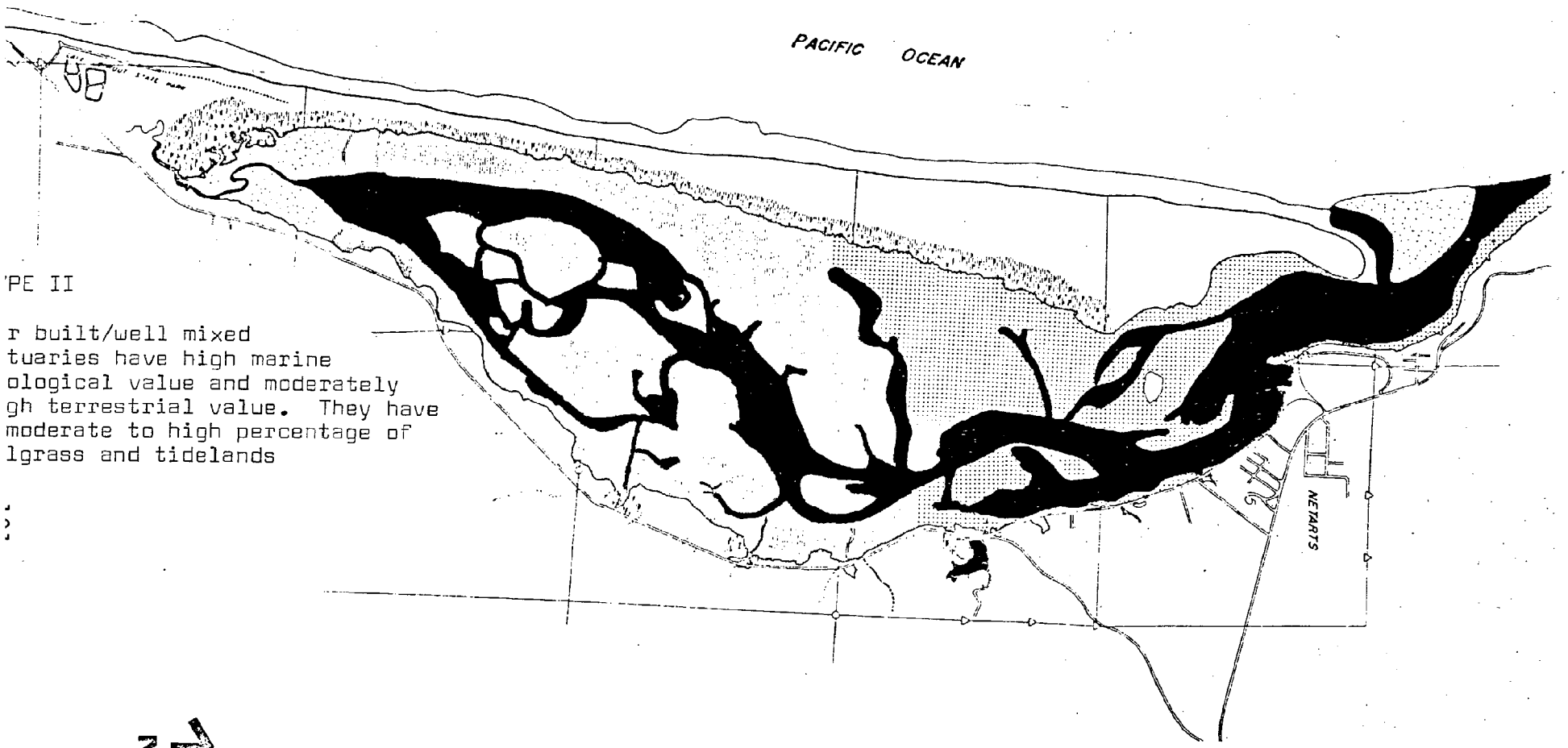
(a) Coastal Wetlands of Oregon

"Netarts Bay is significant primarily for large areas of shallow waters, tidelands and eelgrass. The bay contains 1,513 acres of tidelands and the Oregon Fish Commission has mapped five large eelgrass beds in the bay occurring along the east shore of the upper bay and in the center.

The bay contains only 164 acres of tidal marsh, occurring in two major sections. The entire length of the sandspit is fringed on the bay side with narrow bands of low sand marsh and immature high marsh. The lower end of the bay is marked by a 100-acre mature high marsh, in the areas of Cape Lookout State Park. Some


OS
M
ODS (DS,W)
ODS W,DS
FDA
OS
ODS (DS)
OSC
FD
OS(OSC) WSP
CT (WMF)
OS
WFP
DS
NETARTS BAY
WMF
FD
WFP
M
WFP
CT(ODS)
W (WDP)
WMF
ODS
TILLAMOOK
Legend
BEACH
CT COASTAL TERRACE
DS YOUNGER STABILIZED DUNES
FD RECENTLY STABILIZED FOREDUNES
FDA ACTIVE FOREDUNES
M MOUNTAIN SCARP
ODS OLDER STABILIZED DUNES
OS OPEN DUNE SAND
OSC OPEN SAND-CONDITIONALLY STABLE
W WET INTERDUNE
WDP WET DEFLATION PLAIN
WFP WET FLOOP PLAIN
WMF WET MOUNTAIN FRONT
WSP WET SURGE PLAIN
( ) INDICATES SECONDARY IMPORTANCE.
beaches and dunes
6
Cape Lookout


OCEANSIDE - NETARTS
URBANIZING AREA
2
TILLAMOOK
Happy Camp
Netarts
Wilson Beach
NETARTS BAY
Sand
Mud
South Prairie Sch
RIVER
Cape Lookout
development
pressures
7



'PE II

r built/well mixed
tuaries have high marine
ological value and moderately
gh terrestrial value. They have
moderate to high percentage of
lgrass and tidelands

2

NETARTS

EELGRASS

CLAM BEDS

EELGRASS AND CLAM BEDS

MARSH

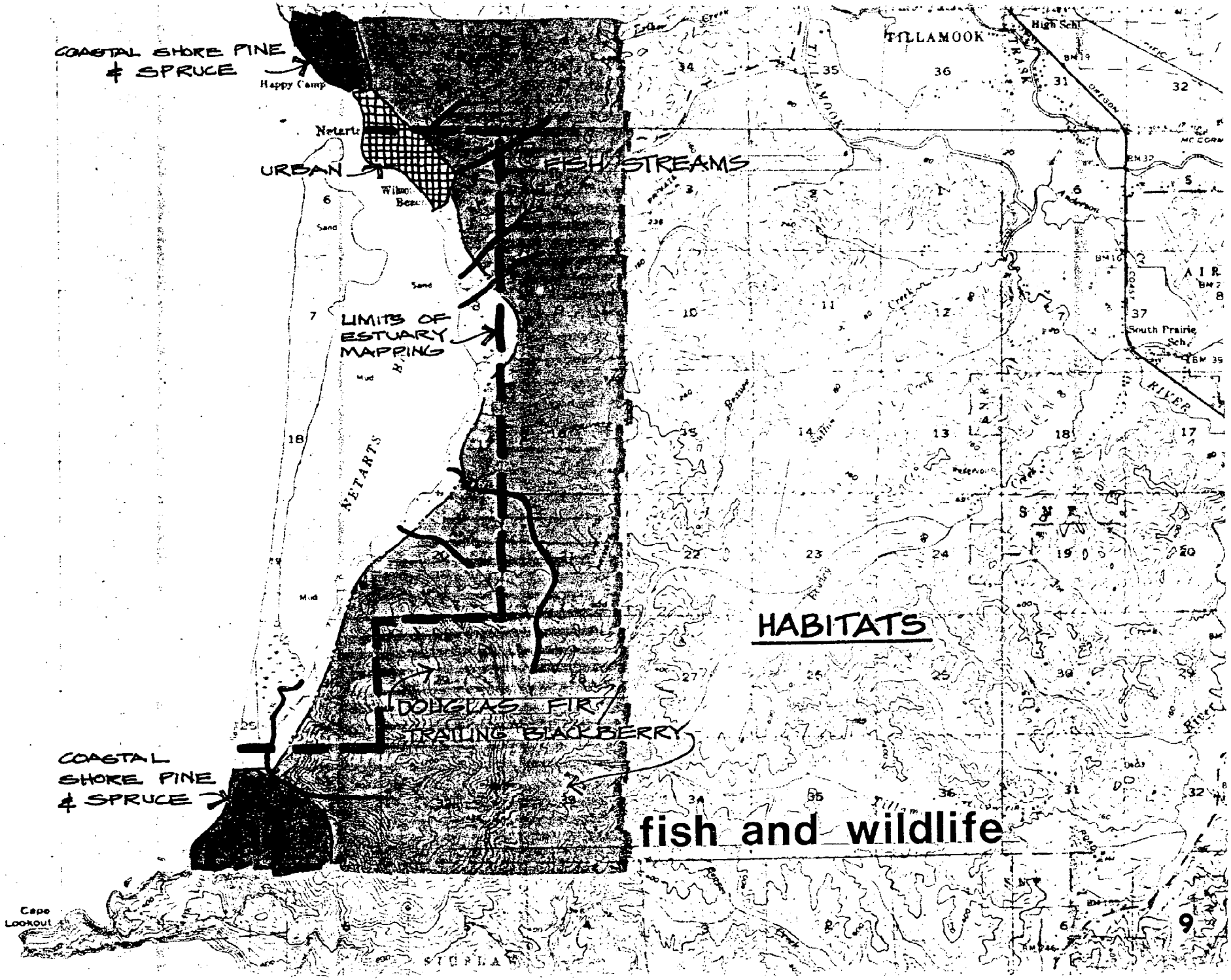
SUBMERGED LANDS

TIDELANDS

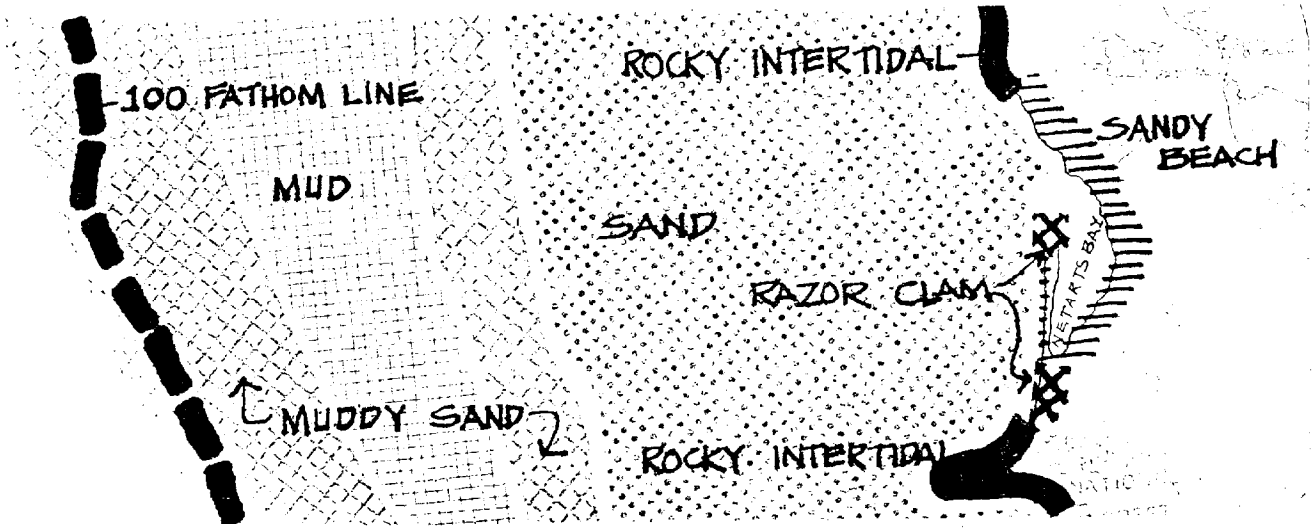
THE OREGON COASTAL ZONE

ESTUARINE RESOURCES

Oregon Coastal Conservation & Development Commission


COASTAL SHORE PINE & SPRUCE
URBAN
FISH STREAMS
LIMITS OF ESTUARY MAPPING
DOUGLAS FIR
TRAILING BLACKBERRY
COASTAL SHORE PINE & SPRUCE
HABITATS
fish and wildlife
TILLAMOOK
NETARTS
Cape Lookout
9

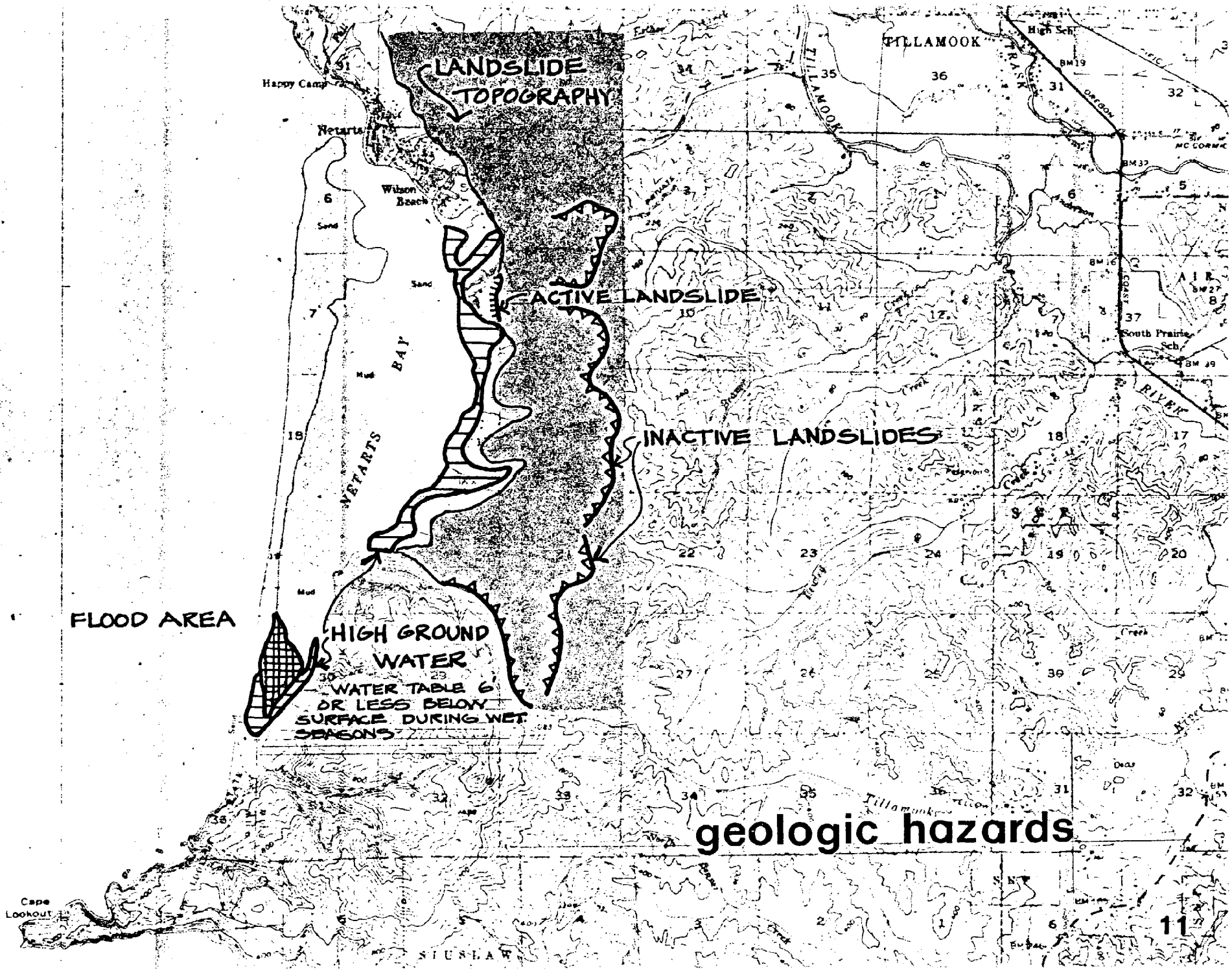
HABITATS

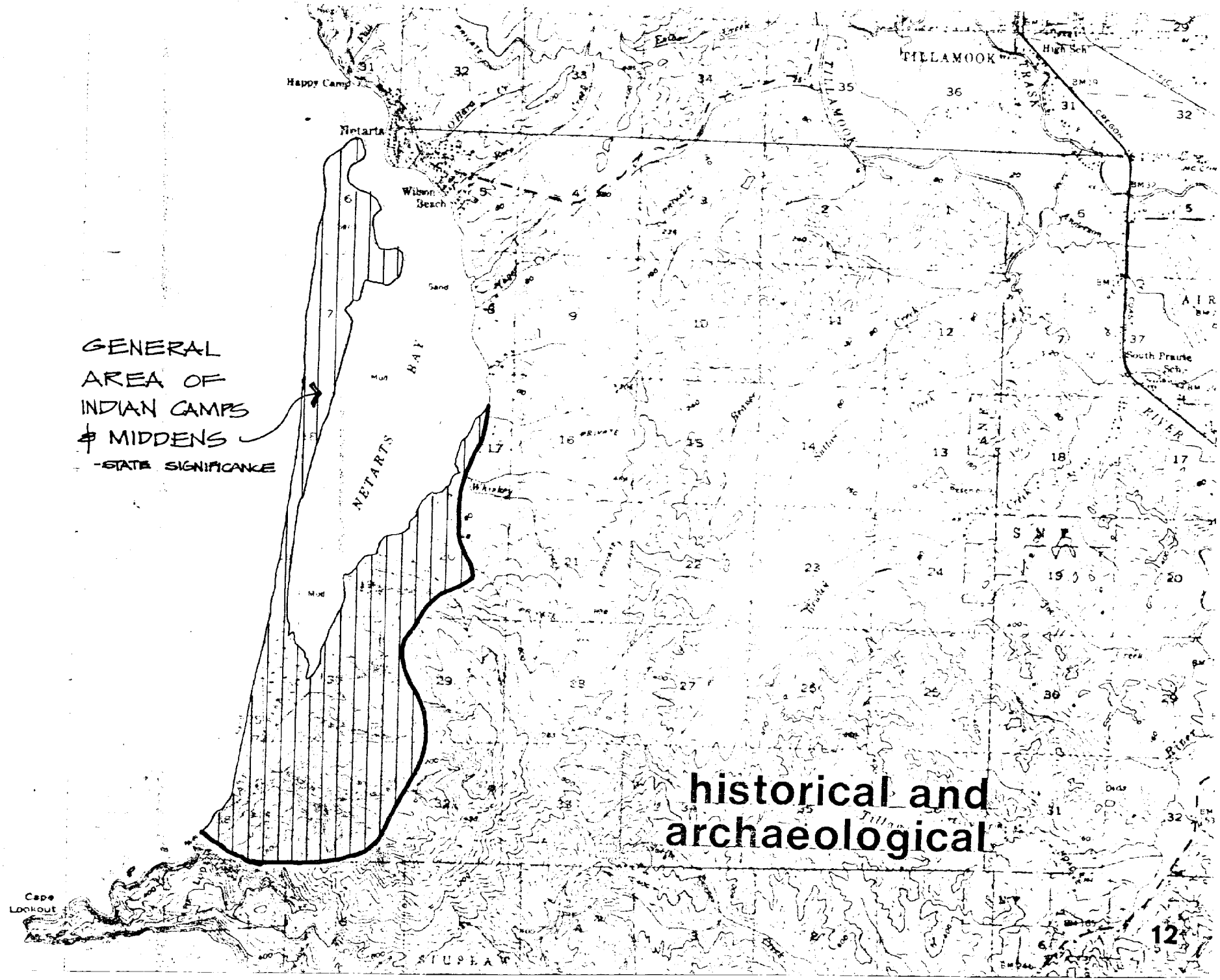


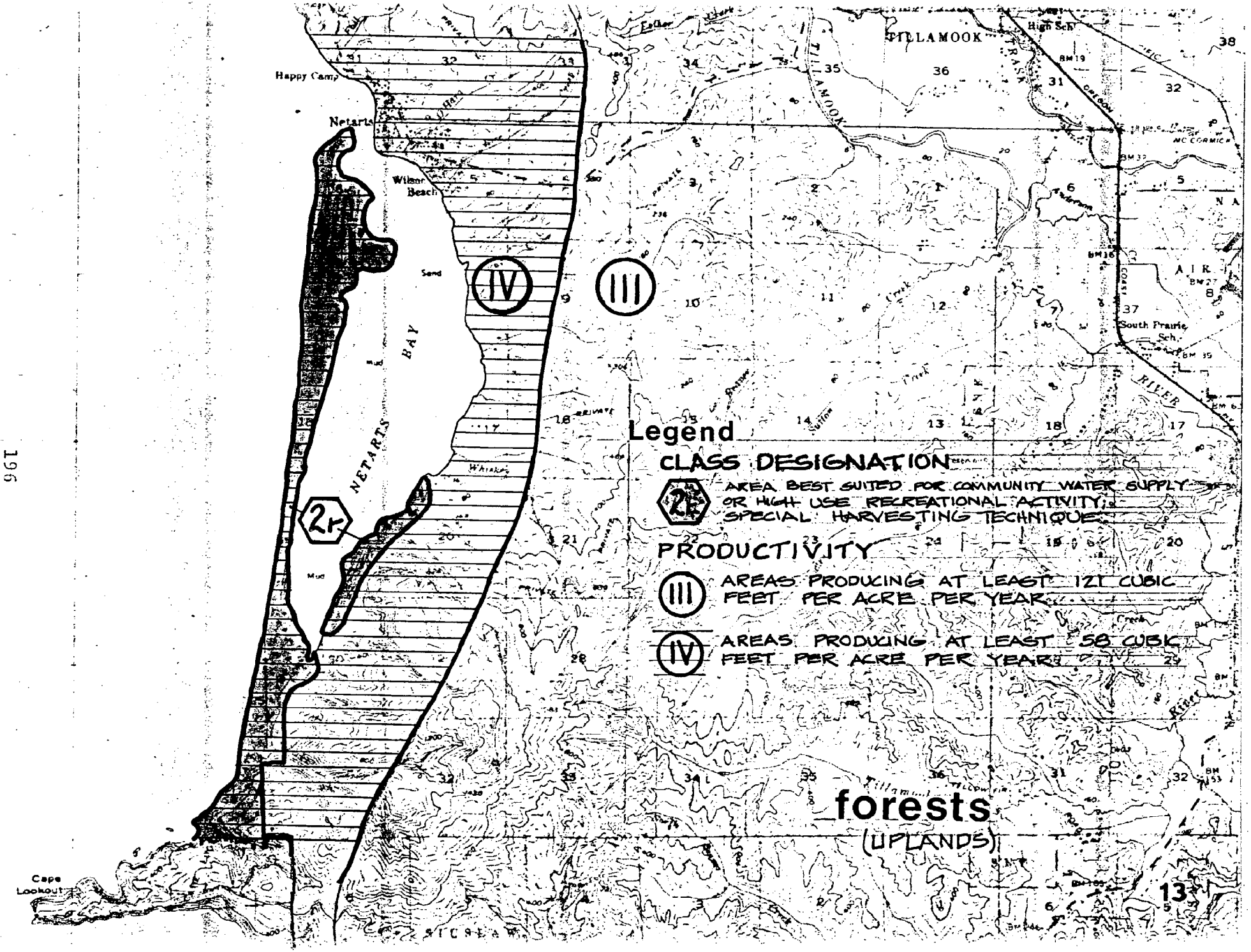
SCALE: 1-250,000

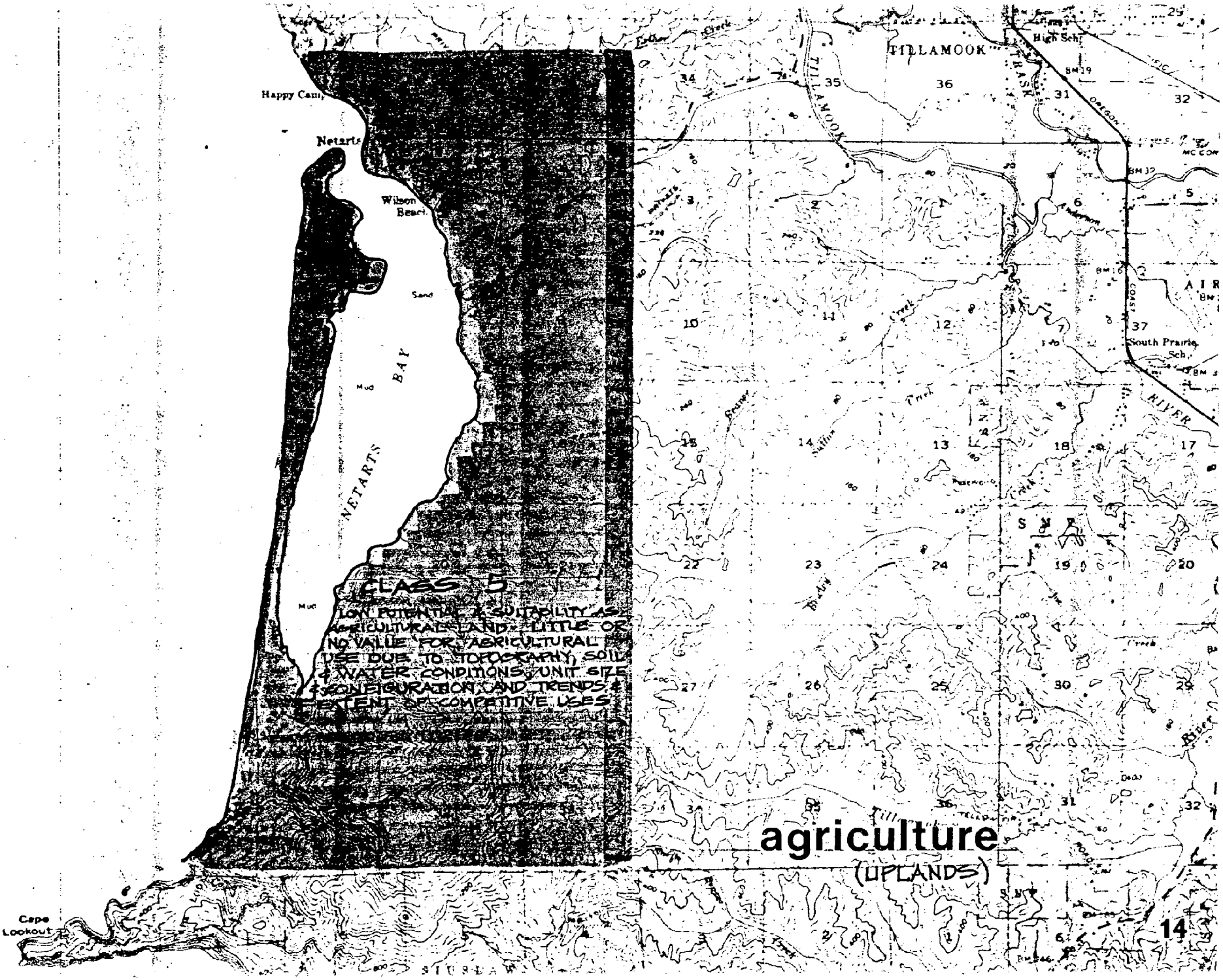
193

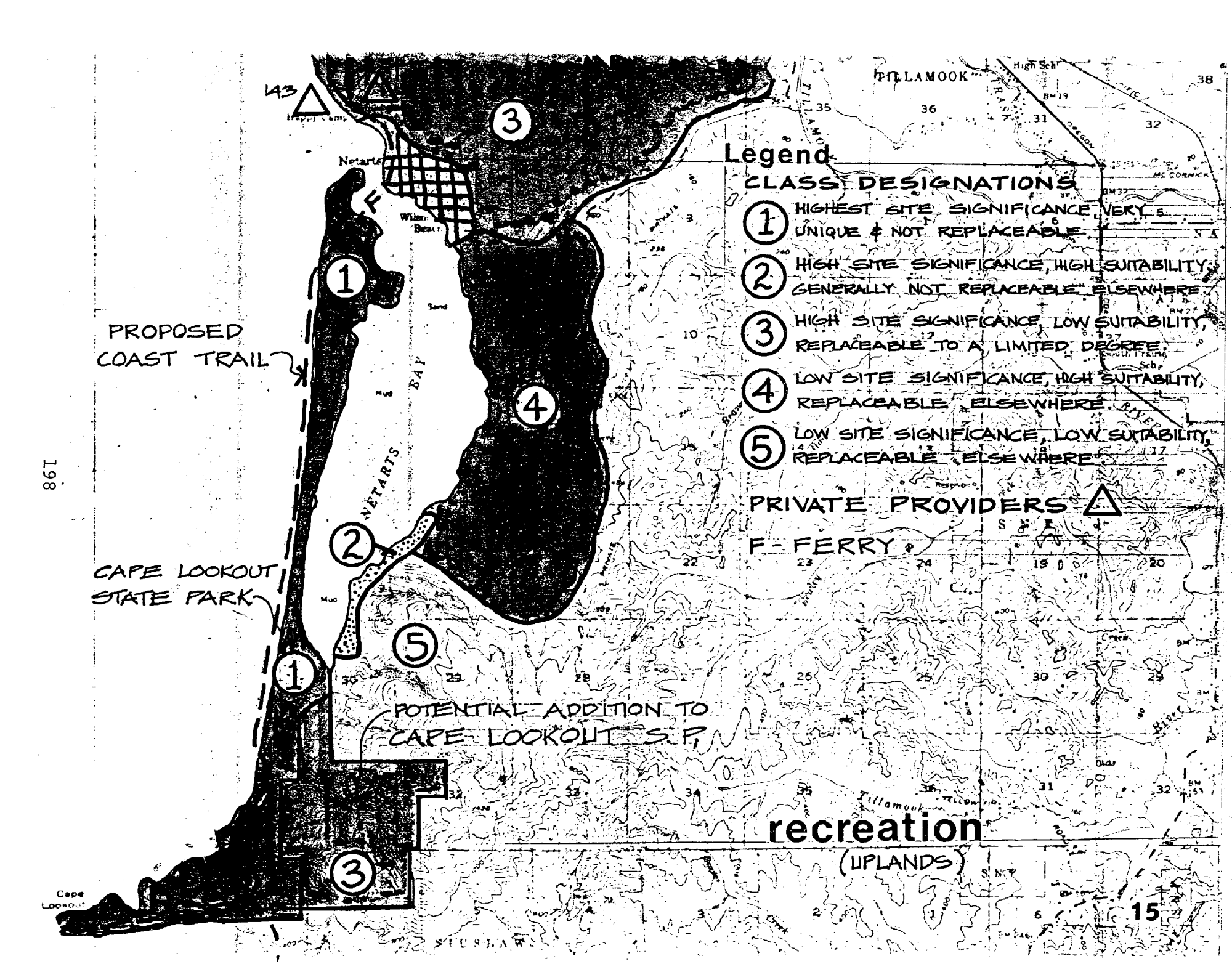
fish & wildlife (offshore)

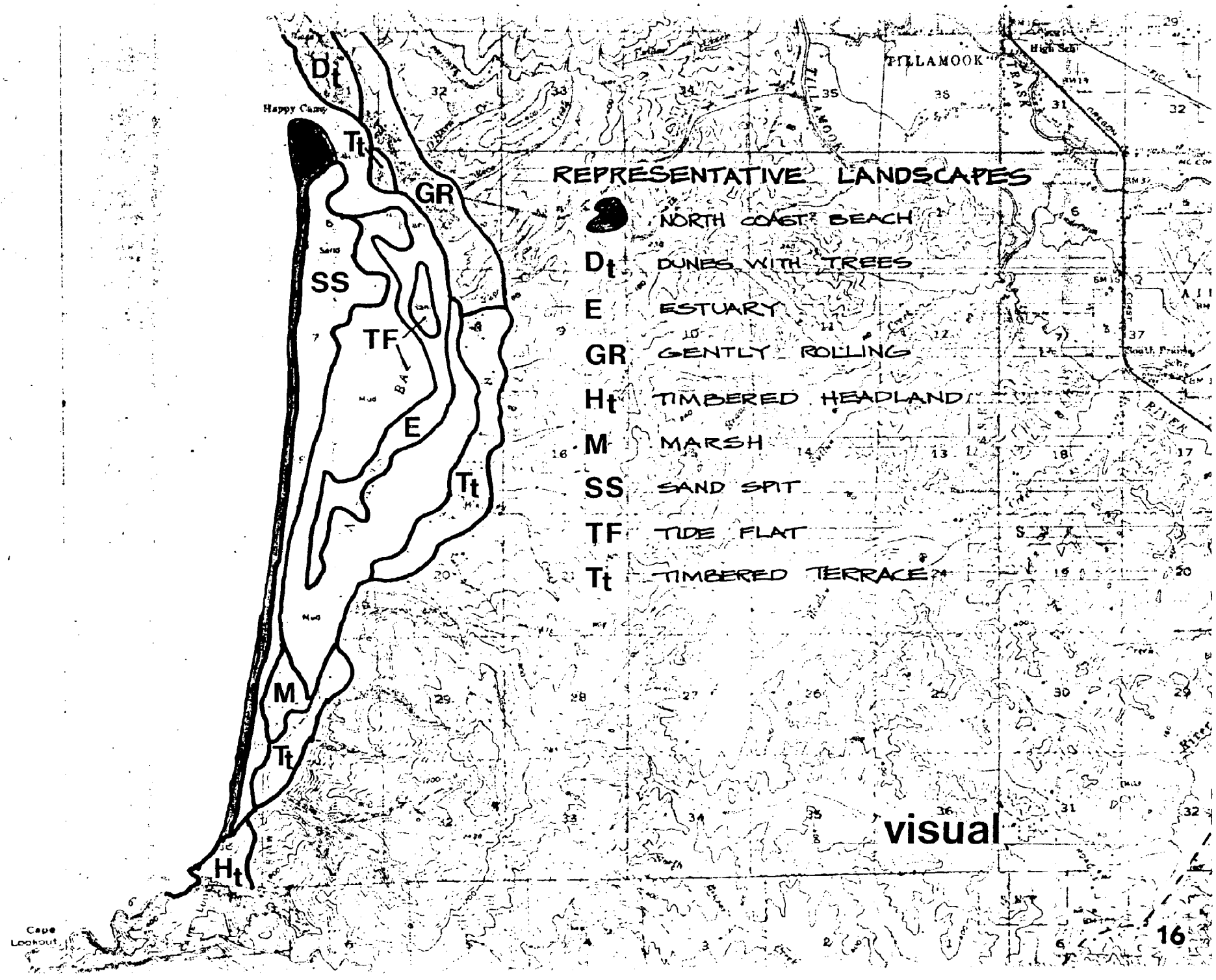

LANDSLIDE TOPOGRAPHY
ACTIVE LANDSLIDE
INACTIVE LANDSLIDES
FLOOD AREA
HIGH GROUND WATER
WATER TABLE 6' OR LESS BELOW SURFACE DURING WET SEASONS
TILLAMOOK
Happy Camp
Netarts
Wilson Beach
NETARTS BAY
South Prairie Sch.
Cape Lookout
SIUSLAW
geologic hazards
11


GENERAL AREA OF INDIAN CAMPS & MIDDENS -STATE SIGNIFICANCE
NETARTS BAY
Netarts
Happy Camp
Wilson Beach
TILLAMOOK
Cape Lookout
historical and archaeological


Legend
CLASS DESIGNATION
2r AREA BEST SUITED FOR COMMUNITY WATER SUPPLY OR HIGH USE RECREATIONAL ACTIVITY; SPECIAL HARVESTING TECHNIQUE
PRODUCTIVITY
III AREAS PRODUCING AT LEAST 121 CUBIC FEET PER ACRE PER YEAR
IV AREAS PRODUCING AT LEAST 58 CUBIC FEET PER ACRE PER YEAR
forests
(UPLANDS)
13
TILLAMOOK
Happy Camp
Netarts
Wilson Beach
NETARTS BAY
Sand
Mud
Cape Lookout
South Prairie Sch.
RIVER
IV
III
2r


Happy Camp
Netarts
Wilson Beach
Sand
Mud
NETARTS BAY
Mud
CLASS 5
LOW POTENTIAL & SUITABILITY AS AGRICULTURAL LAND. LITTLE OR NO VALUE FOR AGRICULTURAL USE DUE TO TOPOGRAPHY, SOIL & WATER CONDITIONS, UNIT SIZE & CONFIGURATION, AND TRENDS & EXTENT OF COMPETITIVE USES
TILLAMOOK
High Sch
TILLAMOOK
TRASK
OREGON
COAST
South Prairie Sch
RIVER
Cape Lookout
agriculture
(UPLANDS)
14


PROPOSED COAST TRAIL
CAPE LOOKOUT STATE PARK
POTENTIAL ADDITION TO CAPE LOOKOUT S.P.
NETARTS BAY
TILLAMOOK
Legend
CLASS DESIGNATIONS
1 HIGHEST SITE SIGNIFICANCE, VERY UNIQUE & NOT REPLACEABLE.
2 HIGH SITE SIGNIFICANCE, HIGH SUITABILITY, GENERALLY NOT REPLACEABLE ELSEWHERE.
3 HIGH SITE SIGNIFICANCE, LOW SUITABILITY, REPLACEABLE TO A LIMITED DEGREE.
4 LOW SITE SIGNIFICANCE, HIGH SUITABILITY, REPLACEABLE ELSEWHERE.
5 LOW SITE SIGNIFICANCE, LOW SUITABILITY, REPLACEABLE ELSEWHERE.
PRIVATE PROVIDERS
F- FERRY
recreation
(UPLANDS)


REPRESENTATIVE LANDSCAPES
NORTH COAST BEACH
Dt DUNES WITH TREES
E ESTUARY
GR GENTLY ROLLING
Ht TIMBERED HEADLAND
M MARSH
SS SAND SPIT
TF TIDE FLAT
Tt TIMBERED TERRACE
Dt
Tt
GR
SS
TF
E
Tt
M
Tt
Ht
visual
TILLAMOOK
Happy Camp
Cape Lookout

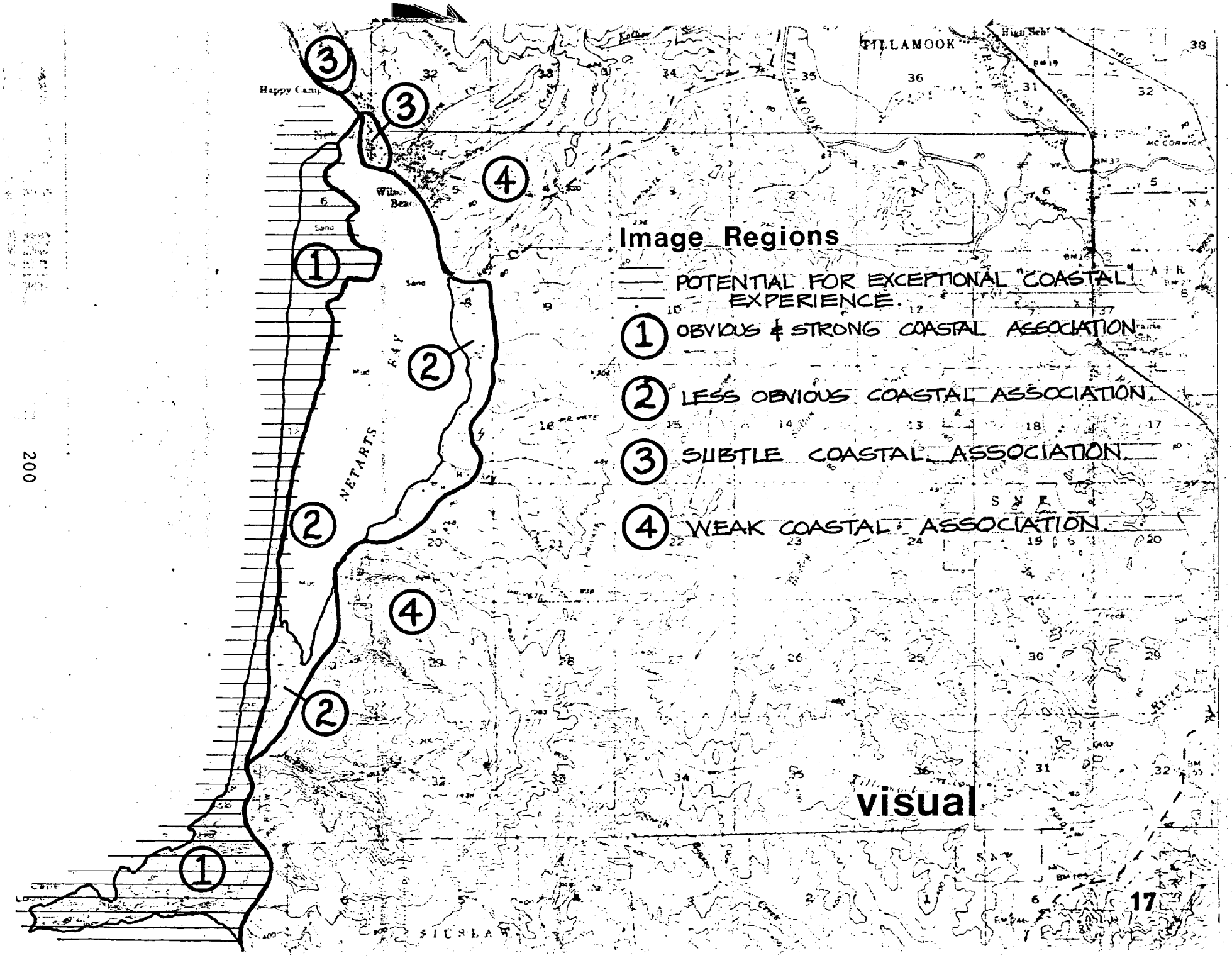
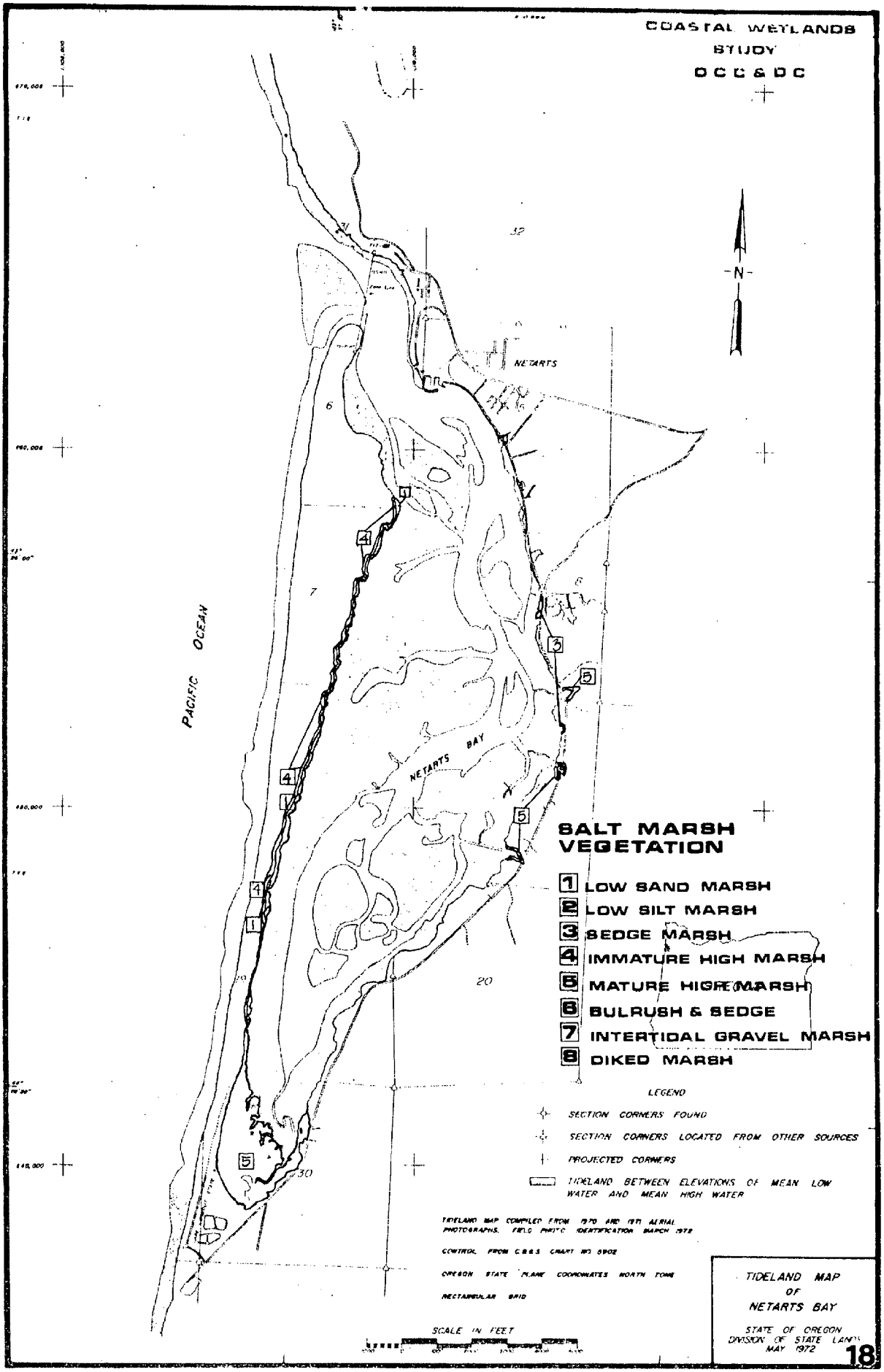


Image Regions
POTENTIAL FOR EXCEPTIONAL "COASTAL" EXPERIENCE.
1 OBVIOUS & STRONG COASTAL ASSOCIATION
2 LESS OBVIOUS COASTAL ASSOCIATION
3 SUBTLE COASTAL ASSOCIATION
4 WEAK COASTAL ASSOCIATION
TILLAMOOK
NETARTS BAY
SIUSLAW
visual


COASTAL WETLANDS
STUDY
OCC&DC
N
NETARTS
PACIFIC OCEAN
NETARTS BAY
SALT MARSH VEGETATION
1 LOW SAND MARSH
2 LOW SILT MARSH
3 SEDGE MARSH
4 IMMATURE HIGH MARSH
5 MATURE HIGH MARSH
6 BULRUSH & SEDGE
7 INTERTIDAL GRAVEL MARSH
8 DIKED MARSH
LEGEND
SECTION CORNERS FOUND
SECTION CORNERS LOCATED FROM OTHER SOURCES
PROJECTED CORNERS
TIDELAND BETWEEN ELEVATIONS OF MEAN LOW WATER AND MEAN HIGH WATER
TIDELAND MAP COMPILED FROM 1970 AND 1971 AERIAL PHOTOGRAPHS. FIELD PHOTO IDENTIFICATION MARCH 1972
CONTROL FROM C.&G.S. CHART NO. 6902
OREGON STATE PLANE COORDINATES NORTH ZONE
RECTANGULAR GRID
SCALE IN FEET
TIDELAND MAP OF NETARTS BAY
STATE OF OREGON DIVISION OF STATE LANDS MAY 1972
18

minor areas of sedge marsh and mature high marsh occur along the east margin of the bay.

This area is primarily a shellfish bay, with minor sport fishing. The Oregon Wildlife Commission indicates winter steelhead, coho salmon and sea-run cutthroat are present in the small tributaries, with some perch, flounder and rockfish occurring the bay itself.

The Oregon Wildlife Commission indicates the primary problem in the past has been domestic sewage (from septic tanks) entering the bay. A proposal to discharge treated domestic sewage from a municipal treatment plant into the bay is currently being studied by the U.S. Environmental Protection Agency."

(b) Estuarine Resources of the Oregon Coastal Zone

"The Netarts Bay estuary has remained pristine and natural in its character, and the (tolerance) chart suggests that the estuary system could tolerate moderate increases in some activities. A sewage treatment plant to serve the Netarts and Oceanside communities has been proposed which would outfall into Netarts Bay. Such a proposal should be considered carefully, since the low fresh water inflows in that system allows for only limited flushing of pollutants. Agriculture could be considered where feasible as a means for increasing the economic base of the bay shoreline.

The Netarts Bay estuary is the last remaining bay in which native oysters grow naturally and it has good potential for commercial oyster cultures. High numbers of gaper and cockle clams are presently harvested by recreationists. The estuary provides excellent herring spawning and rearing grounds, and perch and greenling are taken by anglers in moderate numbers. The eelgrass beds located in the bay are an extremely important supply of winter feed for waterfowl.

Netarts Bay supports over 300,000 waterfowl use days annually, and is especially important as a wintering area for black brant.

The large, undisturbed bar at Netarts Bay, is perhaps the best example of a dunes ecosystem in Oregon."

(c) Historical and Archaeological Resources of the Oregon Coastal Zone

Detailed and site-specific files supporting the general inventory of historical and archaeological sites of the Oregon coastal zone indicate that the Netarts Sandspit is of archaeological significance.

(d) Fish and Wildlife Resources of the Oregon Coastal Zone

Habitat maps included within the inventory describe the Netarts Bay area as consisting of (1) sandy beach; (2) submerged lands; (3) coastal tidelands; (4) eelgrass; (5) coastal salt marsh, and

containing; (6) marine mammal rookeries and hauling areas; (7) snowy plover habitat areas; (8) great blue heron nesting colonies; (9) active bald eagle nests; and (10) mineral springs of importance to band-tailed pigeons and other wildlife. All 10 of these criteria are described as critical wildlife habitat factors within the inventory.

(e) An Analysis of Oregon's Coastal Uplands

The inventory maps indicate the recreation importance of the Netarts Bay area.

(f) Geologic Hazards Inventory

Inventory maps indicate the presence of flooding, erosion, high water table, and landslide topography in the immediate estuarine area.

(g) Development Pressures Inventory

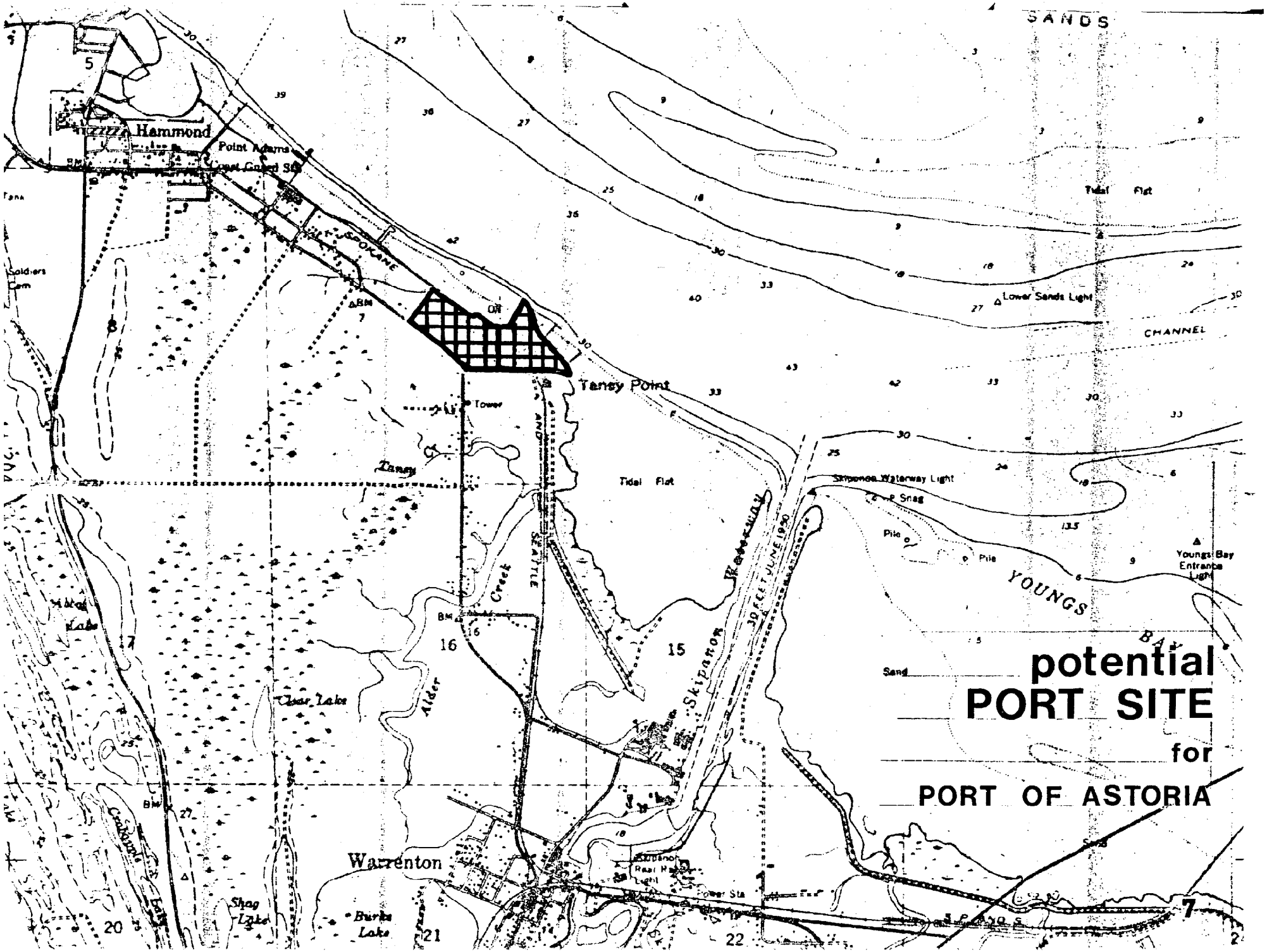
The unincorporated communities of Oceanside and Netarts are identified as "urbanizing" areas, with severe limitations for development due to steep terrain, moderate soils limitations, and other severe natural limitations. Governmental limitations include severe lack of sewerage service, moderate limitations due to water service, and a moderate limitation due to existing land ownership.

The sanitation district in the Netarts Bay area is proposing to serve the area with a secondary level treatment plant. The proposal is partly in response to the existing problems of septic tank leakage into the bay. The decision regarding the area to be sewered and the method of financing the facilities will be a judgment on the future condition of the bay and its living resources. Because of the resource values identified in the inventories, and the imminence of the decision to sewer the area, the Netarts Bay estuary appears to be an area which should be designated critical.

Tansy Point

Another of the adopted criteria for critical areas, as used by the OCC&DC, includes the identification of "areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters". This includes port facilties, and other public services and utilities which may be described as "water related". The OCC&DC management policies require the preference of water-related uses for shoreland locations in the coastal zone. This view is mandated by the relatively small amount of estuarine waterfront area in the coastal zone.

Tansy Point is a shoreland area of the lower Columbia River, within the City of Warrenton, a small community near Astoria, Oregon. In mid-1974,


potential
PORT SITE
for
PORT OF ASTORIA
SANDS
Hammond
Point Adams
Coast Guard Sta
SPOKANE
Tansy Point
Tower
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS BAY
Skipanon Waterway
30 FEET JUNE 1950
Alder Creek
Clear Lake
Warrenton
Shag Lake
Burke Lake
Skipanon Rear Range Light
Power Sta
Sand
Soldiers Cem
Tank
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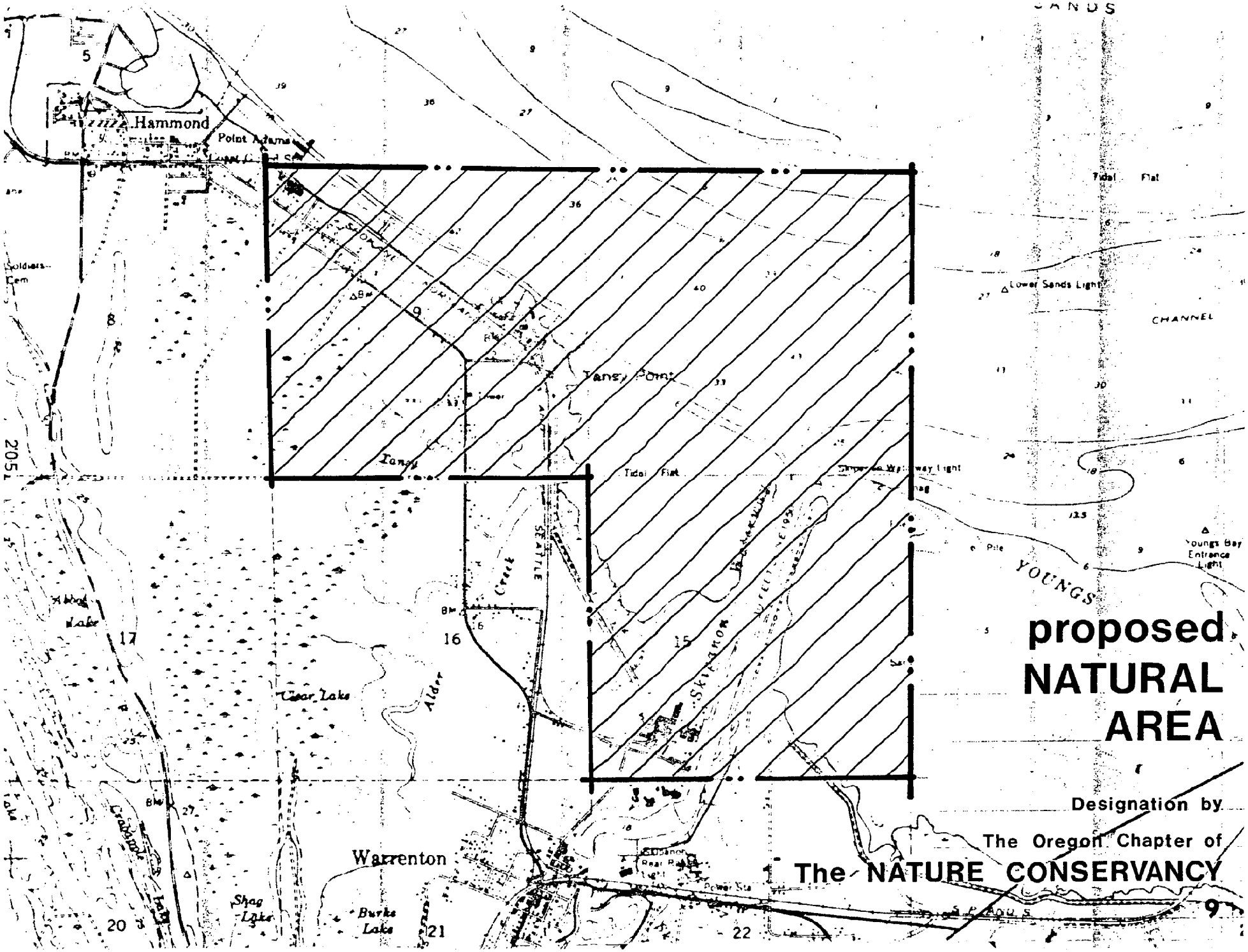
17
20
21
22
7

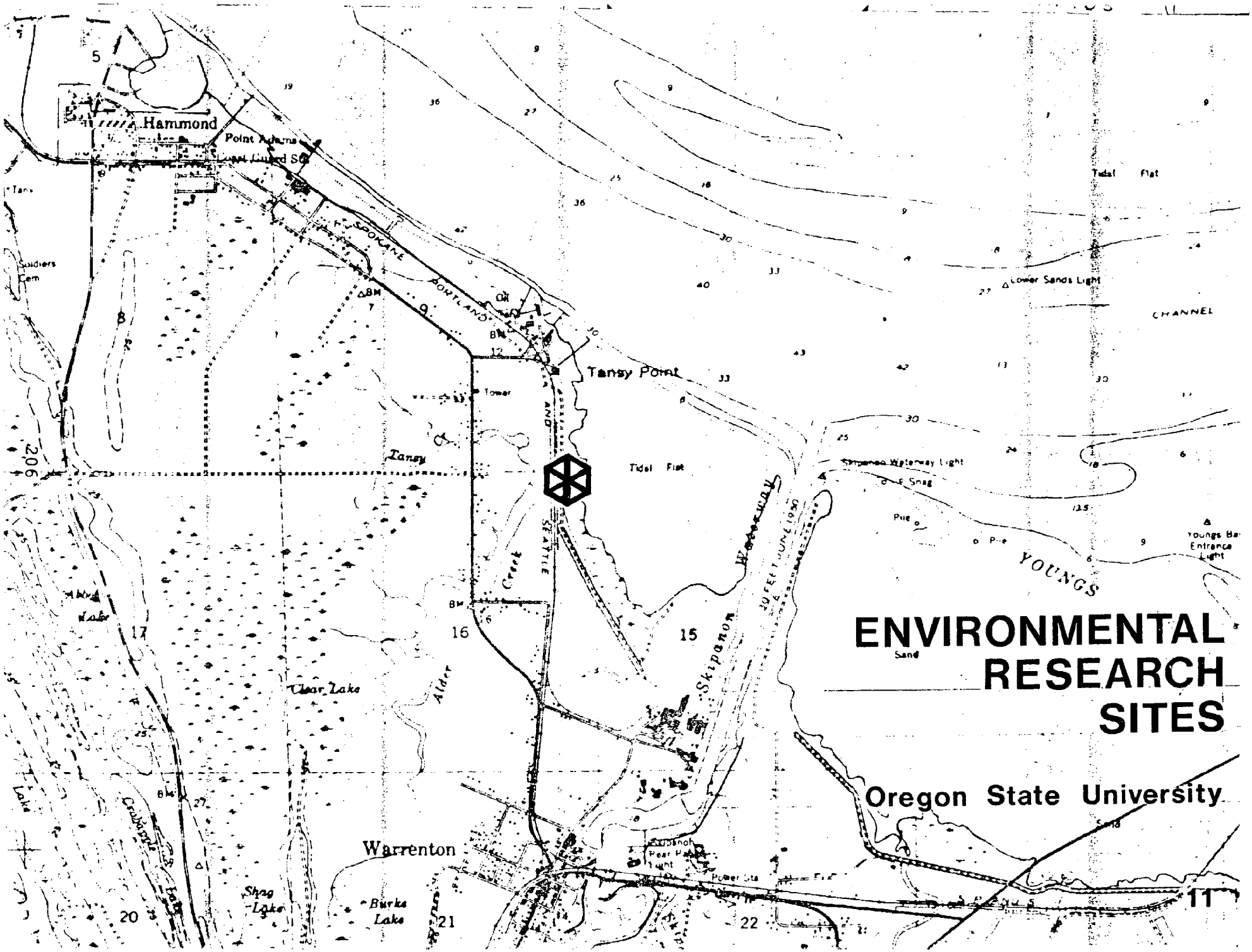


proposed NATURAL AREA

Designation by

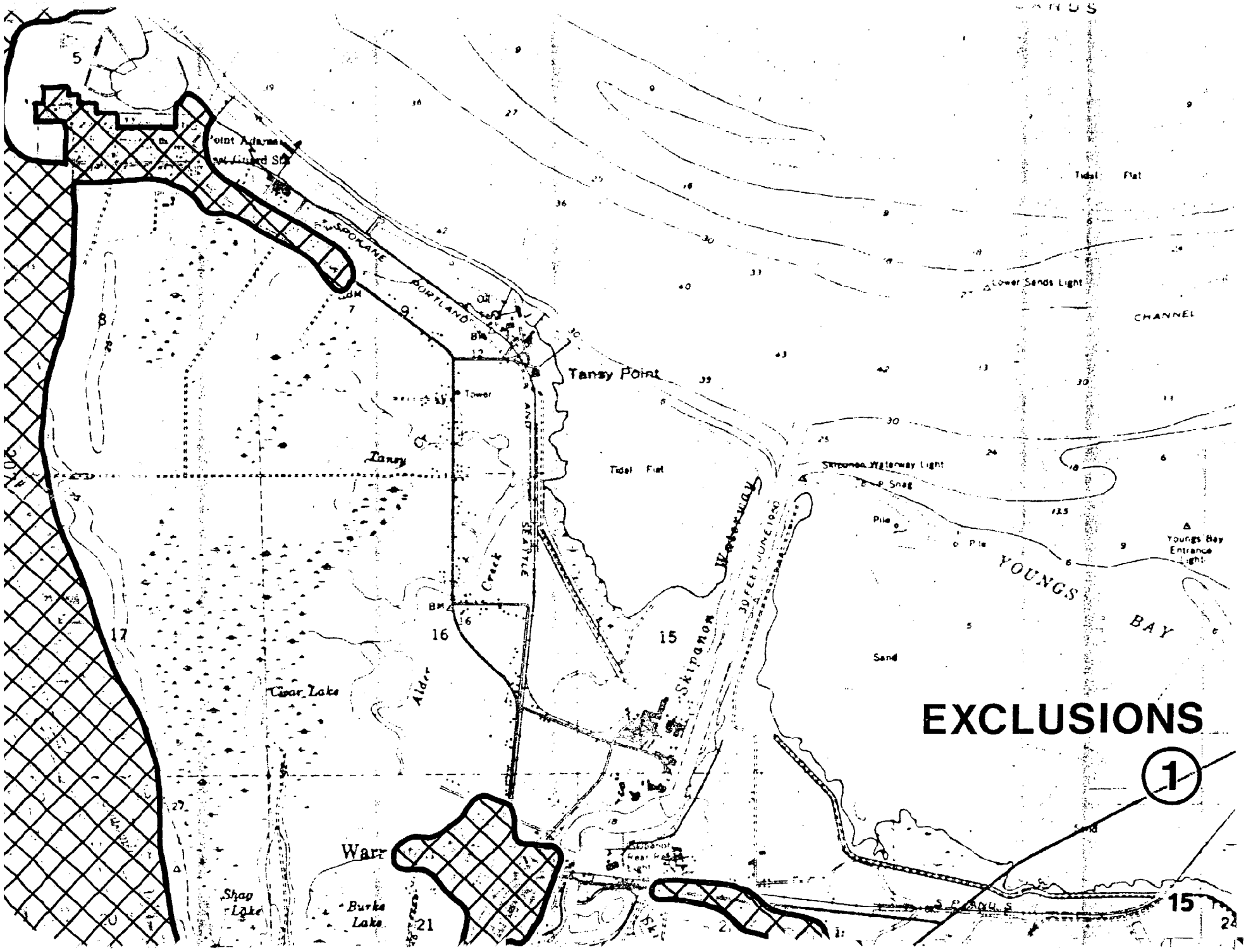
The Oregon Chapter of

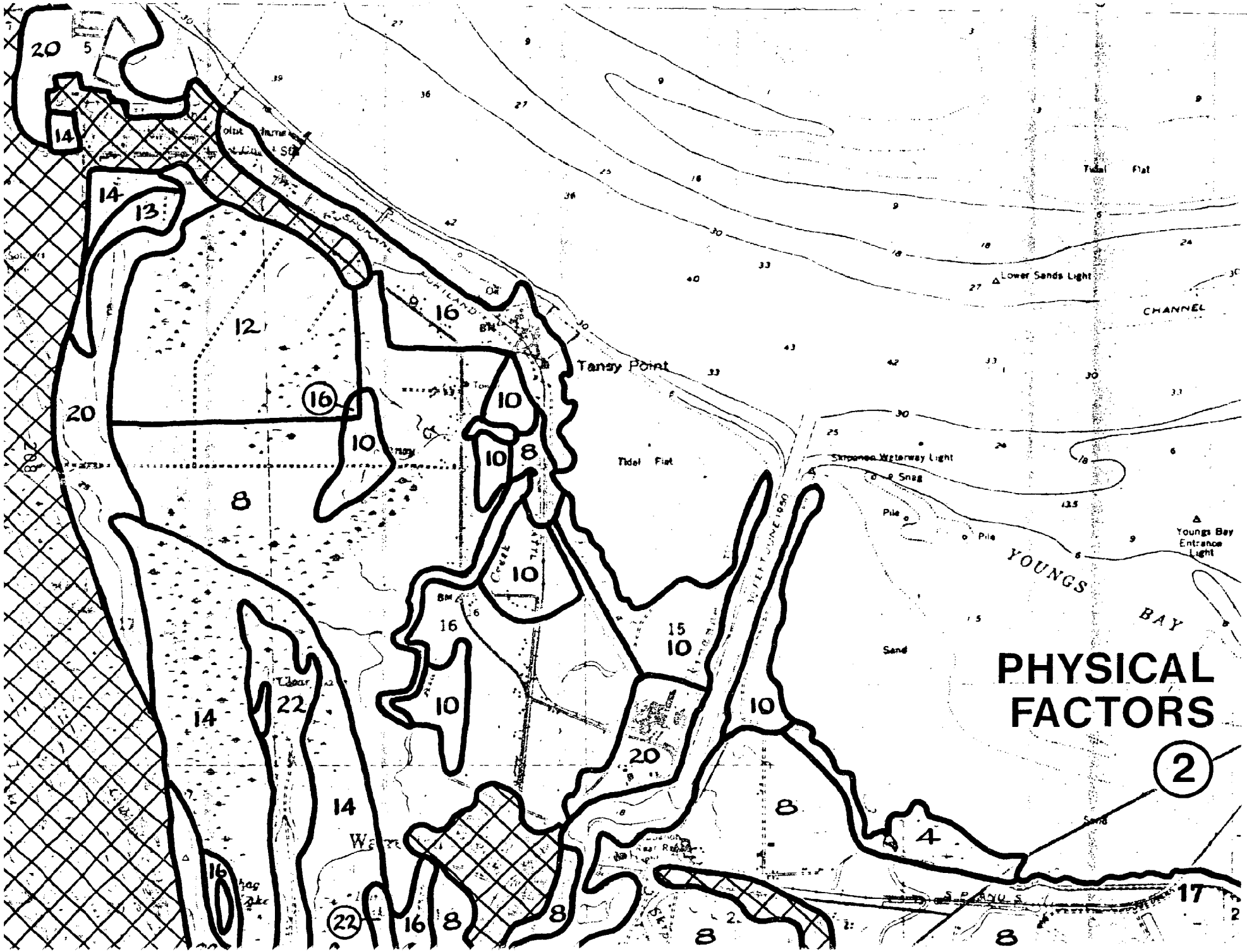
The NATURE CONSERVANCY

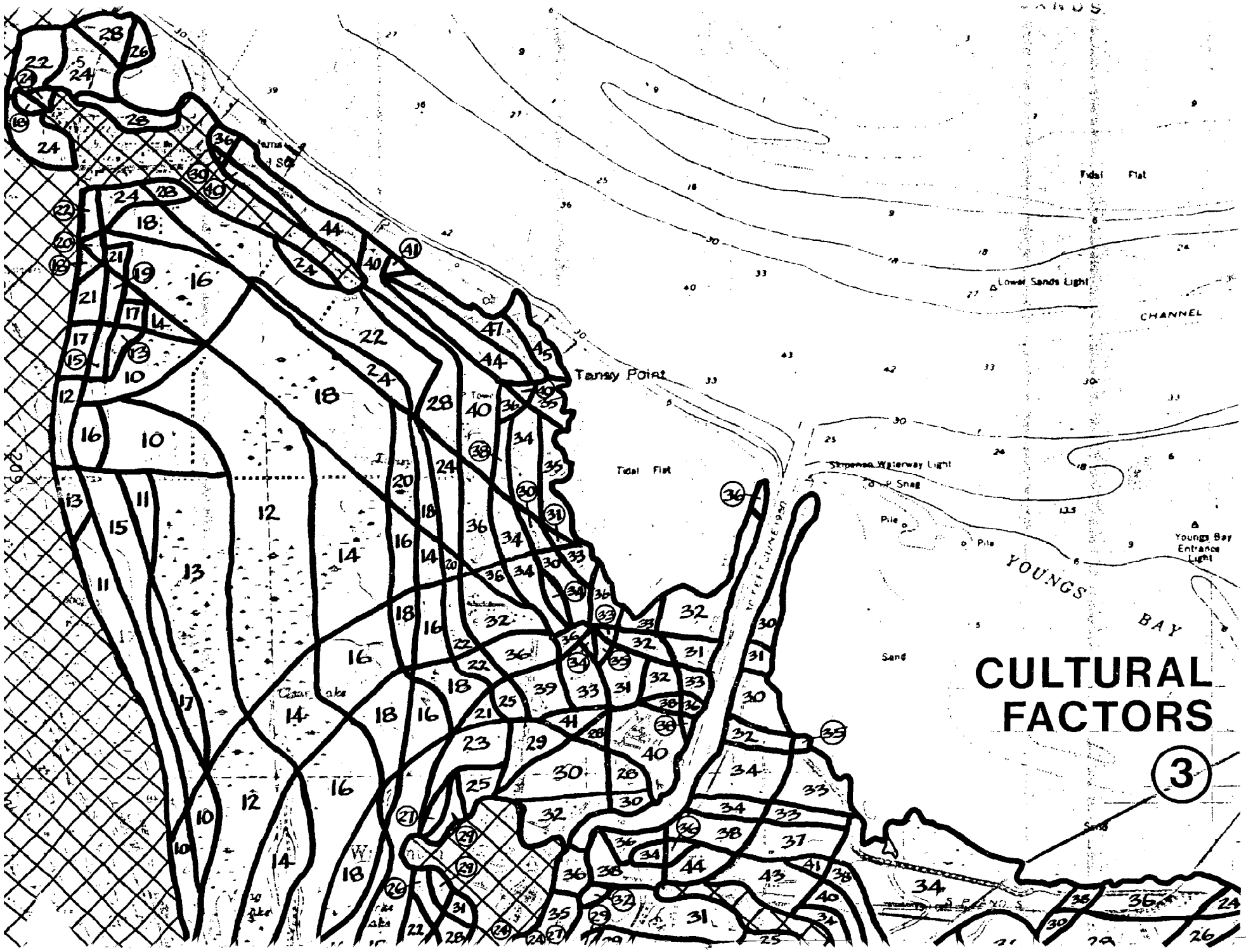


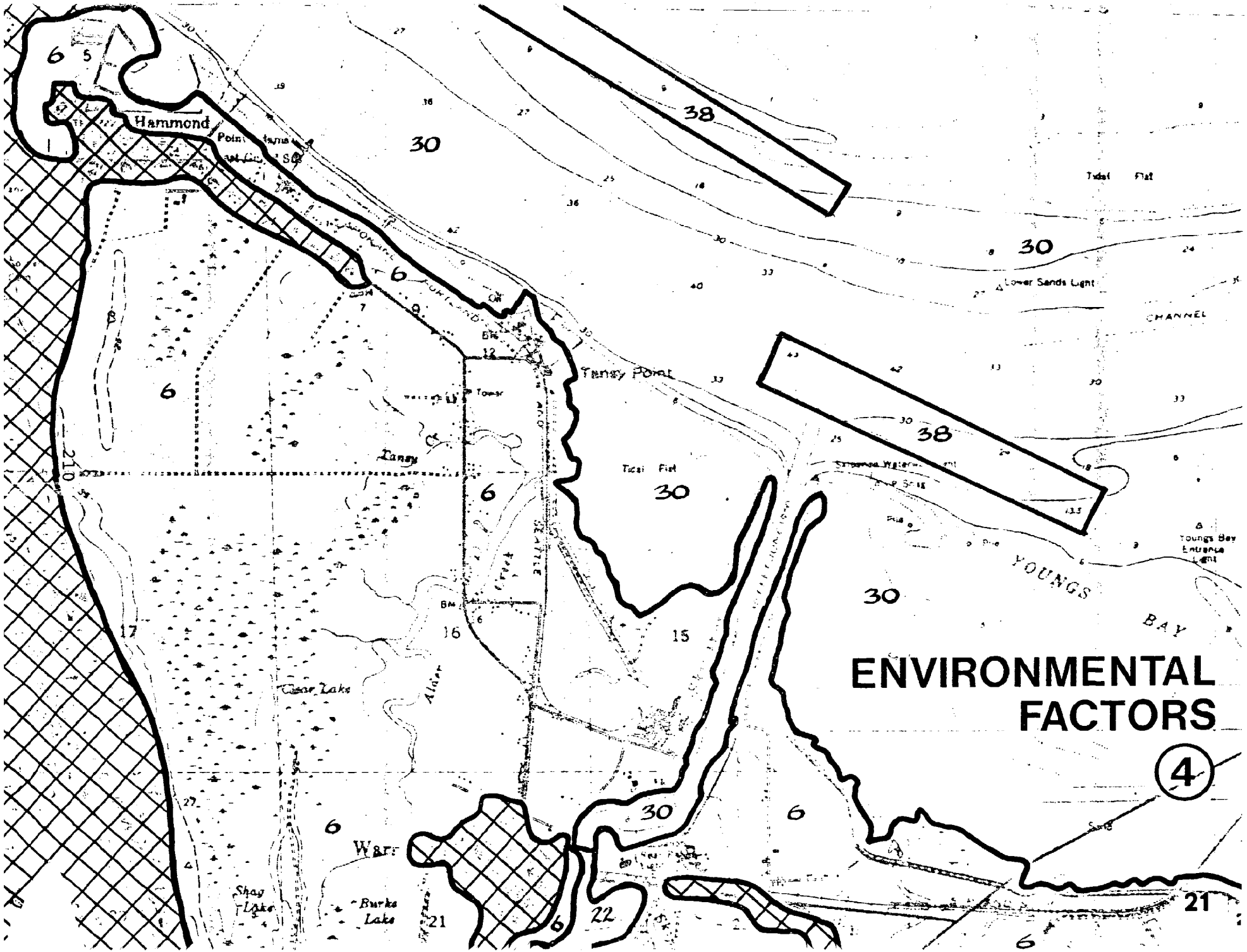
ENVIRONMENTAL RESEARCH SITES

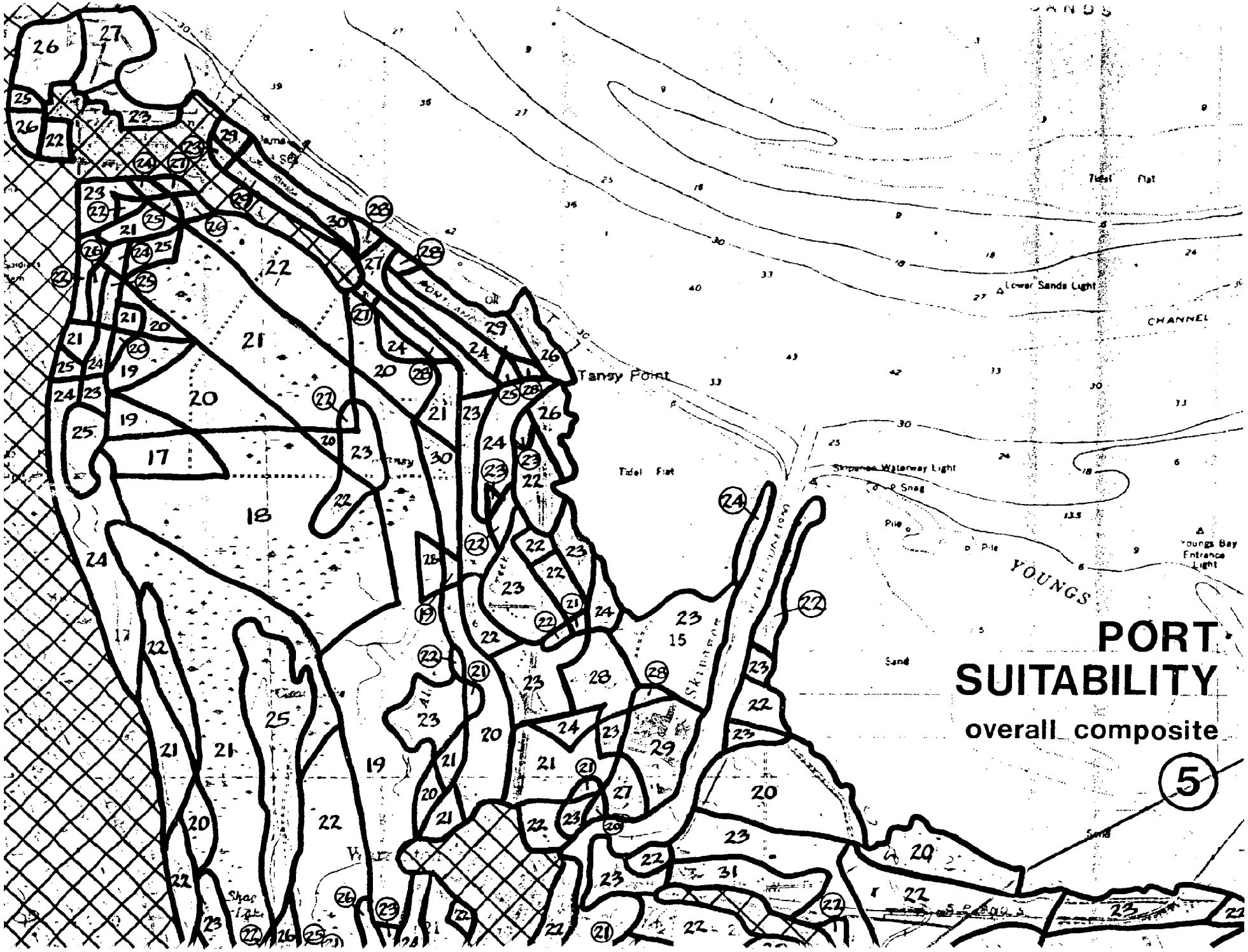
Oregon State University

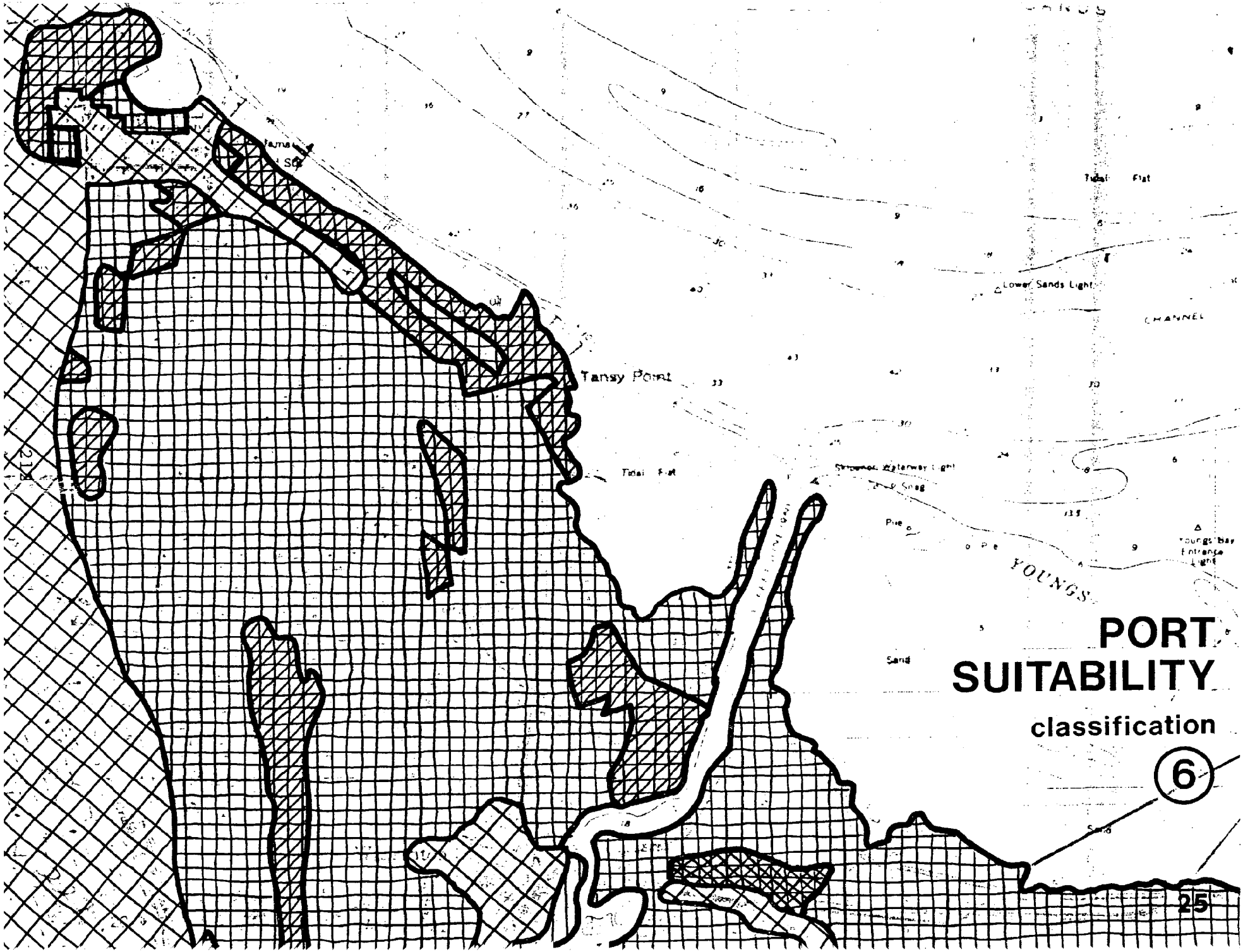

EXCLUSIONS
1
Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Youngs Bay Entrance Light
YOUNGS BAY
Sand
Pile
Skipanon Waterway
Tower
Tansy
Creek
Alder
Cwar Lake
Shag Lake
Burke Lake
Warr
SPOKANE PORTLAND AND SEATTLE
Point Adams
Oil
BM
5
8
9
12
15
16
17
21
24

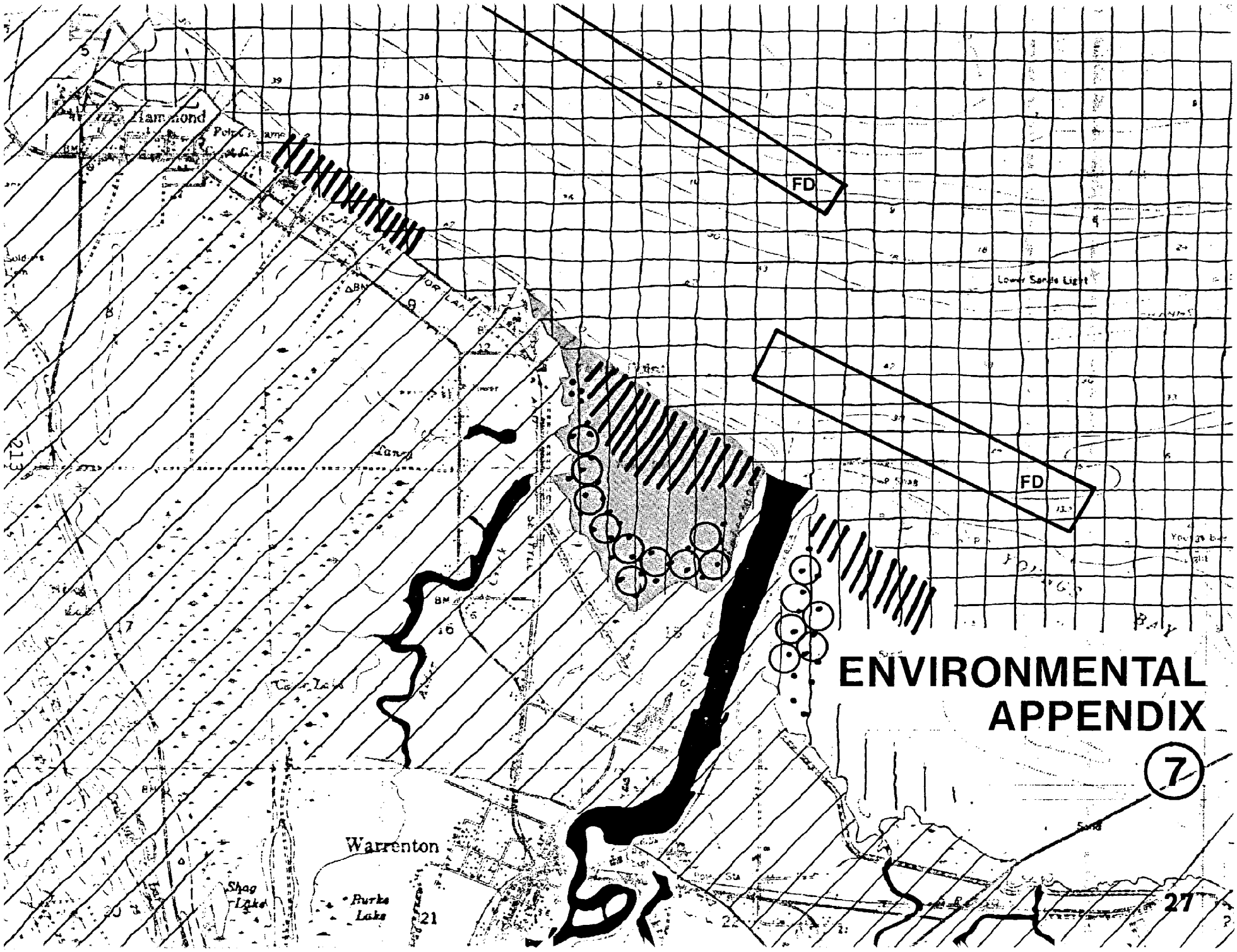

PHYSICAL FACTORS
2
Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS BAY
Sand
Creek
20
14
13
12
16
10
8
22
15
4
17


Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS
BAY
Sand
CULTURAL FACTORS
3


Hammond
Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
YOUNGS BAY
Youngs Bay Entrance Light
Clear Lake
Shag Lake
Burks Lake
Alder
Tansy
Tower
Warr
38
30
6
5
16
15
17
21
22
210
ENVIRONMENTAL FACTORS
4


Tansy Point
Lower Sands Light
CHANNEL
Tidal Flat
Skipanon Waterway Light
Pile
YOUNGS
Youngs Bay Entrance Light
Sand
PORT
SUITABILITY
overall composite
5

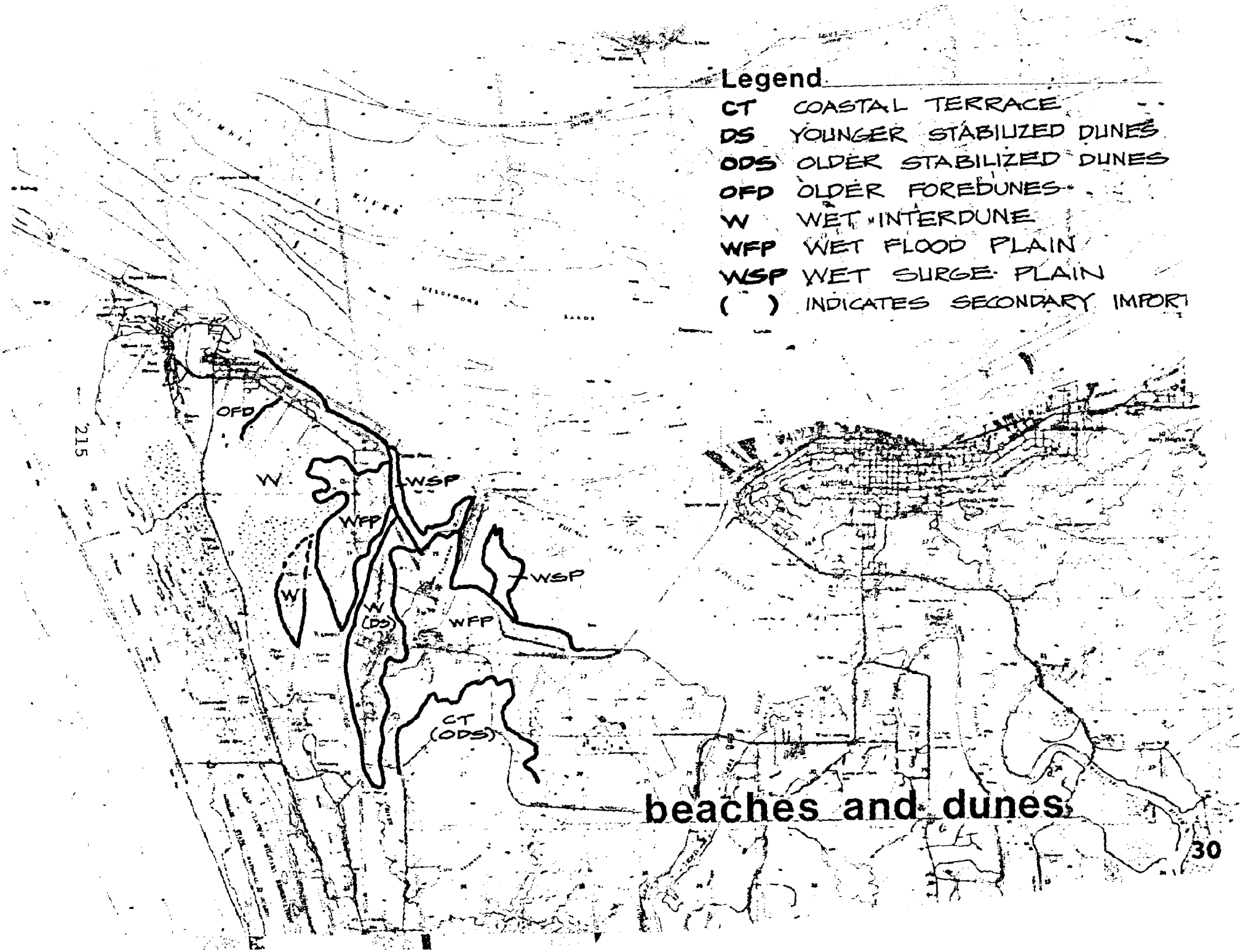

Tansy Point
Lower Sands Light
CHANNEL
Tidal Flat
YOUNGS
PORT
SUITABILITY
classification
6

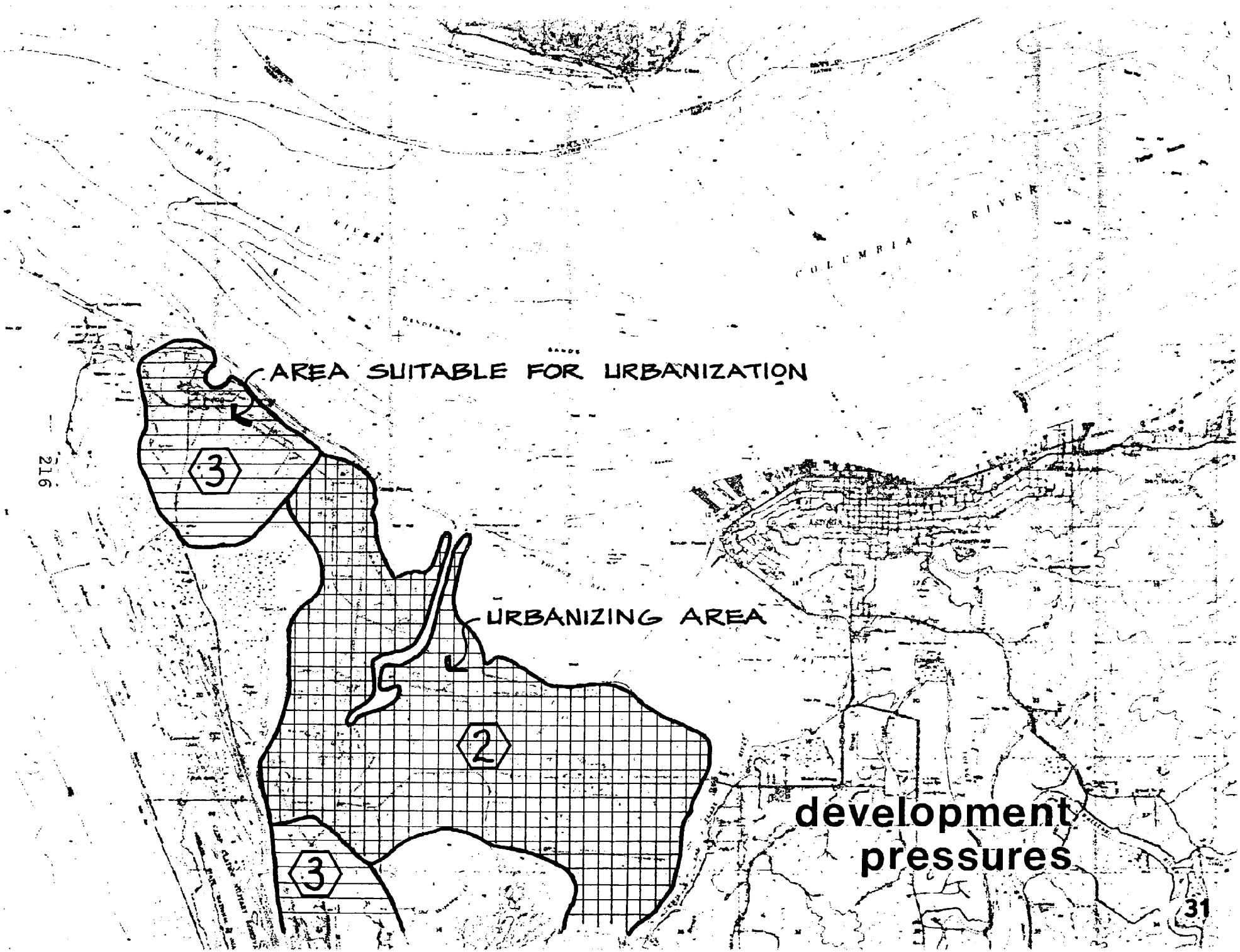


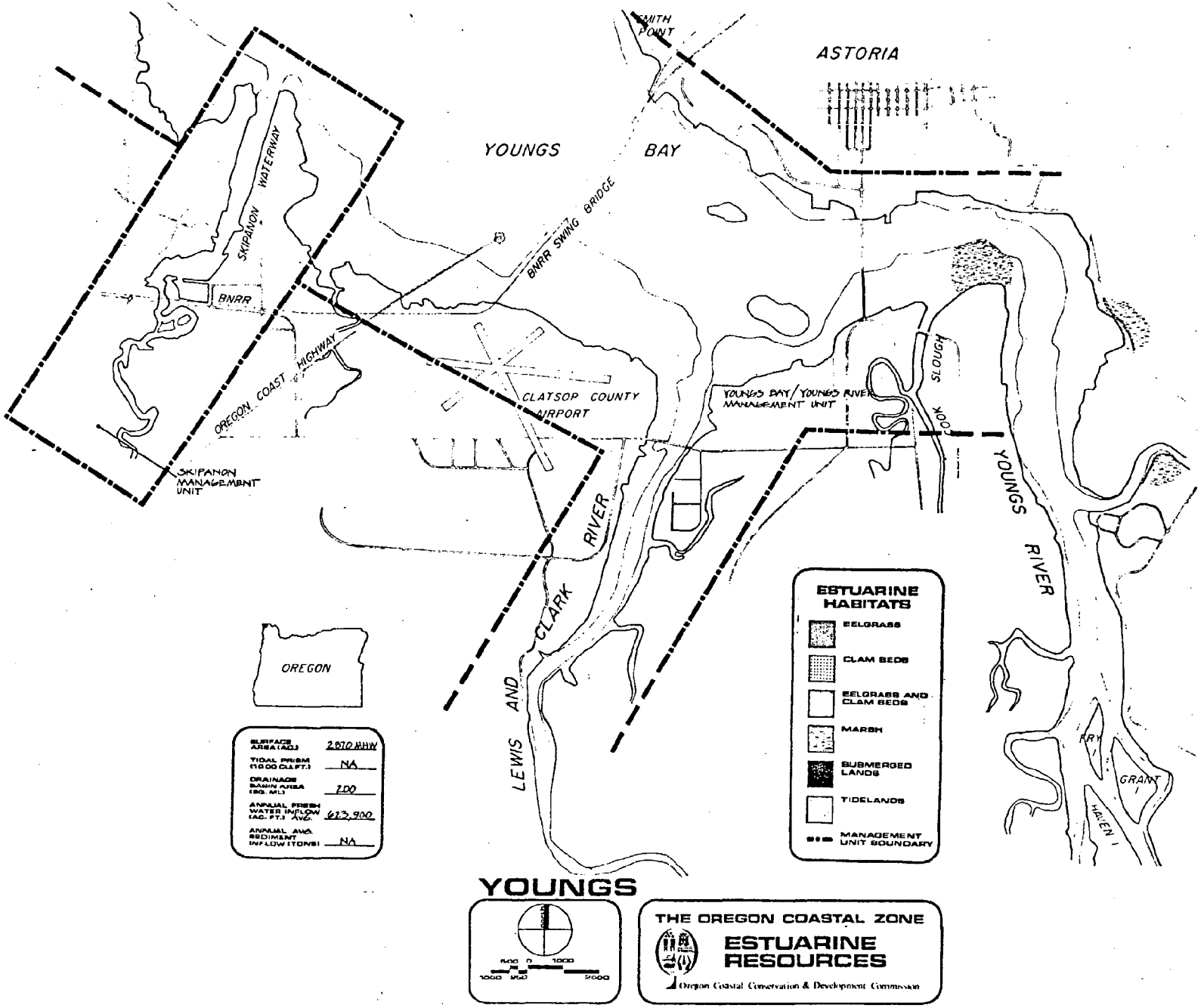
ENVIRONMENTAL APPENDIX

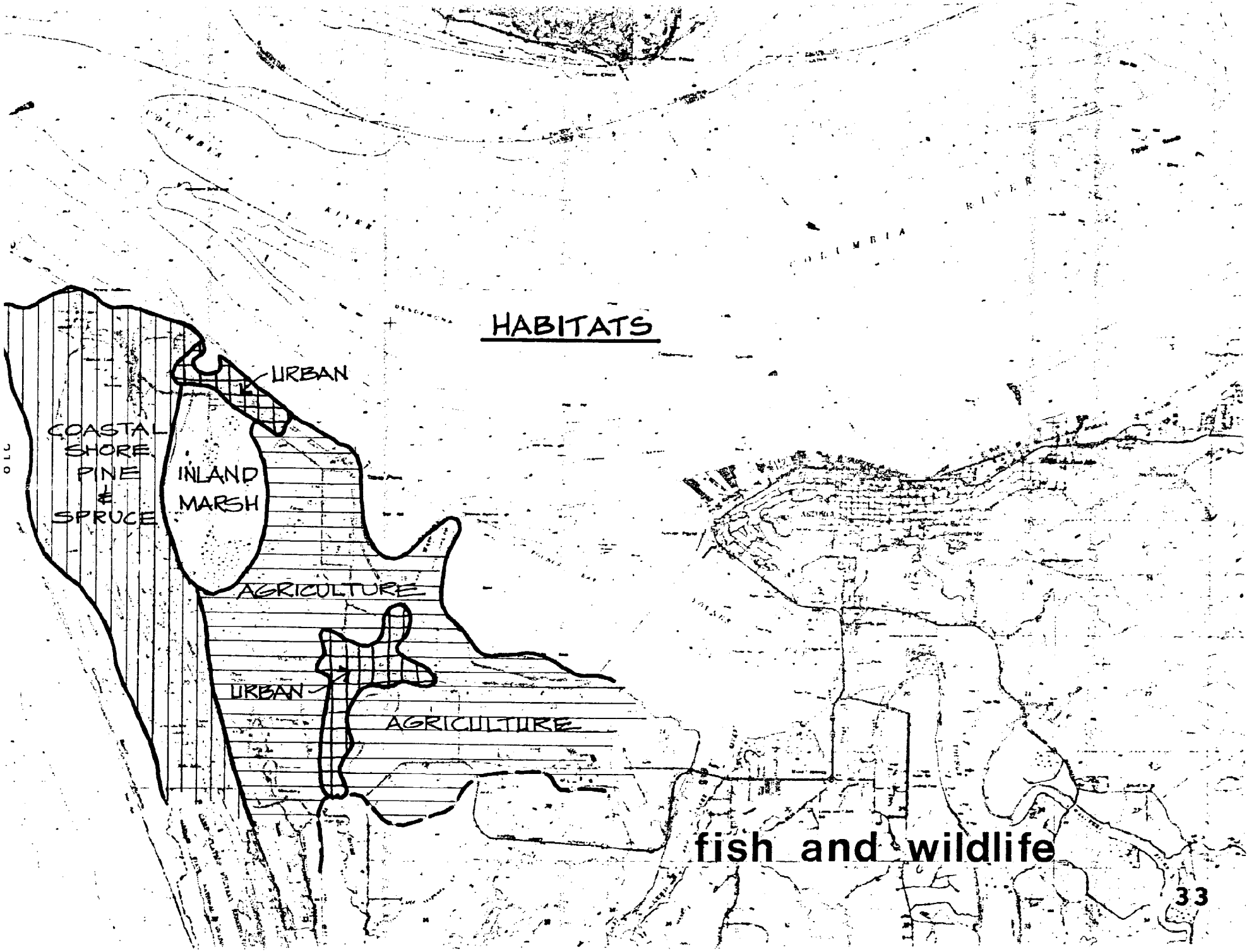
7

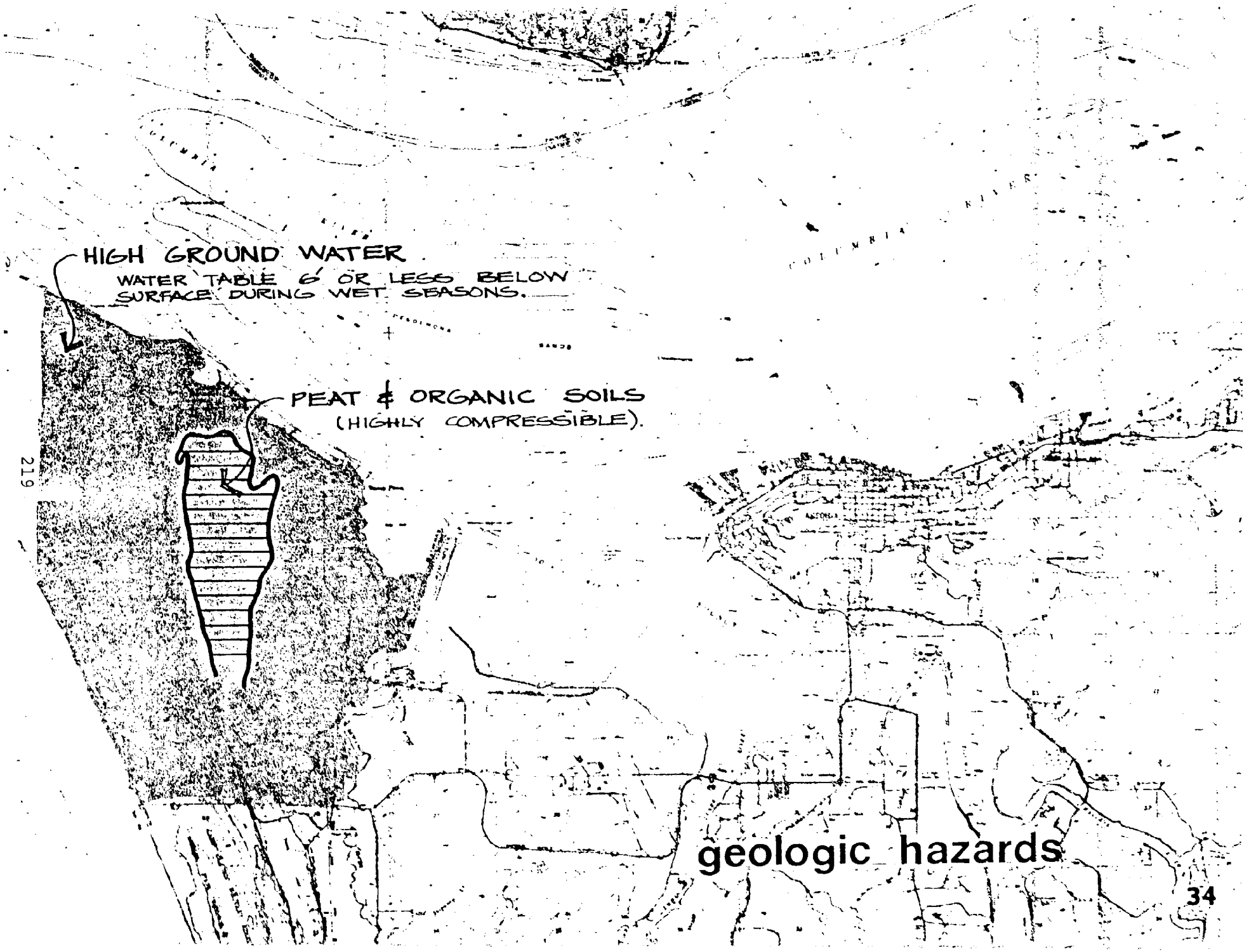
OCCDC INVENTORIES


Legend
CT COASTAL TERRACE
DS YOUNGER STABILIZED DUNES
ODS OLDER STABILIZED DUNES
OFD OLDER FOREDUNES
W WET INTERDUNE
WFP WET FLOOD PLAIN
WSP WET SURGE PLAIN
( ) INDICATES SECONDARY IMPORT
215
OFD
W
WSP
WFP
W
W (DS)
WSP
WFP
CT (ODS)

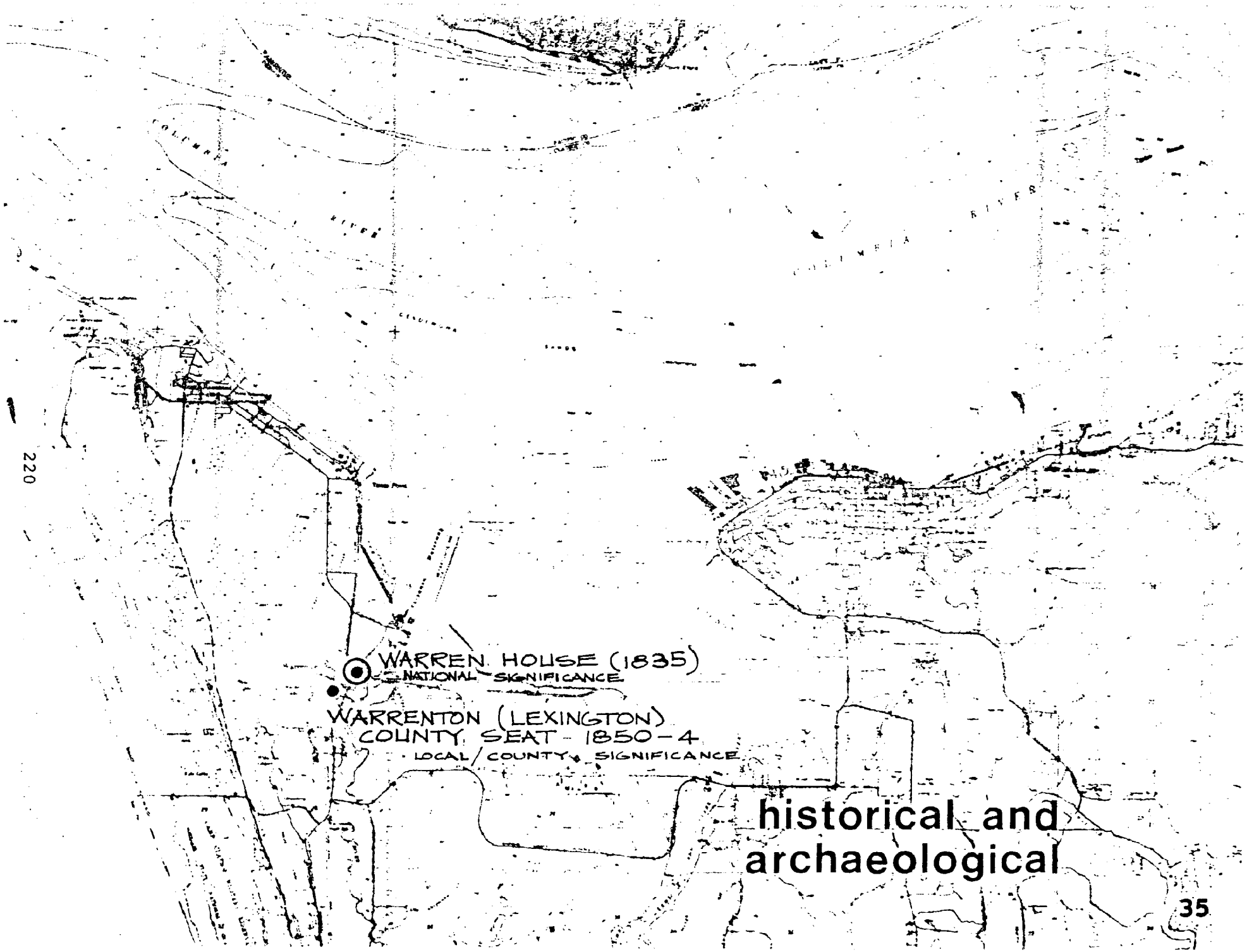

AREA SUITABLE FOR URBANIZATION
URBANIZING AREA
3
2
3
development pressures


ASTORIA
YOUNGS BAY
SMITH POINT
SKIPANON WATERWAY
BNRR SWING BRIDGE
BNRR
OREGON COAST HIGHWAY
CLATSOP COUNTY AIRPORT
SKIPANON MANAGEMENT UNIT
YOUNGS BAY/YOUNGS RIVER MANAGEMENT UNIT
SLOUGH
YOUNGS RIVER
LEWIS AND CLARK RIVER
GRANT
HALEN
OREGON
SURFACE AREA(ADJ) 2870 MHW
TIDAL PRISM (1000 CU.FT.) NA
DRAINAGE BASIN AREA (SQ. MI.) 700
ANNUAL FRESH WATER INFLOW (AC. FT.) AVG. 613,900
ANNUAL AVG. SEDIMENT INFLOW (TONS) NA
ESTUARINE HABITATS
EELGRASS
CLAM BEDS
EELGRASS AND CLAM BEDS
MARSH
SUBMERGED LANDS
TIDELANDS
MANAGEMENT UNIT BOUNDARY
YOUNGS
THE OREGON COASTAL ZONE
ESTUARINE RESOURCES
Oregon Coastal Conservation & Development Commission

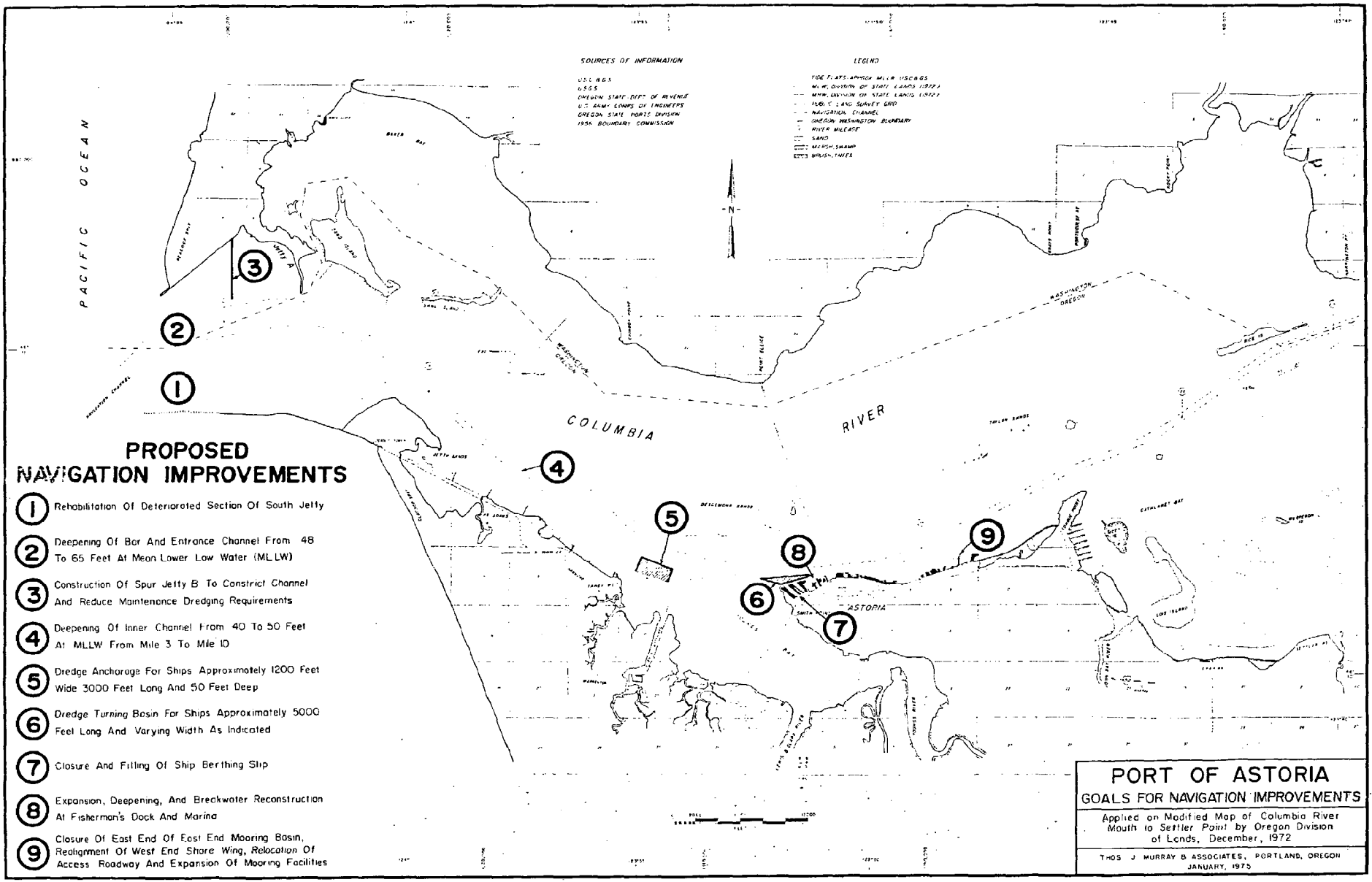

HABITATS
URBAN
COASTAL SHORE PINE & SPRUCE
INLAND MARSH
AGRICULTURE
URBAN
AGRICULTURE

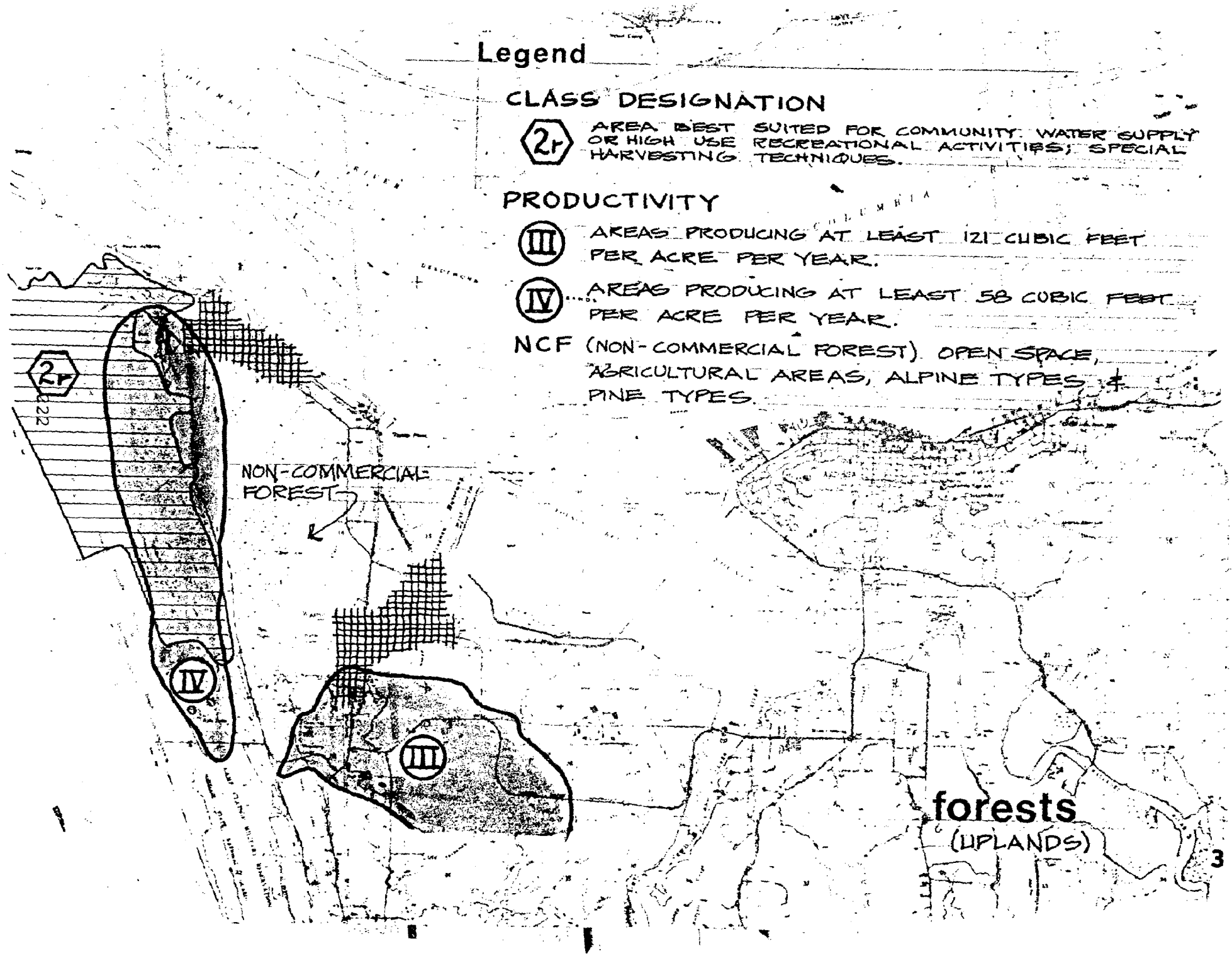

HIGH GROUND WATER
WATER TABLE 6' OR LESS BELOW SURFACE DURING WET SEASONS.
PEAT & ORGANIC SOILS
(HIGHLY COMPRESSIBLE).

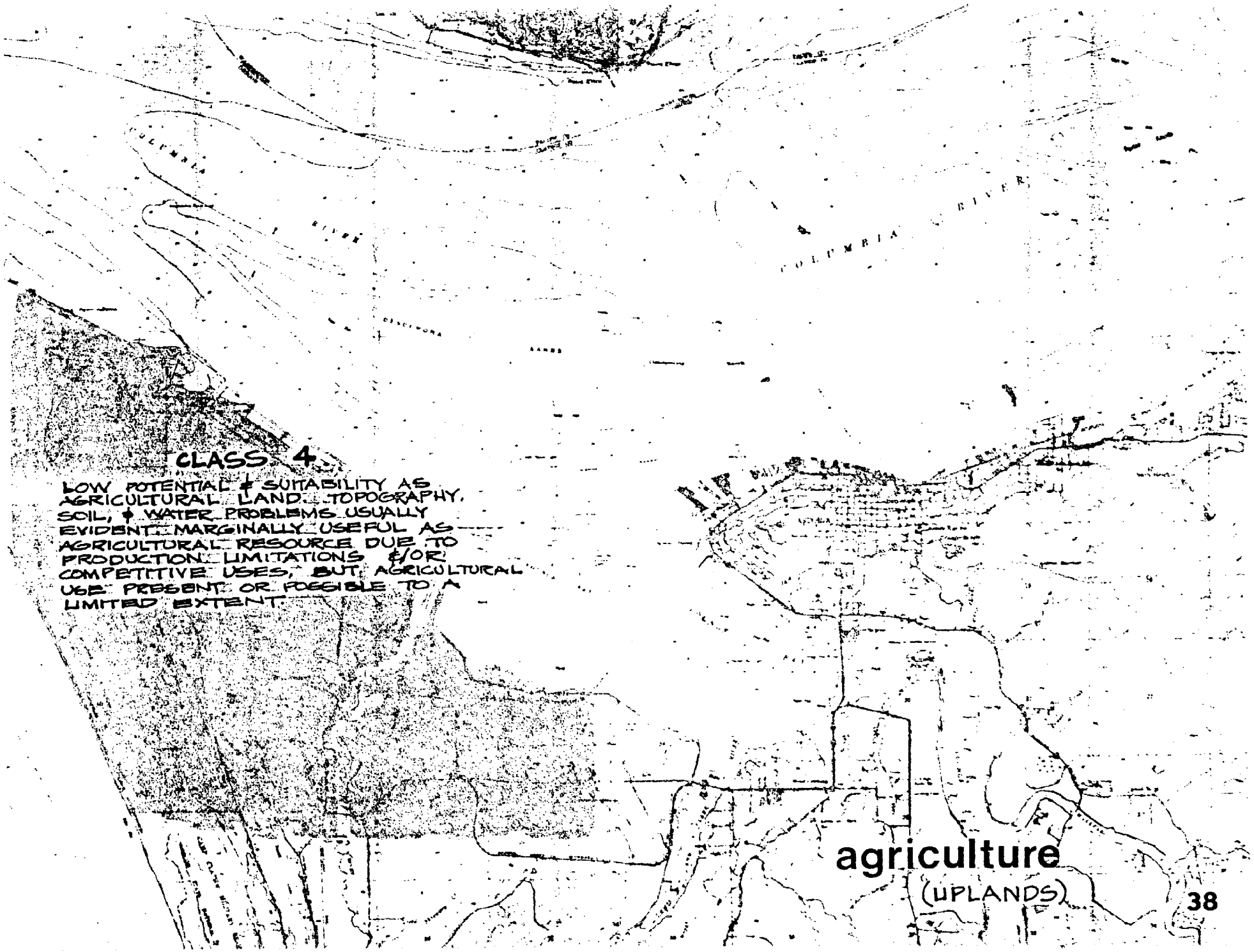
219



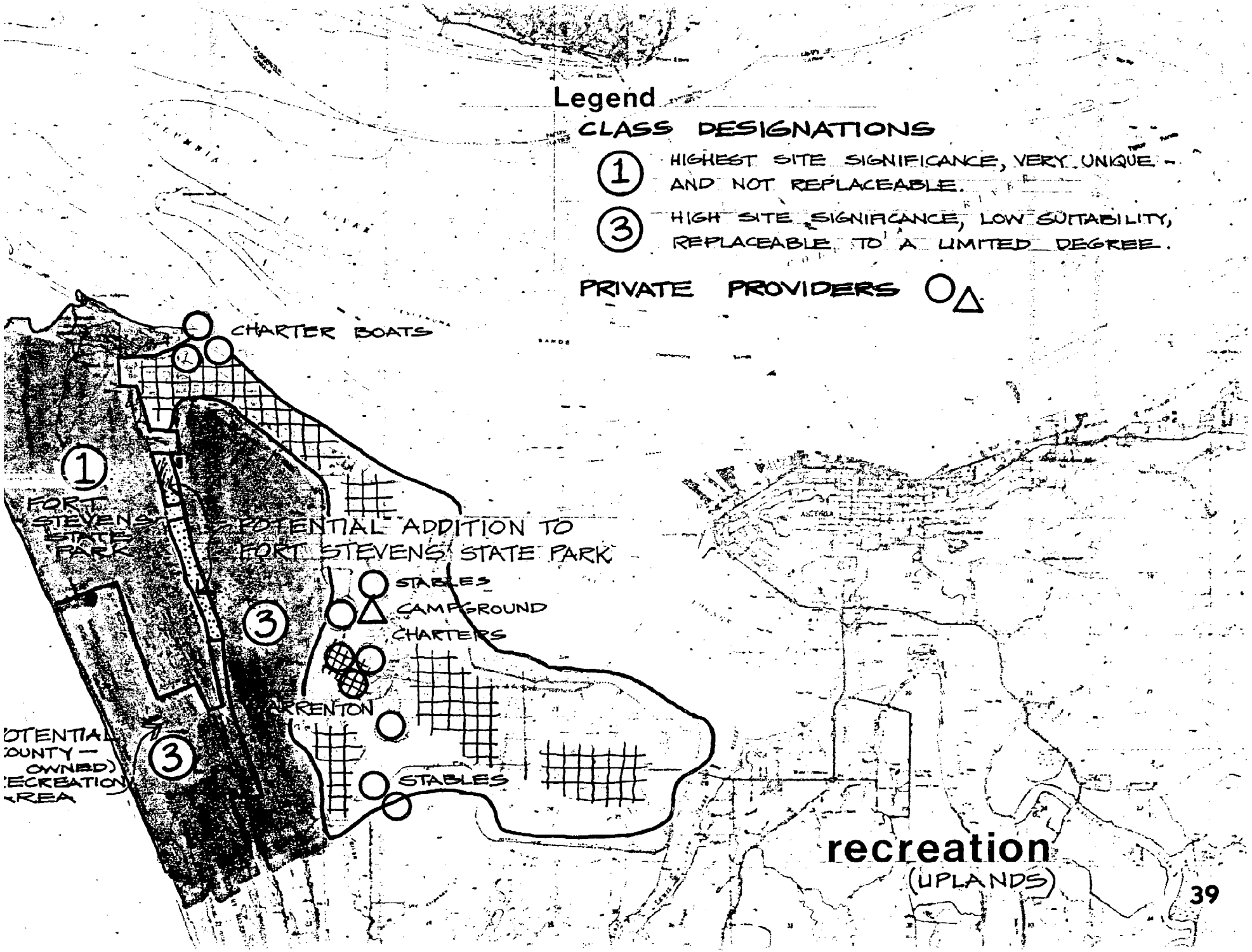
historical and archaeological

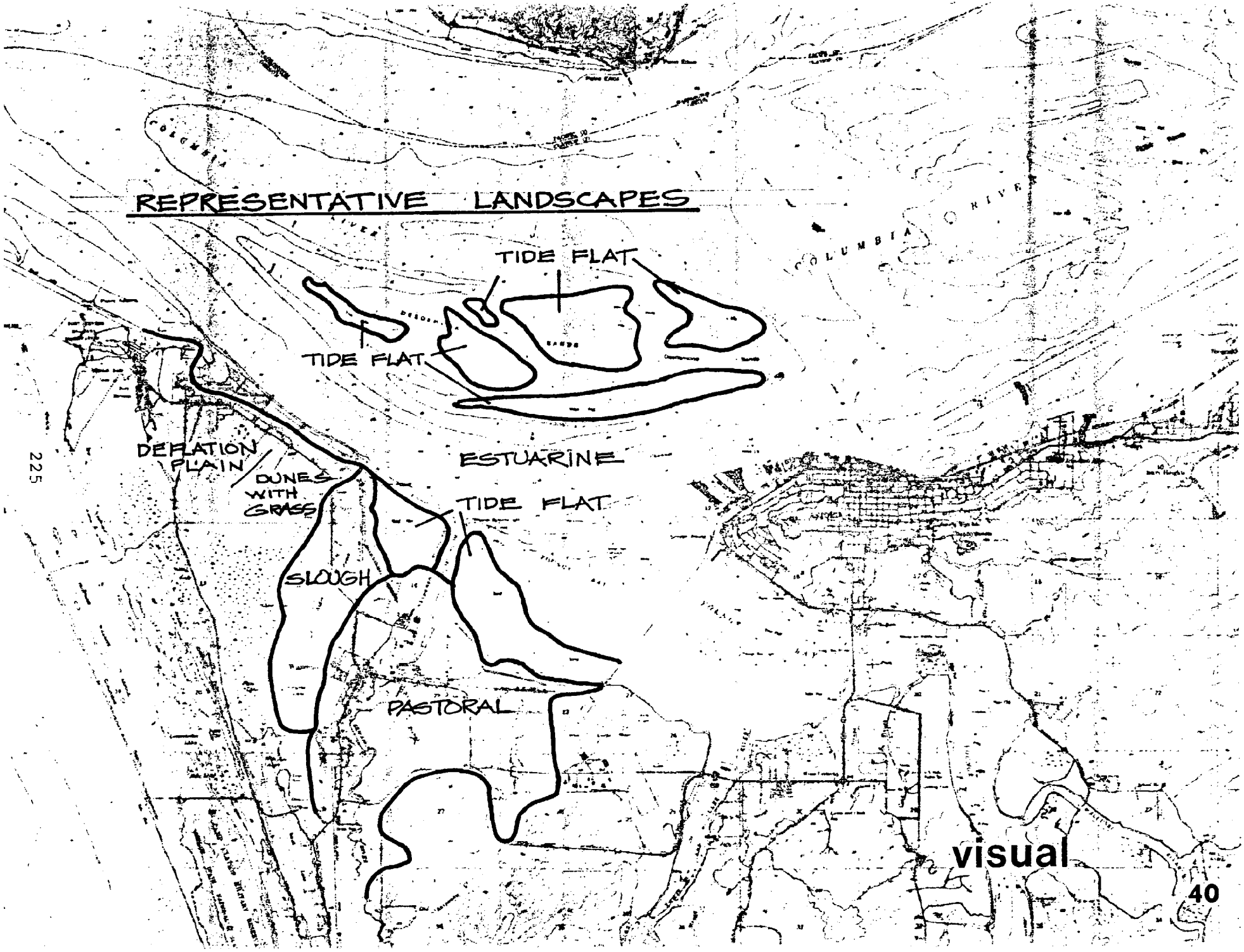

SOURCES OF INFORMATION
LEGEND
PACIFIC OCEAN
COLUMBIA
RIVER
ASTORIA
PROPOSED
NAVIGATION IMPROVEMENTS
1 Rehabilitation Of Deteriorated Section Of South Jetty
2 Deepening Of Bar And Entrance Channel From 48 To 65 Feet At Mean Lower Low Water (MLLW)
3 Construction Of Spur Jetty B To Constrict Channel And Reduce Maintenance Dredging Requirements
4 Deepening Of Inner Channel From 40 To 50 Feet At MLLW From Mile 3 To Mile 10
5 Dredge Anchorage For Ships Approximately 1200 Feet Wide 3000 Feet Long And 50 Feet Deep
6 Dredge Turning Basin For Ships Approximately 5000 Feet Long And Varying Width As Indicated
7 Closure And Filling Of Ship Berthing Slip
8 Expansion, Deepening, And Breakwater Reconstruction At Fisherman's Dock And Marina
9 Closure Of East End Of East End Mooring Basin, Realignment Of West End Shore Wing, Relocation Of Access Roadway And Expansion Of Mooring Facilities
PORT OF ASTORIA
GOALS FOR NAVIGATION IMPROVEMENTS
Applied on Modified Map of Columbia River Mouth to Settler Point by Oregon Division of Lands, December, 1972
THOS J MURRAY & ASSOCIATES, PORTLAND, OREGON
JANUARY, 1975


Legend
CLASS DESIGNATION
2r AREA BEST SUITED FOR COMMUNITY WATER SUPPLY OR HIGH USE RECREATIONAL ACTIVITIES; SPECIAL HARVESTING TECHNIQUES.
PRODUCTIVITY
III AREAS PRODUCING AT LEAST 121 CUBIC FEET PER ACRE PER YEAR.
IV AREAS PRODUCING AT LEAST 58 CUBIC FEET PER ACRE PER YEAR.
NCF (NON-COMMERCIAL FOREST) OPEN SPACE, AGRICULTURAL AREAS, ALPINE TYPES & PINE TYPES.
2r
IV
III
NON-COMMERCIAL FOREST
forests
(UPLANDS)



agriculture
(UPLANDS)


Legend
CLASS DESIGNATIONS
1 HIGHEST SITE SIGNIFICANCE, VERY UNIQUE - AND NOT REPLACEABLE.
3 HIGH SITE SIGNIFICANCE, LOW SUITABILITY, REPLACEABLE TO A LIMITED DEGREE.
PRIVATE PROVIDERS
CHARTER BOATS
1
FORT STEVENS STATE PARK
POTENTIAL ADDITION TO FORT STEVENS STATE PARK
STABLES
CAMPGROUND
CHARTERS
3
ARRENTON
STABLES
3
OTENTIAL
OUNTY-
OWNED)
ECREATION
REA
recreation
(UPLANDS)


REPRESENTATIVE LANDSCAPES
TIDE FLAT
TIDE FLAT
DEFLATION PLAIN
DUNES WITH GRASS
ESTUARINE
TIDE FLAT
SLOUGH
PASTORAL
COLUMBIA RIVER
225

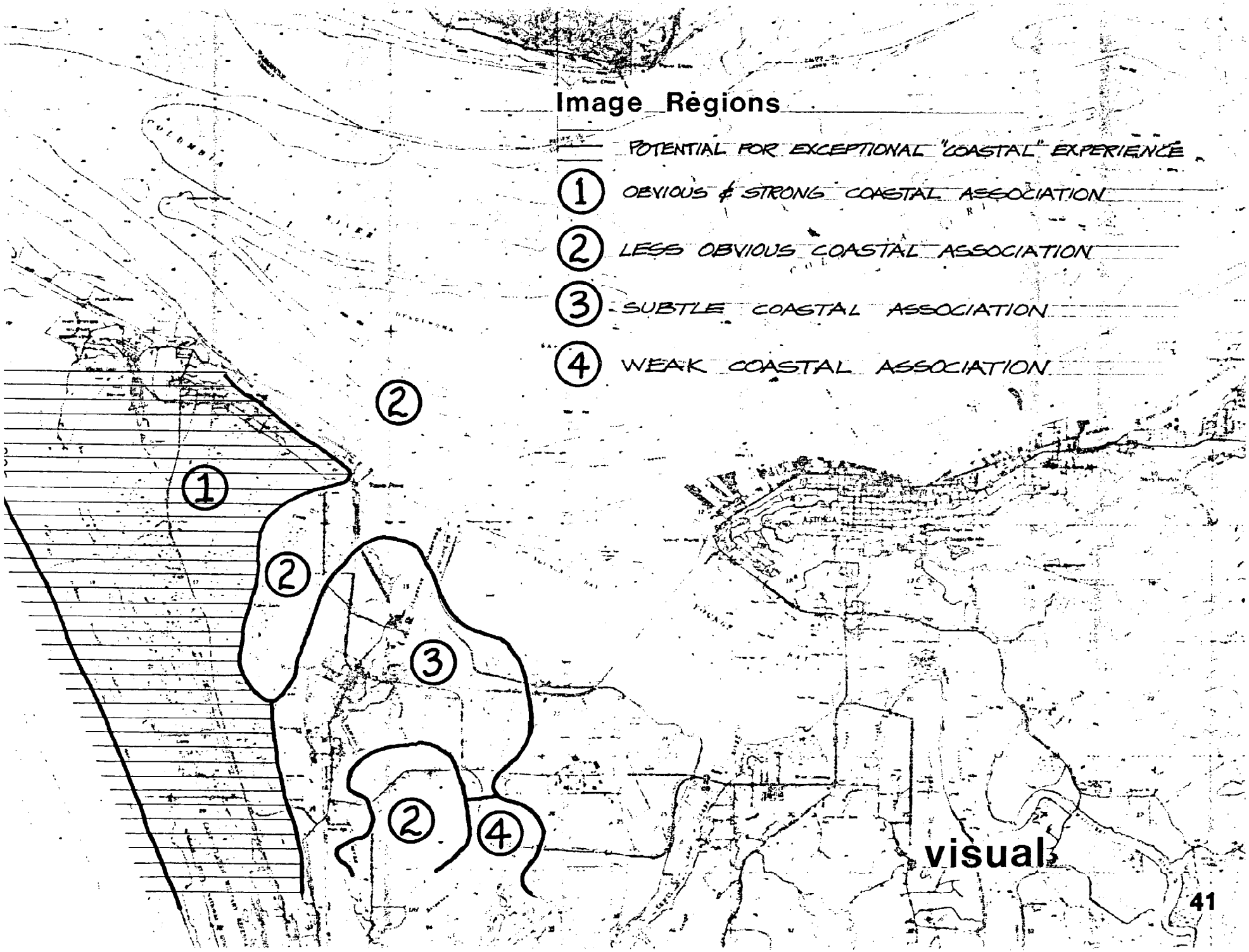


Image Regions
POTENTIAL FOR EXCEPTIONAL "COASTAL" EXPERIENCE
1 OBVIOUS & STRONG COASTAL ASSOCIATION
2 LESS OBVIOUS COASTAL ASSOCIATION
3 SUBTLE COASTAL ASSOCIATION
4 WEAK COASTAL ASSOCIATION
1
2
2
3
2
4

the City of Warrenton zoned the Tansy Point area as residential land. Officials of the Port of Astoria consider Tansy Point to have excellent potential for port development, as it is immediately adjacent to a deep, naturally scoured channel of the Columbia River. The Port of Astoria is becoming an increasingly important element of the Port of Portland system. The Port of Portland, the second-largest seaport on America's west coast, is of major significance to the economy of Oregon. A study completed by the Oregon Department of Transportation indicates that the Tansy Point area is generally suitable for port development. A review of the OCC&DC inventory system provides little specific information on Tansy Point, since the inventories are coast-wide, and generally more issue-oriented rather than site-specific. Therefore, the OCC&DC undertook a specific investigation[4] of the Tansy Point area. This investigation revealed a variety of characteristics which indicate the potential of the area for a number of different uses.

Six sources of information were consulted in developing the Tansy Point case study. These include individual OCC&DC Commissioners; the Pacific Northwest Office of Nature's Conservancy; the Port of Astoria; the City of Warrenton; Oregon State University; and, the Oregon Department of Transportation.

(a) City of Warrenton

The comprehensive plan for the City of Warrenton includes a recommendation for the zoning of the Tansy Point area as residential.

(b) Port of Astoria

At the time of the public hearing for the Warrenton Comprehensive Plan, the Port of Astoria requested that the Tansy Point area be designated as light industrial. The Port indicated that the presently deep, naturally scoured channel adjacent to the Point would accommodate deep-draft shipping. The Port also indicated that dredging at the present Port of Astoria docks is extensive, costly and inconvenient.

(c) Natures Conservancy

An inventory of potential natural areas on private lands was completed for Clatsop County, Oregon, by Nature's Conservancy in 1974. The Tansy Point area was identified as containing tidelands, tidal marsh, exceptionally diverse and productive habitat, and vanishing habitat. The report indicates that:

[4]Completed by Brian Mostue, of the University of Oregon, in conjunction with thesis research. Financial support was provided by the OCC&DC.

"The remaining marsh is very productive, both for the birds and marine life. This area is critical to help preserve the biological productivity of the Columbia River estuary. The area is very scenic and is reported to have been the site of an Indian encampment. A proposed deep water port in the area would threaten this fragile system, and destroy forever one of the most important environmental monitoring sites in the county...Recommended uses are a research natural area, a wildlife sanctuary, and a conservation zone to maintain the area as a natural estuarine ecosystem."

(d) Oregon State University

At the mouth of Alder Creek, near Tansy Point, Oregon State University has maintained a monitoring station for over ten years. The research conducted at the site has been primarily radioecology, monitoring the levels of radioactivity in aquatic organisms. The station monitors the correlation of radioactivity with flow levels of the Columbia River and emissions from the Hanford Nuclear Site. With the Trojan Nuclear Plant coming on line in the near future, the data already collected at this site has vlaue as a baseline from which to evaluate change.

(e) Oregon Department of Transportation

An identification of sites suitable for port development on the lower Columbia River was developed by Mr. Paul Norris of the Oregon Department of Transportation. The study evaluates a number of factors, (including soil, highway access, spawning grounds and other environmental characteristics) in a numerical weighting system to score individual areas for port suitability. The overall evaluation of the Tansy Point area indicated the area had only minor limitations for port development.

(f) Oregon Coastal Conservation and Development Commission

The OCC&DC development pressure inventory indicates the site is "urbanizing" with only slight or moderate limitations to development of either residential or light industrial uses.

An evaluation of the information currently available regarding Tansy Point indicates that while the area may be of more than local significance for port development, such a decision would result in the loss of other, possibly substantial values. It appears then, that a designation in favor of port development would require greater documentation of the gains and losses on either side than is presently available.

Recommendations for Designations in the Coastal Zone

The first step of the designation process has been completed for a number of areas in the coastal zone. Using the numerical rating systems, and

other characteristics in the section regarding the OCC&DC inventories, a series of areas have been identified as potential critical areas. Also, the Estuarine Sanctuaries Committee of the OCC&DC recommended that eight estuarine areas be designated as areas of critical state concern. These eight areas were subsequently designated as *tentative areas of critical state concern* by the OCC&DC.

Areas Recommended by Nomination

(1) Swash Lake (Columbia River Estuary);
(2) Netarts Bay;
(3) Sand Lake;
(4) Salmon River;
(5) McCaffrey Slough;
(6) Alsea Bay;
(7) South Slough of the Siuslaw; and
(8) Millport Slough.

Areas from Inventories

Estuaries

(1) Areas Recommended as Tentative by the OCC&DC

a. Swash Lake (Columbia River);
b. Netarts Bay;
c. Sand Lake;
d. Salmon River;
e. McCaffrey Slough (Yaquina Bay);
f. Alsea Bay;
g. South Slough of the Siuslaw; and
h. Millport Slough (Siletz Bay).

(2) Areas Considered Suitable from Evaluation of Inventories

a. Natural Resources

Criteria (1) and (2) - Critical Area Guidelines,

(1) Netarts Bay,
(2) Sand Lake,
(3) McCaffrey and Pooles Slough (Yaquina Bay),
(4) North and Haynes, South and Joe Ney Sloughs (Coos Bay),
(5) South Slough (of the Siuslaw)
(6) Little Nestucca River,
(7) Salmon River.

Criteria (3) and (4),

(1) Tansy Point, lower Columbia River,
(2) Other lower Columbia River areas (to be evaluated),
(3) Yaquina Bay (selected locations to be evaluated),
(4) Coos Bay (selected locations to be evaluated).

b. Coastal Values

(1) Netarts Bay (unique natural habitat and physical feature)
(2) Sand Lake (unique natural habitat and physical feature),
(3) Potential Scientific Natural Areas,

(a) Big Creek and Little Creek Estuary, Clatsop County
(b) Tansy Point, Clatsop County, (N.C.),
(c) Lewis and Clark River Marsh, Clatsop County
(d) Necanicum River Tidelands and Salt Marsh,
(e) Lazarus Island, West Island, and Dean Point marshes, Nehalem Bay,
(f) Confluence of Nestucca and Little Nestucca Bays,
(g) McCaffrey and Poole's Slough,
(h) Eckman Slough, Alsea Bay,
(i) Cox Island marshes, Siuslaw River, and
(j) North Slough marshes, Coos Bay,

(4) Marsh Areas of Scenic Importance (and accessible to people),

(a) Lazarus Island, West Island, and Dean Point marshes, Nehalem Bay,
(b) North Slough marshes, Coos Bay.

Freshwater

Within the OCC&DC Beaches and Dunes Inventory, the Fish and Wildlife Resources Inventory, and the Freshwater Resources Inventory the larger lakes of the coastal zone have been characterized as:

(1) areas of high natural productivity or essential habitat for living resources;

(2) areas of substantial recreation value and/or opportunity; and

(3) important sources of municipal and industrial water supplies.

Because of the sensitivities of these resources and the multiple-use relationships involved the areas suggested below are candidate areas of critical statewide concern and will be reviewed by the Commission at a

later date in accordance with the process approved by the Commission on September 13, 1974 (see staff memo dated July 31, 1974 in the September staff packet on Criteria and Procedures for Selecting Areas of Critical Statewide Concern).

Cullaby Lake	Clear Lake	Tahkenitch Lake
Devils Lake	Munsel Lake	Eel Lake
Sutton Lake	Cleawox Lake	North Tenmile Lake
Mercer Lake	Woahink Lake	Tenmile Lake
Collard Lake	Siltcoos Lake	Floras Lake
Lily Lake		

Shorelands

Because the OCC&DC has not conducted a resource inventory of the shorelands of the coastal zone, there are not, at this time, specific recommendations for shorelands of critical state concern. However, because of the relationship of shorelands with other coastal resources, the appropriate state agency should investigate the following as potential areas of critical state concern:

(1) shorelands suitable for the location of thermal and nuclear power plants (only in those areas designated as "suitable" by the Oregon Nuclear and Thermal Energy Council);

(2) shorelands associated with or in proximity to water areas designated as potential areas of critical state concern in other policy categories (such as certain estuaries and the large lakes of the coastal zone); and

(3) shoreland areas where there is a major conflict between users of the resource, or where a major public concern has been expressed.

Uplands

Recreation and forest resources in the coastal zone are some of the most valuable in the state. In addition, developable (urban) land in and around the shipping ports on the coast may be of particular state value considering the economic contribution port related industries make toward the total state economy. However, no particular geographic area of the coast involving forest, agriculture, urban or recreation resources is recommended for consideration as an Area of Critical State Concern at this time. Using the OCC&DC Resource Analysis of Oregon's Coastal Uplands and Inventory of Development Pressures, some areas may be identified as having potential for this designation depending on values identified in other studies.

Beaches and Dunes

The State of Oregon through its Beach Law (Act 601 - 1967) has identified a statewide interest in the use of its beaches. The extent of this law and its administration by the State Parks and Recreation Office of the Highway Division results in more extensive state management than would occur in designated areas of critical state concern.

Only one sand area, that which borders the Dunes National Recreation Area (primarily between the NRA boundary and the Coast Highway), is recommended for consideration as an area of critical state concern. The strong competition for use of this area; the multi-jurisdictional (local, state, federal) responsibility for planning and regulation and the differing opinion as to proper management of the area have created a need for coordination. The fact that the Federal Government has established the adjacent NRA as a scenic and recreational resource of national significance adds to the importance of this area. This expression of national interest in turn calls for special consideration by the state in fulfilling its Coastal Zone Management responsibilities.

Visual Values

Based on the established process of identification for areas of statewide concern and the OCC&DC Visual Resource Analysis, all areas identified as Special Image Regions (i.e., those of exceptional visual significance) are recommended for consideration as areas of critical state concern because of their visual quality and character. These include the beaches, many headlands and dune areas, and the sandspits on the Nehalem, Tillamook, Netarts, Salmon, Alsea, Sixes and Elk Rivers and on Euchre Creek.

Fish and Wildlife Habitat

The OCC&DC Fish and Wildlife Inventory does not establish a preference of use system based on habitat characteristics. It does, however, indicate those uses, by habitat type, which have impacts upon fish and wildlife resources. These descriptions form the basis upon which a preference of uses system could be established by the state in cooperation with the local units of government. Similarly, there are, at present, no recommendations for particular fish and wildlife habitat areas to be designated as areas of critical statewide concern. Although sufficient indication of important habitat types (significant habitats) is provided in the inventory, essential values of many of these areas may be maintained by managing specific uses.

A more intense form of state management may be appropriate for specific areas of unquestionably significant fish and wildlife habitat (such as a bay with unique shellfish) and these are values which should be considered in designating other areas (such as estuaries, lakes, or dunelands) as being of critical state concern. However, since fish and

wildlife occur throughout the coastal zone, protection of basic habitat values should remain the general focus of management concern.

Historical and Archaeological Sites

The areas suggested below are candidate areas of critical statewide concern and will be reviewed by the Commission at a later date in accordance with the process approved by the Commission on September 13, 1974 (see staff memo dated July 31, 1974 in the September staff packet on Criteria and Procedures for Selecting Areas of Critical Statewide Concern).

(1) those sites in the coastal zone designated in the National Register of Historic Landmarks,

a. Fort Astoria - Astoria, Clatsop County,
b. Elmore Cannery - Astoria, Clatsop County,
c. Fort Stevens - Astoria, Clatsop County,
d. Fort Clatsop National Memorial - Clatsop County, and
e. Marshfield Sun Building - Coos Bay, Coos County.

(2) those sites in the OCC&DC Historical and Archaeological Inventory identified as being of national and statewide concern, but which are not included in the National Register of Historic Landmarks;

(3) nine districts, or areas, within the coastal zone which contain a concentration of sites of state and national significance. These include the following communities, which contain a significant concentration of sites:

a. Astoria - Clatsop County;
b. Manzanita - Tillamook County;
c. Siletz - Lincoln County;
d. Gardiner - western Douglas County;
e. Scottsburg - western Douglas County;
f. Coos Bay - Coos County;
g. North Bend - Coos County;
h. Port Orford - Curry County; and
i. Wedderburn - Curry County.

Management

The state must assure that the purposes for which a critical area was designated are provided for in management. To achieve this, the first step is taken by a state agency, which gives preliminary approval to the suggested designation of a particular area. At that time, the agency would complete a summary report on the reasons for designation. The next step (after agreement to proceed on the designation process is

received from the policy body which oversees the land use agency) is a detailed inventory of the site (from existing data) by a team of state resource specialists, and others as described previously. The establishment of management alternatives for the South Slough of Coos Bay, Oregon (the nation's first designated estuarine sanctuary) could be considered as a model for this process. The goals for the management of South Slough are set in the Coastal Zone Management Act of 1972, and in the adopted sanctuary guidelines agreed to by the federal government and the State of Oregon. The sanctuary is a "research area which may include any or all of an estuary, adjoining transitional areas, and adjacent uplands, constituting to the extent feasible a natural unit, set aside to provide scientists and students the opportunity to examine over a period of time the ecological relationships within the area." After the initial designation, the State of Oregon established a management team for the area, which consisted of specialists from the state resource agencies, Nature's Conservancy, the Oregon State University remote sensing laboratory, private industry, and local units of government.

The team developed an inventory of the sanctuary area which included the following:

(1) fish and wildlife in the estuary and its tributary streams;
(2) the boundaries and ownerhsip of parcels of land in the proposed sanctuary area;
(3) proposed planning and zoning designations in the area;
(4) residence and access locations;
(5) slope;
(6) visual resource qualities;
(7) an analysis of the vegetation and characteristics; and
(8) the environmental geology of the area.

Subsequent analysis of the data base and team discussions led to the identification of existing and potential management problems, such as the control of sedimentation from logging and other land development practices, and the limits to be placed on recreational use of the area. The next step was to identify the alternatives for area management, and to select that alternative which seemed most consistent with the purposes of designation. The final step, of course, is to assure that the state will have the authority and means to provide for proper management through time.

The Oregon Coastal Conservation and Development Commission recommends that:

(1) a formal process for designation of critical areas similar to the one described in this report be adopted by the State of Oregon;

(2) the state initiate a critical area identification process in the coastal zone, based on:

a. *meetings and workshops with citizens and local officials in the coastal zone;*

b. *candidate critical areas identified in this report; and*

c. *detailed analysis of the OCC&DC inventory reports.*

THE ROLE OF INFORMATION IN THE OCC&DC PROGRAM

Coastal zone management is complicated by increasing and often conflicting demands upon natural resources. To achieve rational decisions that reduce impacts, prevent irreversible effects and provide an equitable response to users, more data and information is needed about the physical, biological, chemical, social, political, economic and legal aspects of the coastal environment. This type of information is needed throughout the coastal zone management process, from definition of the scope and direction of the program to planning for resource management and implementation and enforcement of the plan.

In this section of the report, aspects of the need for and use of information in coastal zone management will be discussed in three parts:

1. information in the OCC&DC policies and inventories;
2. information needs for management and decision making; and
3. development of a land use/resource information system.

Development of Information in OCC&DC Policies and Inventories

The direction for use of information in the OCC&DC management program was provided by the legislation which created the Commission, and the identification of the 18 categories of critical concern by the OCC&DC in June, 1972. Contained within the OCC&DC legislative charge are four basic tasks.

1. prepare and submit a plan for (conservation) preservation and development of the natural resources;
2. provide a standard against which proposed uses of natural resources can be evaluated;
3. establish a system of preferences between conflicting uses; and
4. consider the following in development of the plan:
   a. quantity, quality and movement of coastal waters;
   b. ecological balance of estuarine and marine resources;
   c. economic interests in the coastal zone, including but not limitied to commercial and recreational fishing interests;
   d. projected population growth and employment needs within the coastal zone;

e. scientific data on hydrology, geology, topography, and other relevant topics;

f. federal, state and local/plans and surveys; and

g. local land use plans.

Each of these tasks is related to the development and use of some type of information about natural or cultural resources in the coastal environment. With the identification of 18 specific categories of concern such as estuaries, beaches and dunes, shorelands, industrial lands, and unique scenic features, the basic approach for collecting and recording coastal zone management information was established. Consequently the information and policy development processes undertaken by the Commission follow these category designations.

The OCC&DC goal and objectives further clarify the Commission's position concerning the role of information in coastal management. The following OCC&DC objective specifically addresses information:

> To manage the natural resources of the coastal zone on an evolving experimental and flexible basis so that as experience with and knowledge of the coastal zone increases, revision and improvement of the program can be effected and so that irreversible actions are avoided and thus, future options are retained.

a. Encourage, monitor, and sponsor research on the coastal zone that is relevant to and consistent with the goals and objectives of the management program;

b. Identify, coordinate, store, retrieve, and disseminate information that is both necessary and sufficient for the continuing implementation of the management programs; and

c. Establish an organizational structure to conduct the coordination, storage, retrieval and dissemination of information that is sufficient for the management program but does not duplicate or supersede existing activities.

Inadequate funding limited the early development of information by the Commission. In the absence of comprehensive resource and economic information, Phase I policies incorporated the concerns identified by the OCC&DC public workshops, resource specialist teams and existing laws and policies. The OCC&DC Overall Program Design completed by staff in February, 1973 proposed the completion of natural resource inventories, an economic study, a basic environmental inventory, a coordinated mapping program and an information storage and retrieval system. During this period, staff initiated work on the coastal wetlands inventory and a consultant completed a draft of the historical and archaeological inventory. In addition, the Soil Conservation

Service began work on a beaches and dunes inventory following the Commission's request for such assistance in June, 1972. (See Appendix F for letter of request to SCS.)

Anticipating the availability of federal funds for development of resource information, an advisory inventory subcommittee was formed to assist the OCC&DC in designing an inventory process for coastal resources. Participants were chosen for their expertise in environmental analysis and resource management. They included representatives of state and federal agencies, university faculty and students, the Sea Grant Office and the Environmental Remote Sensing Applications Laboratory of Oregon State University, and the Bureau of Government Research of the University of Oregon. During the summer of 1973, the Committee worked with the OCC&DC staff to define what the inventories should contain. Existing information sources and gaps, appropriate mapping scales, land use classification systems, suitability modeling and methods of data storage and retrieval were all discussed. At the same time, coastal councils of governments and county and city planning offices were consulted to identify existing information sources developed by local governments and to elicit comments of their information needs for effective coastal planning. An earlier study completed by the OCC&DC concerning the planning activities of federal and state agencies and local governments was also used.

Soon after the OCC&DC received its federal coastal zone management grant (during the spring of 1974), nine resource inventory reports and mapping, an economic analysis, and a study of implementation alternatives were begun. Most of the inventories were developed between March and October, 1974. With the short time period available for inventory work, the process shifted from an in-house staff function (as in the wetlands inventory) to contractual arrangements with state agencies and private firms. To the greatest extent possible, inventory contracts were made with the agency responsible for management of the particular resource category. The Soil Conservation Service, Fish and Wildlife Commissions, Water Resources Board, and the State Department of Geology and Mineral Industries developed inventories for the Commission. Other inventories were completed by private consulting firms under the direction of special OCC&DC inventory steering committees and staff members. These committees were made up largely of the OCC&DC Commissioners. This process helped bring greater relevancy to the product and familiarized commissioners with the information and management concepts presented in individual inventories.

The primary purpose of the inventories was to provide information that could be used in developing and refining resource management policies. The inventories created a base for a continuing, comprehensive analysis of resources, rather than a focus on short-term problem oriented studies of specific uses, such as log storage. The management of various uses was addressed by assessing impacts and preference of uses.

Work elements common to all inventories included:

1. Definition of the resources;

2. Description of the location, extent, and inherent characteristics and values of the resources;

3. General description of the major human uses of the resource;

4. Evaluation of the positive and negative impacts of these uses;

5. A priority or preference of uses based on evaluation of impacts;

6. General management concepts suggested by information collected, and a description of how this information may be used;

7. Suggested additions, deletions, or modification of Phase I policies based on the concepts developed in (6) above; and

8. Mapping of each resource area or sub-area including a rating based on the relative importance of area characteristics and values to the total resource in the coastal zone. General criteria considered necessary in the rating included:

   a. existing resource characteristics and values;

   b. expected impacts on the resource;

   c. requirements for conservation of the resource; and

   d. other criteria shown to be significant by inventory.

The inventory products also included a narrative report which treats Items (1) through (7) above and supportive graphics and large scale resource maps.

The OCC&DC base maps prepared from 1:62,5000 and 1:250,000 USGS quadrangles. These were considered to be the best available maps of common scale for use by planners and decision makers. The estuary inventory was completed at a scale of one inch equals 1,000 feet because the Division of State Lands' base maps were available for the inventory of each estuary. The 1:62,500 maps were joined into nine composite maps and the 1:250,000 maps into two composites to facilitate reproduction of inventory data and map handling. Both the base maps and overlays for each resource category were recorded on clear mylar so they could be reproduced or overlayed to compare the characteristics and values of one resource with those of another. The

smaller scale maps were intended to serve as an index, whereas the larger scale (1:62,500) maps were to provide the basis for recommending various resource management approaches.

The 12 categories of critical concern, reduced in number by combining several of the original 18 categories, were separated into those addressing natural resources, coastal values and constraints on coastal management. The information contained within each OCC&DC inventory can be summarized as follows:

Natural Resources

(1) Estuaries - Estuarine Resources of the Oregon Coast (Appendix J)

Prepared by: Wilsey and Ham, Inc. (consultant)

Maps: 1" to 1,000' for 21 Oregon estuaries. Estuarine habitats, (eelgrass, clam beds, marsh, submerged lands, tidelands and management unit boundaries); and

Shoreland uses (residential, industrial/manufacturing, commercial agricultural, public, structures and important features).

Narrative: The legislation which created the OCC&DC directed the Commission to prepare a plan which considers, among other things, the quality, quantity, and movement of estuarine waters and the ecological balance of estuarine resources. The consulting team which compiled this report consisted of specialists in the physical, biological and social sciences. Through review, refinement, and condensation of available information into an organized format, the complex factors relating to the natural characteristics, use, impacts, and management of these key coastal resources are addressed.

Estuaries are treated as "systems". The report focuses on the interrelatedness of environmental components and establishes a classification system for the 21 estuaries of the Oregon coast and their 40-50 subcomponents. Based on a variety of physical and cultural criteria, estuarine areas are classed into 12 major types. Boundaries are set for a large number of "management units" in the coastal zone, each of which represents one of the types in the classification system.

In addition, the report examines the impact of human uses and activities on estuarine shorelands and drainage basins and land uses (which included industrial, commercial, transportation, residential, recreational, farming, watershed logging, and watershed agriculture). These activities and uses are categorized in terms of functional

relationships and intensity. The report compares the biophysical and human use classification systems in order to determine the levels of intensity of human activity which may be tolerated by each estuary type before biophysical characteristics are substantially modified. Finally, applying this general framework for analysis, the report discusses each individual estuary and identifies appropriate geographical subdivisions (management units).

(2) Wetlands - Coastal Wetlands of Oregon (Appendix K)

Prepared by: Glenn J. Akins, Carol A. Jefferson

Maps: 1" to 1,000' for 16 Oregon estuarine areas. Sketch maps of numerous inland wetland areas. Eight types of tidal marshes delineated based on plant succession, composition of substrata and human alteration. Management overlay indicates recommendations for management of individual areas.

Narrative: The coastal wetlands of Oregon are a vital natural resource. Much of our sport and commercial harvest of fish and shellfish is dependent on the food and shelter afforded by estuarine wetland areas such as tidal flats, salt marshes and shallow estuary waters. Additionally, the inland marshes, swamps and bogs of the coastal zone produce many species of fish and wildlife and lessen the damage of flood and drought periods through the storage of ground and surface waters.

This study, conducted by the OCC&DC staff with the aid of numerous state and federal agency resource specialists and personnel of the Department of Botany and Plant Pathology at Oregon State University contains an identification and description of coastal wetlands in terms of (1) location and extent, and (2) important physical and biological characteristics. Individual wetland types which occur in the coastal zone include:

Estuary Wetlands	1. shallow estuarine waters;
	2. eelgrass beds;
	3. tidelands;
	4. coastal tidal marshes;
Inland Wetlands of the Coastal Zone	5. inland fresh marshes;
	6. bogs and swamps;
	7. lakes and reservoirs;
	8. riparian vegetation; and

9. inter-dune wetlands or "dune marshes".

Through the use of existing maps and aerial photographs as well as field work and library research, the extent and location of wetland areas were identified. In addition, eight distinctive vegetation types within the general salt marshes category have been delineated. The report describes and maps the individual wetland areas of the coastal zone based on identified type characteristics. Wetland functions and values, the uses of wetland areas and impacts resulting from their modification are also discussed. The report concludes with identified management needs and goals, existing policy and alternatives, and a suggested management approach.

(3) Beaches and Dunes - Beaches and Dunes of the Oregon Coast

Prepared by: U.S. Soil Conservation Service with assistance of the OCC&DC staff. (Appendix L)

Maps: Aerial photos (approximately 1" to 1 mile) 20 types of beach and dune landforms, areas of shoreline erosion and dune migration delineated for the entire coast and mapped by county units. The information was also delineated on the OCC&DC 1:62,500 maps.

Narrative: Natural beach and dunes systems have diverse values and are dynamic in character. This report, compiled through field work, aerial photos interpretation and research by various specialists in the U.S. Soil Conservation Service, presents inventory data and associated interpretations regarding the sand dunes and related landforms of the coastal zone. The report includes:

1. an explanation of the components of the dune resource;
2. a set of dune resource inventory maps by county;
3. tabular data showing acreage by dune category as well as lengths of dune encroachment and rates of dune movement; and
4. provides interpretations of the dune inventory mapping units with regard to use characteristics and impacts.

(4) Shorelands - The Shore-Process Corridor - A Pilot Study

Prepared by: Wolf Bauer (consultant) (Appendix M)

A pilot project was conducted to determine the basic components of the public interest in shorelands and to identify logical boundaries for such areas for planning

and management. The central concept of the discussion is the view of shorelands as a shore-process corridor resulting from the interaction of geologic and hydraulic processes. The report includes discussion of the following:

1. the anatomy of the shore-process (zones, boundaries, and long-shore sectors);
2. shore-process energy systems;
3. functions of the shore-process corridors;
4. parameters for a management program; and
5. the legal implications of the shore-proces corridor concept.

(5) Freshwater (incorporates Freshwater Lakes and Streams) - Freshwater Resources of the Oregon Coast (Appendix N)

Prepared by: State Water Resources Board

Maps: 1:62,500 - Existing water use policy for the coastal zone. Second overlay - available in-stream water, water demand, and high-priority reservoir sites in the coastal zone.

Narrative: The inventory summarizes existing State Water Resources Board data about the coastal zone and identifies the climatic and topographical factors that both influence and control the available water resource for major coastal drainage basins. The primary characteristics of the coastal water resource is a sufficient supply on an annual basis but a disparate seasonal distribution which results in water use conflicts during low flow (summer) months. Major uses as well as existing and anticipated needs for domestic, municipal, industrial, irrigation, recreation, fish and wildlife purposes are discussed. The report directs attention toward:

1. increased conflict between consumptive and non-consumptive water uses; and
2. development of surface storage and establishment of adequate minimum stream flows to provide a balance between direct use and maintenance of other resource related values.

The report relates these conclusions to management and includes a discussion of existing coastal zone water policies including exercise of existing water rights and use restrictions, water availability, reservoir potentials, and regional water supplies. There is also a brief discussion of flooding in the coastal zone which identifies important flood causing factors for significant problem areas.

(6) Uplands (incorporates forest and watershed lands, agricultural lands, and recreation lands) - Resource Analysis of Oregon's Coastal Uplands (Appendix O)

Prepared by: Moreland/Unruh/Smith (consultant)

Maps: 1:62,500 - Location, extent and suitability of lands for urban development, agriculture, forestry and recreation.

Narrative: This report provides an inventory of forestry, agriculture, and recreation areas in the coastal zone. Forest lands are those lands which are most suitable for the growth of forest tree species. Agricultural lands are those lands which are most suitable for grazing, production of plant and animal crops, open space, or small woodlot management. Recreation includes a mixture of resources related to facilities, activities, and natural amenitites that offer the opportunity for participation in outdoor oriented, leisure-time pursuits. The report identifies multiple use lands which are those found to be equally suited for more than one of the above three uses.

(7) Fish and Wildlife - Fish and Wildlife Resources - Oregon Coastal Zone (Appendix P)

Prepared by: Oregon Wildlife Commission, Fish Commission, and SRG Partnership (state agencies and consultant)

Maps: 1:62,500 - Location and extent of 28 vegetation habitat types in the coastal zone. 1" to 1,000' - habitats in Oregon estuaries. 1:250,000 - offshore fishing habitats on the Oregon continental shelf. Sketch maps - critical areas.

Narrative: The Oregon coastal zone contains a great variety of fish and wildlife and a number of different habitat types. Many species of both commercial and recreational significance are associated with these habitats. This report, developed by staff members of the Oregon Fish and Wildlife Commissions, describes the fish and wildlife habitats in the coastal zone under the general headings of offshore, estuaries, freshwater, and uplands. Included in these identifications are a description of the location, extent and characteristics of 26 habitat types; the major species of social importance associated with each habitat (i.e., these data are provided by type, percent by county, and percent of the coastal zone); and man's uses and impacts on the habitat. Also included in the inventory are:

1. species lists for selected habitats;

2. the locations of marine mammal rookeries and hauling areas;
3. indications of the abundance of wildlife species by habitat types;
4. identifications of coastal river systems with low summer flows critical to fish life; and
5. the locations of threatened and endangered species and those of special significance.

The report summary identifies significant habitats and their importance in management based on a comparative evaluation of the relative supply of habitat, species diversity by habitat, major uses, impacts, and values, and other critical factors.

Coastal Values

(8) Historical and Archaeological - Historical and Archaeological Resources of the Oregon Coast (Appendix Q)

Prepared by: Stephen Dow Beckham, consultant, with assistance from the OCC&DC staff

Maps: 1:62,500 - Early warning system for historical and archaeological sites. Site maps - on file with the State Historian (available for planning activities of other groups and agencies).

Narrative: Historical and archaeological resources are a vital and irreplaceable heritage reflecting the diverse backgrounds, traditions, and goals of the people whose lives helped to shape the coast as we know it today. Such resources offer this and succeeding generations of Oregonians many opportunities for educational, cultural, economic, aesthetic and scientific experiences and rewards. This report describes, in general, the influences of man on the coastal zone, and the management problems and opportunities associated with the coast's historical and archaeological resources.

The study was conducted in a manner to provide continuity with existing state historical files. Thus, the survey data is recorded on inventory sheets developed by the State Parks Historical Office. In addition, a photograph and location map were included for each of the 304 historical and archaeological sites studied. Finally, the locations of historical and archaeological resources are recorded on the 1:62,500 maps of the Oregon coastal zone and major areas of resource-site concentration identified.

(9) Visual (incorporates unique scenic features and aesthetics) - Visual Resource Analysis of the Oregon Coastal Zone (Appendix R)

Prepared by: Walker/Havens/Erickson (consultants)

Maps: 1:62,500 - Visual elements of the coastal landscape (specific physiographic types mapped according to visual characteristics) and mapping of five evaluative image regions.

Narrative: The Oregon coast is an environment of many unique visual qualities. This report, compiled by a team of landscape architects, identifies and evaluates those coastal environments which have special meanings, values, and significance to people. It examines the range and quality of experience possible on the coast; documents the characteristics of experience associated with the landscape; and evaluates the issues of physical change in relation to protection and enhancement of the coast.

The study divides the coastal environment into representative landscapes. Image regions are mapped by grouping representative landscapes by the degree to which they evoke a coastal-related experience. Both representative landscapes and image regions are evaluated in terms of implications for man. Finally, the implications of various uses and activities on the visual quality of each representative landscape are outlined.

Constraints on Coastal Zone Management

(10) Geological Hazards (incorporates Floodplains) - Geologic Hazards Inventory of the Oregon Coastal Zone (Appendix S)

Prepared by: Oregon Department of Geology and Mineral Industries

Maps: 1:250,000 - Physiographic areas of the coastal zone (1:62,500 geological hazard maps have been prepared by the State Geologist for Clatsop, Tillamook, Lincoln, and western Lane Counties, and western Douglas and Coos Counties are underway.)

Narrative: As development continues, state and county officials and planners, developers, engineers, and private citizens are recognizing the need for information about geologic hazards. This study serves as a planning tool for land use decision making in hazardous areas along the Oregon coast.

The inventory includes mapping of hazards for four of seven coastal counties (the remainder being in process) and a text discussing the recognition, causes, potential impacts, and planning alternatives for eight major classes of geologic hazards. These are:

1. stream, wind, and wave erosion;
2. stream, wind, and wave deposition;
3. mass wasting;
4. adverse groundwater conditions;
5. adverse soil conditions;
6. adverse bedrock conditions;
7. stream and ocean flooding (including tsuanmis); and
8. earthquake potential.

Also included in this document is a chapter relating landforms to geologic hazards, a chapter discussing land use, a listing of governmental agencies involved in the management of geologic hazards, and an extensive bibliography of references pertinent to geologic hazards. The text is thoroughly cross referenced to assure maximum utility for use in planning.

Other Inventories

(11) Development Pressures and Status of Planning - Inventory of Development Pressures (Appendix T)

Prepared by: Pacific Planning Associates (consultant)

Maps: 1:62,500 - Governmental jurisdictions and physical features in the coastal zone. Development activity, land use, density, and zoning. Overlay - Existing and potential urban areas (input to Uplands Inventory).

Narrative: The purpose of this inventory was to evaluate development pressures within the coastal zone. This study is only part of the inventory in that it identifies areas suitable for urbanization and summarizes the local, state and federal agency plans, statutory policies and guidelines which relate to urban development. This study differs from the other inventories in that it relates directly to factors which influence urbanization and development rather than to characteristics of the natural environment.

The initial identification of areas suitable for urbanization was based on physical characteristics; topographical

suitability, soils conditions, flooding, drainage problems and geological hazards.

The incorporation of governmental and use factors further reduced the number and size of areas which should be considered suitable for urban development. Governmental considerations mainly included availability of water and sewerage services, zoning, transportation/access, and waste disposal. A brief summary of port activities and a sampling of community attitudes was reviewed but did not directly affect delineation of areas suitable for urbanization. Use considerations were the last and final factors considered. Land ownerships and parcel size, existing uses, building permits, subdivision activity and dwelling unit densities were the principal use factors considered.

Once initial boundaries were defined for the areas suitable for urbanization, homogeneous subareas were delineated, classified and rated (according to suitability for urbanization), based on acreage and dwelling unit density conditions. Classifications and suitability ratings were then further adjusted according to limitations which might affect urban development. These final classifications and suitability ratings are mapped and summarized.

(12) Economics - Economic Survey and Analysis of the Oregon Coastal Zone (Appendix U)

Prepared by: Special OCC&DC Economic Study Team

Narrative: This study was completed by the special OCC&DC Economic Study Team with financial assistance from the Pacific Northwest Regional Commission.

This study is divided into 10 chapters (including the introductory chapter) containing an overview of the coastal economy, detailed discussion of the major economic sectors, demographic characteristics, and an analytical model with projections of possible future levels of employment and population.

A distinction is made between basic and non-basic economic sectors. Basic sectors are those which are determined by forces outside of the coastal economy (such as the level of demand in regional, national, and even international markets). These basic economic sectors are the prime movers of the economy in that they determine the level of economic activity (e.g., employment, sales) in the non-basic sectors. Non-basic economic sectors, such

as retail trade, are those which are the service end of the economy. The basic economic sectors in the economy of the coastal zone are agriculture and food processing, fishing and fish processing, forest products, travel, ports (water transportation), government and retirement. The non-basic sectors have been grouped into three categories: local government; trade and services; and other non-basic sectors.

(13) Port Development - Oregon Coastal Port Development Plan

Prepared by: Thomas J. Murray and Associates (consultant)

Prepared for: Oregon Coastal Port Federation

Narrative: The inventory is a compilation of the long-range development needs identified by 15 coastal port commissions. Each port district outlined long-range goals for optimum use of waterways for navigation and water-oriented recreation. Sketches and aerial photographs were included to illustrate proposed improvement projects.

(14) Planning Activities - Initial Report of the Local, State, Federal and Private Studies and Planning Activities of Oregon's Coastal Region

Prepared by: Oregon Coastal Conservation and Development Commission

Narrative: This document is a compilation of input from federal, state and local government agencies, a few major industries and the universities regarding their planning activities and studies in the Oregon coastal zone. The information includes descriptions of the planning efforts and studies which are in progress, completed or contemplated.

(15) Implementation - Oregon Coastal Zone Management Plan Implementation (Appendix V)

Prepared by: Sedway/Cooke (consultant)

Narrative: Discussion of three implementation alternatives. Description of the report content is included in the implementation section of this report.

Information Needs for Management and Decision Making

Research and information needs have been identified throughout the history of the Oregon Coastal Zone Management Program. The OCC&DC legislation identifies a list of information needs and requires the development of a standard for comparative evaluation of impacts and a system of preferences. These directives require the use of information in decision making. Inputs to Phase I policies from resource specialist teams and public workshops and the results of meetings with the inventory subcommittee and coastal planners identified many information needs. Others were identified during the OCC&DC inventory process. Review of existing information sources revealed the lack of data and insufficient detail, in many cases, to support decision making.

> *The OCC&DC recommends that inventories be completed for the shorelands, continental shelf, and scientific and natural areas of the coastal zone to assure a more comprehensive understanding of these resources. In addition, the Commission recommends the development of environmental geology reports for Curry County; an inventory of the ecologic and aesthetic aspects of coastal lakes and streams; and inventory of the location, extent and distribution of ground water resources; and, a comprehensive archaeological survey of the coastal zone.*

In developing Phase II policies, necessary actions, and recommended actions certain research and information needs became apparent. In general, these information needs can be separated into the following groups:

1. Location and characteristics of natural coastal resources and processes.

   Example: inventory of ground water resources in the coastal zone.

2. Impact of various uses on coastal resources and processes.

   Example: impact of alteration of littoral drift by man-made obstructions.

3. Guidelines and criteria for allocation or rationing of coastal resources among potential uses based on net social costs and benefits.

   Example: analysis of the impact of maintaining minimum stream flows.

4. Guidelines and criteria for regulating or prohibiting phenomena determined to have negative effects to an unacceptable degree.

Example: site investigation for proposed development in identified areas of geologic hazard.

5. Guidelines and criteria to establish processes which protect coastal resources.

   Example: historical and archaeological and visual policies.

6. Public interest in coastal resources.

   Example: shorelands policy.

7. Impact of existing state and federal policy and management programs.

   Example: impact of state and federal policies and management programs on estuaries.

8. Public information and education regarding coastal resources and their management.

   Example: educational programs about beaches and dune processes.

A complete listing of all the information needs identified by the OCC&DC program is included in Appendix G.

Implementation of the Oregon Coastal Zone Management Program will rely strongly upon information already developed by the Commission and the development of information identified above.

This new information will allow the state to continue to expand the background and level of application of the management program. Through study of the inventory reports and overlays of the individual resource maps, geographic areas with similar environmental or resource capabilities can be designated for particular levels of management. These management units can then be used in applying coastal zone management policies to specific geographic areas, creating the opportunity for developing policies which respond to regional variation. Allocation of resources for various uses and a preference of uses can be determined if the information necessary and sufficient to assess the net social costs and benefits is available. Establishment of scientific and natural areas such as the proposed South Slough Estuarine Sanctuary would allow base-line investigation and environmental quality monitoring to be used as a basis for comparison with the conditions in other areas. The requirement of a site investigation report in potentially hazardous sand areas proposed for development is another example of the vital role of information in coastal management.

Development of a Land Use/Resource Information System

As previously discussed, effective resource protection and regulation of related uses are contingent upon a thorough understanding of the location, extent, and character of resources and the processes essential to their maintenance and renewal. Development of a permanent land use and resource information system would increase the level of information available to governmental units, resource management agencies, universities, private researchers, private industry, and the public. The increasing complexity of coastal zone management is paralleled by the acceleration and volume of coastal resource data and information. Thus, decision making has become extremely difficult, especially when the information which would be useful in land use and management determinations is not readily available or in a usable form. The information from which to make a decision is never totally complete, but the lack of a good system for information storage and retrieval greatly magnifies this "information gap" and can lead to unnecessary and costly errors in management. Objective 3 of the adopted OCC&DC goal and objectives states that coastal resource management should be "on an evolving experimental and flexible basis so that as experience with and knowledge of the coastal zone increases, revision and improvement of the program can be effected".

Several of the OCC&DC policies and recommendations refer to coordination of resource management with information systems. The first estuary and wetland policy calls for establishment of a "permanent management center on or near each major estuary or group of estuaries to provide for planning, regulation, data storage, interpretation and education activities". The policy for protection of historical and archaeological resources sets up a process for coordination between governmental units and establishes an early warning information system.

A land use and resource information system for the Oregon coastal zone could be established through the following process:

1. Definition of the goals, responsibilities and jurisdiction of the program to determine:
   a. the type and degree of detail of information necessary and sufficient for each program element as related to the overall system;
   b. the needs of various types of potential users; and
   c. coordination with other information systems.
2. Examination of existing data and information with assessment of its accuracy, scope, applicability and usefulness.
3. Determination of information acquisition and storage costs necessary to meet the program needs and sources of available funding.

4. Coordination of data and information gathering in inventories, base-line studies and monitoring systems to:
   a. standardize and quantify methods and techniques for measuring resource and cultural characteristics;
   b. standardize mapping scales; and
   c. integrate programs with other information systems to increase the information base and avoid duplication of efforts.

5. Storage and retrieval of information
   a. available space and facilities for personnel, equipment and storage;
   b. data processing and reproduction capability; and
   c. system for storage and retrieval including type of information and means of organization.

6. Dissemination of information
   a. location(s) for access to central information storage;
   b. information programs with governmental units, resource agencies, universities, private research and industry and other states; and
   c. educational programs for decision makers and the public.

7. Continuing review and update of the system as new information and data handling systems become available and the responsibilities of the management program evolve to assess:
   a. the practicality of the information provided; and
   b. effectiveness to local jurisdictions, regional bodies and resource agencies in coastal zone management.

Discussion of an information system for coastal zone management generates questions about the role and necessity for development of a statewide land use and resource information system. The basic environmental inventory and information storage and retrieval elements were dropped from the OCC&DC work program because the Commission felt these should be addressed by a permanent, statewide agency rather than a temporary, regional body. A number of states and regions including Minnesota, New York, Wisconsin and Lake Tahoe have already established information systems and many other states are considering following their example. Obviously, some type of integrated and comprehensive information system is needed for long-range coastal zone management in Oregon, but because this need for land use and resource information exists throughout the state, a statewide system with regional information centers should be established.

Most of the elements necessary for developing a statewide information system in Oregon already exist within the present governmental and resource management framework. Units of local government, state and federal resource agencies, and the universities possess a wide range of land use and resource data, interpretive capabilities and mechanisms for storage and retrieval of this information. These information sources include land use and resource data, mapping, individual reports and studies as well as periodicals and bibliographic and abstract services available nationally. Attemps at coordination of these efforts without a vehicle for central information storage and retrieval have proved to be difficult.

Capabilities for interpretation and storage and retrieval of information vary with the scope and facilities available to individual groups ranging from the library, map file and reproduction equipment available in some cases to computer storage capability and highly specialized technical equipment in others. The State Wildlife Commission, for example, uses the STORET computer information system for resource data and mapping of habitat types. This system as well as bodies such as the State Mapping Coordination Committee have served as a partial solution to the coordination problem. However, existing information resources still are not being used to their fullest potential.

Special types of information and interpretative capability exist within the universities. At Oregon State University, for example, the Environmental Remote Sensing Applications Laboratory (ERSAL) has satellite (ERTS) and aerial photo coverage for the entire state and specializes in land use and environmental analysis based on interpretation of the imagery (photography). Another example is the Oregon Institue of Land Use Research at the University of Oregon which involves urban planning, landscape architecture, geography and law in its program. The Sea Grant College Program at Oregon State University strives to conduct research and education programs that will increase the ability of state and local officials to manage marine resources. Within the Sea Grant Program there are three major directions for information development:

1. to maximize and enhance the sustained yield and use of marine products derived from estuaries and the sea;

2. to enhance orderly multiple use of the coastal zone; and

3. to assist decision makers in conflicts pertaining to development of human, land and water resources and to provide educational assistance to citizens and scientists.

The roles and responsibilities for implementation of a statewide information system should be based on existing state agencies. Coordination between the central information storage and retrieval facility and regional information centers would require extensive involvement from units of local government, resource agency representatives, and the extension service. In the coastal region, Sea Grant could also serve

a major role in research and information development. Probably, the best format for the program would be a combination document and map/data storage and retrieval system with the information organized by geographic areas and topic and cross referenced to specific agencies.

The Commission recommends that the state consider these suggestions for methods of development of a land use and resource information system.

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Appendices

APPENDIX A

THE OCC&DC TESTIMONY TO U.S. SENATE COMMITTEE ON COMMERCE SUPPORTING SB1988

United States Senate

COMMITTEE ON COMMERCE
ROOM 5202, DIRKSEN OFFICE BUILDING

Washington, D.C., 5/7, 1974

Referred to Mr. Wilbur Ternyik, President
Oregon Ports Ass'n.
P.O. Box 247
Florence, Oregon

Testimony on S 1988 - Extending U.S. fishery jurisdiction

given by you before the Committee is attached. Please indicate any corrections thereon, furnish the information requested and return within 4 days after receipt so that your remarks as revised may appear in the final volume.

Changes in diction or expression or in the interest of clarity, brevity, or accuracy, or to correct any errors in transcribing are permitted. If changes in substance are desired, application must be made to the Chairman. PLEASE DO NOT RETYPE, WRITE LEGIBLY, and return original transcript.

Please return to:

James B. Olsen
Senate Commerce Committee
5202 Dirksen Office Building
Washington, D.C. 20510

GPO 29-654-h

has been going on for years ever since the 10-year period.

We thank you very much, gentlemen.

Now we aregoing to have some more field hearings and then we are going to have some hearings back down here.

I think Senator Hollings is going to have some hearings down in the southeast part, maybe Atlanta or someplace like that.

Mr. Rush. I want to thank you for the opportunity of appearing, Mr. Chairman.

The Chairman. We have two other witnesses, Oregon Coastal Ports Association, Mr. Ternyik, and Larry Qualman.

XXXXXXX STATEMENTS OF WILBUR E. TERNYIK, CHAIRMAN, OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION; AND LARRY QUALMAN, PRESIDENT, PORT COMMISSION OF COOS BAY, OREGON.

Mr. Ternyik. Mr. Chairman, my name is Wilbur Ternyik. I am Chairman of the Oregon Coastal Conservation and Development Commission, created by the Oregon State Legislature in 1971.

This Commission of 30 members is responsible for developing a natural resource management program for Oregon's coastal zone.

By resolution of the Commission on April 19, 1974 I was delegated to speak here on behalf of the entire Commission. We strongly support Senate Bill 1988 and urge its passage.

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Our Commission is now entering its third year of work in developing long-range management guidelines to insure sustained yields of our coastal resources. In no other categor do we feel there is a more serious threat, than that of the offshore fishery. Unless immediate steps are taken to regulate the harvest by domestic and foreign fishing fleets, the contienntal shelf fishery off the Oregon coast will be irreversibl damaged in the next three years.

The Chairman. It is going to take 20 years to revive it. Go ahead.

Mr. Ternyik. The full impact of the foreign fishing fleet on the Americah fishery is hard to conceive until one looks at their gear. The foreign vessels now fishing off the Oregon coast are mainly the Soviet BMRT stern trawlers using illegal size nets by American standards.

I would like to show you here two illegal nets recently found off the Oregon coast near Winchester Bay. The first is constructed of monofilament and believed to be Japanese. This rather innocent looking piece of net is in fact a very insidious device. One small portion of an offhsore gill net sometimes used in 4 to 5-mile sets.

The second piece of net is a demonstration of total lack of concern for the resource. The American fleet is restricted to a single mesh net of 4-1/2 inch size. This net, as you can see, is one outside web with 4 liners. The towing cable I cut

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this from was 1 inch in diameter. Oregon fishermen point out that the Soviet fleet is the only one having vessels capable of pulling such gear. Not even the smallest fish can escape this net.

Senator Stevens. It has 4 liners?

Mr. Ternyik. Yes.

Senator Stevens. I have a whole office full of some of these things we got in Alaska. As I told the Chairman, we got one that is 14 miles long.

Mr. Ternyik. The foreign fishing fleets and illegal nets being used off the Pacific Coast are causing the systematic destruction of this country's vital fishery resource.

This is a series of color photos I took directly west of Florence, Oregon on a day we counted 55 vessels fishing just outside the 12-mile limit. Please note the shoreline in the background. Last season the first Polish trawler fished off the Oregon coast. This vessel with a U.S. observer abroad took 17,000 pounds in one 10-minute tow.

The Chairman. You heard the testimony we don't have an agreement with them.

Mr. Ternyik. No agreement.

The Chairman. They will be back. Don't worry, they will be back.

Mr. Ternyik. We feel the Polish vessels are no Polish vehicle at all.

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The grim picture of disaster facing the American fishery extends beyond our shoreline. The once great Alaska Bristol Bay salmon run is facing total depletion this season. The swift complete wipeout of the Oregon Pacific Ocean Perch Fishery is another example.

The American Ocean Perch Fishery catch reached a high of 13.7 million pounds in one year, but the fishery was completely depleted by the Soviet Fleet activities in two short years.

Next in line, the Dover Sole, a fish that lives to age thirty. U.S. net requirements enable escape of Dover Sole five years old and younger. Soviet fishing nets allow for no escape. The effect of the removal of Dover Sole and Ocean Perch on the offshore life chain is not known. Without proper knowledge developed by thorough resource inventories, this, too, could spell total disaster. Dr. Byrne of Oregon State School of Oceanography told me last Friday that no such data now exists. It is his opinion that the problems facing the Oregon Fishery stock may be beyond help if these studies are not started soon.

The Chairman. Even without these studies on Ocean Perch, it is just common knowledge they have gone down. They are pretty well gone. We don't have to have studies about it. Although Dr. Byrne ought to proceed and do what he is doing so we have more data.

Mr. Ternyik. Dr. Byrne and the Commission are not the only ones seeking action on this problem. During the 1973 Oregon Legislative session, H.B. 2821 passed the House by 56 to 0 and the Senate by 24 to 1. It was then vetoed by our Governor, only later to be overwhelmingly passed over the veto.

This strong bipartisan message called for a halt to this uncontrolled fishing.

The Chairman. Right there, Moore, this wasn't brought up this morning, but here is another problem we are going to have with the states proceeding unilaterally themselves. Here is the Oregon Legislature, and I have no doubt in my legislature if somebody introduced a 200-mile bill, it would pass.

Mr. Moore. I think one has passed in Massachusetts.

The Chairman. This is one of the problems also you have off the coast. Our Constitution, for the record, lends itself to this because the court decisions on the limits of the coastal zones, the court decisions said that we had control of the oceans as far as a man could row a boat. It didn't say how big a boat or how long. I suppose until he disappeared or until he got tired out. They have stuck, and that is part of the Constitution.

So, our state could pass a law just like Oregon did.

Mr. Moore. Senator Magnuson, I would have to say, though, the states would be bound by the same foreign relations

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aspects.

The Chairman. I understand that, but it is a problem with these people. Governors can veto them all they want. My state would override his veto.

Go ahead.

Mr. Ternyik. This bill establishes a 50-mile offshore Fisheries Conservation Zone by the State of Oregon. We realize that it presents serious questions of international law; however, we need the problem solved now, not tomorrow. Therefore, this drastic action by the State of Oregon in absence of federal leadership. We welcome the introduction of S. 1988 to fill that void.

It is the opinion of our Commission that the State Department has failed miserably to protect our fishery resource. Each new treaty has heavily favored the Soviet Fleet. The passage of this bill would insure the needed interim protection. We need resource inventory studies, regulations and police powers developed in an orderly manner if this nation's fishery resources are to be protected from complete destruction.

Mr. Chairman, I would like to add that our fishermen on the Oregon Coast do not really need any more sympathy from the State Department. We need some action if we are going to conserve our fishery resources.

The Chairman. Thank you, very much. Is Qualman here?

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APPENDIX B

RESOURCE SPECIALIST TEAMS

Beaches and Dunes

Bill Billings	Soil Conservation Service
Clyde Bowlsby	Soil Conservation Service
Herb Carnahan	Soil Conservation Service
Bob Corthell	Soil Conservation Service
Greg Hartman	U.S. Army Corps of Engineers
Harold Herndon	U.S. Army Corps of Engineers
Don Leach	Soil Conservation Service
Ernest Lund	Department of Geology, U. of O.
Frank Reckendorff	Soil Conservation Service
Herb Schlicker	Department of Geology and Mineral Industries
Wilbur Ternyik	Dune Stabilization Specialist

Estuaries and Wetlands

Dick Angstrom	Associated Oregon Industries
Glenn Carter	Department of Environmental Quality
Bob Hopman	U. S. Army Corps of Engineers
Duane Karna	Environmental Protection Agency
Jim Mason	Weyerhauser
Rollie Montagne	Division of State Lands/Montagne & Associates
Rollie Rousseau	Wildlife Commission of Oregon
Paul Rudy	Oregon Institute of Marine Biology, U. of O.
Lynn Steiger	Pacific Planning Associates
John Thompson	Georgia Pacific Corporation
Chuck Walters	Fish Commission of Oregon
Bill Wick	Marine Advisory Program/Sea Grant, O.S.U.

Continental Shelf

Robert Borovick	Bureau of Land Management
John Byrne	Department of Oceanography, O.S.U.
Don Christensen	Oregon Guides and Packers, Inc.
Edward Condon	Extension Oceanography, O.S.U.
Verne Cox	U.S. Coast Guard
J. Timothy Hill	Oregon Otter Trawl Commission
Jon Jacobson	Marine Law, U. of O.
Robert Jacobson	Marine Extension Agent, O.S.U.
Earle Johnson	Division of State Lands
John Lansing	Bumble Bee Seafoods
Ron Lee	Environmental Protection Agency
James Meehan	Fish Commission of Oregon
Arthur Oakly	Bureau of Land Management
Arthur Paquet	Oregon Otter Trawl Commission
Phil Peterson	Salmon and Dungeness Crab Fisherman
Phil Smith	OCC&DC Commission Member
Merrit Tuttle	National Marine Fisheries Service
Chuck Walters	Fish Commission of Oregon
Bob Hopman	U.S. Army Corps of Engineers

Fish and Wildlife

Doug Bennett	State Water Resources Board
Collier Buffington	OCC&DC Commission Member
Jack Donaldson	Oregon State University
Jim Johnston	Crown Zellerbach
Bill Luch	Steelheaders
Carlos Pinto	Siuslaw National Forest
Rollie Rousseau	Wildlife Commission of Oregon
Mike Scott	Fish and Wildlife
Merrit Tuttle	National Marine Fisheries Service
Chuck Walters	Fish Commission of Oregon
Ron Weaver	Bureau of Sport Fisheries and Wildlife

Floodplain Management (incorporated into Geologic Hazards)

Dick Angstrom	Associated Oregon Industries
Doug Bennett	State Water Resources Board
Dick Bewersdorff	Lincoln County Planning Department
Paul Coyne	Port of Siuslaw
Bob Evans	State Water Resources Board
Colonel Gilkey	U.S. Army Corps of Engineers
B. L. Harris	Department of Soil Science, O.S.U.
Hal McCall	Bohemia Lumber Company
Rollie Montagne	Division of State Lands/Montagne & Associates
Stan Hamilton	Division of State Lands
Warne Nunn	Pacific Power and Light
Newton Perry	State Engineer's Office
Frank Reckendorff	Soil Conservation Service
Rich Reiter	Department of Environmental Quality
Larry Vinton	Pacific Northwest River Basins Commission

Freshwater and Shorelands (separated into individual categories)

Dick Angstrom	Associated Oregon Industries
Doug Bennett	State Water Resources Board
Dick Bewersdorff	Lincoln County Planning Department
Paul Coyne	Port of Siuslaw
Pat Dugan	Coos-Curry Council of Governments
Bob Evans	State Water Resources Board
Colonel Gilkey	U.S. Army Corps of Engineers
Stan Hamilton	Division of State Lands
Bill Harris	Extension Service, O.S.U.
Harold Herndon	U.S. Army Corps of Engineers
Hal McCall	Bohemia Lumber Company
Rollie Montagne	Division of State Lands
Warne Nunn	Pacific Power and Light
Knute Perry	State Engineer's Office
Frank Reckendorff	Soil Conservation Service
Rich Reiter	Department of Environmental Quality
Larry Vinton	Pacific Northwest River Basins Commission
Andy Zedwick	OCC&DC Commission Member

Geological Hazards

Jackie Burton	Environmental Section, Highway Division
Paul W. Hughes	Consulting Geologist
Bob Lawrence	Department of Geology, O.S.U.
Jack Lesch	Clatsop-Tillamook Intergovernmental Council
Frank Reckendorff	Soil Conservation Service
Herb Schlicker	Department of Geology and Mineral Industries
John E. Schriner	OCC&DC Commission Member
Lynn Steiger	Pacific Planning Associates

Historical and Archaeological Resources

Steve Beckham	History Department, Linfield College
Dave Brauner	Anthropology Department, O.S.U.
Paul Hartwig	Historical Office, Department of Transportation
Mike Lowell	Private Developer of Cascade Head Ranch
Dick Ross	Anthropology Department, O.S.U.
Beatrice Wilcox	Lincoln County Historical Society

Uplands (currently Agriculture, Forest, Urban and Recreation Resources)

Stan Bennett	Siuslaw National Forest
Dick Bewersdorff	Lincoln City Planner
Jack Fitzpatrick	Fitzpatrick Realty
Bob Gerdes	Coos County Planning Department
Sue Gonor	Lincoln County Planning Commission
Everett Hunt	State Forestry Department
Ron Hyra	State Parks, Highway Division
Jack Lesch	Clatsop-Tillamook Intergovernmental Council
Gene Magee	Oregon Coast Association
James Mason	Weyerhauser
John Massie	Extension Service, Tillamook County
Dave Megrath	OCC&DC Commission Member
Dave Povey	Department of Urban Planning, U. of O.
Ted Spence	Department of Transportation
Lynn Steiger	Pacific Planning Associates

APPENDIX C

LC 1480
2/3/75
(25)

A Bill For An Act
LC 1480 - Draft

MEASURE SUMMARY

Establishes Coastal Conservation and Development Committee as advisory body to L.C.D.C.

LC 1480
2/3/75
(25)

A BILL FOR

AN ACT

Relating to the conservation and development of the coastal zone; creating new provisions; and repealing ORS 191.110, 191.120, 191.130, 191.140, 191,150, 191.160, 191.170 and 191.180.

Be It Enacted by the People of the State of Oregon:

Section 1. Sections 2 through 7 of this Act are added to and made a part of ORS 197.005 to 197.430.

Section 2. For the purpose of this Act the coastal zone is defined as that area lying between the Washington border on the north to the California border on the south, bounded on the west by the extent of the state's territorial jurisdiction, and on the east by the crest of the coastal mountain range, with the exception of:

(1) The Umpqua River basin, where the coastal zone shall extend to Scottsburg.

(2) The Rogue River basin, where the coastal zone shall extend to Agness.

(3) The Columbia River basin, where the coastal zone shall extend to the downstream end of Puget Island.

Section 3. As used in this Act, unless the context requires otherwise:

(1) "Coastal area" means a geographical area which lies within the coastal zone as defined in section 2 of this Act.

(2) "Committee" means the Coastal Conservation and Development Committee formed under this Act.

(3) "Governing body" means, in the case of a county, the county court or board of county commissioners of the county or, in the case of a city, the city council or other legislative body of the city, or in the case of a port district, the board of port commissioners.

(4) "Member" means a member of the committee as specified under section 4 of this Act.

(5) "Plan" means a generalized, coordinated plan for the orderly management and development of the lands within the region that interrelates all functional and natural systems and activities relating to all the use of the land, air and water systems, transportation systems, recreational facilities, air and

water quality management programs, residential, commercial and industrial developments and the provision of public services.

(6) "Region" means all the geographic area included within the boundaries of the committee.

Section 4. (1) There is established a Coastal Conservation and Development Committee.

(2) The committee shall consist of nine members appointed as follows:

(a) The Governor shall appoint one person who resides within the coastal zone and who has demonstrated an interest in the protection, conservation and orderly development of the environmental quality of life in the coastal zone.

(b) The Governor shall appoint three elective county officials, three elective city officials, one elective port district official, and one elective school district official from the coastal zone. Each county within the coastal zone shall be represented by at least one of the appointed members.

(3) The term of office of each member of the committee is four years. No person shall serve more than two full terms as a member of the committee.

(4) The committee shall select one of its members as chairman and another member as vice chairman, for terms and with duties and powers necessary for performance of the functions of

the offices as the committee determines. The vice chairman of the committee shall act as chairman in absence of the chairman.

(5) A majority of the members of the committee constitutes a quorum for transaction of business.

Section 5. The committee shall:

(1) Prepare and administer a plan which shall reflect a balancing of the conservation of the natural resources of the coastal zone and the orderly development of the natural resources of the coastal zone. The plan shall be prepared in a form designed to be used as a standard against which proposed uses of the natural resources of the coastal zone may be evaluated. In the event of conflicting uses of the natural resources of the coastal zone, the plan shall establish a system of preferences between conflicting uses that are consistent with control of pollution and prevention of irreversible damage to the ecological and environmental qualities of the coastal zone.

(2) Consider at least the following factors in preparation and administration of the plan:

(a) The quality, quantity and movement of estuarine and other coastal waters, whether tidal or nontidal in character.

(b) The ecological balance of estuarine and marine resources.

(c) The economic interests in the coastal zone, including but not limited to commercial and recreational fishing interests.

(d) The projected population growth and employment needs within the coastal zone.

(e) Scientific information regarding the hydrology, geology, topography, ecology and other relevant scientific data relating to the coastal zone.

(f) Plans, surveys and inventions that have been or are being made with respect to the coastal zone by federal, state and local government agencies.

(g) Comprehensive land use plans and local zoning ordinances administered by local governmental agencies having jurisdictions over lands within the coastal zone.

(3) Recommend adoption of the plan provided in subsection (1) of this section to the Land Conservation and Development Commission as a comprehensive plan for the region, consistent with state-wide goals and guidelines pursuant to ORS 197.005 to 197.430.

(4) Refine and update the plan as necessary and in coordination with local governments.

(5) Advise the Land Conservation and Development Commission on designation of coastal "Areas of Critical Concern" and "Activities of State-wide Significance".

Section 6. (1) All petitions filed with the Land Conservation and Development Commission pursuant to ORS 197.300 that pertain to the region within the committee's jurisdiction shall be reviewed by the committee after review proceedings are conducted under ORS 197.301.

(2) Within 30 days after receipt of the petition the committee shall submit recommendations to the Land Conservation and Development Commission.

(3) Any actions of the Land Conservation and Development Commission contrary to the committee's recommendations shall be supported by written findings and conclusions.

Section 7. The Land Conservation and Development Commission shall provide staff and financial assistance to the committee in carrying out its duties and shall provide an office for the committee within the coastal zone.

Section 8. ORS 191.110, 191.120, 191.130, 191.140, 191.150, 191.160, 191.170 and 191.180 are repealed.

LC 1041
11/22/74
Revised

APPENDIX D

A Bill For An Act
LC 1041 - Draft

MEASURE SUMMARY

Creates the Coastal Conservation and Development Commission; commission to act as local coordinating agency.

Requires coastal conservation and development plan; coordinate coastal development.

A BILL FOR AN ACT

Relating to the conservation and developmentof the coastal zone; creating new provisions; and repealing ORS 191.110, 191.120, 191.130, 191.140, 191.150, 191.160, 191.170 and 191.180.

Be It Enacted by the People of the State of Oregon:

Section 1. The Legislative Assembly finds and declares that:

(1) The coastal zone in this state is an important and valuable part of the natural resources of this state and that because of its value there exists a need for its protection through the development and maintenance of a balance between conservation and development interests with respect to such natural resources.

(2) There exists a conflict in the development and use of the natural resources of the coastal zone among industrial interests, commercial and residential development interests, recreational interests, power resource interests, transportation

and other navigational interests, waste disposal interests and fish and other marine resource interests.

(3) It is necessary and a matter of state-wide concern to provide for properly coordinated planning in coastal areas and to provide a method of organizing and managing coastal conservation and development commissions in such areas.

(4) For the purpose of this Act the coastal zone is defined as that area lying between the Washington border on the north to the California border on the south, bounded on the west by the extent of the state's territorial jurisdiction, and on the east by the crest of the coastal mountain range, with the exception of:

(a) The Umpqua River basin, where the coastal zone shall extend to Scottsburg.

(b) The Rogue River basin, where the coastal zone shall extend to Agness.

(c) The Columbia River basin, where the coastal zone shall extend to the downstream end of Puget Island.

Section 2. For the purposes of ORS 197.190, a commission formed under this Act shall exercise within the region of the review, advisory and coordinative functions assigned under subsection (1) of ORS 197.190 to each county and city that is a member of the commission.

Section 3. As used in this Act, unless the context requires otherwise:

(1) "Commission" means the coastal conservation and development commission formed under this Act.

(2) "Governing body" means, in the case of a county, the county court or board of county commissioners of the county or, in the case of a city, the city council or other legislative body of the city, or in the case of a port district, the board of port commissioners.

(3) "Member" means a member of the commission as specified under section 4 of this Act.

(4) "Coastal area" means a geographical area which lies within the coastal zone as defined in section 4 of this Act.

(5) "Plan" means a generalized, coordinated plan for the orderly management and development of the lands within the region that interrelates all functional and natural systems and activities relating to all the use of the land, air and water within such region, including but not limited to sewer and water systems, transportation systems, recreational facilities, air and water quality management programs, residential, commercial and industrial developments and the provision of public services.

(6) "Planning" means preparing a plan, modifying and amending the plan as necessary, and coordinating the plan as provided by this Act and the rules of the commission.

(7) "Region" or "regional" means all the geographic area included within the boundaries of a commission.

Section 4. (1) The commission shall consist of members appointed as follows:

(a) The governing body of each county having territory within the commission jurisdiction shall appoint one person and one alternate from its own body.

(b) A joint convention of the governing bodies of cities from each county having territory within the commission jurisdiction described in subsection (1) of this section shall appoint one person and one alternate.

(c) A joint convention of the governing bodies of port districts from each county having territory within the commission jurisdiction described in subsection (1) of this section shall appoint one person and one alternate.

(3) Each commission member shall serve at the pleasure of the governing body which appoints the member.

Section 5. (1) The commission shall prepare and coordinate the administration of a plan which shall reflect a balancing of the conservation of the natural resources of the coastal zone and the orderly development of the natural resources of the coastal zone. Such plan shall be prepared in a form designed to be used as a standard against which proposed uses of the natural resources of the coastal zone may be evaluated. In the event of conflicting uses of the natural resources of the coastal zone, the plan shall establish a system of preferences between such conflicting uses that are consistent with the control of pollution and the prevention of irreversible damage to the ecological and environmental qualities of the coastal zone.

(2) In preparation and coordination of the administration of such plan the commission shall consider at least the following factors:

(a) The quality, quantity and movement of estuarine and other coastal waters, whether tidal or nontidal in character.

(b) The ecological balance of estuarine and marine resources.

(c) The economic interests in the coastal zone, including but not limited to commercial and recreational fishing interests.

(d) The projected population growth and employment needs within the coastal zone.

(e) Scientific information regarding the hydrology, geology, topography, ecology and other relevant scientific data relating to the coastal zone.

(f) Plans, surveys and inventions that have been or are being made with respect to the coastal zone by federal, state and local governmental agencies.

(g) Comprehensive land use plans and local zoning ordinances administered by local governmental agencies having jurisdiction over lands within the coastal zone.

Section 6. (1) The coastal conservation and development commission shall receive 80 percent of the annual moneys accruing to the state from the United States Department of Commerce under the Coastal Zone Management Act of 1972.

(2) The moneys described in subsection (1) of this section shall be expended for duties undertaken by the commission pursuant to section 5 of this Act.

Section 7. (1) The coastal conservation and development commission shall constitute a municipal corporation of this state, and a public body, corporate and politic, exercising public power. It shall be considered a unit of local government for the purpose of ORS 190.003 to 190.110, and a public employer for the purposes of ORS 236.610 to 236.650. It shall be entitled to tax refunds as allowed under ORS 319.350 and 319.831 to cities. It shall have full power to carry out the objects of its formation and to that end may:

(a) Sue and be sued in its own name.

(b) Adopt an official seal.

(c) Contract with any federal, state or local governmental agency for the performance of services of the exchange of employes or services in carrying out its functions as provided by law.

(d) Contract for the services of and consultation with professional persons or organizations, not otherwise available through federal, state and local governmental agencies, in carrying out its duties under this Act.

(e) Perform any other functions that the commission considers necessary in carrying out this Act.

(2) The commission may not levy taxes for the purpose of financing its functions pursuant to law, but shall finance its operations as provided in this Act.

Section 8. In addition to the powers granted in section 7 of this Act, the coastal conservation and development commission may:

(1) Accept grants contributions and assistance from any federal, state or local governmental agency, any private foundation and any individuals.

(2) Appoint from among its members, committees to carry out specificied portions of its duties.

(3) Appoint advisory committees composed of persons selected from interested private organizations and the public at large to assist in carrying out its study and the preparation of its plan.

(4) Employ administrative, clerical and professional personnel considered by it to be necessary in carrying out its duties under this Act.

(5) Perform other duties considered by it to be necessary in carrying out the purposes of this Act.

Section 9. (1) All state and local government agencies shall cooperate, assist and participate with the commission and its coordinating committees in carrying out the purposes of this Act.

(2) The Governor shall designate members of state agencies that are affected by or interested in the studies and planning conducted by the commission pursuant to section 5 of this Act to

assist the commission in the performance of its duties set forth in section 5 of this Act.

Section 10. (1) The fiscal year of the coastal conservation and development commission shall commence on July 1 of each year and end on June 30 of the following year.

(2) Prior to the beginning of each fiscal year, the commission shall prepare and adopt, and may revise from time to time, a budget itemizing expenditures planned for such ensuing fiscal year and estimating the amount and sources of income available to pay such proposed expenditures. ORS 294.305 to 294.555 shall not apply to the preparation, adoption or revision of the budgets of the commission.

Section 11. ORS 191.110, 191.120, 191.130, 191.140, 191.150, 191.160, 191.170, and 191.180 are repealed.

APPENDIX E

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

WILLIAM BERNYS, CHAIRMAN
JEFF BRENNAN, VICE CHAIRMAN
ROBERT YOUNKER, SECRETARY-TREASURER
JAMES F. ROSS, EXECUTIVE DIRECTOR

P.O. Box N
Florence, Oregon 97439
Phone (503) 997-8248

December 3, 1974

TO: Oregon Coastal Conservation and Development Commission

FROM: S. Lance Zaklan, WICHE Intern

SUBJECT: A system of preferences such that conflicts among uses of the natural resources of the coastal zone may be resolved.

I. INTRODUCTION

In the legislation that created the Oregon Coastal Conservation and Development Commission, the Commission is charged with developing a management program for the natural resources of the Oregon coastal zone. The same legislation further charges the Commission to establish, as part of the management program, a system of preferences such that conflicts may be resolved, and on 9 August 1974, the Commission adopted this charge as one of its major objectives. This system of preferences should provide the criteria necessary for choosing among alternative land uses, and establishing the system may be the most difficult task facing the Commission.

In this memorandum, I present a framework and methodology for such a system. In preparing this draft, I have sought the advice of several individuals whose comments have helped considerably.[1] This memorandum, of course, does not necessarily represent the views of any of the individuals.

[1] Lawrence W. Abrams (University of California, Santa Cruz), David E. Black (Duke University), Daniel R. Blake (California State University, Northridge), Bernard H. Booms (City of Tacoma and Pennsylvania State University), Giles Burgess (Portland State University), William Clark (University of Oregon), David B. Frohnmayer (University of Oregon), John A. Hanson (Portland State University), John R. Harris (Massachusetts Institute of Technology), Robert S. Harris (University of Oregon), Raymond F. Hopkins (Swarthmore College), Charles Leven (Washington Universtiy), R. Bruce Rettig (Oregon State University), Clifford S. Russell (Resources for the Future, Inc.), Paul B. Simpson (University of Oregon), W. Ed Whitelaw (OCC&DC and University of Oregon).

II. INSTITUTIONAL STRUCTURE AND RESPONSIBILITIES

The institutional structure of the system would have two levels or tiers. The first level would be responsible for making the land-use decisions and for managing and updating the system of preferences. The second level would provide an opportunity for appeal of the land-use decisions made at the first level.

The first level should contain a land-use board that would have the power to decide among alternative uses for particular sites on the coast. This board would need expert staff assistance (or input from some group of experts) to keep the system current. Senate Bill 100 and the implementation report prepared for OCC&DC by Sedway/Cooke suggest that this function most likely would be performed by the Department of Land Conservation and Development.

The second level of the institutional structure would be an appellate body to which disputed decisions could be referred for mediation or arbitration. Given the OCC&DC policies coupled with the criteria presented below, the courts could provide this appellate function.

Since there is no consensus on the measurement of social preferences and since tastes change, a good system of preferences would require periodic updating and review. This could be accomplished in one of two ways (or in some combination of the two):

1. The staff of the land-use board would review and update the information it provided on the externalities of coastal land-use, where the externalities are defined broadly to include economic, ecological, aesthetic, and social characteristics; and

2. The new approaches in the field for each variable could be treated in separate research papers by experts at an annual seminar in much the same way that building codes are developed and modified.

The appellate body, while providing a politically important check on land-use decisions, would reflect the existing collective tastes and could accommodate changes in these tastes as such changes are embodied in new legislation.

III. THE SYSTEM OF PREFERENCES

A. Introduction

The best way to deal with the system of preferences appears to be to specify a relationship between the use to which a site might be put and

the social value a society derives from that use. The use in turn can be identified by the various characteristics it exhibits such as number of employees or significance as a wildlife habitat. A change in one of the characteristics will be reflected in a change in the social value of that land use. The technical term usually used to describe such a relationship is "objective function".

B. An Objective Function

On 9 August 1974, the Commission adopted a Goal and set of associated Objectives that contain sufficient information by which one can specify an objective function relating social value to the characteristics of particular land uses. The Commission indicated explicitly just which characteristics should be considered by the land-use board in its deliberations, and these characteristics are economic, ecological, cultural, historic, and aesthetic. Furthermore, the Commission established that the purpose of the management program was to "assure the greatest benefits to this and succeeding generations of Oregonians". In algebraic form, the relation or objective function thus established by the Commission can be expressed as:

$$B = f(Y, N, C, H, S, E)$$

where B = benefits
Y = per capita income
N = employment
C = cultural value
H = historic value
S = aesthetic value
E = ecological value

The task for the land-use board would be to find those combinations of the variables, (Y,N,C,H,S,E), that maximize the benefits, B in perpetuity. (The solution is not necessarily unique, i.e., for a maximum B, they may be two or more combinations of the variables.)

For the function to be maximized, each variable, e.g., Y or S, must have a weight (coefficient or multiplier) associated with it such that its relative importance among all variables is explicit. If one is concerned with consensus, or even a simple majority agreement, on what these relative weights should be, however, then this task is probably impossible. As a rough approximation to this approach, though, OCC&DC can use ranges instead of specific values for the weights, and it can accept the constraints on the weight implied by existing practices and policies.

C. Magnitudes and Weights for the Variables

It is important to repeat that the values and weights assigned to the variables should be reviewed and updated periodically, and this could be accomplished by the approaches described above in Section II. This updating is a logical implication of Objective 3 (adopted on 9 August), of the management program which requires that the resources be managed on "an evolving experimental and flexible basis".

In the remainder of this paper I suggest ways by which magnitudes and weights can be assigned to the variables in the objective function.

1. Ecological

In its 9 August meeting, CCC&DC adopted as constraints on the Coastal Zone Management Program the conditions that pollution be controlled and that irreversible damage to the ecological and environmental qualities be prevented. This collective aversion to pollution is reinforced and preceded by Senate Bill 448 (1967) in which pollution is judged to be harmful to the quality of life in Oregon, and the Department of Environmental Quality was formed (by SB 168) to control pollution.

Two useful measures can help to determine the pollution and irreversible environmental damage likely to be caused by prospective uses. Regarding pollution, the amount of residuals, or the cost of abating the residuals likely to be generated by a prospective activity can be estimated. Regarding environmental damage, the fundamental structural change likely to be caused by an activity can be predicted. Examples of such change are the building of piers and jetties, the destruction of dunes, and the filling of estuaries.

The existing legislation, of course, does not specify unambigous weights to assign to these measures of pollution and environmental damage. There is, however, a weak criterion implied for choosing among alternative activities. When the values of other characteristics of the competing uses (such as economic, cultural, historic, and aesthetic) are roughly the same, then the use likely to generate less pollution or environmental damage shall be permitted.

2. Economic

In choosing among competing uses for a site, the economic characteristics on which the land-use board should concentrate are employment (or the rate of unemployment) and per capita income, where

both direct and indirect employment and income generated by the activity are included in the measures.

Each of the two categories of employment must be broken down into two subcategories so that they are more easily measured. First, short-run or transitional employment and, second, long-run or stable employment. Direct employment, therefore, will be measured in two categories: 1) direct transitional employment generated (e.g., the number of construction workers used to build a proposed development); and 2) the long-run, direct effects (e.g., the number of employees used to run or maintain the facility). The indirect employment is measured similarly: 1) transitional (e.g., the number of jobs in supporting industries that are generated because of the construction needs); and 2) the number of jobs generated in other areas because of the increased demand from the use (e.g., more restaurants). It is imperative with these measures, of course, that the land-use board be consistent in distinguishing between those jobs that hire previously unemployed individuals and those that transfer labor from one activity to another.

The direct and indirect effects of the land-use on per capita income are measured in similar fashion to measuring the same effects on employment. In addition to distinguishing between the effects on those previously unemployed and the effects on those changing jobs, however, the land-use board must also measure the differences in pay scales associated with the alternative uses.

There are few hints in existing policies and legislation as to which relative weights to assign to these measures, but there are clear indications of various constraints that might be imposed. The state, for example, is committed (as is the nation occasionally) to a policy of full employment (i.e., zero unemployment). Senate Bill 184, for another example, establishes a policy of orderly economic development for the state subject to the constraint that environmental quality is protected.

3. Historic, Aesthetic and Cultural

The historic, aesthetic and cultural variables are most likely to enter the objective function as site-specific constraints. Senate Bill 271, for example, says ". . maintain all or part of the natural or existing state of recreational, cultural, scenic, historic or other

appropriate places of public significance." Futhermore, Senate Bill 390 spells out the conditions for public acquisition of a "significant" site. Finally, on 9 August, OCC&DC decided that the coastal zone management program "shall protect the unique character of life on the coast that is reflected in cultural, historic and aesthetic values".

The staff of the land-use board should try to develop alternative methods (a required impact statement or staff evaluation or both) of incorporating these variables into the objective function.

D. Additional Considerations

OCC&DC has not completed its formulation of policies dealing with the variables in the objective function on which the system of preferences is based. When these policies are completed, they no doubt will increase the specification of the objective function. For example, the policies dealing with geologic hazards will constrain land-use in those areas in which geologically hazardous phenomena exist.

It seems reasonable also that consideration be given to:

1. the changes in the weights of each variable as more land uses are fixed (e.g., OCC&DC may recommend that the use of certain sites be fixed by designating certain estuaries for development); and

2. the changes in attractiveness or suitability of particular sites as uses on neighboring sites change (e.g., not many people would prefer to live next door to a pulp mill).

The general approach to maximizing benefits from the management of natural resources that I have suggested derives an objective function from the Goal and Objectives that OCC&DC adopted on 9 August and then maximizes the private and public values associated with that function subject to constraints imposed by statutes, policies and practices. The approach is necessarily general, because neither the measurement of the variables in the objective function nor the weights to assign them are refined sufficiently to allow rigorous application of the techniques.

I recommend, therefore, that the system of preferences evolve gradually toward a full and rigorous application of the technique, recognizing that it may never reach such precision.[2]

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[2]The formal technique from which I developed the general approach for the system of preferences is called linear programming. Rigorous applicatior of linear programming to the system of preferences would be too inflexible and too expensive, but the conceptual framework it offers is excellent.

Until the completion of the policy formulation by OCC&DC, I can only speculate on what added constraints will be included in the system of preferences. The framework I have presented in this memorandum can accommodate these changes easily.

SLZ:fw

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

WILBUR TENNYSON, CHAIRMAN
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February 13, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: S. Lance Zaklan, WICHE Intern

SUBJECT: An Example of a Quick and Dirty Application of the System of Preferences

I. INTRODUCTION

At the 12 December 1974 meeting of the Commission, I presented a memorandum describing a system of preferences such that conflicts among uses of the natural resources of the coastal zone may be resolved.[1] At that meeting, I was asked to present an example of how the system might be applied, in effect, to do economics and make the system come to life.

In this memorandum I attempt to show how the system might work. This is an hypothetical case. The area in question, Tansy Point on the north coast, has not been considered officially for development. It is an area near the mouth of the Columbia which offers some obvious natural conditions advantageous for port development.

The memo is divided into two sections. First, each of the variables that represent the values that the Commission has adopted as reflecting social benefits (as decribed in my 3 December 1974 memo, the six values specified by the Commission) are measured or given explicit consideration. The second part is an explanation and example of how the weighing system might work, that is, how the relative importance of each of the variables to the net benefits might be determined.

I repeat that this is only an example of how the system might work. The data that are used to develop the variables are rough at best. Actual use of the system would require more study and a greater amount of time. This is intended only as an example of the steps taken to make the system work. It is not a definitive example.

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[1] Zaklan to OCC&DC, "A system of preferences such that conflicts among uses of the natural resources of the coastal zone may be resolved", 3 December 1974.

II. Consideration or Measurement of the Variables

A. Introduction

In this section I describe how each of the six values comprising social benefits might be considered by a planning commission or a statewide land-use board. The values as adopted by the Commission are ecological, economic, aesthetic, cultural, historic, and recreation.

B. Ecological

1. Estuary and Tidelands

The estuary at Tansy Point is described in the inventory as a Type VIII:

> "Drowned rivers/partially mixed or two-layered estuaries have low or moderate terrestrial biological value. They have a low to moderate percentage of eelgrass and tidelands."

Apparently, this is not a greatly productive biological area, but further study is necessary before one could determine what exactly might be lost or altered if port development occurred. The building of a port, for example, might not destroy or alter any of the ecological characteristics of the estuary.

2. Wildlife Habitat

While the estuary of the area is not very productive, it appears to have an important position as an aquatic life and wildlife habitat. It is a feeding area for water fowl, and surrounding waters are beds for shrimp and dungeness crab. The numbers of each species and, therefore, value of this habitat are not known. A study would be needed to determine what the estuary contains and to estimate the likely impact of port development on the aquatic life and wildlife habitats.

3. Environmental Research Station

Oregon State University has had a station at the mouth of Alder Creek for approximately ten years. Its primary activity is gathering radioecology data, which reflect the correlation between flow levels and the emissions of Hanford and soon Trojan. The concern for the site is that the construction of the port might invalidate all the baseline data making comparisons taken after the Trojan plant comes on line useless. If rendering future radioecological tests on the Trojan plant useless were costly enough to prohibit port development, then a hydrologic study would be required to determine the effects such port development is likely to have on the radioecological data.

C. Aesthetic, Cultural, and Historic

Few would describe the Tansy Point area as a pristine, scenic area. The shoreline already evidences some commercial and residential development. There is no specific site mentioned in the OCC&DC Historical and Archaeological Inventory that would be affected by port development. The building of a port would affect the cultural values by introducing light industrial uses into an area that is primarily residential.

Since aesthetic, cultural, and historic are each site-specific (that is, it is nearly impossible to develop a general, objective criterion for evaluating these values), a site-impact study would be required to provide the data necessary for considering consequences of port development on each of the values.

D. Economic

1. Per Capita Income

My intent in applying this system of preferences to prospective port development at Tansy Point was first to take a reasonable estimate of the direct payments that likely would be generated by construction and operation of the port facilities. Then, I intended either to borrow[2] or to estimate income multipliers and apply them to the direct payments in order to estimate the total change in income effected by the port development. Finally, I was going to compare the payscales of the hypothetical development with the average payscales of existing activities to distinguish between changes in per capita income and changes in number of employees at a given per capita income. As it turned out, however, acquiring these data would have taken longer than the time I had available, but the approach is sound.

2. Employment

The first two steps in the approach to calculating the effects on per capita income are appropriate for determining the impact on employment of construction and operation of the port facilities. I had intended first to obtain estimates of the direct employment and second to apply employment multipliers to the change in direct employment in order to take account of the indirect employment generated by the port development. As with the income estimates, acquiring the data for employment would have taken longer than the time I had available for this project.

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[2]For example, the Oregon Ports Commission estimated the earnings multiplier for the Port of Astoria to be 1.49, Oregon Ports Division, *Survey of Oregon Ports 1972: Economic Impact Section*, Oregon Department of Transportation, Salem, Oregon, June 1973, p. 24.

In order to consider fully the social benefits accruing to Oregonians from the (hypothetical) port development, one would need to determine (a) if the development effects a net increase in employment in Oregon or instead merely transfers employment from one community to another, and (b) the extent to which the jobs created hire previously unemployed individuals or transfer labor from one activity to another. Although these data require additional and occasionally sophisticated statistical analysis to acquire, they increase substantially the information available for evaluating social benefits over and above what the estimates of direct and indirect employment provide.

E. Recreational

None of the OCC&DC inventories addresses recreation in a sufficiently detailed manner to allow one to say anything specific about the likely effects on recreation of port development at Tansy Point. On the one hand, there now exist waterfowl hunting areas that might be reduced or destroyed if the port is developed. On the other hand, the port facilities might be characterized by scale economies that would lead to an increase in pleasure boating and perhaps the establishment of a boat basin at Tansy Point. Depending on how important these issues are to the overall decision, the decision-making body may want to devote many or just a few resources to estimating the likely effects on recreation of port development.

III. Weighting of the Variables

A. Introduction

It is important to understand that the system of preferences can facilitate the resolution of conflicts whether this section, the weighting of the variables, is applied or not.

B. Assigning the weights may be the most arbitrary part of the system. The values assigned to each weight must reflect collective tastes. The weights are the coefficients or multipliers for each of the variables. The greater the magnitude of the weight, then the greater is its importance relative to the others. (For example, given the current recession, the state would probably value economic variables more highly than aesthetic ones. That is, employment would have a larger coefficient than aesthetic values.)

C. An Example

The function is

$$B = a_1 \cdot Y + a_2 \cdot N + a_3 \cdot E + a_4 \cdot C + a_5 \cdot H + a_6 \cdot S + a_7 \cdot R$$

where B = benefits
Y = per capita income
N = employment
E = ecological value
C = cultural value
H = historic value
S = aesthetic value
R = recreation value

Each of the coefficients, a_1 .... a_7, is given a magnitude between one and zero, and because no one can claim to know collective tastes so precisely as to assign an exact magnitude to each coefficient, the best solution would be to use a range of values for each weight. For example, a_1 could be assigned a range of 0.1 to 0.4.

The following table presents the weight I chose to illustrate how this weighting scheme can be used. (I used the neo-dart board technique.)

Coefficient	Lower Bound	Upper Bound	Variable Variable
a_1	.05	.1	Per Capita Income
a_2	.2	.4	Employment
a_3	.1	.3	Ecological
a_4	.05	.1	Cultural
a_5	.05	.1	Historic
a_6	.1	.15	Aesthetic
a_7	.05	.15	Recreation

This table suggests that employment is more important than the other variables, because .2 and .4 are larger than any of the other coefficients. It is followed by ecological values, whose coefficients are second largest.

D. Alternative Approaches

This is not the only method for arriving at the weight for the variables. Another example would be a voting procedure involving the Legislature. Each legislator would be given, say, seven votes. Each would then be free to cast all, some, or none on each of the seven variables. (For example, he might cast all seven on one variable that he considered to be most important.) This would lead to a ranking of the variables in importance of collective tastes. This assumes that the state legislators are representatives of the collective tastes. There are other methods available for determining ranking among the variables, although they might be more difficult to justify politically.

SLZ:fw
2/13/75

APPENDIX F

LETTER REQUESTING DEVELOPMENT OF BEACHES AND DUNES INVENTORY

June 15, 1972

Herbert E. Carnahan, Staff Leader
River Basin Survey Staff
USDA, Soil Conservation Service
431 Oregon Building
494 State Street
Salem, Oregon 97310

Dear Herb:

To confirm our telephone conversation of 14 June 1972, Governor Tom McCall has asked the OCC&DC to prepare an inventory of all fragile sand areas within Oregon's coastal zone. This inventory would be made available to the county planning commissions for use in making decisions on proposed developments on these areas.

It is my sincere belief that the Soil Conservation Service, with the cooperation of the local Soil Conservation Districts, are the only people who could develop such an inventory on an emergency basis. I know for a fact that most of the mapping has been done. In addition, the local citizen participation would be insured by the involvement of the District Supervisors.

Therefore, on behalf of the OCC&DC, I would like to officially request the Soil Conservation Service, in cooperation with the local Districts, develop an inventory of all sand dune areas, both active and recently stabilized, within Oregon's coastal zone. This inventory should include the following items as absolutely necessary to insure that the information will be useful:

1. Active dune areas where development could cause immediate problems:
   a. Foredune areas
   b. Inland dunes of bare sand
   c. Shifting sand spits subject to wind and water erosion

2. Recently stabilized areas:
   a. Those areas stabilized by man (with accurate explanation of how fragile these areas are if not handled properly)
   b. Those areas of sand that now support stands of Shorepine and appear to be stable (with accurate explanation of problems involved unless developed within stringent guidelines)

3. The identification of high surface water table dune sheets where migratory wildlife plantings could be made. The areas are especially important to replace areas of natural feeding grounds lost because of man's interference. (homesites, industrial sites, park sites, people)

4. The report should be in printed form with maps in different colors showing the different types of dune areas. Color scheme suggestion would be:

...Red - for extremely fragile areas,
...Yellow - for areas fragile, but with possibilities for some type of development,
...Green - for those areas relatively stable, but still requiring guidelines for development.

I fully realize that this might seem to be an immense task. However, I also believe that you and your agency are more than equal to the task.

As you know, my personal background for the past 24 years has been sand dune control on the Pacific Coast. I will be more than happy to assist in any way I can in the quick, thorough completion of this inventory. At your convenience, an early meeting of technicians to be involved would be helpful.

I would sincerely appreciate your early response to this request.

Very truly yours,

Wilbur E. Ternyik
Chairman

WET:mky
cc: Governor Tom McCall
Oregon Environmental Council
Oregon Shores Conservation Coalition
Charles V. Liles
OCC&DC Members

APPENDIX G

IDENTIFIED RESEARCH AND INFORMATION NEEDS

Identification of the location and characteristics of coastal resources and processes.

1. Identify on maps the geographic boundaries of shorelands based predominantly upon identification of landforms that limit or control the hydraulic action in the water course or in the periodically wetted fringes of the water course, such as wetlands and floodplains.

2. Prepare a series of descriptive analyses of the water characteristics and of the natural features of the shorelands. The descriptive analyses should be done on an area-by-area (e.g., using shore process zones described in the pilot study and/or a vegetation and soil classification system) basis and should be keyed to the map element in a clear and direct manner.

3. Complete a comprehensive resource inventory of Oregon's continental shelf.

4. Inventory the location, extent and distribution of ground water resources in each coastal basin.

5. Conduct a comprehensive archaeological survey of the coastal zone.

6. Investigate the population structure, life history, ecology, behavior and population dynamics of various fish and wildlife species.

7. Determine the stock size and the magnitude of the optimum sustained yield of fish and wildlife resources; particularly offshore fish species of commercial value and species of high recreational value.

8. Identify the cause for the decline in the salmon fishery and methods to correct it.

9. Investigate erosional, transport and depositional processes in shoreline areas.

10. Evaluate the extent to which littoral drift and longshore transport of sediment contribute to the sand supply of beaches, dunes and sand spits in comparison to more local sources (i.e., nearby headlands and shoreline erosion and coastal streams); projection of future trends in replenishment and identification of the drift sectors.

11. Investigate the rates of dune migration and the natural dune building process.

12. Investigate the rate of retreat of scarps (seacliffs) along the Oregon coast.

13. Investigate estuarine hydrologic patterns including circulation of the sediment and dissolved minerals contributed by inflowing streams in part through stream gauging and further analysis of chemical and biological quality.

14. Determine the original, pre-European extent of Oregon coastal wetlands, and the nature, rate and importance of marsh expansion (present and anticipated).

15. Evaluate the levels and types of production and nutrient cycling in different estuarine areas and wetland communities.

16. Evaluate the significance of particular estuarine areas to migratory waterfowl, rare and endangered species, and species of special interest.

17. Identify high productive site timberland to be reserved for timber production.

18. Evaluate the importance of driftwood in the natural dune building process.

19. Maintain and develop the historical inventory of the coast.

20. Identify historical and archaeological resources which contribute to the visual attractiveness and character of the coast.

21. Identify open space, scenic vistas and scenic corridors throughout the coastal zone with particular attention within areas of exceptional or strong visual association with coastal processes.

22. Identify and evaluate the undeveloped open space areas and scenic vistas in the coastal zone.

23. Identify those sand areas which should be preserved in their natural state to allow for continuance of dune processes for scientific study and protection of scenic, recreation and wildlife habitat values.

24. Identify potential scientific and natural areas, specific sites for recreational areas and areas of scenic quality (especially those areas in view of public roads and recreation areas).

25. Complete the geologic hazard studies for Curry County.

26. Identify those areas in the coastal zone which could be affected by 100-year frequency ocean flooding and tsunami runup areas.

27. Identify floodplains on mapping at a scale of 1" = 400' with ground contours at 5 foot intervals.

Assessment of the impact of various uses on coastal resources and processes.

1. Determine the impact on water quality of:
    a. land runoff from urban, agricultural and forest lands;
    b. irrigation return waters; and
    c. water impoundment (supply) reservoirs; and develop procedures to control or reduce adverse impacts from these sources.

2. Investigate proposed uses which may significantly alter water quality, hydraulics, tidal prism, surface area or volume to determine and evaluate the probable consequences according to the criterion of maximum net social benefits.

3. Investigate the quantity and quality of stream flows required to maintain and enhance anadromous fish populations. In addition, the extent, locations and effects on these populations of gravel removal, channelizations, sedimentation, barriers to migration, dredging and filling, and water pollution need to be known.

4. Additional research is needed to determine the effects of irrigation demands on streams and the actual benefits of established minimum flows to aquatic life.

5. Assess the economic and environmental impact of development proposed on the continental shelf including an inventory of the biological resources.

6. Assess the effects on fish and wildlife of land use practices resulting from agriculture, timber management, and urban and industrial development and other environmental modifications.

7. Assess the impact of water storage reservoir construction on recreational, aesthetic and other values in the coastal zone.

8. Identify and prioritize areas where major conflicts exist between historical and archaeological resources and existing or proposed development.

9. Investigate beneficial uses of thermal discharges and means of preventing damaging discharges.

10. Determine the long- and short-term effects of the log export industry on forest reserves, reforestation and log costs.

11. Determine whether the introduction of new fish and wildlife species will reduce the ecological values of the continental shelf or inland coastal zone waters before permitting such an action.

12. Investigate the potential for creation of geologic hazards in developing shoreland and channel structures (such as groins, jetties, breakwaters, seawalls and navigation channels).

13. Investigate methods of sand by-pass in developing structures which might cause diminishment of sand supply to adjacent areas or interruption of littoral drift.

14. Assess the problems associated with flooding through analysis of floodplain soils, land use and damage patterns, and the vegetation, burn areas, slopes, meteorology and hydrology.

15. Investigate the net social benefits of alternative actions to channelization and use of seawall and bulkhead methods for bank stabilization.

16. Assess the impact of freshwater flow augmentation or depletion on estuaries to determine best flow levels for each estuary and alternative methods for low flow augmentation.

17. Develop water conservation measures and water re-use techniques to reduce the demands for new water supply development.

18. Update the forest productivity study for coastal forest lands and research additional methods for improving potential productivity.

19. Investigate improved dredging and spoil disposal methods, baseline biological information for aquatic species utilizing estuarine areas and freshwater inflow requirements.

20. Investigate the feasibility and impact of commercial removal of driftwood.

21. Investigate methods, procedures, and suitable locations for the reclamation of diked or otherwise modified estuarine and tidal marsh areas.

22. Investigate practicable methods for fish and wildlife habitat enhancement and restoration.

23. Investigate techniques and methods of establishing commercial aquaculture in estuary areas without damaging essential functions and values.

24. Develop practical and satisfactory methods of controlling waste disposal from water craft, and they should control waste disposal from water craft, except in emergencies, by imposition of fees or regulations or both.

25. Investigate regulations for vessels carrying hazardous substances in Oregon waters to determine if the design, operation and maintenance standards are sufficient.

26. Investigate methods of inducing foredunes artificially on the continental shelf.

27. Investigate additional methods for regulating the use and visual attractiveness and character of outdoor advertising signs in the Oregon coastal zone.

Guidelines and criteria for allocation or rationing coastal resources among potential uses based on net social costs and benefits.

1. Determine land and water uses for specific areas in a manner consistent with developing regional water supply potentials, meeting stream flow requirements and maintaining in-stream water quality.

2. Determine the suitability of water sources for regional supply development (either groundwater or surface storage) and those areas in need of service from regional supply systems.

3. Develop criteria for evaluating the safety and adequacy of water supplies.

4. Conduct a surveillance and metering program to determine if the current level of water withdrawals is consistent with the level designated for the rightholders.

5. Determine those developments, plans, and programs likely to adversely affect areas of critical state concern.

6. Determine whether the net social benefits of alternative agricultural, forestry and urban development practices are less than the net social benefits of the practices that threaten significant aquatic life and wildlife habitats.

7. Designate uses for all forest lands in the first three classes (OCC&DC inventory) and those capable of growing at least 20 cubic feet of usable wood fiber per acre per year.

8. Identify productive agricultural lands within comprehensive plans. Identify lands suitable and environmentally acceptable for industrial and commercial uses including economically viable mineral, rock and petroleum resource removal.

9. Identify areas that have exceptional potential for recreational opportunities taking into account physical capabilities and limitations of the areas, identified recreational demands and areas for public or private recreational development.

10. Identify and designate seasonal roads and off-road areas on public lands where vehicles may be used for recreation.

11. Identify lands suitable and environmentally acceptable for industrial and commercial uses, including economically viable mineral, rock, and petroleum resource removal, and conserve sufficient quantities of this land to allow for location of new or expansion of existing industrial and commercial uses.

12. Describe the practices which may be used in various types of development to preserve or reduce damages to the environmental resources of shorelands.

13. Determine procedures for establishing harvests for those fish and wildlife species of commercial and recreational importance according to the criteria of net social benefits taking into account the impacts of harvest levels, the impacts from land and water uses on fish and wildlife resources, and the biological factors that determine supply.

14. Develop explicit criteria for identifying fish habitats appropriate for enhancement and using such criteria identify those habitats that should be enhanced.

15. Develop planning criteria for protection of visual values of the coastal zone and special criteria for evaluating the impact of development proposals on the visual quality and characteristics of areas with exceptional or strong visual association with coastal processes.

16. Develop guidelines and criteria which apply to the different levels of management which take into account the different geographic, physical, cultural, historic, aesthetic, recreational, environmental and economic characteristics associated with the development and use of the land and water resources.

17. Evaluate social costs and social benefits for proposed developments, plans, and programs that are likely to adversely affect areas of critical state concern.

18. Analyse the carrying capacity of each of the sand area landforms for recreational use (including ORV's and pedestrian access), livestock and development.

19. Identify methods for determining carrying capacity of land and water resources for recreation development, access and use.

20. Develop criteria and procedures to be used in evaluating support carrying capacity of existing and planned recreational areas.

Guidelines and criteria for regulating or prohibiting phenomena determined to have negative effects to an unacceptable degree.

1. Develop planning criteria for geologic hazard areas including all sand areas except older stabilized dunes. These criteria should address the degree of hazard present and designate uses which in their sum total will not exceed the short- or long-term limitations of the area.

    a. Evaluation of geologic hazards for projects involving activities of statewide significance or other uses characterized by high densities or major investment of public funds in those areas identified as hazardous.

2. Develop minimum criteria for geologic and soils site investigation reports to be used in evaluating development proposals in geologic hazard areas (including all sand areas except older stabilized dunes) with identification of the qualifications of those developing the reports.

3. Conduct engineering investigations to determine if geologic hazards will result from modification of natural shoreline processes by groins, jetties, breakwaters, seawalls or navigation channels.

4. Develop criteria and procedures to govern breaching of foredunes and restoration of breached foredunes.

5. Develop criteria for construction of beach front protective structures, and one of the criteria should be an evaluation of the net social benefits and costs.

6. Develop standards and regulatory actions to reduce the effects of storage and handling of materials in public waters.

3. Develop methods, guidelines, and criteria for the preservation, and management of scientific and natural areas including a net social benefit cost analysis for each area proposed to demonstrate that such a designation is in the public's best interest.

4. Establish a process in which the information gained from scientific and natural areas is incorporated in the coordinated information storage and retrieval program to facilitate future planning and management.

5. Develop planning and management criteria for both the preservation of species and the regulation of adverse impacts in significant habitat areas.

6. Identify possible incentives to be used in conservation of forest lands for forest uses.

7. Establish criteria to be taken into account in identifying areas having exceptional potential for recreational opportunities.

8. Develop programs that encourage private maintenance and enhancement of the visual attractiveness and character of the coast, particularly in open space areas.

Establishment of the public interest in coastal resources.

1. Determine criteria for designating uses in shorelands consistent with maximizing net social benefits which provide for:

    a. identification and designation of shorelands of regional or statewide concern;

    b. conservation of the natural character and amenities of waterways;

    c. increased public access where needed;

    d. increased public recreational opportunities;

    e. continuance of forestry and agricultural uses without restriction except as otherwise provided by law;

    f. retention of shoreland vegetation in as natural a state as possible and restoration of desirable vegetation; and

    g. regulation of building sites, placement of buildings and location of septic tank disposal fields to control pollution.

2. Estimate present and future demands for water, taking into account limitations or needs established by carrying capacity, methods to conserve and re-use existing supplies, non-structural techniques to meet demands and incentives to discourage waste.

7. Develop a fire or natural disaster contingency plan to avoid creation of extensive erosion and siltation to streams and estuaries and blockage of streams with debris from salvage operations.

8. Develop criteria for regulation of all energy resources including nuclear, fossil fueled, hydroelectric, geothermal, wind, solar and other sources.

    a. Develop site selection criteria (including landscaping, methods of development and maximization of net social benefits) for all sources of energy generated in the coastal zone.

9. Develop visual guidelines for offshore construction (if the need arises), mineral extraction, utility and communication structures, public facilities, timber harvest and revegetation, roads and parking, mobile homes, night lighting, signs and removal of abandoned structures.

Guidelines and criteria to establish processes which protect coastal resources.

1. Establish guidelines and criteria to designate:

    a. those estuarine areas which are to be managed in a high state of development;

    b. those estuarine areas which are to be managed for a moderate level of development;

    c. those estuarine areas which are to be managed for preservation in as close to natural conditions (undeveloped) as possible, while providing for certain appropriate, beneficial uses; and

    d. those estuarine areas which are to be managed for restoration, to provide greater benefits from resources which have been destroyed, damaged or degraded by some natural or man-made process.

2. Establish a process:

    a. to review the OCC&DC historical and archaeological resource inventory and to incorporate the National Register and other appropriate sites and areas into comprehensive plans; and

    b. whereby historical and archaeological resources identified in comprehensive plans will be protected by assuring that development is either avoided or that special restrictions, appropriate to the extent, characteristics and relative importance of the site, are placed on development to retain the values of the coast's cultural heritage.

3. Project demands for various uses of sand areas and identify criteria for selecting areas suitable for these uses.

4. Determine the recreational and non-appropriative and economic values of fish and wildlife in planning and decision making so they can be evaluated in relation to other resources.

5. Estimate existing and future demand for highway, rail, pedestrian, air and mass transportation facilities. Consideration of public transit facilities should include continuous bus service along the coast, intra-urban transit for the non-driving population, commuter air and water service and east-west bus and rail connections.

6. Estimate the present and future demand for public access to public lands and waters in the coastal zone.

7. Determine how much coastal land should be developed for recreation.

8. Determine the social, economic and environmental impacts of private, fee-simple recreation - second homes and resort condominiums - including the effect of a large seasonality of population.

9. Evaluate all the costs and benefits of the travel industry.

Assessment of the impact of existing and proposed state and federal policy and management programs.

1. Evaluate the impact of state and federal land and water management programs (in the estuary watershed) on the physical, biological and use characteristics of estuaries; (these would include the Forest Practices Act; water quality plans being developed by the Department of Environmental Quality; flood control and water resource allocation programs; and other local and regional projects).

2. Evaluate the shoreland and shoreland-related resource management policies of state and federal agencies and current land ownership and land use in all shorelands.

3. Review the laws and enforcement policies for restrictions on disturbance of historical and archaeological resources, building codes and taxing policies, and propose reasonable adjustments to provide additional protection to historical and archaeological sites.

4. Determine the costs and benefits of the regulation of geologic hazards in the Oregon coastal zone.

5. Determine the public liability under existing laws for individuals damaged as a result of development in an area of identified geologic hazard.

6. Evaluate alternative programs for increasing the per capita income and decreasing unemployment on the coast by using fishery resources.

7. Determine how the assessment of visual values can best be incorporated into land use and resource planning and management including a process for phasing coastal counties into design review.

8. Assess the feasibility of coordinating timber harvesting by drainage basins or by other means, in order to protect forest uses and watershed values.

Public information and education regarding coastal resources and their management.

1. Expand research, educational, and enforcement programs to help in carrying out the intent of aquatic life and wildlife regulation and management of the resource on a sustained yield basis.

2. Develop public information and education programs to prevent adverse environmental effects of excessive seasonal use of recreation facilities.

3. Develop public education and recreation programs which interpret the natural and cultural (i.e., historical and archaeological resources) environment of the coast and encourage greater understanding of its character and values.

    a. Develop a priority list for historical and archaeological resources which are particularly suited for cultural, educational and scientific activities.

4. Establish permanent management centers on or near each estuarine area or group for estuaries for data storage, interpretation, research and education as well as planning and regulation.

5. Record identified geologic hazard areas on local planning and assessor's maps, property deeds and in land transactions of the state Real Estate Division.

6. Information gained from scientific and natural areas should be incorporated in the coordinated information storage and retrieval program to facilitate future planning and management.

7. Identify possible incentives to be used in conservation of forest lands for forest uses.

8. Identify incentives to encourage private maintenance and enhancement of the visual attractiveness and character of the coast, particularly in open space areas.

APPENDIX H

ENVIRONMENTAL IMPACT ASSESSMENT

The concern of the Oregon Coastal Conservation and Development Commission for developing an analysis of the environmental consequences of resource management policies derives from:

(1) the charge of the State Legislature to develop a natural resources management plan which

   a. balances the conservation and development of coastal resources; and

   b. establishes a system of preferences between conflicting uses (of the coastal zone) that are consistent with the control of pollution and the prevention of irreversible damage to the ecological and environmental qualities of the coastal zone; and

(2) the requirement of the Coastal Zone Management Act of 1972 to submit an environmental assessment of the State Management Program.

In regard to the environmental significance of the Coastal Zone, the United States Congress has declared:

> "There is a national interest in the effective management, beneficial use, protection and development of the coastal zone." and that "in light of competing demands and the urgent need to protect and to give high priority to natural systems in the coastal zone, present state and local institutional arrangement for planning and regulating land and water uses in such areas are inadequate." (Section 302 (a) and (g) Coastal Zone Management Act of 1972).

In establishing a national policy for the environment the United States Congress authorized and directed 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-

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, and detailed statement by the responsible official 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, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

(Section 102, (A-c) The National Environmental Policy Act of 1969)

These statements provide the focus for proceeding by suggesting the following questions involving the substance and procedures of the management program:

1. Has a systematic and interdisciplinary approach to planning and decision making been utilized both in the development of the management program and included in the provisions for its continuance?

2. Can it be said that coastal resources have been protected

based upon anticipated environmental impacts as examined on the basis of Section C of NEPA and as meant by the letter and spirit of the OCC&DC legislation and the Coastal Zone Management Act of 1972?

3. In what manner does the OCC&DC policy program and support process provide for effective management, beneficial use, protection, and development of the coastal zone?

4. As a whole is the OCC&DC policy program indicative of having struck a balance between conservation and development; and if so, what constitutes such a balance; and would the system of preferences provide the means for resolving conflicting land and water uses in a manner which would prevent irreversible damage to the coastal zone's ecological and environmental qualities?

5. Would the management program increase the adequacy of federal, state, and local institutional arrangements for planning and regulating land and water uses in the coastal zone?

Each of these questions will not be answered in total until some experience has been gained through actual implementation of the program. The questions do provide an opportunity to describe the way which the program has addressed these considerations. Accordingly, this assessment will include in:

Section I. A description of the environment affected by the program and the problems to overcome.

Section II. A summary of anticipated environmental impacts resulting from implementation of OCC&DC policies; and

Section III. A summary and evaluation of anticipated program effectiveness.

Section I. Characteristics of the Coastal Environment and Problems

Boundaries

As defined in ORS 191.120-191.180, the legislation which created OCC&DC, the boundary of the Oregon coastal zone closely approximates a natural physiographic unit. The boundary extends from the Columbia River to the California border and from the seaward limit of state jurisdiction inland to the crest of the coastal mountain range. All shorelands and drainage basins which have a significant and direct effect on coastal waters are included. With the exception of the Columbia, Umpqua and Rogue River basins where the boundary of the coastal zone marks the limit of significant tidal influence, the coastal river basins are contained within the

coastal zone. In total the Oregon coastal zone includes an area of approximately five million acres.

The Coastal Environment

The landscape of the Oregon coastal zone reflects the natural and cultural influences which have transformed it through time. The interrelationships between the physical and biological components of the natural environment or landscape are complex and dynamic. Marine influences modify climatic conditions, especially on the immediate coastal strip. The climate is mild with muted extremes and narrow diurnal fluctuations in temperatures; mean temperatures for January range between 41 and 47° F and between 57 and 61° F for July. Most of the precipitation falls as rain in the winter (i.e., from October to March) with summers remaining cool and dry. Late fall, winter and early spring cloudiness and rains are the result of the warm, moist marine air masses which are forced to ascend the coastal range. The resultant cooling intensifies the rainfall which averages 60-90 inches along the coast to 120 inches at higher elevations. In warmer months, a narrow coastal fog belt often occurs because the moist marine air is heated and forced upward as it moves inland.

Offshore ocean currents are associated with the seasonal wind regimes. The winter northward flowing Davidson Current is obliterated by summer up-welling, leaving only the more distant southward flowing California Current. The prevailing winds are generally from the south and southwest during the winter gradually reversing to the north and northwest in summer.

Diurnal tidal ranges vary from 7 to 8.5 feet; sea-surface salinity averages between 32 to 33 p.p.m. in winter; and spring and surface temperatures vary from approximately 45 to 55° F.

Geologic, physiographic and soils characteristics separate the Oregon coastal zone into two distinct regions:

(1) the Coast Range Province and

(2) the western portion of the Klamath Mountains Province (Franklin and Dyrness, 1973). North of the Coquille River all the rock formations are of Tertiary age. The topography is mature with the proportion of steep slopes and sharp ridges gradually decreasing in the northern section. Elevations range from 1,450 to 2,500 feet. Scattered igneous intrusions are characteristic of much of the region with extensive areas of volcanic rock, largely basalt, in the northern section. The rapid erosion of the sedimentary formations and eustatic changes in sea level during the Plio-Pleistocene were responsible for extensive deposits of sedimentary material creating a series of coastal terraces.

In contrast, the Klamath Mountain Province in the southern portion of the coastal zone is characterized by pre-tertiary formations. The terrain is rugged and deeply dissected with only a narrow margin of coastal terrace. Elevations range from 2,000 to 4,000 feet in the mountains with peaks reaching in excess of 7,000 feet. Most of the rock in the region has undergone extensive folding and faulting and is highly metamorphosed.

The irregular nature of the Oregon coastline is due to the rise in sea level following the last glacial episode and varying degrees of resistance to erosion in the rock formations. Bold headlands and numerous estuaries punctuate the coastline. Basaltic headlands are characteristic of the north coast while sedimentary and metamorphic formations occur in those to the south. With the exception of Netarts Bay and Sand Lake, all of the 21 estuaries in the Oregon coast formed in drowned river valleys as the sediments at their mouth created sandspits and bars. The Columbia River estuary is unique in terms of size and sphere of influence. The watershed of this estuary includes parts of five states and extends into Canada.

Sand dunes are associated with 62 percent of the coastline. In two areas, the Clatsop Plains and the Coos Bay Dune Sheet, the dune systems are particularly extensive and well developed. With the rise in sea level, sand dunes advanced inland and caused the formation of many coastal lakes by damming the smaller stream valleys.

The mild winters and dry summers on the Oregon coast generally give evergreen conifers the advantage over other types of vegetation and contribute significantly to the productivity of the forests. Sitka spruce characterizes the narrow zone along the entire length of the immediate coastal strip and fingers further inland along the river valley bottoms. This zone is mild and humid with frequent summer fogs and generally remains below 500 feet in elevation. Western red cedar and western hemlock are also usually associated with the spruce especially in older stands with wetter conditions. In the south, the zone narrows and coast redwood, myrtle and Port Orford cedar join the other species. Shore pine occurs with spruce in low wet areas and in the dunes and replaces it on sites with less favorable moisture conditions, such as dune ridges where pine may be associated with western hemlock and Douglas fir. Red alder like pine, often colonizes on open, disturbed areas. Because of regional variation in rainfall, temperature and frequency of fog, the dense ocean-front forests of the north coast are gradually replaced by herb- or shrub-dominated communities in the south. Specialized, non-forest vegetation communities occur in fresh and salt water marshes, coastal swamps and bogs, sand dune areas and headlands.

The environmental differences between the Coast Range and Klamath Mountains are more distinct away from the moderating influence of the coastal strip. In the Coast Range, Douglas fir, the dominant species, is associated with the more shade-tolerant climax species, western red cedar and western hemlock. There are few stands of old growth forest due to the

fire history and logging activity in the last 150 years. Early successional sites and river bottom communities are dominated by deciduous hardwoods such as alder. In the Klamath Mountains environmental variations (primarily in geology, soils and climate) are responsibile for a highly diverse and complex vegetation mosaic. The mixed-evergreen zone (Franklin and Dyrness, 1973) is dominated by Douglas fir and tan oak and includes a wide variety of evergreen conifers and hardwoods. Chaparral communities occur either as a result of fire in moist areas or as climax vegetation on sites with severe conditions. Major forest tree species in the mixed conifer zone (Franklin and Dyrness, 1973) include Douglas fir, sugar pine, ponderosa pine, incense cedar, white pine, and evergreen hardwoods.

Many diverse, aquatic and wildlife species of high commercial and recreational importance are associated with the coastal zone, primarily as a result of the diversity of habitats provided in the uplands, shorelands, rivers, lakes, streams, estuaries and on the continental shelf. Predominant species in the uplands include the Roosevelt elk, Black-tailed deer, Black bear, Ruffed Grouse and Band-tailed pigeon. An important fur bearer associated primarily with shorelands is the beaver. Several anadromous species such as salmon, steelhead and cutthroat trout, and striped bass make use of the many rivers, lakes and streams of the coastal zone for spawning. These areas are also inhabited by other resident fish species among which the trout and bass are the most well known. The estuaries of the coastal zone are highly diverse in habitat characteristics and are well known for the fish, shellfish and other invertebrates they harbor. These areas also are the principle habitat for the Great Blue Heron, Green Heron, Bald Eagle and Osprey. They also provide habitat for the diverse species of migratory and marine waterfowl. Offshore, the continental shelf provides habitat for many pelagic and ground fishes of high commercial value. Among these are the sole, flounder, halibut, tuna and salmon. Several species of marine mammals use this area as well as the estuaries and rocky islands, reefs and shore of the open coast. These areas also are inhabited by a unique complement of other vegetation forms, invertebrates, fishes and birds.

The environment of the Oregon coastal zone is the sum of inter-related natural and sociocultural components. The cultural environment has been transformed directly or indirectly from man's interaction with the natural environment. Man's activities have had a profound effect on the environment of the Oregon coastal zone. Coastal Indian habitation sites were clustered along the shoreline of rivers, estuaries and the ocean because of the ready availability of food and ease of travel. For these same reasons, patterns of human settlement continued to reflect a high level of resource association and adjustment to the landscape. These first coast dwellers had little long-range impact on the natural environment other than increasing the frequency of fires. Most of the significant changes in the coastal environment have occurred within only the last 100 years.

During early white settlement in the mid-1800's and through the early 1900's fishing, trapping and hunting, logging, and agriculture were

the predominant pursuits carried on in the coastal zone. As the human population and the intensity of activity increased, the characteristics and values of most elements of the environment were affected. Forts and settlements became cities and trails became highways as man increasingly extended his influence over the natural environment.

Much of the coastal zone, particularly in and around the estuaries, is subject to the intense pressures of residential, industrial and other types of development. Lack of adequately controlled filling in coastal wetlands is threatening critical marine and waterfowl habitats. The handling of dredging spoils and other fill in the estuaries, although controlled by permit, etc., is becoming an increasingly difficult problem. Consumption patterns and industrial practices are creating various forms of pollution within coastal waterways. Shoreline erosion, coupled with the stabilization of sand dunes, requires constant attention and discretion in terms of land use. Increasing siltation of the streams, rivers and estuaries of the coast is occurring due to land and water use practices elsewhere in the watershed. Visual pollution of the landscape, created by insensitive development and unfortunate signing practices, conflicts substantially with the scenic values for which the coastal area is renowned. The absence of appropriate performance standards for new development, particularly in areas of critical environmental concern, heightens the peril that such development may despoil the very landscape which is the attraction for those who live and play on the coast.

The Oregon coast today continues to be an areas of environmental, cultural and economic importance far beyond its immediate boundaries. The coast is many things to many people. To its year-round inhabitants, it represents a source of livelihood. However, per capita income on the coast must increase if it is to be comparable to the standards enjoyed elsewhere in the state and nation. To those owners of seasonal residences and others who come to enjoy the mass scenic and environmental attributes of the coastline, the coast is a place to go to get away from crowded cities and the hectic pace of modern life.

The great majority of people,whether residents or non-resident, share a common concern for the coastal environment. However, conservation of the natural resources which are now enjoyed and are, in many instances, threatened will not come cheaply. It is unrealistic to think in terms of environmental preservation without regard to the socio-economic status of those who live in that environment. In this respect, conservation and development cannot be regarded as mutually exclusive for it will take enlightened (wisely managed) development to provide the economic and cultural resources required to accomplish the necessary level of conservation. What must occur is a responsible stewardship of the land and water resources of the coastal zone to ensure that development is compatible with the environment in which it is placed, and to minimize further misuse of land and water at the expense of the environment and at the same time, maintain a viable economy. This, the balancing of conservation and development, is the charge and objective of the OCC&DC in developing a coastal zone management program.

Section II. Assessment of Environmental Impacts

The two central tasks of the OCC&DC, in developing a plan for the conservation and development of the coast, required that standards be provided against which proposed uses of natural resources could be evaluated and that a system of preferences be established in the event of conflicting uses.

Accordingly, to establish policies for land and water uses in the coastal zone, the OCC&DC conducted a planning process which included: (1) the definition of the impacts of uses and activities on the resources of the coastal zone; and (2) the establishment of a process to increase the objectivity in allocating resources and resolving conflicts (as required by the OCC&DC legislative charge).

As part of examining the anticipated environmental impacts of the management program, the role of natural resource inventories in developing the policies must be reviewed. Each inventory (as is discussed in more detail in the OCC&DC final report) addresses five main questions regarding the resource in question (such as estuaries):

(1) what is the location and extent of the resource in the coastal zone (which provides an opportunity for subsequent evaluation of such factors as rarity vs. abundance, and criticality in terms of location);

(2) what are the natural functions and values of the resource (which provides an opportunity for subsequent evaluation of such factors as the social benefits provided by the operation of natural systems, and the organizational characterisitcs and tolerances of ecosystems);

(3) what are the main uses and activities associated with the resource (which provides an opportunity for subsequent evaluation of such factors as demands to maintain income and employment levels, pollutant loadings, and desires of Oregonians regarding the uses of resources);

(4) what are the impacts of those uses and activities on the resource (which provides an opportunity for subsequent evaluation of such factors as carrying capacity, sustained yield in perpetuity, and constraints on resource use to maintain expressed levels of environmental quality); and

(5) what management recommendations are obvious from a brief review of the conclusions of the inventory.

Because of the topographic diversity of the coastal zone, impacts of uses and activities were assessed by resource category. These assessments, in part, led to the formation of management policies necessary to control adverse impacts of uses and activities. By employing such an analysis of capability and suitability of coastal resources the policies

identify permissible land and water uses with the priority of uses to be designated for particular resource areas.

The purpose of this section is to assess the environmental impact of the management program. In doing so it focuses on those particular policies and support processes which directly address the uses, conditions, and characteristics of the environment. The comments are general estimates and it should be realized that in the development of the program, particularly in regard to the resource inventories and the manner in which they figured into the policies (as indicated above), a great amount of detailed information regarding environemtnal impacts has already been considered. The applicable policies and the manner in which they combine to produce certain effects is discussed first. Secondly, the support processes are examined for their anticipated consequences on the environment.

Anticipated Impacts of Selected Policies

(1) Providing Mutliple Use of Natural Resources. Multiple use, generally, has the potential for providing positive environmental impacts when uses are compatible with each other and with maintaining valued resource characteristics. The concept recognizes that compatibility is based on intensity of the types of use being accommodated and that there also exists potential for adverse impacts which have to be adjusted through management.

(2) Requiring Water Supply and Sewage Disposal for Development. This policy would have direct beneficial environmental impacts to the extent that groundwater contamination from septic tank drainage is prevented and healthful living conditions are provided by assuring high quality water supplies. Indirectly, adverse impacts, such as sprawl and non-orderly development, generated or induced by developments not capable of being adequately serviced, would be avoided.

(3) Evaluating Development Proposals. This policy may be anticipated to have positive environmental impacts to the extent that related resource characteristics are considered and protected and development does not take place in incompatible or inappropriate areas. Secondary effects of more significant adverse impact (such as sprawl, premature land conersion, etc.) also may be reduced.

(4) Requiring Maintenance of Vegetative Cover. This policy would have definite, if only localized, positive environmental impacts. It would result in the reduction of wind and water erosion which have secondary impacts on sedimentation of water bodies. It would also reduce visual impacts and provide for re-establishment of vegetation of use to wildlfie.

(5) Locating Utility Lines. The location of utility lines in common rights of way would reduce environmental impacts by concentrating use in selected corridors. This would prevent unnecessary and damaging modification of other resource areas for single-purpose uses. Indirectly, other adverse impacts would also be avoided because rights of way frequently involve maintenance practices which include vegetation removal, spraying, etc. having impacts on wildlife habitat values and scenic quality.

(6) Protecting the Visual Attractiveness of the Coast. The major impact of this policy is the positive effect it will have on the protection of open space and scenic values in the coastal zone. The impacts resulting from the planning and review process include: protection of the area of primary public interest; prevention of damage to property, the quality of life and recreational opportunities; and encouragement of more sensitive developmental and use responses to the coastal environment. The guidance provided by the criteria for review provides social, economic and environmental benefits by protecting the visual quality and character of the coast. In some cases, this will generate increased costs for development or selection of an alternative site. However, these increased costs to the developer and potential loss of income and employment must be weighed against the net social benefits of development which is visually compatible with the character of the coast and preservation of undeveloped areas.

(7) Protecting Historical and Archaeological Resources through the Comprehensive Planning Process. Economic impacts generated by this policy fall into two general categories: impacts associated with the regulatory process; and impacts resulting from the regulations (e.g., retention of the cultural and aesthetic quality of a historic district). More time, labor and material would be expended on developments adjacent to historical and archaeological resources included within comprehensive plans.

Special restrictions on development in these areas may increase the initial costs of development, either through the denial of a permit or additional requirements. However, in the long run, development which is compatible with recognized historical and archaeological sites may prove to be more beneficial to the local economy. The Oregon coast is a recognized "destination" for those who wish to appreciate the unique cultural heritage of the region.

Through costal zone management, adverse and irreversible impacts upon historical and archaeological resources can be avoided. This is not to say that every old structure must be preserved, but rather, that the cultural heritage must be retained and the protection, or the degree of impact tolerated, must be considered according to the nature of the site. For many sites, this would involve a minimal economic impact, but a major impact in terms of enhancing the environmental qualities of the coastal zone.

(8) Establishing Scientific and Natural Areas (SNA). Costs would accrue to the State of Oregon for the establishment and management of a scientific natural areas system. These would be derived from the identification of areas, from acquisition in some cases, and from management. At this time, however, it is impossible to estimate costs because the number and types of areas, and management needs for each, have not been established.

Because of the relationship of scientific natural areas to the management of the coastal zone it is anticipated that these areas would have a major beneficial impact on the environmental and ecological qualities of the coastal zone. Because management policies could be evaluated in terms of impacts on the resources, over time, increasingly effective conservation and development controls could be implemented.

(9) Managing Continental Shelf Resources and Regulating Mineral Resource Development on the Continental Shelf (CS1 and CS2). These policies recognize the many interrelated values of the resources of the continental shelf. They also establish provisions for their protection and restoration in the event of damage, particularly, in the case of mineral extraction where the potential for irreversible damage is high.

(10) Protecting Significant Habitats of Fish and Wildlife Resources (FW1 and FW2). Because of the great variety (in terms of type, location, and extent) of significant habitat areas in the coastal zone, it may be expected that compliance to planning and management criteria will, in particular cases, preclude or limit certain types of uses and activities. In general, the economic impacts of this policy would fall into two categories: (1) the economic benefits generated by the preservation, protection and management of the habitats; and (2) the economic costs generated by restricting the uses and activities that adversely affect the habitats. The environmental impact would primarily be to the benefit of fish and wildlife resources by maintaining the long-term productivity, diversity, and stability of their habitats.

(11) Managing Fish and Wildlife Resources on a Sustained Yield Basis (FW3). The economic impact of applying sustained yield management to all fish and wildlife resources is variable depending on the commercial or recreational uses and values of the resource. Generally, for commercial species, the impacts will depend on whether present harvest rates are above or below the rate of sustained yield harvest. If below, the economic impact would be an increase in net social benefits in employment, income, or both. If harvest rates are now higher than those of a sustained yield rate, then decreases in income and employment benefits could be expected until that time when the resource stock could sustain a higher rate of harvest.

The environmental impact of sustained yield management is also variable depending on the species or group of species being managed. Generally, most species would benefit from both established harvest levels and enhanced ecological conditions which would help insure long-range production potential.

(12) Maintaining Values and Uses of Sand Areas (BD1). Understanding of the physical and biological limitations in sand areas for various uses provides a better basis for comparison of sand areas with other resource and social and economic considerations and will generate more appropriate land use decisions. Some uses will be encouraged to seek alternative locations, but adverse economic impacts can be reduced by providing incentives for development in areas which are most suitable. Positive social, economic, and environmental impacts will result from the reduction and avoidance of adverse effects upon the values of sand areas.

(13) Regulating Alterations of Foredunes (BD3). The positive impact of this and the above policy is that the potential for damage to property and the environment, as well as for loss of human life, would be reduced. This in turn would have a beneficial economic impact in that replacement and repair costs to facilities and property damaged also would be reduced.

(14) Maintaining Values and Uses of Estuarine Areas (EW1). This policy would have a positive impact on the estuarine areas of the Oregon coastal zone, because: (1) uses which do not require a waterfront location would be encouraged to locate elsewhere, preserving the water surface area; (2) some uses which were proposed on fill would be developed on pilings, preserving water surface area; (3) scattered, or strip residential development of estuarine areas would be reduced; and (4) transit corridors which could be located elsewhere would be encouraged not to locate in estuarine areas. In addition many indirect beneficial impacts would accrue as a result of this policy. For instance, fish and wildlife habitat within estuaries would be maintained or enhanced, adding to the long-term productivity of the estuarine systems and related systems which exhibit high degrees of dependence (offshore fishery resources, visual quality and continuity, recreational uses, etc.).

(15) Regulating Alterations of Estuarine Areas (EW2). In general this policy would reduce the rate at which estuaries are being filled. And as the most irreversible impact which may affect estuarine areas this policy would reduce physical alterations which frequently induce changes in estuarine physical processes and biological components.

(16) Managing Estuarine Areas within the Comprehensive Planning Process (EW3). The environmental impact of this policy would be positive because (1) the trend towards development of estuarine areas which are relatively undeveloped would be slowed or altered; and (2) discrete, single-purpose management of estuarine areas would be better coordinated.

This policy would also contribute to the environmental quality of the coastal zone by maintaining a diversity of resources and situations, rather than generating a uniformity in the level of degradation.

(17) Designating Geographic Boundaries of Shorelands (S1). Because boundary definition is an important step in the management of shorelands it is anticipated that this policy will have a beneficial impact on the

environmental quality of the coastal zone. Such action would include protection of the biological and amenity values associated with shorelands and this would be especially true to the extent that this resource influences or is influenced by related resource impacts (e.g., water quality, watershed activities, etc.).

(18) Maintaining Values and Uses of Water Resources (F1). The environmental benefits from implementation of this policy in the comprehensive planning process would include prevention or reduction of problems involving conflicting uses of the water resource. This would come about primarily because of the number of coordinated resource considerations that will be made in allocating a limited resource to a number of beneficial uses. Here, multiple-use management may be applied to the single use of a resource or to the use of the resource as it relates to areas encompassing a variety of resources with which it is related. Management of the water resource on this basis and through the comprehensive planning process would allow flexibility of use and protection of the resource base and related resources.

(19) Developing Potential Water Supplies and Providing Flow Protection to Maintain Values of Water Resources (F2 and F3). The environmental impacts generated from the implementation of these policies would be of two kinds. The first would be those impacts on the water resource and related land resources in the area where ground water was withdrawn or surface storage developed. The negative impacts may range from reduction of lake levels and intrusion of salt water to loss of habitats for anadromous fish and other wildlife species. The positive impacts of low flow augmentation, in particular, would benefit aquatic life, certain types of water-based recreation and water quality.

The second type would be those impacts on the water resource and related land resources as a result of establishing minimum stream flows in streams where low flow augmentation would or could not be developed. Here the positive impacts on the environment are similar to those above but do not entail the loss of resources, such as upland meadow and valley sites and stream habitat, usually experienced in the development of storage.

(20) Conserving Forest Lands (AFUR1). The major positive impacts of this policy would be increased timber production on public, non-commercial and small tract forest lands and greater protection of all uses and values of all forest lands. Also, conversion of valuable forest lands to other than forest uses, although not considered to be a serious problem at present, will be controlled.

(21) Preserving Productive Agricultural Lands (AFUR2). The results of implementing this policy will be generally positive in that the agricultural resource with its economic, social and environmental values will receive greater protection. Conversion of productive agricultural lands to other than agriculture use will be reduced.

(22) Managing Urban Growth (AFUR3). Restricting urban uses to designated areas may reduce locational options available to developers and force an increase in cost of developable land. However, this cost may be offset by savings realized in providing public services and in protecting valuable resources from urban encroachment.

(23) Preventing Overuse of Recreational Resources (AFUR5). This requirement for evaluation of carrying capacity will place cost burdens on both state and local governments as well as private developers. However, by avoiding overdevelopment and overuse of recreation resources, damage to these resources should be reduced. This in turn should decrease maintenance and repair costs.

(24) Providing Access to Public Lands and Waters (AFUR6). Providing access which is consistent with the carrying capacity of the environment and resources of the site will increase the costs of the Highway Division's access program and of other state and local efforts in providing access. Meeting all identified needs may also increase costs. Pressure on private landowners to provide easements or sell portions of their property may also increase.

However, these costs should be offset and even exceeded by the benefits which accrue to the public through increased use and enjoyment of public land and water resources. Also, damage to the access site should be reduced.

(25) Regulating Off Road Use of Vehicles (AFUR7). Implementation of the policy should have the positive results of reducing noise, air and water pollution and damage to soil, watershed, vegetation and other natural resources. It should also reduce harassment to wildlife and disruption of wildlife habitat and minimize conflicts between off road vehicle use and other existing or proposed uses of the permitted zone or neighboring land.

(26) Evaluating Geologic Hazards in the Comprehensive Planning Process and Regulating Uses in Geologic Hazard Areas (GH1 and GH2). Environmental benefits from implementation of these policies will include prevention or reduction of critical erosion problems in shoreland and hillside areas where the rock and soil formations are not tolerant to extensive disturbance or the increased runoff from developed uses; enhancement of floodplain areas may be expected from emphasizing these areas as a natural resource in planning; and, an eventual lessening of sediment load in streams may result from a decrease in erosion.

(27) Regulating Alterations of Shorelands to Avoid Geologic Hazards (GH3). It is anticipated that this policy would result in a reduction of critical erosion problems. After an evaluation of the impacts of the project on coastal geologic processes, beneficial projects would be approved. Recent research indicates that for a specific locality, design of the structure has a considerable bearing on impact.

Interrelationships and Character of Impacts

The above policies would essentially regulate compatible land and water uses based on the resource characteristics needed to sustain specified uses. The division of policies into resource categories does not intentionally ignore the unity of natural systems but rather, focuses on those factors which are identifiable and are capable of being controlled and managed.

Consequently, the direct and identifiable effects of a policy contribute to numerous indirect and subtle effects that would serve to maintain the integrity and viability of natural systems. This happens primarily as a result of overlapping coverage of resource characteristics and conditions which are to be maintained. For instance, identifying use limitations in riparian habitats to protect significant values for wildlife would be reinforced by the identification of shoreland boundaries and designation of use limitations.

Similarly, the regulation of upland watershed uses reduces erosion as well as the loading on shorelands which function as sediment filters. This would, in turn, decrease the sedimentation rates in estuaries and avoid the direct impacts on this biophysical system. In addition, indirect impacts generated by activities aimed at counteracting the effects of sedimentation, to maintain other related uses and values such as navigation requiring dredging because channel depths decrease with increased sedimentation, also would be reduced.

These secondary impacts may even be extended further by decreasing the frequency of dredging and the volume of material to be disposed of each time. This would indirectly reduce demands upon estuarine values because it is most frequently within the locale of estuaries that dredge spoil sites are developed. The important point is, however, that each of the policies addresses particular uses and impacts that together would be interactive in producing a range of effects in terms of magnitude, location, and time.

On the whole the character of the policies is positive. As these policies are applied in management (resource allocation) they do not represent irreversible commitments of resources. Rather, they guide particular actions and uses to prevent irreversible damages and maintain environmental quality to assure that irretrievable commitments of resources are made only when the net social benefits of doing so exceed the net social costs.

This criterion is assumed to be generally applicable to all situations. Within the management program, however, it becomes explicitly applicable in controversial cases or when significant and irreplaceable resources are allocated. This criterion is not attached to every policy because most resource allocation decisions occur at the local level and therefore costs and benefits are most appropriately estimated and agreed upon at this level of decision making. Correspondingly, most allocation

decisions directed by these policies will occur through local application and prescription. An important provision of the coastal zone management program in regards to the application of the social costs and benefits criterion is through the system of preferences. This system would be applied when allocation issues and weighing of impacts are of regional or state significance. These necessitate a broader perspective and base of decision making. In such cases the resource area under consideration may be designated as being of critical statewide concern.

An additional point is that each policy, by itself, does not constitute the only means through which resource uses may be regulated. Rather, it is at the local, state, and federal level that a body of law exists designed to regulate, in most cases, specific and often single purpose activities. In this regard the OCC&DC policies act to focus and synthesize the direction and intention of management and are, therefore, the necessary antecedents to intergovernmental cooperation and coordination of resource management in the coastal zone.

Areas of Critical Statewide Concern and Management Units

Because these policies are concerned with particular resource areas (types) and as a result of the way in which they are geographically distributed, a great number of uses, activities, and impacts may coincide in an area and cause an element of criticality in regards to their management. The separating factor for criticality is based on the level of state interest in the value mix of resource characteristics, uses and activities, and environmental impacts. When interest is high with regards to either preservation or development, the management program provides for the designation of areas of critical statewide concern. In these areas, the state would require local governments to apply the management policies in a particular manner both necessary and sufficient to protect its interest. In other areas of general state interest, but of important local concern, the management policies would receive general application. This would conceivably result in designation of management units encompassing large areas where uses and activities occur based on:

1. the capacities and suitabilities of resources for satisfying demands; and

2. the capabilities of resources to support demands without a significant deterioration of resource quality.

In terms of environmental impacts of these procedures the effects, in a spatial or geographical sense, would be that the greatest amount of area would be managed to assure a general level of environmental protection and that certain areas would be managed to insure a specific level of protection. Specific environmental impacts would depend on the particular natural systems identified within a critical area and the provisions made for their management. This would range from preservation to development.

Section III. A Summary and Evaluation of Anticipated Program Effectiveness

In the above section the National Environmental Policy Act provided clues to considering adverse impacts and some of their characteristics. Even more helpful to this section is an evaluation of the Act's basic purpose and substance. Experience indicates that the Act's intent was clearly to insure the explicit recognition, integration, and consideration of environmental factors and potential impacts, resulting from actions, within the planning and decision making processes and to insure that there be full public disclosure of information. In a similar fashion, the Coastal Zone Management Act of 1972 requires that state programs demonstrate (1) the involvement of the public both for the purposes of input and review; and (2) the use of scientific information in program development.

The OCC&DC coastal zone management program, which is to guide future planning and decision making in regards to coastal resources, has, in its development, included these concerns and is in many ways based on them. The basic framework of the OCC&DC program included the following elements:

(1) an extensive public involvement program;

(2) an inventory and evaluation of coastal resources;

(3) a survey and analysis of the coastal economy; and

(4) the development of recommended methods of implementation for resource management policies.

Here, it is necessary to consider the interrelationships of these four elements. The public involvement program has been the primary expression of the way Oregonians would like to see the coast either conserved or developed. This may be regarded as the expression of value preferences regarding actions to be taken or foregone. The development of implementation methods, on the other hand, has been the determination of the manner in which an action is to be carried out after a decision has been made. Thus, by viewing this in simple terms, value preferences establish the end toward which actions will be carried out, and implementation provides the means for accomplishing the task. Linking these two process components is the decision making process which has been the OCC&DC function and responsibility in establishing resource management policies.

In the last section the anticipated consequences of the policies and support processes were outlined as they related to environmental impacts. It has also been indicated in what manner the inputs figured into the development of policies. To evaluate what effects the program might have on the future planning and decision making of local and state government it is necessary to observe: (1) the way in which the program has provided for the continuation of the above inputs into both the planning

and decision making processes; and (2) what factors will positively influence or constrain the outcome.

In nearly every instance the different policies require the development of criteria and guidelines to be included with the comprehensive planning process of local governments in designating resource uses. Generally, these criteria and guidelines are to be developed cooperatively by local governments and the single-purpose resource management agencies of state government. The inclusion of such information within the comprehensive planning process, is a particularly significant point because (1) it will be at the local level where the majority of resource allocation decisions will be made; and (2) past experience indicates that the use of such information by local governments has generally been superficial, frequently resulting in poor land use decisions. Thus, by requiring the inclusion of information regarding resource characteristics and suitabilities explicit within the planning processes of local government it is anticipated that the quality of land and water use decision making will be improved and will result in a better balance between resource preservation and development.

This is not stated as an assertion but is, rather, an assumption which may not be well founded. The decision making process is influenced by an array of socio-political factors which are not easily controlled or overcome when they fail to reflect a consensus of social value; even by an upgrading of the information base and related processes such as public involvement (for purposes of input and accountability). In this regard, improvements in the information base and subsequent improvements in planning processes may not be sufficient to influence decision-makers.

Some indication of the programs effectiveness, however, may be determined as time passes, both by attempting to answer the questions posed earlier in this assessment and through measurements of achievement of the Commission's Goal and Objectives. In this regard:

(1) it may be anticipated that local and state decision making processes will be characterized by a more open process which incorporates active citizen involvement in planning and decision making (objective 1);

(2) increased efforts of coordination should result in a more unified direction for management of coastal resources which should decrease the number of conflicts among single purpose actions (objective 2);

(3) a willingness to change and restructure decision making and planning processes, based on increased knowledge, should become apparent (objective 3); and

(4) a commitment to a process which reflects a genuine effort to resolve conflicts in a manner which considers all social costs and benefits should become evident (objective 4).

APPENDIX I

ECONOMIC IMPACT ASSESSMENT

Economic Analysis of Policies, Necessary Actions and Recommended Actions

For each of the categories of Phase II policies that were approved for public review by the OCC&DC (except "Scientific and Natural Areas"), an economic analysis was prepared. Three types of comments were provided: analysis, general reaction, and suggested rewording.

In the analysis of the policy, necessary action and recommended action, questions were raised that must be answered before a rigorous estimate of the economic consequences of the policy can be made. If a ready answer was available for existing knowledge or from the inventories, such was recorded. If the question could not be answered immediately, it was placed in one of the following three categories: (1) a question that the staff economist could answer within a short time span (e.g., two or three days) using only the inventories; (2) a question that the staff economist could answer with substantially more time (e.g., five to ten days) using the inventories plus other existing data and expertise; or (3) a question that the staff economist could answer only with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

In the general reaction to the policy, an estimate of the likely economic consequences of the policy (if it were implemented) was presented. In the suggested rewording to the policy, an alternative statement of the policy or action was presented so that criticisms implied by the analyses or general reactions might be eliminated or at least blunted.

The complete text of the analysis for each policy category is included as part of this appendix.

Basis for Approach Used

After consideration of the first few policies, it became obvious that there were too few resources available to answer most of the questions raised.

A complete and rigorous estimate of the economic consequences of each of the policies, necessary actions and recommended actions was not possible even if the Commission had had unlimited resources, because in most cases, data simply do not exist that would be sufficient to complete such an analysis. Enough data do exist, however, to provide rough but informative answers to questions about the economic consequences of most of the policies. Even in this case, though, the Commission did not have the resources to complete the analysis. Therefore, a necessary but not sufficient set of questions to be answered before a rigorous estimate of the economic consequences was possible was provided. Also provided was an estimate of the time it would take two researchers to answer the questions. This latter datum served as an estimate of the lower bound of the costs of an economic analysis of the policies.

Some General Findings

Implementation of the policies will generate two types of economic consequences. First, there will be an impact on the costs of government and of society in general in administering the policies. For example, implementation of most of the policies will increase the costs of application, enforcement and compliance associated with permits. Second, there will be an impact on economic behavior itself. Changes in costs and benefits for firms, individuals and society in general will be effected through changes in revenues, operating costs, pollution, ecological systems and other factors.

In practically all cases, the so-called administrative costs of managing natural resources on the coast will increase unless there occurs either reductions in other governmental activities or marked increases in the efficiency of governmental activities or both. For the other category of economic consequences, that is the non-administrative or substantive economic consequences, it is impossible to generalize. The consequences appear to range from trivial to substantial, but a general analysis is hampered by the fact that the consequences are likely to vary from site to site. Furthermore, the inclusion of the criterion of net social benefits derives precisely from the impossibility of estimating all or even most of the consequences of the policies, and, therefore, it was adopted in part as a safeguard.

Economic Analysis by Policy Category

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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February 4, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Geologic Hazards in the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Geologic Hazards in the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from members of the OCC&DC Economic Steering Committee as well as from G. Anthony Kuhn and S. Lance Zaklan. My comments, of course, do not necessarily reflect the views of any of these individuals.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following categories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1 and NECESSARY ACTIONS 1 & 2

Statement of Policy 1: "State and local government shall assure that development in geologic hazard areas is avoided, or that special limitations to protect life and property are established for development allowed in these areas."

Statement of Necessary Action 1: "Local units of government shall adopt and implement a geologic hazards element of the comprehensive plan which includes an identification of the geologic hazards that exist within the unit's jurisdiction, and the limitations on the use of these hazard areas."

Statement of Necessary Action 2: "The State of Oregon shall develop planning criteria (policies and procedures) for geologic hazards and shall require that these criteria be included in the geologic hazard element of local comprehensive plans."

A. ANALYSIS: The policy implies that unless "special limitations .... are established for development allowed" in geologic hazard areas, development will be avoided. Necessary Actions 1 & 2 then require that geologic hazards be identified and that developmental limitations and criteria be established for the identified areas. The phrase "development in geologic hazard areas is avoided" is irrelevant to the analysis of the economic consequences of the policy, therefore, because "special limitations" must be established for all identified geologic hazard areas. What is important to the analysis are the as-yet-unspecified limitations and criteria. Until they are established, a rigorous analysis of the economic consequences of this policy is not possible.

III. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "In developing comprehensive plans for geologic hazard areas, local government should evaluate the degree of hazard present and designate uses which in their sum total effect will not exceed the short- or long-term limitations of the areas."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this recommended action, one would need to know answers to the following questions:

1. Question: What activities are most likely to compete for sites in geologically hazardous areas in the coastal zone?

Answer: The OCC&DC Geologic Hazards Inventory identifies the activities that are likely to compete for such sites by type of geologic hazard, and it also lists the types of activities likely to create geologic hazards. The critical part of this analysis is embodied in the following set of questions.

2. Questions: Of those activities most likely to compete for sites in geologically hazardous areas, which ones are likely to exceed the short- or long-term limitations of the areas? Of these, what is the present expected loss of life and damage to property and environment due to development in geologically hazardous areas? How much of this loss and damage would be reduced by implementation of this recommended action? For those activities likely to be affected by implementation of this recommended action, what are the comparative private costs and revenues associated with sites inside and outside geologically hazardous areas?

   Answers: Until limitations are established, it is impossible to answer these questions. Once the limitations are established, I and an assistant would answer these questions with about two or three months of work.

IV. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "In developing comprehensive plans for floodplain areas, state and local government should:

(a) prefer regulatory programs over major engineering projects such as dams, dikes and levees;

(b) designate low-density uses (particulary in the floodway portion) which are least subject to loss of life or property damage due to flooding, such as forestry, agriculture, recreation (e.g., golf courses and public hunting);

(c) assure that providing public facilities (such as roads, highways, or sanitary systems) will not stimulate the possible uneconomic, hazardous or unnecessary use of floodplain lands; and

(d) preserve for public or private recreational development areas within floodplains having exceptional recreational potential (in preference to other areas of comparable recreational potential)."

A. ANALYSIS: The analysis of the economic consequences of this recommended action is hampered by the lack of precision in the terms "prefer", "uneconomic", "hazardous", "unnecessary", and "exceptional recreational potential".

B. SUGGESTED REWORDINGS: "In developing comprehensive plans for floodplain areas, state and local government should:

(a) require regulatory programs (instead of allowing major engineering projects such as dams, dikes and levees) unless is it demonstrated that the net social benefits of an alternative exceed the net social benefits of regulatory programs;

(b) designate low-density uses (particularly in the floodway portion) which are subject to the least loss of life and property damage due to flooding, such as forestry, agriculture, recreation (e.g., golf courses and public hunting);

(c) prohibit public facilities (such as roads, highways, or sanitary systems) that would increase the propensity of individuals and private or public organizations to initiate or continue uses that would exceed the limitations established for the floodplain areas unless specific steps are taken in the provision of the public facilities to avoid such effects; and

(d) preserve for public or private recreational development those areas within floodplains that have been identified as having exceptional recreational potential (in preference to other areas of comparable recreational potential)."

V. POLICY 2

Statement of Policy 2: "State and local government shall base, in part, approval or disapproval of development in identified geologic hazard areas upon a geologic and soils report, provided by the applicant and prepared by a qualified geologist, engineering geologist or civil engineer. The report shall include an evaluation of the potential geologic problems and the capability of the site to support the proposed development without endangering life, property and environment.

Local government shall disapprove development proposals which will exceed the geologic hazard limitations of the site unless the applicant agrees to safeguards, recommended and certified by a qualified engineering geologist or civil engineer, that generates social benefits in excess of social costs for the geologic hazards noted in the geologic and soils report."

A. ANALYSIS AND GENERAL REACTION: The economic consequences of all the policies on geologic hazards can be divided into two general categories: those consequences associated with the regulatory process itself (e.g., the increased time it takes to get a permit) and those consequences resulting from the regulations (e.g., the reduced losses from geologic hazards).

The increased regulations require both public and private activities to devote more resources (i.e., labor and material) to seeking approval for locating in areas in which there exist geologic hazards. (For example, POLICY 2 calls for greater use of geologists, engineering geologists and civil engineers.) It is possible (though unlikely), however, that OCC&DC will effect an increase in efficiency in the permit system and other regulatory activities in which case the net opportunity costs of the entire management program would be negligible.

The economic consequences of the regulations themselves are impossible to estimate until the "geologic hazard limitations" are established, and the establishment of these is demanded in POLICY 1, NECESSARY ACTION 1. Once these limitations are established, then before one could estimate the consequences of this policy, one would need answers to the questions I raised above in the ANALYSIS of POLICY 1, RECOMMENDED ACTION 1.

VI. POLICY 2, NECESSARY ACTION 1

Statement of Necessary Action 1: "When development involving activities of state-wide significance or other uses characterized by high densities or a major investment of public funds are proposed for areas identified as high-hazard, the State of Oregon shall assure public safety by reviewing, approving or disapproving the geologic evaluation of the project in addition to the regulation process at the local level.

A. ANALYSIS AND GENERAL REACTION: The analysis of the necessary action is hampered by the vagueness of the terms "high densities", "major investment", and "high-hazard" as well as by the apparently inadvertent implication that the State of Oregon must review, approve or disapprove the "regulation process at the local level". The rewording I suggest below clears up two of these four problems. The other two either should be deleted, defined, or left to the State of Oregon to define in its implementation of the necessary action.

B. SUGGESTED REWORDING: "When development involving activities of state-wide significance or other uses characterized by high densities or a major investment of public funds are proposed for areas in which there exist geologic hazards, then in addition to the regulations imposed by local government, the State of Oregon shall assure public safety by reviewing, approving or disapproving the geologic evaluation of the project."

C. ANALYSIS AND GENERAL (Continued): The effect of this necessary action is to increase the resources devoted to the regulatory process involving geologic hazards. I assume that the same criteria involving limitations of the areas would be applied in the state's evaluation, and therefore the same questions I raised above in the ANALYSIS of POLICY 1, RECOMMENDED ACTION 1 apply to the ANALYSIS of this necessary action.

VII. POLICY 2, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The state or local government which reviews site evaluations in areas of geologic hazards shall state findings of fact which substantiate either the approval or disapproval of a development proposal."

A. ANALYSIS AND GENERAL REACTION: This seems terribly reasonable.

VIII. POLICY 2, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The State of Oregon should develop minimum criteria for geologic and soils reports to be used in evaluating development proposals in geologic hazard areas."

A. ANALYSIS AND GENERAL REACTION: Except for the term "minimum", this recommended action seems reasonable, too.

B. SUGGESTED REWORDING: "The State of Oregon should develop criteria for the geologic and soils reports that are to be used in evaluating development proposals in geologically hazardous areas.

IX. POLICY 2, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "The State of Oregon should develop a statement of qualifications for professional engineers and geologists to assist local government and the public in selecting individuals to conduct evaluations of projects in geologic hazard areas.

A. ANALYSIS AND GENERAL REACTION: Again, this seems reasonable and not costly.

X. POLICY 2, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "Local government should not approve development of structures on the ocean front in areas identifies as subject to "critical coastal erosion" unless an engineering investigation has determined that the structure has an adequate setback, in consideration of the rates of erosion and the possibility of extensive cliff failure."

A. ANALYSIS AND GENERAL REACTION: To estimate the consequences of this policy rigorously would require knowing the magnitude and frequency of developments seeking to locate in such areas. My general reaction is that this recommended action can only increase net social benefits.

XI. POLICY 3

Statement of Policy 3: "State and federal government shall assure that construction on or modification of shorelines shall not interfere with natural processes to the extent that geologic hazards are created in adjacent areas, unless it can be demonstrated that such construction or modification to the shoreline generates social benefits in excess of social costs."

A. SUGGESTED REWORDING: So that this policy is worded consistently with the Commission's past actions and so that its precision is increased, I suggest the following rewording:

"State and federal government shall assure that construction on or modification of shorelines shall not interfere with natural processes to the extent that geologic hazards are created in adjacent areas, unless it is demonstrated that the net social benefits of such construction or modification exceed the net social benefits of prohibiting the construction or modification."

XII. POLICY 3, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The State of Oregon should support and encourage studies and surveys of erosional, transport, and depositional processes in shoreline areas."

A. ANALYSIS AND GENERAL REACTION: This seems reasonable, and as long as the state doesn't get carried away with "support", it shouldn't be costly.

XIII. POLICY 3, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "State and federal government should conduct or require engineering investigations prior to the construction of shoreland and channel structures (such as groins, jetties, breakwaters, seawalls and navigation channels) to assure that hazards will not result from the modification of natural processes."

A. ANALYSIS AND GENERAL REACTION: This is an obviously necessary action that should follow POLICY 3. As such, it should be reworded.

B. SUGGESTED REWORDING (as NECESSARY ACTION 1): "State and federal governments shall conduct engineering investigations, or shall require engineering investigations to be conducted, prior to the construction of shoreland and channel structures (such as groins, jetties, breakwaters, seawalls and navigation channels) to determine if geologic hazards will result from the modification of natural processes.

XIV. POLICY 4

Statement of Policy 4: "State and local government shall adopt and enforce the following specific regulations for known and designated flood hazard areas within the coastal zone.

(1) Developments housing restrained or incapacitated persons (hospitals, rest homes and jails) and emergency service structures (police and fire stations) shall be prohibited in floodplains.

(2) Residential structures shall be prohibited in floodways and other structures and fills shall be permitted in floodways only if measures are taken to insure that there will be no increase in flood level due to the development.

(3) Structural developments shall be permitted in flood fringe areas only if designed to provide flood elevations or flood proofing to a height above that of the 100-year flood.

(4) The coastal high hazard area shall be identified, and no land below the level of the 100-year flood in this area may be developed unless the new construction or substantial improvement:

(a) is located landward of the reach of the mean high tide;

(b) is elevated on adequately anchored piles or columns to a lowest flood level at or above the 100-year flood level and securely anchored to such piles or columns; and

(c) has no basement and has the space below the lowest floor free of obstructions so that the impact of abnormally high tides or wind-driven water is minimized."

A. ANALYSIS: Before one could estimate rigorously the consequences of this policy, one would need to know the answers to the following questions:

1. Questions: What are the types and magnitudes of the activities that are likely to violate each of the regulations in the policy? Among these activities, what is the present expected loss of life and damage to property and environment due to development in the hazardous areas? How much of this loss and damage would be reduced by implementation and rigorous enforcement of this policy? For those activities likely to be affected by implementation, what are the comparative private costs and revenues associated with sites inside and outside the hazardous areas?

Answers: I (and an assistant) could answer these questions (with varying precision) with about two or three months of work.

B. GENERAL REACTION: Implementation of this policy is likely to change the private costs and revenues of some activities, but the impact on employment and per capita income would be negligible compared to the reduction in loss of life and damage to property and environment. Implementation of this policy, therefore, is likely to have a strong positive impact on net social benefits.

XV. POLICY 4, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "Wherever practicable and economically feasible, federal, state and local government should provide for:

(a) the removal from floodways of natural or man-caused obstructions which threaten increased flood damage;

(b) the approval of design for all developments constructed in floodplains, to assure the least adverse hydraulic effect considering expected regional flood levels and debris leads; and

(c) the application of floodproofing measures to existing facilities in order to reduce flood damage potential."

A. ANALYSIS AND GENERAL REACTION: Any rigorous analysis of the consequences of this recommended action is hampered by the vagueness of the terms "practicable" and "economically feasible". To increase the precision of the statement, I suggest the rewording that is consistent with past Commission action.

B. SUGGESTED REWORDING: "Unless it is demonstrated that the net social benefits of the following actions are less than the net social benefits of inaction, then federal, state and local government should:

(a) remove, or cause to be removed, from floodways any natural or man-caused obstructions which threaten increased flood damage;

(b) evaluate the design of all developments proposed or constructed in floodplains with special emphasis on achieving the least adverse hydraulic effect considering expected regional flood levels and debris, and should base approval on the evaluation; and

(c) apply, or cause to be applied, floodproofing measures to existing facilities in order to reduce flood damage potential."

XVI. POLICY 4, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "Cities and counties in the coastal zone having flooding or mudslide hazards within their jurisdictions should become eligible for the National Flood Insurance Program."

A. ANALYSIS AND GENERAL REACTION: This recommended action confuses me. If the criteria for eligibility for the National Flood Insurance Program already account for cities and counties having flooding or mudslide hazards, then why is this necessary? If they don't, then this amounts to an innocuous request that they be changed. Surely, there are more specific wordings and more direct approaches that would serve the apparent purpose better.

XVII. POLICY 5

Statement of Policy 5: "State and local government shall made readily available information concerning the location, type and characteristics of geologic hazards."

A. ANALYSIS AND GENERAL REACTION: Unless the costs of providing such information are staggering, this policy could hardly do anything but increase social benefits. It is important to note that this policy does not require the governments to collect the information but only to provide already existing information.

XVIII. POLICY 5, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The Oregon Department of Geology and Mineral Industries, in cooperation with federal and local government, should complete geologic hazard investigations of western Douglas, Coos, and Curry counties, and make findings of these studies available to the general public."

A. ANALYSIS: Before one could estimate rigorously the consequences of this recommended action, one would need to know answers to the following questions:

1. Questions: At what cost can these investigations be completed? How will the investigations be financed? What alternative means of providing this information exist?

   Answers: I (and as assistant) could provide answers to these questions within one day.

B. GENERAL REACTION: It seems like a good idea.

XIX. POLICY 5, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "Local government in the coastal zone should (through the planning commission and the assessor's office) provide information on identified geologic hazards within their jurisdictions to the general public."

A. ANALYSIS AND GENERAL REACTION: Since this calls for providing information on already "identified geologic hazards", the cost is likely to be small relative to the benefits of the information.

XX. POLICY 5, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "Deeds for property located within areas identified as geologic hazards should include a statement that the area has been identified as hazardous, and a reference for more detailed information."

A. ANALYSIS AND GENERAL REACTION: This seems terribly beneficial and virtually costless.

XXI. POLICY 5, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "The Real Estate Division should require data on geologic hazards to be included in land sales reports for those transactions involving land identified as being a geologic hazard."

A. ANALYSIS AND GENERAL REACTION: Developers could sidestep too easily what appears to be the intent of this recommended action, because it is not clear just what data should be included.

B. SUGGESTED REWORDING: "For those transactions involving land in which geological hazards occur, the Real Estate Division should require disclosure of the existence and nature of such geological hazards to be included in land sales reports.

WEW:fw
2/5/75

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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February 11, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Fish and Wildlife Resources of the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Fish and Wildlife Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from members of the OCC&DC Economic Steering Committee as well as from S. Lance Zaklan. My comments, of course, do not necessarily reflect the views of any of these individuals.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge of from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

2. a question I (and as assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local governments shall protect the significant aquatic life and wildlife habitats of the Oregon coastal zone, identified and described in the OCC&DC inventory, through the management, planning, and regulation of uses that would adversely affect these areas. Furthermore, the state shall develop programs and incentives for improvement and restoration of potentially significant habitat areas."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this policy, one would need to know answers to the following questions:

1. Questions: What activities (other than aquatic life and wildlife) are likely for use of the significant (and potentially significant) aquatic life and wildlife habitats identified in the OCC&DC Fish and Wildlife Inventory? Which of these activities are likely to affect these habitats adversely? If the activities that are likely to affect these habitats adversely are forced to alter their operations such that they no longer adversely affect the habitats, what will happen to their private costs and revenues and to their employment?

   Answers: I and an assistant could answer these questions within six weeks.

B. GENERAL REACTION: My general reaction is that protection of the significant aquatic life and wildlife habitats can be accommodated without increasing the rate of unemployment and decreasing per capita income on the coast below what they would be in the absence of the accomodation.

III. POLICY 2

Statement of Policy 2: "State and local governments shall manage habitats of threatened and endangered species, and other species of special interest, as identified in the OCC&DC inventory, in such a manner to preserve these species in the Oregon coastal zone."

A. ANALYSIS AND GENERAL REACTION: The ANALYSIS and GENERAL REACTION that I presented for POLICY 1 applies to POLICY 2.

IV. POLICY 2, NECESSARY ACTIONS 1 and 2

Statement of Necessary Actions 1 and 2:

1. "Local units of government shall incorporate in comprehensive land and water use plans consideration for significant habitat areas, habitats of threatened and endangered species and species of special interest, and shall specify use limitations for these habitat areas."

2. "The State of Oregon shall develop planning and management criteria for both the preservation of species and the regulation of adverse impacts in significant habitat areas and shall require that these criteria be included in local comprehensive plans."

A. ANALYSIS AND GENERAL REACTION: Until one knows what the "limitations" and "criteria" are in these necessary actions, one cannot estimate what the economic consequences of them will be.

V. POLICY 2, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The State of Oregon, through the Oregon Wildlife and Fish Commissions and Sea Grant should conduct studies to determine the recreational, non-appropriative, and economic values of fish and wildlife to assist in planning and decision making."

A. ANALYSIS AND GENERAL REACTION: This seems reasonable especially because estimating the social costs and benefits of fish and wildlife requires measurements of these values.

VI. POLICY 2, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The State of Oregon should cooperate with the local units of government in developing and carrying out habitat improvement and restoration programs. In particular, wherever appropriate, state and local government should create, enhance and restore spawning areas in coastal streams."

A. ANALYSIS AND GENERAL REACTION: The first sentence of the recommended action seems reasonable and does not need an estimate of its economic consequences. Analysis of the second sentence, however, is hampered by the phrase "wherever appropriate". The phrase either should be deleted without replacement or should be replaced by a phrase urging application of the criterion of maximum net social benefits.

B. SUGGESTED REWORDINGS

1. "The State of Oregon should cooperate with the local units of government in developing and carrying out habitat improvement and restoration programs. In particular, state and local governments should create, enhance and restore spawning areas in coastal streams."

2. "The State of Oregon should cooperate with the local units of government in developing and carrying out habitat improvement and restoration programs. In particular, state and local government should create, enhance and restore spawing areas in coastal streams according to the criterion of net social benefits."

VII. POLICY 2, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "The Oregon Fish Commission should establish a program for the management of marine vegetation."

A. ANALYSIS AND GENERAL REACTION: Before one could estimate rigorously the economic consequences of this recommended action, one would need to know how much such a program is likely to cost and what benefits are likely to occur from the management of marine vegetation. In light of the likely increase in commercial exploitation of kelp along the Oregon coast, and given the rather limited knowledge of what yields can be sustained, the benefits of this recommended action are likely to exceed the costs.

VIII. POLICY 2, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "Local units of government should approve development on freshwater and shorelands, which will result in alterations of water characteristics, only if the proposed uses or activities will be conducted in a manner to minimize adverse effects on significant aquatic life or wildlife habitat areas."

A. ANALYSIS AND GENERAL REACTION: The clause "which will result in alterations of water characteristics" is superfluous since there do not appear to be any developments on freshwater or shorelands that would not alter water characteristics in one way or another. Aside from that, the ANALYSIS AND GENERAL REACTION that I presented above for POLICY 1 applies here.

B. SUGGESTED REWORDING: "Local units of government should not approve development on freshwater and shorelands unless it is demonstrated that the proposed uses or activities will be conducted in a manner to minimize adverse effects on significant aquatic life or wildlife habitat areas."

IX. POLICY 2, RECOMMENDED ACTION 5

Statement of Recommended Action 5: "The State of Oregon and local units of government should discourage agricultural, forestry, and urban development practices which threaten significant aquatic life and wildlife habitats when reasonable alternative practices exist."

A. ANALYSIS: Rigorous analysis of this recommended action is hampered by the terms "discourage" and "reasonable", because until one knows how rigorously the practices are going to be discouraged and until one knows the criteria by which alternative practices are determined to be reasonable or unreasonable, it is impossible to estimate the economic consequences.

B. SUGGGESTED REWORDING: "The State of Oregon and local units of government should prohibit agricultural, forestry, and urban development practices which threaten significant aquatic life and wildlife habitats unless it is demonstrated that the net social benefits of alternative practices are less than the net social benefits of the practices that threaten significant aquatic life and wildlife habitats."

C. ANALYSIS (Continued): Before one could estimate rigorously the economic consequences of this rewording of the recommended action, one would need to know answers to the following questions:

1. Questions: What agricultural, forestry, and urban development practices are likely to threaten significant aquatic life and wildlife habitats? How common is the use of such practices today? What are the private costs of such practices compared to the private costs of alternative practices, i.e., practices that do not threaten significant aquatic life and wildlife habitats?

   Answers: I and an assistant could provide rough answers to these questions within two months. Providing complete and precise answers would take much longer.

D. GENERAL REACTION: Since this recommended action, if it were implemented, forces changes in agricultural, forestry and urban development practices if and only if (a) such practices threaten significant aquatic life and wildlife habitats and (b) there exist socially beneficial alternative practices, then it would increase the net social benefits of Oregonians.

X. POLICY 2, RECOMMENDED ACTION 6a

Statement of Recommended Action 6a: "The State of Oregon and local units of government should provide public access in appropriate habitat areas for hunting, fishing, and wildlife observation in a manner that also provides for public health and safety."

A. ANALYSIS AND GENERAL REACTION: This seems reasonable, and it does not warrant rigorous analysis.

XI. POLICY 2, RECOMMENDED ACTION 6b

Statement of Recommended Action 6b: "In particular, when any access is provided to significant habitat areas it should be done in a manner which minimizes adverse effects on aquatic life and wildlife resources."

A. ANALYSIS AND GENERAL REACTION: This recommended action does not eliminate access. It merely requires that when such access is provided, the resulting adverse effects be minimized. Implementing this action, therefore, would require, first, that the adverse effects of various methods of access be determined and, second, that the method that minimizes these effects be selected. If it has been the practice, whether by intent or by chance, in the past to select the method that minimizes the adverse effects, then the cost of construction and maintenance would remain unchanged if this recommended action were implemented. If not, then the costs are likely to increase, although not significantly.

XII. POLICY 3 and NECESSARY ACTION 1

A. Statement of Policy 3: "The State Fish and Wildlife Commissions shall make planning and management decisions regarding the harvest of both aquatic life and wildlife resources on an optimal sustained yield basis in perpetuity, using evolving scientific principles of resource management, to insure the continued supply of these resources."

1. ANALYSIS: By failing to specify the criterion by which optimality is achieved, the Commission is failing to provide the guidance that it has given in other policies it has approved. The following suggested alternative rewordings, provide the necessary guidance.

2. SUGGESTED REWORDINGS:

a. "The State Fish and Wildlife Commissions, using evolving scientific principles of resource management, shall plan and manage the harvest of both aquatic life and wildlife resources so that the optimal yeild of these resources will be sustained in perpetuity. The criterion of optimality is maximum net social benefits accruing to Oregonians."

b. "The State Fish and Wildlife Commissions, using evolving scientific principles of resource management, shall plan and manage the harvest of both aquatic life and wildlife resources so that the yield from these resources will maximize the net social benefits accruing to this and succeeding generations of Oregonians."

I prefer the second of these alternative rewordings, although either is sufficient to provide what I interpret to be the guidance the Commission has intended to provide.

B. Statement of Necessary Action 1: "The State of Oregon, through the Oregon Fish and Wildlife Commissions, shall establish allowable harvests for those fish and wildlife species of commercial and recreational importance, taking into account the impacts of harvest levels, the impacts from land and water uses on fish and wildlife resources, and the biological factors that determine supply."

1. ANALYSIS: As the original statement of POLICY 3 failed to do, this version of NECESSARY ACTION 1 fails to provide a criterion by which to establish allowable harvests. In order to provide this criterion and to make this statement consistent with the suggested rewordings of POLICY 3, consider the following suggested rewording.

2. SUGGESTED REWORDING: "The State of Oregon, through the Oregon Fish and Wildlife Commissions, shall establish allowable harvests for those fish and wildlife species of commercial and recreational importance according to the criterion of maximum net social benefits accruing to Oregonians in perpetuity, taking into account the impacts of harvest levels, the impacts of land and water uses on fish and wildlife resources, and the biological factors that determine supply."

C. ANALYSIS AND GENERAL REACTION (to Policy 3 and Necessary Action 1): Until the allowable harvests are established, it is impossible to determine what the economic consequences of Policy 3 and Necessary Action 1 are likely to be. In effect, the combination of this policy and necessary action is requiring that the consequences of various levels of harvest be estimated and that those levels be allowed that will maximize the net social benefits accruing to Oregonians. Our knowledge of the wildlife and especially the aquatic life in Oregon is sufficiently limited that the Commission is doing all it can by requiring that these two steps be taken.

XIII. POLICY 3, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The State of Oregon should encourage and cooperate in the international management of the offshore ocean fishery on an optimal sustained yield basis to protect the viability of the remaining fishery stocks."

A. ANALYSIS AND GENERAL REACTION: The problem with specifying the criterion of optimality for this recommended action is that it isn't clear whether Oregon should lobby exclusively for the benefits of Oregonians or for Oregonians and others as well. Given that dilemma, I'll suggest a rewording that merely increases the precision of the recommended action without resolving that fundamental problem.

B. SUGGESTED REWORDING: "The State of Oregon should encourage the appropriate authorities to assure that the offshore ocean fisheries be managed so that an optimal yield of the remaining fishery stocks be sustained in perpetuity."

XIV. POLICY 3, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The Oregon Fish Commission should place greater emphasis on development of new commercial and sports fisheries for unutilized and underutilized species to lessen pressure on some species while increasing the available supply of fish protein."

A. ANALYSIS AND GENERAL REACTION: This one is confusing and premature. To support this recommended action, I would need precise estimates of (a) the magnitude of present stocks of utilized, unutilized and underutilized species, (b) the present rate of exploitation of these species by this and other nations, and (c) the interdependence among various offshore species of fish. I am skeptical that such estimates exist, and, therefore, it is not clear that increasing the exploitation of unutilized and underutilized species can occur at the same time the available supply of fish protein is increased. Even if it could, increasing the supply of fish protein is only one of several reasons why such increased exploitation should be considered or controlled or whatever.

B. SUGESTED REWORDING:

"The Oregon Fish Commission should determine:

(a) why certain species of fish have remained unutilized or underutilized; and

(b) if it would benefit Oregonians for there to be governmental encouragement of the exploitation of these unutilized and underutilized species."

XV. POLICY 3, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "The Oregon Fish and Wildlife Commissions should initiate an expanded program of research to develop the biological information needed to establish harvest levels and should, thereafter, monitor the impacts of harvest levels and land and water uses on the supply of fish and wildlife resources."

A. ANALYSIS AND GENERAL REACTION: This is obviously necessary if NECESSARY ACTION 1 is ever to be implemented.

XVI. POLICY 3, RECOMMENDED ACTION 4, 5 & 6

Statement of Recommended Action 4: "The Oregon Fish Commission should cooperate with the federal government in conducting studies to identify the cause for the decline in the salmon fishery and methods to correct it."

Statement of Recommended Action 5: "The federal and state government, as well as private individuals should supplement wild fishery stocks with hatchery stocks."

Statement of Recommended Action 6: "Sea Grant should encourage and fund research on the expanded use of unexploited fish stocks."

A. ANALYSIS AND GENERAL REACTION: These all seem reasonable and sufficiently innocuous as to not require rigorous analysis.

XVII. POLICY 3, RECOMMENDED ACTION 7

Statement of Recommended Action 7: "The State of Oregon should expand research, educational, and enforcement programs to help in carrying out the intent of aquatic life and wildlife regulation and management of the resource on a sustained yield basis."

A. ANALYSIS AND GENERAL REACTION: Why is it necessary to state this recommended action? It seems strictly redundant to POLICY 3 and NECESSARY ACTION 1.

WEW:fw

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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February 12, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Beaches and Dune Resources of the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Beaches and Dune Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from members of the OCC&DC Economic Steering Committee as well as from S. Lance Zaklan. My comments, of course, do not necessarily reflect the views of any of these individuals.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall maintain or enhance the values of Oregon's sand areas by assuring that public and private uses do not exceed the physical and biological limitations of these areas."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this policy, one would need answers to the following questions:

1. Questions: What economic activities currently occur in sand areas? What is their relative magnitude in the coastal economy measured in employment or earnings?

   Answers: Recreation is the primary economic activity that occurs in sand areas. I and an assistant could provide reasonably complete answers to these questions (e.g., a list of the other activities as well as estimates of their relative magnitudes) within three days of work.

2. Questions: Among the activities identified in II.A.1. above, are there any that exceed the physical and biological limitations of these areas or that might be expected to in the future? If so, which ones are they? In which sand areas are they concentrated? How much decrease in their employment or earnings in the sand areas would be necessary to put the activity within the physical and biological limitations?

   Answers: I and an assistant could provide partial answers to these questions within one day, but complete answers would require new data.

3. Question: What benefits are likely to be generated by constraining activities in sand areas to the physical and biological limitations of these areas?

   Answer: Within a few days, I and an assistant could estimate, at least roughly, the increment to the future stream of benefits likely to be generated by prolonging the usefulness and attractiveness of sand areas.

B. GENERAL REACTION: Policy 1 could be implemented without markedly affecting employment orearnings in recreation and related activities. There may be particular cases for other activities, however, in which marked change could occur, but as yet I have no evidence to that effect.

III. POLICY 1, NECESSARY ACTIONS (a) and (b)

Statement of Necessary Actions (a) and (b):

(a) "Local government shall include within their comprehensive plans an identification of the various types of sand areas (as identified in the OCC&DC Beaches and Dunes Inventory) and shall designate for each type of sand area uses that do not exceed the biological limitations peculiar to each type of sand area."

(b) "The State of Oregon, in cooperation with local units of government and with the requested assistance of the U.S. Soil Conservation Service, shall develop planning criteria for sand areas and shall require that these criteria be used in the local comprehensive planning process as well as in state agency programs."

A. ANALYSIS AND GENERAL REACTION: Aside from the possible economic consequences implied by the questions I raised in the analysis of POLICY 1, these two necessary actions will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends on how these and other policies are implemented.

IV. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local governments should approve proposed recreational uses of those sand landforms identified as having high value for recreation use (as identified in the OCC&DC Beaches and Dunes Inventory) unless it is demonstrated that the net social benefits of approving an alternative proposed use exceed the net social benefits of disapproving it."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this recommended action, one would need answers to the following questions:

1. Questions: What sand landforms have been (or are likely to be) identified as having high value for recreational use? Where are they (or are they likely to be) located? How many acres out of the total sand areas are these identified sand landforms likely to cover?

   Answers: I and an assistant could provide rough answers to these questions within two days.

2. Questions: What activities (other than recreation) are likely to compete for use of the identified landforms? For those activities that directly generate employment and earnings, what is their relative magnitude in the coastal economy measured in employment or earnings? What is their relative magnitude in the local economy of which they are likely to be a part? For those activities that do not generate employment and earnings directly (e.g., wildlife habitats), what is their relative importance in the system of which they are a part (e.g., the ecological system)?

Answer: It would take, me and an assistant, at least a couple of months to provide answers to most of these questions.

B. GENERAL REACTION: Assuming (as the OCC&DC Inventory of Beaches and Dunes suggests) that relatively few sand landforms will be identified as having high value for recreation use, then recreation will compete with very few other economic activities for use of the areas. If those sand landforms identified as having high value for recreational use also have, say, high ecological value, then there may result some conflict among alternative uses. If the criterion of net social benefits does not provide an adequate resolution of the conflict, then Zaklan's approach to establishing a system of preferences, if it is adopted, should provide the resolution.

V. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "State and local government should designate certain sand areas for preservation in their natural state in order to allow for continuance of natural dune processes for the purposes of scientific study and protection of scenic, recreation and wildlife habitat values."

A. ANALYSIS: Before one can proceed with a rigorous analysis, one would need to know answers to the following questions:

1. Questions: Where are the "designated sand areas" or where are they likely to be? How many acres out of the total sand areas are these designated sand areas likely to cover? What economic activities (other than recreation) are likely to compete for use of these designated areas? What is the relative magnitude of these activities in the coastal economy measured in employment and earnings? What is their relative magnitude in the local economy of which they are likely to be a part?

   Answers: The OCC&DC Inventory of Beaches and Dunes does not indicate any "designated sand areas" nor does it provide criteria for designating the areas. A rigorous analysis cannot begin until this information is available.

2. Question: What increases in scenic, recreation and wildlife habitat values are likely to occur as a result of preserving certain designated sand areas in their natural state?

   Answer: Within five days, I and an assistant could estimate these increases for a given sand area, but until the areas are designated, the analysis cannot begin.

B. GENERAL REACTION: Given (1) my view that few sand areas will be designated for preservation in their natural state and (2) the low probability that uses other than scenic, recreation or wildlife habitat will be competing for the designated sand areas, this recommended action, if it were implemented, would generate few economic consequences.

VI. POLICY 1, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "Local government should require that dune stabilization be conducted in conformance with use designations included in comprehensive plans."

A. ANALYSIS AND GENERAL REACTION: Before one could proceed with a rigorous, or even a casual, estimate of the most likely consequences of this recommended action, one would need an answer to the following question:

1. Question: Is this likely to effect a net increase in outlays on dune stabilization or is it merely going to change the nature of dune stabilization without a change in the costs?

Answer: I and an assistant could answer this question within two days.

VII. POLICY 1, RECOMMENDED ACTIONS 4 and 5

Statement of Recommended Action 4: "The State, in cooperation with the Soil Conservation Service, should encourage and support additional studies of sand area carrying capacity, including the impact of motor vehicles, pedestrians and livestock."

Statement of Recommended Action 5: "The State should develop and implement, with the cooperation of concerned agencies, an education program to explain beaches and dune processes to the general public and to schools.

A. ANALYSIS AND GENERAL REACTION: A rigorous analysis of these recommended actions is not necessary. My general reaction is that while increased information is beneficial, it is also costly, and, therefore, the same cost-benefit analysis that lurks behind most of the policies in the program should be applied here as well.

VIII. POLICY 1, (prospective) RECOMMENDED ACTION 6

Apparently, the following recommended action will be considered by the Commission although it has not yet been approved.

Statement of (prospective) Recommended Action 6: "State and local government should designate only the sand landforms older stabilized dunes and older foredunes (as identified in the OCC&DC inventory) as suitable for development or intensive use without need of further evaluation through a site investigation."

A. ANALYSIS: Before one can proceed with a rigorous analysis, one would need to know answers to the following questions:

1. Question: How many acres out of the total sand areas do "older stabilized dunes and older foredunes" cover?

Answer: According to the OCC&DC "Beaches and Dunes Inventory", about 45% to 50% of the 165,000 acres of sand areas are "older stabilized dunes and older foredunes", or about 80,000 acres.

2. Questions: How much development or intensive use (measured in employment or earnings) occurs on sand landforms? (For example, most of the residential development on the coast occurs on older stabilized dunes.) Of this total, how much occurs on "older stabilized dunes and older foredunes"? Is this aggregate spatial distribution between the two categories uniform among sand areas, or does it vary substantially? If the latter, in which localities is the economic activity in sand areas concentrated on sand landforms other than "older stabilized dunes and older foredunes"?

   Answers: Within five to ten days, I and an assistant could provide at least rough answers to these questions.

3. Question: Would the implementation of this recommended action result in a reduction of noneconomic values in the older stabilized dunes and older foredunes? If so, what is the magnitude of this reduction?

   Answers: Within two or three days, I and an assistant could provide rough answers to these questions. Reasonably complete answers would take much longer.

B. GENERAL REACTION: Since most development in sand areas appears to be concentrated in the older stabilized dunes and older foredunes, a case against this recommended action would have to be based on marked underpricing of the social benefits generated by undeveloped older stabilized dunes and older foredunes. To my knowledge, this is not the case.

C. SUGGESTED REWORDING: The present wording is awkward. The following slight change should eliminate this awkwardness.

   State and local governments should designate only older stabilized dunes and older foredunes (as identified in the OCC&DC inventory) as suitable sand landforms for development or intensive use without need of further evaluation through a site investigation.

IX. POLICY 2

Statement of Policy 2:

a. "In sand areas other than older stabilized dunes and older foredunes (as identified in the OCC&DC inventory), state and local government shall base approval or disapproval of uses, in part, on a site investigation report which has been prepared by a qualified sand specialist and provided to the applicable unit of government by the

developer. The report shall evaluate the capability of the site to support the proposed development without endangering life, property or environment and shall describe:

(1) the type of development (use) proposed;

(2) the temporary and permanent stabilization programs and the planned maintenance of this vegetation once it is established; and

(3) the methods for protecting the surrounding area from adverse effects of the development and stabilization."

b. "State and local government shall not approve any proposed use of a sand area that is likely to cause any of the following conditions unless it is demonstrated that the net social benefits of approving the use in the sand area exceed the net social benefits of disapproving the use:

(1) excessive damage to existing vegetation including moisture loss and plant root damage;

(2) exposure of stable and conditionally stable areas to erosion;

(3) slope instability;

(4) pollution or excessive drawdown of groundwater; and

(5) interference with significant wildlife habitats."

A. ANALYSIS: Before one could estimate rigorously the most likely consequences of this policy, one would need answers to the following questions:

1. Questions: What activities currently violate any or all of these conditions? What increases in costs of construction and operation would be incurred by these activities in order for them to avoid violating all of the conditions? What effect are these increased costs likely to have on employment and earnings?

   Answers: I and an assistant could provide rough answers to these questions within five days, but it would take considerably longer to provide accurate answers.

2. Question: What are the benefits generated by imposing the six constraints on uses of sand areas?

   Answer: The direction of the benefits is toward prolonging the existence and usefulness of various sand landforms, thus increasing the magnitude of the benefits for future generations. I and an assistant could provide rough estimates of the nature and magnitude of the benefits within five days. It would take much longer, of course, to provide complete answers.

B. GENERAL REACTION: Because all the benefits of prolonging the existence and usefulness of many sand landforms are not appropriable in the present land market, the five constraints are likely to increase the efficiency of allocation of sand areas and thus increase net social benefits. One might prefer special user charges instead of direct regulation, but estimating and administering the charges may be prohibitively difficult.

X. POLICY 2, RECOMMENDED ACTIONS 1 and 2

Statement of Recommended Action 1: "The state, after consultation with local governments and the Soil Conservation Service, should specify those data that must be included in the site investigation reports used in evaluating development proposals in sand areas."

Statement of Recommended Action 2: "The state, in cooperation with local governments and the Soil Conservation Service, should develop a statement of qualifications for sand specialists to assist local government and the public in selecting individuals to conduct evaluations of projects in sand areas."

A. ANALYSIS AND GENERAL REACTION: These both seem reasonable, and no discussion is necessary.

XI. POLICY 2, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "State and local governments should control or design access into or through sand dune areas, particularly conditionally stable dunes and dune complexes, so that the stability of the areas is maintained, scenic values are protected and fire hazards avoided.

A. ANALYSIS: Before one could estimate rigorously the most likely consequences of this recommendation, one would need answers to the following questions:

1. Questions: What access into or through sand dune areas currently violates these conditions? What access is likely to violate them in the future? What increases in costs of construction and operation would implementation of this recommended action impose on uses of sand dune areas? What would be the effect on employment and earnings of these increases in costs?

   Answer: I and an assistant could provide rough answers to these questions within five days. Complete answers, of course, would take much longer.

2. Question: What benefits are likely to be generated by maintaining stability, protecting scenic values and avoiding fire hazards in sand dune areas?

   Answer: I and an assistant could provide rough answers to this question within two days.

B. GENERAL REACTION: My general or, more descriptively, gut reaction is the implementation of this recommended action would increase the costs of construction and operation of activities in sand dune areas, but this increase would not be sufficient to have a perceptible impact on employment or earnings in these activities. The benefits, therefore, are likely to outweigh the costs of this recommended action.

XII. POLICY 2, RECOMMENDED ACTION 4

Statement of Recommended Action 4: Local governments should allow cutting and removal of timber and understory vegetation or ground cover in sand areas only if the planned method for removal will not threaten the survival of the adjacent plant communities due to subsequent moisture loss or root damage.

A. ANALYSIS: Before one could estimate rigorously the most likely consequences of this recommended action, one would need answers to the following questions.

1. Questions: How much cutting and removal of timber and understory vegetation or ground cover in sand areas occurs now? What portion of such activities threatens the survival of adjacent plant communities due to moisture loss?

   Answer: Although neither the OCC&DC Economic Study nor the OCC&DC Inventory of Beaches and Dunes provides answers to these questions, I and an assistant probably could provide rough answers to them within five days.

XIII. POLICY 2, RECOMMENDED ACTION 5

Statement of Recommended Action 5: State and local governments should permit removal of sand from sand areas only when it is necessary to protect private or public property from sand damage or when such removal will not adversely affect the environment or the stability of adjacent areas as determined by a site investigation.

A. ANALYSIS: I interpret the phrase "determined by a site investigation" to mean that the Commission intends for the report on the site investigation to describe the alternative consequences of removing sand and of not removing sand. Estimating the consequences of this recommended action now (i.e., prior to any reports on site investigations) is hampered by the lack of criteria by which sand removal is judged (a) to be necessary to protect private or public property and (b) to affect adversely the environment or the stability of adjacent areas.

XIV. POLICY 2, RECOMMENDED ACTION 6

Statement of Recommended Action 6: State and local governments should regulate removal of driftwood from sand areas for commerical purposes so that scenic values and the dune-building process are not adversely affected.

A. ANALYSIS: Before one could estimate rigorously the most likely consequences of this recommended action, one would need answers to the following questions:

1. Question: What is the magnitude of employment or earnings originating in the removal of driftwood from sand areas for commercial purposes?

   Answer: I and an assistant could provide an adequate answer to this question within a day.

2. Question: How sensitive are scenic values and the dune-building process to the amount of driftwood in sand areas?

   Answer: I and an assistant could provide a rough answer to this question within five days. A precise answer, however, may be impossible to provide.

B. GENERAL REACTION: Since I think employment or earnings originating in the removal of driftwood from sand areas for commercial purposes is insignificant relative to other economic activities on the coast, and since the Commission in this particular recommended action appears to be placing a relatively large value on scenic and ecological values, the net social benefits of this recommended action are likely to be large and positive.

XV. POLICY 2, RECOMMENDED ACTION 7: "Local government should regulate grazing of domestic animals on stabilized dune areas and only on an assigned density basis as determined by site investigations."

A. ANALYSIS: Analysis of this recommended action is hampered by the term "regulate", because it is not clear how rigorously the Commission would like grazing on stabilized dune areas to be regulated. I much prefer the precision of the original wording, which I suggest be reconsidered below.

I interpret the phrase "determined by site investigations" to mean that the Commission intends for the report on the site investigation to describe the alternative consequences of permitting the grazing of domestic animals in stabilized dune areas according to alternative densities. I will limit the analysis here, therefore, to the consequences of permitting grazing only on stabilized dune areas.

Before one could estimate rigorously the most likely consequences of this recommended action, one would need answers to the following questions:

1. Question: What proportion of the coast's employment or earnings originates in grazing of domestic animals? What proportion of grazing of domestic animals on the coast occurs in areas other than stabilized dune areas? What proportion in areas other than stabilized dune areas vary markedly among sections of the coast? In those areas in which the proportion is relatively large, at what coast would the stabilized dune areas absorb the displaced grazing?

   Answer: I and an assistant could answer these questions within three days.

2. Question: What increase in benefits (e.g., esthetic, cultural, historic, ecological and economic) would result from restricting grazing of domestic animals to stabilized dune areas?

   Answer: I and an assistant could provide a rough answer to this question within two days.

XVI. POLICY 2, RECOMMENDED ACTION 8

Statement of Recommended Action 8: In developing structures that might cause excessive diminishment of sand supply or interruption of the longshore transport of littoral drift, the developer should investigate possible methods of sand by-pass.

ANALYSIS AND GENERAL REACTION: Until the developer is required to demonstrate that he or she has investigated possible methods of sand by-pass and until the developer is required to do something once the investigation has been finished, this recommended action will have no impact on the economy.

XVII. POLICY 3

Statement of Policy 3:

a. State and local government shall permit development on active foredunes and on conditionally stable foredunes which are subject to serious ocean undercutting only when it is demonstrated that the social benefits of development on these sand areas exceed the social costs.

b. State and local government shall allow breaching of foredunes only on a temporary basis for emergency purposes (e.g., fire control, cleaning up oil spills) and shall require that these foredunes be restored once the emergency passes, unless it is demonstrated that the social benefits of permanent breaching of the foredune exceed the social costs.

A. SUGGESTED REWORDING:

a. State and local government shall prohibit development on active foredunes and on conditionally stable foredunes which are subject to serious ocean undercutting unless it is demonstrated that the net social benefits of development on these sand areas exceed the net social benefits of prohibiting such development.

b. State and local government shall allow breaching of foredunes only on a temporary basis for emergency purposes (e.g., fire control, cleaning up oil spills) and shall require that these foredunes be restored once the emergency passes, unless it is demonstrated that the net social benefits of permanent breaching of the foredunes exceed the net social benefits of prohibiting permanent breaching.

XVIII. POLICY 3, NECESSARY ACTION 1

Statement of Necessary Action 1: The state in cooperation with local governments and state and federal agencies shall establish criteria and procedures for breaching of foredunes and restoration of breached foredunes.

A. ANALYSIS AND GENERAL REACTION: This seems reasonable and does not require discussion.

XIX. POLICY 3, RECOMMENDED ACTIONS 1 and 2

Statement of Recommended Action 1: State and local government should investigate all known methods of inducing foredunes artificially on the continental shelf, for federal imlementation, wherever pre-existing developments are threatened by undercutting erosion of present foredunes.

Statement of Recommended Action 2: State and local governments in cooperation with federal agencies should develop criteria for construction of beach front protective structures, and one of the criteria should be an evaluation of the net social benefits and costs.

A. ANALYSIS AND GENERAL REACTION: Both of these recommended actions seem reasonable and do not require discussion.

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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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February 19, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Agriculture, Forest, Urban and Recreation Resources of the Oregon Coastal Zone."

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Agriculture, Forest, Urban and Recreation Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from members of the OCC&DC Economic Steering Committee as well as from S. Lance Zaklan. My comments, of course, do not necessarily reflects the view of any of these individuals.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with a little more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both

B. GENERAL REACTIONS: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1 and NECESSARY ACTIONS 1 and 2

Statement of Policy 1: "State and local governments shall conserve for forest uses all lands in the first three classes of forest land defined by the OCC&DC Uplands Inventory and shall conserve those forest lands in class four, defined by the OCC&DC Uplands Inventory, that are capable of growing at least 20 cubic feet of usable wood fiber per acre per year."

Statement of Necessary Action 1: "Local governments shall identify forest lands within comprehensive land-use plans in a manner consistent with the classes of forest land defined by the OCC&DC Uplands Inventory and shall designate for forest uses all lands in at least the first three classes defined by the OCC&DC Uplands Inventory."

Statement of Necessary Action 2: "Lands conserved or designated for forest uses shall not be converted to other than forest uses unless it is demonstrated that the net social benefits of conversion exceed the net social benefits of retaining them in forest use."

A. ANALYSIS: POLICY 1 requires that the first three classes of forest lands identified in the OCC&DC Uplands Inventory be devoted wisely to forest uses without deterioration or destruction of the resources. (This interpretation is based on the definition of the term "conserve" in the glossary.) NECESSARY ACTION 1, from the perspective of economic consequences, is similar to POLICY 1.

POLICY 1 alone is difficult to analyze for three reasons that are treated in part by NECESSARY ACTION 2. First, the policy does not indicate what is wise and what is unwise use of the forest land. Second, the policy does not indicate the length (i.e., the costs) to which the state and local governments should go to conserve the selected forest lands for forest uses. Third, there are no criteria by which conversion of forest land to uses other than forest uses is to be allowed.

NECESSARY ACTION 2 provides guidance for dealing with the second and third problems I raised in the previous paragraph. The first problem, namely what is wise and unwise use of forest land, apparently will remain unresolved.

Before one could estimate rigorously the consequences of POLICY 1 and its accompanying NECESSARY ACTIONS 1 & 2, one would need answers to the following questions:

1. Question: What proportion of the land in the coastal zone is in each of the five classes of forest land that are identified in in the OCC&DC Uplands Inventory?

   Answer: On the basis of the inventories, my guess is that about 85% of the land is in the first three classes. I and an assistant could provide an accurate answer within five days.

2. Question: What has been the rate of conversion of each of these classes to uses other than forest uses? What are these rates likely to be in the future without implementation of POLICY 1 and the two NECESSARY ACTIONS?

   Answers: I and an assistant could answer these questions within ten days.

3. Question: What effect (both direction and magnitude) would the implementation of POLICY 1 and NECESSARY ACTIONS 1 and 2 have on these rates of conversion?

   Answer: To answer this question rigorously would take me and an assistant about six weeks research.

B. GENERAL REACTION: As I have stated before with similar policies and necessary actions, POLICY 1 and NECESSARY ACTIONS 1 and 2 will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends, of course, on how this and other policies are implemented.

   The likely impact of POLICY 1 and NECESSARY ACTIONS 1 and 2 will be to reduce the rate at which forest lands are converted to uses other than forest uses. The amount of this reduction will depend on the relative weights assigned to the alternative values in the comparison of net social benefits.

III. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The state should support intensive management practices that allow realization of the mutiple use of forest lands with a minimum of undesirable ecological impact."

A. ANALYSIS: Given the definitions in the "Glossary", Recommended Action 1 says: "The state should support methods of increasing the production of land (such as thinning, soil improvement, irrigation, and genetic improvement) that allow realization of coordination or integration of diverse uses or activities within one development or resource area in a manner that will conserve the basic land resource itself with a minimum of undesirable ecological impact."

   Furthermore, the term "conserve" means the land should be used wisely consistent with long-range goals to prevent deterioration or destruction of the land.

   If this recommended action were implemented, then whenever there were alternative methods of realizing multiple use, the method that yielded the least deterioration or destruction of the land that yeilded the least decreases in ecological values would be supported by the state. If there were only one method of realizing multiple use, the it would be supported by the state. How rigorously the state should support these methods, of course, is not indicated in the recommended action, and this vagueness hampers rigorous analysis of the recommended action.

B. SUGGESTED REWORDING: The suggested rewording allows the Commission to indicate how rigorously the state should support intensive management practices.

The state should assure that whenever there are alternative intensive management practices that allow realization of the mutiple use of forest land and that yield the least deterioration or destruction of the land and that yield the least decrease in ecological values would be used unless it is demonstrated that the net social benefits of requiring such practices are less than the net social benefits of allowing alternative practices.

IV. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "In order to improve timber production of forest lands, the state should: (a) encourage rehabilitation of old cutover, burned or brush-covered forest lands; and (b) support reasearch and development of new methods of management."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this recommended action, one would need answers to the following questions:

1. Questions: What proportion of old cutover, burned or brushcovered forest lands is rehabilitated under present practices? What is the least cost at which the remaining proportion could be rehabilitated? What increment to social benefits would result from rehabilitating the remaining proportion, where such benefits would be generated by an increase in forest uses as defined in the GLOSSARY?

   Answers: I and an assistant could provide answers to the first and second questions within five days. Answering the third question is not as difficult as it might first appear. The increment to social benefits(generated by rehabilitation (or the total payoff from rehabilitation) occurs in about 10 years from the time the replanting phase of rehabilitation occurs, because it takes about that long for the land to be able to support multiple uses. Without rehabilitation, the time it takes for the land to be able to support multiple uses is so long that the social value is negligible. I and an assistant could provide an answer to the third question within five days.

2. Question: What rate of return could be expected from the funds devoted to research and development of new methods of forest management?

   Answer: I and an assistant could provide a partial answer within five days, but a complete and accurate answer might not be possible.

V. POLICY, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "In order to make maximum use of forest lands for wood production while at the same time avoiding erosion and

sidimentation problems, forest land owners and managers should manage their lands in accordance with the Oregon Forest Practice Rules and the state should provide sufficient staff to adequately enforce these Rules."

A. ANALYSIS: I assume that the term "maximum" was intended to mean "optimal", because otherwise the meaning isn't clear. Given the GOAL adopted by the Commission on 9 August 1974, the phrase "make optimal use of forest lands for wood production" means "generate the maxium benefits for Oregonians indefinitely from wood production on forest lands".

Given my interpretation of the phrase "make maximum use", the recommended action asserts (1) that if forest landowners and managers manage their land in accordance with the Oregon Forest Practice Rules, then they will make optimal use of forest lands for wood production and (2) that if the state provides enough staff, the rules will be enforced. For one to estimate rigorously, therefore, the consequences of this recommended action, one would need answers to the following questions:

1. Question: Would enforcement of the Oregon Forest Practice Rules make optimal use of forest lands for wood production, where this is interpreted to mean the maximum benefits for Oregonians from wood production on forest lands in perpetuity? What effect would such enforcement have on other forest uses?

   Answers: I and an assistant could provide rough (and I mean ROUGH) answers to these questions within two weeks using the inventories plus other existing data and expertise.

2. Question: What resources would the state need to provide that would be necessary and sufficient to enforce the Oregon Forest Practice Rules?

   Answer: I and an assistant could provide an answer to this question within three days. With that little time, the answer, of course, won't be complete, but it isn't clear that spending any more time on it would improve the answer noticeably.

B. SUGGESTED REWORDING: "In order to maximize the benefits accruing to Oregonians from the use of forest lands for wood production while at the same time avoiding erosion and sedimentation problems, forest land owners and managers should manage their lands in accordance with the Oregon Forest Practice Rules and the state should provide sufficient staff to adequately enforce these Rules.

VI. POLICY 1, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "The state should broaden the Forest Practice Act Rules to include management guidelines for protecting recreation, visual and other quality-of-life values of forest lands."

A. ANALYSIS AND GENERAL REACTION: This is entirely consistent with past actions of the Commission including the adoption of the definitions of social benefits and of the "system of preferences".

VII. POLICY 1, RECOMMENDED ACTION 5

Statement of Recommended Action 5: "The state forester should conduct or support a study of the feasibility of coordinating timber harvesting by drainage basins, or by other means, in order to protect all forest uses and watershed values."

A. ANALYSIS AND GENERAL REACTION: This seems reasonable, and there is no need for me to discuss it.

VIII. POLICY 1, RECOMMENDED ACTION 6

Statement of Recommended Action 6: "The state should encourage the development of land use plans for both public and private forest lands which would:

a. designate high productive site timberland to be reserved for timber reproduction, unless it is demonstrated that the net social benefits of conversion to other uses exceed the net social benefits of preservation.

b. identify possible incentives to be used in the conservation of forest lands for forest uses; and

c. provide a means for coordination of timber harvesting to protect watershed values.

A. ANAYSIS: Before one could estimate rigorously the consequences of this recommended action, one would need answers to the following questions:

1. Question: At what rate does timberland of various levels of productivity get converted to uses other than the production of timber?

   Answer: For all levels of productivity, the rate is 1.5% over 25 years. (Source: OCC&DC Economic Survey and Analysis, pp.E74-75) I and an assistant could estimate the rates for various levels of productivity within five days.

2. Questions: What externalities exist in the market for timberland of various levels of productivity? What proportion of timberland at the highest levels of productivity is owned by the public sector?

   Answers: I and an assistant could provide rough answers to these questions within five days.

B. GENERAL REACTION: Since I feel that most if not all the social benefits and costs of the timber production are appropriated by the market for timberland, I conclude that the argument for the market invervention urged by Part (a) must rest on externalities generated by other considerations than the physical productivity of timberland. Thus, cost-benefit analysis of conversion is necessary to prevent costly ambiguities in the interpretation of the statement.

Regarding Part (b), the action urged is innocuous.

Finally, regarding Part (c), since drainage basins are such interrelated ecological systems, it seems terribly reasonable to coordinate such a significant activity as timber harvesting.

IX. POLICY 1, RECOMMENDED ACTION 7

Statement of Recommended Action 7: "The state should conduct or support a study of the log exporting industry to determine the long and short-term effects on forest reserves, reforestation and log costs."

A. ANAYSIS AND GENERAL REACTION: This seems reasonable, and there is no need for me to discuss it.

X. POLICY 2

Statement of Policy 2: "State and local governments shall preserve productive agricultural lands in the coastal zone, identified in the OCC&DC Uplands Inventory and in local comprehensive plans, for agricultural uses, unless it is demonstrated that the net social benefits of conversion to other uses exceed the net social benefits of preservation."

A. ANALYSIS AND GENERAL REACTION: Since I feel that most if not all the social benefits and costs of agricultural uses are appropriated by the market for agricultural land, I conclude that the argument for the market intervention urged by POLICY 2 must rest on externalities generated by other factors than the physical productivity of agricultural land. Thus, cost-benefit analysis of conversion is necessary to prevent costly ambiguities in the interpretation of the statement. My gut reaction is that it should not be very difficult to demonstrate that conversion to uses other than agricultural would increase net social benefits.

XI. POLICY 2, NECESSARY ACTION 1

Statement of Necessary Action 1: "Local governments shall identify productive agricultural lands within comprehensive land use plans and shall designate these lands for agricultural uses."

A. ANALYSIS AND GENERAL REACTION: This is an obviously necessary action for implementation of POLICY 2. As I have stated before with similar policies, necessary action and recommended action, this will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends on how this and other policies are implemented.

XII. POLICY 2, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The state should develop incentives to encourage the retention of existing agricultural lands in agricultural use."

A. ANALYSIS: For one to estimate the consequences of this recommended action, one would need (in addition to a precise term to replace "encourage") answers to the following questions:

1. Question: At what rate does agricultural land get converted to other uses?

   Answer: Over the period 1959-1969, 28.7% was converted. Source: OCC&DC Economic Survey and Analysis.

2. Question: What eternalities exist in the market for agricultural land?

   Answer: I (and an assistant) could answer this question within two days.

B. GENERAL REACTION: I think this recommended action is a can of worms. The main problem I have with it is what appears to be a confusion of the values of open space and the values of agricultural products. The policy instruments one should mobilize of generating greater values for each (i.e., open space and agricultural products) over what the market generates, differ substantially.

XIII. POLICY 2, RECOMMENDED ACITON 2

Statement of Recommended Action 2: "Local governments should protect agrucultural lands by limiting uses of adjacent land to those which are compatible with agricultural activities."

A. ANALYSIS; The term of "compatible" is vague, but I'm not sure how to deal with it. Before one could estimate rigorously the consequences of this recommended action, one would need to know the answer to the following question:

1. Question: What uses are incompatible with agricultural uses on adjacent land?

   Answer: I and an assistant could identify the various possible incompatible uses with one day.

B. GENERAL REACTION: The most likely impact of this recommended action, should it be implemented, is negligible, but I can see possible interpretations that could reduce markedly the efficiency of the land markets in the coastal zone.

XIV. POLICY 3 and NECESSARY ACTION 1

Statement of Necessary Action 3: "Local governments shall designate urban growth areas in comprehensive plans based on a process that evaluates the following factors according to the criterion of maximum social benefits:

a. Social and economic factors including but not limited to projected increases in population and demand for developable land.

b. Physical factor including but not limited to topography, soils, drainage and physical obstacles.

c. Natural resource factors including but not limited to the protection of fish and wildlife habitats, prime agricultural or forest land, air and water quality and aesthetics.

d. Governmental service factors including but not limited to the availability of water and sewerage services and transportation facilities.

e. Use factors including but not limited to existing land use and ownership.

f. The locally adopted growth policy which expresses the desired rate and direction of urban growth.

A. ANAYSIS AND GENRAL REACTION: The effect of POLICY 3 and its accompanying NECESSARY ACTION is (1) to impose on local governments an explicit process of urban planning; (2) to specify what factors shall be considered in that process; and (3) to specify the criterion according to which the six factors shall be evaluated. The two together are consistent with Objective 3 adopted by the Commission on 9 August 1974 and with the "system of Preferences" adopted by the Commission on 14 February 1975.

XV. POLICY 3, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "Local governments should identify lands suitable and environmentally acceptable for industrial and commercial uses, including economically viable mineral, rock and petroleum resources, and should conserve sufficient quantities of this land to allow for location of new or expansion of existing industrial and commercial uses."

A. ANALYSIS: The analysis of this recommended action is hampered by the vagueness of the terms "suitable", "acceptable, "viable" and "sufficient". What is lurking in them it appears, is some notion of social costs and social benefits, but the problem caused is not so easily solved as it has been in some previous cases.

The first part of the recommended action in which "local governments should identify ..." is likely to cause an enormous increase in the administrative costs of local governments. The analysis of the second part of the recommended action in which "local governments should conserve ..." is complicated because it in effect prohibits conversion in the short-run as well as in the long-run to uses that would prevent the location of new or expansion of existing industrial and commercial uses.

B. GENERAL REACTION: I think this is another can of worms. The problems that this recommended action is meant to solve would be solved with much less distortion if the market were allowed to hear the costs of search in land use once the land areas for urban expansion have been designated.

XVI. POLICY 3, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "Local governments should disapprove residential developments proposed for areas identified as best suited for other than residential use unless the developer demonstrate that the net social benefits justify the residential development."

A. ANALYSIS AND GENERAL REACITON: This appears consistent with other policies and actions dealing with land use, but it isn't clear why residential use was selected as a special case.

XVII. POLICY 3, RECOMMENDED ACITON 3

Statement of Recommended Action 3: "Local government should control the development of commercial, recreational and industrial uses along primary highways to the extent necessary to allow for efficient provision of transportation, water and sewer services and to retain visually attractive roadside scenery."

A. ANALYSIS AND GENERAL REACTION: Before one could estimate rigorously the consequences of this recommended action, one would need to know the extent to which commercial, recreational and industrial uses currently violate only of the conditions. In general, the action is consistent with past actions of the Commission, and its impact is likely to increase employment and per capita income.

XVIII. POLICY 3, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "Local governments should prohibit strip or dispersed development unless it is demonstrated that the net social benefits associated with clustering of structures, separated by preserved open space, are less than the net social benefits generated by continuation of scattered development practices."

A. ANALYSIS AND GENERAL REACTION: The impact of this recommended action would have to be estimated on the basis of case-by-case demonstrations. A rigorous implementation of this recommended action should increase the efficiency with which residential developments use land.

XIX. POLICY 4

Statement of Policy 4: "State and local governments shall plan for adequate opportunities for outdoor recreation to satisfy present and future demand for recreation to the coastal zone."

A. ANALYSIS: Any rigorous estimate of the consequences of this policy is hampered by the term "adequate", because it isn't clear what would be inadequate opportunities. Apparently, the opportunities would be inadequate if present and future demand for recreation

in the coastal zone were not satisfies, in which case the analysis must wait until NECESSARY ACTION (a) is implemented, that is, until the present and future demand for recreation in the coastal zone is estimated.

B. GENERAL REACTION: If the price charged users of publicly provided recreational facilities were zero, then the costs to state and local governments would be enormous. Alternatively, if the users of the recreational facilities cover the costs (including the opportunity costs) of the resources used, then the proportion of of the costs borne by general taxes would be small.

C. SUGGESTED REWORDING: "State and local governments shall provide or cause to be provided diverse opportunities for outdoor recreation to satisfy present and future demand for recreation in the coastal economy."

XX. POLICY 4, NECESSARY ACTIONS (a) and (b)

Statement of Necessary Action (a): "The state, in cooperation with local governments, shall estimate the present and future demand for recreation in the coastal zone."

Statement of Necessary Action (b): "The state shall establish criteria to be taken into account by local governments in identifying areas having exceptional potential for recreational opportunities."

A. ANALYSIS AND GENERAL REACTION: NECESSARY ACTION (a) is an obviously necessary step to be taken before POLICY 4 can be implemented. As I have stated before with similar policies, necessary actions and recommended actions, these two necessary actions will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends on how these and other policies are implemented.

XXI. POLICY 4, NECESSARY ACTION (c)

Statement of Necessary Action (c): "Local governments shall identify those areas that have exceptional potential for recreational opportunies taking into account state criteria including the physical capabilities and limitations of the areas and the identified recreational development to those areas so identified in comprehensive plans."

A. ANALYSIS AND GENERAL REACTION: My first reaction to the last part of the necessary action (i.e., "shall restrict public or private recreational development to those areas...") was that it could be opportunities. My mistake, however, was taking this phrase out of the context of POLICY 4 and the other necessary actions. As long as they are all taken as a package, then the phase is a logical part of the package and does not have the potential of becomming a costly, restrictive interference with the development of recreational opportunities on the coast.

XXII. POLICY 4 , NECESSARY ACTION (d)

Statement of Necessary Action (d): "State and local government shall encourage the private sector to develop recreational opportunities which satisfy the need for multi-service facilities in preference to public facilities where economically feasible."

A. ANALYSIS: Analysis of the economic consequences of this necessary action is hampered, in fact prevented, by the vagueness and ambiguities associated with the terms "encourage", "need", "in preference to" and "economically feasible".

Before state and local governments try to encourage private firms to change from single-service recreational facilities to multi-service recreational facilities, they should understand the reason private firms behave as they do. Before I could estimate rigorously the economic consequences of this recommended action, I would need (in addition to more precise versions of the vague terms I listed above) answers to the following questions:

1. Question: Why do private firms typically provide single-service recreational facilities instead of multi-service ones?

Answer: The answer probably involves economies of scale, but I'm not sure just how. I and an assistant could provide an answer within five days.

2. Questions: What are the benefits derived from inducing private firms to provide multi-service recreational facilities? What are the policy instruments available to state and local governments that could induce private firms to provide multi-service recreational facilities?

Answer: If we had the answer to Question 1, I and an assistant could answer the next two questions within four days.

B. GENERAL REACTION: I think the action is premature, because I doubt anyone knows precisely why private firms choose to provide single-service recreational facilities. Furthermore, it isn't clear to me that satisfying the demand for recreation is accomplished most efficiently by the provision of multi-service recreational facilities, whether in the public or private sectors. I suggest either deleting NECESSARY ACTION (d) or substituting the alternative I suggest below.

C. SUGGESTED REWORDING: The state shall determine if the demand for recreation is most efficiently satisfied by multi-service, as opposed to single-service, recreational facilities, and if it is, state and local governments shall encourage both the private sector and the public sector to satisfy the demand for recreation through the provision of multi-service recreational facilities.

XXIII. POLICY 4, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "In the planning, acquisition and development of areas for outdoor recreation, state and local governments should recognize the high recreational value of shorelands."

A. ANALYSIS AND GENERAL REACTION: This is merely a gentle reminder to state and local governments that shorelands have high recreational value.

XXIV. POLICY 4, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "State and local governments and the private sector should coordinate planning and development of recreational opportunities."

A. ANALYSIS AND GENERAL REACTION: Since there are both internal and external economies of scale in the provision of recreational opportunities, implementation of this recommended action should increase efficiency.

XXV. POLICY 4, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "State and local governments and the private sector should include opportunities for education and interpretation of the unique natural and cultural resources of the coastal zone in the development of recreational sites."

A. ANALYSIS AND GENERAL REACTION: The costs are usually small and the benefits great.

XXVI. POLICY 5

Statement of Policy 5: "State and local governments shall require that public and private recreational development and the expected maximum use of recreation areas does not exceed the capability of the natural recreational resource to continue to support that development and use."

A. ANALYSIS: Before I could estimate rigorously the consequences of this policy, I would need answers to the following questions:

1. Questions: Has "support capability" been estimated for any existing recreational areas in the coastal zone. If so, to what extent does public and private recreational development today and expected maximum use of these recreational areas in the future exceed the "support capability"?

   Answers: The implication on p. 20 in the OCC&DC Uplands Inventory is that the answer to the first question is no. As a result, there is no way to estimate rigorously what the economic consequences of this policy might be.

2. Question: What are the social costs and social benefits generated by allowing recreational development to exceed the "support capability" of recreational uses?

   Answer: I and an assistant could provide a rough answer to this question within three days.

B. GENERAL REACTION: Assuming that the so-called carrying capacity of the resource is estimated accurately, then this policy should increase the chances that there will be recreational resources available for future generations of Oregonians.

XXVII. POLICY 5, NECESSARY ACTION 1

Statement of Necessary Action 1: "State and local governments shall develop criteria and procedures to be used by both state and local governments in evaluating support capability (carrying capacity) of existing and potential recreational areas."

A. ANALYSIS AND GENERAL REACTION: Given that such criteria and procedures do not exist, this is an obviously necessary action to implement POLICY 5. The development and updating of them will increase the costs borne by state and local governments.

XXVIII. POLICY 5, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local governments should reduce the adverse environmental effects of excessive seasonal use of recreation facilities through management, education and public information programs."

A. ANALYSIS: Before one could estimate rigorously the consequences of this recommended action, one would need to know answers to the following questions:

1. Question: What are the environmental effects - both positive and negative - of seasonal use of recreation facilities on the coast?

   Answer: The inefficiencies resulting from seasonal activities usually are reflected in a divergence between social costs and social benefits during the season of peak-load. I could provide a more specific (albeit incomplete) answer within five days.

2. Question: What instruments are available to state and local governments for distributing recreational activities more uniformly over the seasons?

   Answer: I (and an assistant) could provide an answer to this question within one or two days.

B. GENERAL REACTION: I doubt that anyone knows the magnitude of the "adverse environmental effects" generated by the seasonality of recreational activities in the coastal zone. I also doubt that state and local governments have any instruments that would alter this seasonality significantly. If they do, these instruments are likely to occur only in management programs, not in education or public information programs. Resources used on these last two programs, therefore, would be wasted.

C. SUGGESTED REWORDING: State and local governments should reduce the adverse environmental effects of excessive seasonal use of recreation facilities through management programs.

XXIX. POLICY 6 and NECESSARY ACTIONS (a) and (b) and RECOMMENDED ACTION 1

Statement of Policy 6: "State and local government shall provide or cause to be provided access to public lands and waters to satisfy present and future demand for such access, and they shall assure that the access provided is consistent with the physical and biological capabilities of the site to support access."

Statement of Necessary Action (a): "State and local government shall estimate the present and future demand for public access to public lands and waters in the coastal zone."

Statement of Necessary Action (b): "State and local government shall estimate the physical and biological capabilities of public lands and waters to support access."

Statement of Recommended Action 1: "Local government should require new shoreland development to dedicate easements for public access to lakes and streams if the local governments determine the easements are necessary."

A. ANALYSIS AND GENERAL REACTION: These seem consistent with past action taken by the Commission, and they seem terribly reasonable. As I have stated before with similar policies, necessary actions and recommended actions, these will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends on how these and other policies are implemented.

XXX. POLICY 7

Statement of Policy 7: "In order to limit damage to land, water, wildlife and vegetation and avoid conflicts with other activities, state and local governments shall restrict recreational, off the road use of vehicles (including ORV's as defined) on public lands to designated seasonal roads and off-road areas."

A. ANALYSIS: Before I could estimate rigorously the consequences of this policy, I would need answers to the following questions:

1. Question: What damage to land, water, wildlife and vegetation is caused by vehicles traveling off-the-road in the coastal zone?

   Answer: I and an assistant could provide a rough answer to this question within one day. A complete answer would take several months.

2. Question: How much damage by recreational, off-the-road use of vehicles is caused in off-road areas other than in designated off-road areas and on designated seasonal roads?

   Answer: This cannot be answered until the off-road areas and seasonal roads are designated.

3. Question: What is the demand for recreational, off-the-road use of vehicles? What are the benefits that are generated by recreational, off-the-road use of vehicles?

   Answer: I and an assistant could provide rough answers to these question within two days.

B. GENERAL REACTION: For many of the same reasons that I presented in the discussion of the economic consequences of POLICY 2 of "Estuaries and Wetlands Resources", stiff regulations or special user-charges on the use of off-road vehicles in the coastal zone will increase the net social benefits to this and succeeding generations of Oregonians, which is the goal of the Oregon Coastal Zone Management Program.

XXXI. POLICY 7, NECESSARY ACTION 1

Statement of Necessary Action 1: "State and local governments shall identify and designate seasonal roads and off-road areas where vehicles may be used for recreation."

A. ANALYSIS AND GENERAL REACTION: Given that these areas are not yet designated, this is an obviously necessary action to implement POLICY 7. The designation and updating of them will increase the costs of state and local governments.

XXXII. POLICY 7, RECOMMENDED ACTION 1 (P. 20 of Agriculture, Forest, Urban and Recreation Resources Phase II Policy, Staff Report Agenda Item 5.3)

Statement of Recommended Action 1: "State and local government should regulate off-road vehicles by a permit system or special licensing program which applies the fees to applicable educational programs, impact studies and maintenance of use areas."

A. ANALYSIS AND GENERAL REACTION: My comments under GENERAL REACTION to POLICY 7 above apply here as well.

WEW:sa:st
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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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February 19, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Historical and Archaeological Resources of the Oregon Coastal Zone."

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Historical and Archaeological Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from members of the OCC&DC Economic Steering Committee as well as from S. Lance Zaklan. My comments, of course, do not necessarily reflect the views of any of these individuals.

For the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall protect historical and archaeological resources through the following process:

a. review of the OCC&DC historical and archaeological resources inventory and incorporation of National Register and other appropriate sites and areas into comprehensive plans; and

b. for those resource areas adopted in comprehensive plans, assurance that development is avoided, or where development is allowed, that special restrictions (appropriate to the extent, characteristics, and relative importance of the site) are established to retain cultural heritage values.

A. ANALYSIS AND GENERAL REACTION: Before one could estimate rigorously the economic consequences of this policy, one would need to know answers to the following questions:

1. Questions: Where are the historical and archaeological resources located in the coastal zone? What area do they cover?

   Answers: The OCC&DC historical and archaeological resources inventory identifies the location and characteristics of 304 sites in the coastal zone. I and an assistant could answer these two questions for each of the sites within 10 days of work. The information acquired from such, however, warrants that expense. Within a day, I and an assistant could answer two questions for the five classes of sites the inventory identifies.

2. Questions: How aggressively are the historical and archaeological resources going to be protected?

   Answer: Providing an answer to this question is hampered by the lack of criteria for determining when development is to be allowed on or near historical and archaeological sites and by the fact that the "special restrictions" on such development are not yet specified.

The economic consequences of this policy can be divided into two general categories: those consequences associated with the regulatory process itself (e.g., the increased time it takes to get a permit): and those consequences resulting from the impact of the regulations on economic activity in general (e.g., the benefits derived from increased historical and archaeological vales and the increased costs of construction incurred in protecting historical sites). My general reaction is that if efficiency can be retained in the permit system and other regulatory activities, then the real costs to society are likely to be negligible compared to the benefits society appears to attach to its historical and archaeological heritage.

The rewording below is suggested merely to increase the precision of what I interpret to be the intent of the policy.

B. SUGGESTED REWORDING: State and local government shall protect historical and archaeological resources through the following process:

a. National Register and other appropriate sites and areas, identified in the OCC&DC historical and archaeological resource inventory, shall be incorporated into comprehensive plans; and

b. State and local government shall assure that development within or near those historical and archaeological sites and areas that are incorporated into comprehensive plans is avoided, or that where development is allowed, special restrictions (appropriate to the extent, characteristics, and relative importance of the site) are established to maintain or enhance the historical and archaeological values of the sites and areas.

III. POLICY 1, RECOMMENDED ACTIONS 1 thru 9

Statements of Recommended Actions 1 - 9 :

(1) The state of Oregon should establish a system for the protection of historical and archaeological resources through the coordination of planning and management activities conducted by State agencies, local units of government, and private citizens and organizations. (State Historical Plan)

(2) The State of Oregon should continue to maintain and develop a historical and archaeological inventory of the Oregon coastal zone, with particular attention to initiating a comprehensive archaeological survey. Local government, historical and archaeological societies, colleges and private efforts should be informed of the inventory and encouraged to expand the State files.

(3) State and local government should review the laws and enforcement policies for restrictions on disturbance of historical and archaeological Resources Inventory to protect the sites and property owner from harassment, vandalism, and theft.

(4) State and local government should review the laws and enforcement policies for restrictions on disturbance of historical and archaeological resources, building codes and taxing policies, and propose reasonable adjustments to provide additional protection to historical and archaeological sites.

(5) State and local government should allow excavation or removal of materials of an historical or archaeological nature only by qualified persons or groups with professional guidance.

(6) State and local government and private efforts should seek and use all funds potentially available (from state, federal and private sources) for surveys, planning, management, acquisition and development of historical and archaeological resources.

(7) Where possible, the descendants of Indian tribes should be contacted for permission prior to proceeding with archaeological diggings.

(8) State and local government and private efforts should be coordinated to identify, prioritize, and preserve historical and archaeological sites which are particularly suited for anthropological, historical, or scientific study, especially those which are easily accessible to educational or recreational facilities or already in public ownership. Appropriate use alternatives should be recommended for those sites which are not considered a high priority for preservation.

(9) State and local government and private efforts should formulate a priority for historical and archaeological resources which are threatened by development and determine whether preservation is practicable for these areas.

(10) State and local government and private efforts should be coordinated to develop educational and interpretative programs to foster public recognition, understanding and appreciation of historical and archaeological resources.

A. ANALYSIS AND GENERAL REACTION: Rigorous estimation of the economic consequences of these recommended actions is not warranted for two reasons. First, they all seem terribly reasonable, and second, they all seem rather innocuous as far as their economic consequences are concerned.

B. SUGGESTED REWORDING of Recommended Action 2: The State of Oregon periodically should update the inventory of historical and archaeological resources of the Oregon coastal zone, with particular attention to initiating a comprehensive archaeological survey. Local government, historical and archaeological societies, colleges and private efforts should be informed of the inventory and encouraged to expand the State files.

WEW:sa

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 5, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

RE: Economic Analysis of the Phase II Approved Policies for "Continental Shelf Resources in the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Continental Shelf Resources in the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from comments by S. Lance Zaklan, but my comments, of course, do not necessarily reflect his views.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: In each case I have raised those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three catagories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "The appropriate state agency shall coordinate with state agencies, other states and federal agencies to manage continental shelf resources so food production, water quality, recreation and navigation values are conserved and enhanced".

A. ANALYSIS AND GENERAL REACTION: Coordination of efforts to manage the continental shelf resources is neither necessary nor sufficient to conserve and enhance food production, water quality, recreation and navigation values. Given specific goals to conserve and enhance, however, coordination in the management of the resources is likely to reduce cost and therefore to increase the net social benefits accruing to Oregonians.

III. POLICY 1, NECESSARY ACTION 1

Statement of Necessary Action 1: " Oregon shall support:

a. National efforts to extend the contiguous fishing zone to 200 miles offshore to protect coastal and anadromous species from over exploitation; (OCC&DC Resolution, April 19, 1974)

b. National efforts to establish effective international fisheries management agreements; and (CS B-1,2)

c. Completion of continental shelf resource inventories by the appropriate state and federal agencies".

A. ANALYSIS AND GENERAL REACTION: I assume that the support called for by the necessary action is limited to(a) lobbying for the extension of the fishing zone and (b) for the international fishing management agreement by Oregon representatives. It is beyond the scope of this analysis (1) to evaluate the benefits and costs of such lobbying and (2) to speculate on the benefits and costs generated should the lobbying prove successful. Since there exist so few data on the continental shelf resources and since there might be substantial quantities of valuable resouces that warrant exploitation, it seems very reasonable for them to be inventoried. It is not clear to me, however, that public sector should pay for the inventories.

IV. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The appropriate state agency should not permit the introduction of new plant or animal species to the continental shelf if the probable ecological impact of the new species is likely to be substantially harmful to valuable native species.

A. ANALYSIS: Analysis of the recommended action is hampered by the vagueness of the terms "probable", "likely", "substantially harmful" and "valuable". (furthermore, the terms "probable" and "likely" are redundant to one another.) Because of the vagueness in these terms, the intent of the recommended action is not clear. Specifically, it isn't clear to me whether the criteria for permitting the introduction of new species are intended to be only the effects on native species, all ecological values or other values in social benefits as well as ecological values. To provide an opportunity for the Commission to decide which interpretation it prefers, I present three alternative suggested rewordings.

B. SUGGESTED REWORDINGS:

1. The appropriate state agency should not permit the introduction of new plant or animal species to the continental shelf unless it is demonstrated that introduction of the new species will not harm native species.

2. The appropriate state agency should not permit the introduction of new plant or animal species to the continental shelf unless it is demonstrated that introduction of the new species will not reduce the ecological values of the continental shelf.

3. The appropriate state agency should not permit the introduction of new plant or animal species to the continental shelf unless it is demonstrated that introducing the new species will increase net social benefits accruing to Oregonians.

V. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The state, in cooperation with local governments, should determine the need for fish habitat enhancement and should develop enhancement projects for appropriate locations."

A. ANALYSIS AND GENERAL REACTION: Below in the SUGGESTED REWORDING, I state explicitly what I interpret to be the intent of the recommended action. If the Commission wants some fish habitats enhanced, this seems to be a very reasonable way to go about it.

B. SUGGESTED REWORDING: The state in cooperation with local governments

1. should develop explicit criteria by which fish habitats can be identified as appropriate for enhancement;

2. should identify those fish habitats on the continental shelf that should be enhanced according to the criteria the state has developed; and

3. should develop and implement techniques whereby fish habitats can be enhanced.

VI. POLICY 1, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "The state should require an assessment of the biological resources of a proposed development area before development which could damage or destroy biological resources is allowed."

A. ANALYSIS AND GENERAL REACTION: The recommended action, as stated, is useless, because the state would have to have assessed already the biological resources of an area before it could determine if a proposed development might damage the biological resources. The wording suggested below avoids this.

B. SUGGESTED REWORDING: The state should require ecological and economic impact statements, including an inventory of the biological resources in the area proposed for development, for all developments proposed for the continental shelf.

VII. POLICY 1, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "The state should cooperate with the Coast Guard to assure that adequate state contingency plans are developed and resources are available to contain and clean up spills of oil and other harmful substances in the ocean."

A. ANALYSIS AND GENERAL REACTION: This seems very reasonable, although until the share of costs borne by the state is specified, one cannot estimate the economic consequences of implementing this recommended action.

VIII. POLICY 1, RECOMMENDED ACTION 5:

Statement of Recommended Action 5: "The state should encourage and review federal regulations that require vessels carrying hazardous substances in Oregon waters to meet strict design, operation and maintenance standards which would reduce the risk of damage to the natural resources."

A. ANALYSIS AND GENERAL REACTION: Any analysis of this recommended action is hampered by the vagueness of the terms "encourage" and "review". Until one knows how strongly the regulations are to be encouraged and until one knows the criteria by which the regulations are to be reviewed, it is impossible to estimate the economic consequences of implementing this recommended action.

IX. POLICY 1, RECOMMENDED ACTION 6

Statement of Recommended Action 6: "The state should require that disposal of materials offshore will meet Environmental Protection Agency ocean dumping regulations ."

A. ANALYSIS: Before one could estimate regorously the consequences of this recommended action, one would need to know the answers to the following questions:

1. Questions: What activities presently violate the Environmental Protection Agency's ocean-dumping regulations? What are the earnings and employment generated by these activities? What changes in the costs of operation would these activities face if they were to meet the EPA regulations?

   Answers: I and an assistant could provide rough answers to these questions within 10 days.

B. GENERAL REACTION: Without answers to the questions I raised in the ANALYSIS above, I don't even have a gut reaction to this recommended action.

X. POLICY 1, RECOMMENDED ACTION 7

Statement of Recommended Action 7: "A joint local-state-federal technical committee with members from agencies, industries and interest groups should be established to advise continental shelf management decisions."

A. ANALYSIS AND GENERAL REACTION: I assumed this would follow necessarily from the implementation of POLICY 1. By including it as a recommended action, the Commission apparently feels that this action is not automatically a part of the policy. I recommend, therefore, that the statement below be included as NECESSARY ACTION 2 following POLICY 1.

B. SUGGESTED ADDITIONAL NECESSARY ACTION:

The appropriate state agency shall appoint a technical advisory committee with members from private industry, from local, state and federal agencies, and from other interested groups including the public in general to advise on the management of the resources of the continental shelf.

XI. POLICY 2

Statement of Policy 2: "The state shall allow exploration for, extraction of, and transfer stations for mineral resources on the continental shelf only if the developer demonstrates that the natural and cultural values and uses of the ocean and its shorelands will be adequately protected."

A. ANALYSIS AND GENERAL REACTION: I interpret the intent of the policy to allow exploitation of mineral resources of the continental shelf only if the impact on ecological, cultural (and esthetic) values (as perceived by Oregonians) of the ocean and its shorelands are minimized. There are, however, some loose ends remaining in the statement. For example, it is possible that such activities may generate short-run windfalls for the developers but without long-run positive impacts on the earnings and employment of Oregonians (Appalachia provides several startling examples). Similar costly errors have been committed elsewhere in the United States and in the world. The wording I suggest below makes it more likely that any development proposals will be considered carefully according to economic values as well, and it retains the original intent of the policy to select the methods that will minimize adverse impacts on ecological, cultural and esthetic values.

B. SUGGESTED REWORDING: The state shall allow exploration for, extraction of, and transfer stations for mineral resources on the continental shelf only if the developer demonstrates that such activities will increase the net social benefits of Oregonians and that the methods employed minimize the adverse impacts of the ecological, cultural and esthetic values of the ocean and its shorelands.

XII. POLICY 2, NECESSARY ACTION 1

Statement of Necessary Action 1: "The state shall require a permit from the appropriate state or federal agency for exploration for, extraction of, or transfer stations for mineral resources on the continental shelf. Before approval is granted, appropriate state and federal agencies and the public shall review the permit application to determine if the proposed development is within the public interest. The permit application shall:

a. designate areas which will be off limits to exploration and extraction;

b. specify methods and equipment to be used;

c. require that the developer will finance monitoring and inspection of the exploration, extraction or transfer operations by the appropriate state and federal agency;

d. require that pollution abatement methods to be used utilize the best economically available and proven technology;

e. require that the developer is liable for individual or public damage caused by the mining operations and will post necessary bonding to cover damages;

f. specify the extent of restoration that will be required when the mining operations are finished; and

g. specify that the state or federal government may revoke or modify a permit to prevent or halt damage to the environment.

A. ANALYSIS: Before one could estimate rigorously the economic consequences of the conditions in this necessary action, one would need answers to the following questions:

1. Questions: What would be the magnitude (measured in employment amd earnings) of those activities that are likely to seek to explore for, extract and construct transfer stations for mineral resources on the continental shelf? If similar regulations have been applied elsewhere, what has been their impact on the cost of the activities to which they were applied? What has been the impact on external cost of unregulated mining activities in other areas?

Answers: I and an assistant could provide rough but informative answers to these questions within five days.

B. GENERAL REACTION: On the one hand, if experience elsewhere is any guide, unregulated mining activities on Oregon's continental shelf would generate large and perhaps prohibitive external costs (e.g., pollution) borne largely by Oregonians. On the other hand, the regulations in the necessary action above would increase the internal costs of prospective mining activities thus reducing their incentive to exploit the resources of the continental shelf. My general reaction is that the regulations listed are mild and reasonable.

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 5, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Estuary and Wetland Resources of the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Estuary and Wetland Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from written and oral comments from several members of the Economic Steering Committee, from S. Lance Zaklan, and from several others (including G. Anthony Kuhn, Anne Squier, and R. Michael Martin). My comments, of course, do not necessarily reflect the views of any of these individuals.

For the policies, necessary actions and recommended actions, I have provided at lease one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Study Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall maintain (and where appropriate enhance) the values and uses of Oregon's estuarine areas by guiding public and private uses of these areas to assure:

a. a balancing and an equitable allocation of present and future uses of estuarine areas;

b. a reasonable level of protection for all estuarine areas, based on the impact of human uses on the physical and biological system;

c. consideration of the interests of the diverse groups of people who depend on or use estuarine areas.

A. ANALYSIS AND GENERAL REACTION: The policy seems reasonable and it is consistent with past actions of the Commission, but the statement is sufficiently general that it is virtually impossible to predict -- either rigorously or casually -- the economic consequences. I have turned, therefore, to a discussion of the necessary actions accompanying the policy.

III. POLICY 1, NECESSARY ACTION 1

Statement of Necessary Action 1: State and local government shall establish a permanent management center on or near each major estuarine area or group of estuaries to provide for planning, regulation, data storage, interpretation, research, and education activities and meeting and hearing procedures.

A. ANALYSIS AND GENERAL REACTION: Since there exists so little knowledge of estuarine resources and the management thereof, and since there do not appear to be major economics of scale associated with the activities listed in NECESSARY ACTION 1, this action seems necessary if POLICY 1 is going to be implemented. Depending on how the centers are financed will determine the relative costs borned by the public and private sectors and by state and local governments.

IV. POLICY 1, NECESSARY ACTION 2

Statement of Necessary Action 2: State and local government shall assure that developments proposed for estuarine areas conform to the following criteria:

a. uses shall be water-related, essential to the support of water-related uses, or interim uses which will not substantially interfere with the future development of water-related uses, unless it can be demonstrated clearly that the social costs generated by application of this criterion exceed the social benefits.

b. development on piling shall be required unless it is demonstrated that the net social benefits of locating the development on fill exceed the net social benefits of locating the development on piling.

c. appropriate agencies shall consider the net social benefits of land storage vs. water storage prior to the approval of water storage of any material; and, that alternative with the highest net social benefits shall be authorized.

A: ANALYSIS of Criterion (a): Before one could estimate rigorously the consequences of applying this criterion, one would need to know answers to the following questions:

1. Question: What activities are likely to compete for estuarine shorelands and wetlands?

   Answer: The OCC&DC Estuary Inventory (Estuarine Resources of the Oregon Coast) identifies the following activities as being located on fill in estuarine areas: roads and railways, port facilities, industry facilities associated with wood products and fish processing, residential development, marinas and associated boat ramps and parking, aquaculture, educational institutions, spoils disposal, and breakwater.

2. Question: Of the activities likely to compete for estuarine areas, which ones would be excluded by this criterion, either because they are not water-related or because they would decrease the potential of such property for water-related use?

   Answer: Residential development is the activity most likely to be excluded.

3. Questions: In which localities is residential development concentrated in estuarine areas? What is the degree of that concentration? Given those locations in which residential development is concentrated in estuarine areas, in which ones is future residential development likely to try to locate on estuarine areas? In this final set of localities, how costly would it be for the residential development to locate outside estuarine areas?

   Answer: I and an assistant could answer these questions (at least roughly) within ten days.

4. Question: What are the benefits that are likely to be generated by application of this criterion?

   Answer: I could not provide an estimate of the magnitude of the benefits, but below in my GENERAL REACTION to Policy 2, I provide an estimate of the likely direction of such benefits, and that discussion applies to all three policies on estuaries. If I spent two or three days on this question, I could provide a more detailed discussion of the benefits most likely generated by Criterion (a) and the other criteria in this Necessary Action.

B: GENERAL REACTION to Criterion (a): For the coast as a whole, this criterion should contribute to more efficient use of estuarine resources, and in the long-run, it should generate a positive net social benefit (i.e., social benefits will exceed social costs). The distribution of the benefits, however, may not be uniform among coastal communities, because there may be some communities for which any future residential development (given the present municipal and topographical boundaries) must be in estuarine areas or not at all.

C: SUGGESTED REWORDING of Criterion (a): The following rewording is more precise and consistent with past use of the terms "social costs" and "social benefits" by the Commission:

"uses shall be water-related, essential to the support of water-related uses, or interim uses which will not substantially interfere with the future development of water-related uses, unless it is demonstrated that the net social benefits generated by applying this criterion exceed the net social benefits of not applying it."

D: ANALYSIS of Criterion (b): Before one could estimate rigorously the consequesnces of applying this criterion, one would need to know answers to the following questions:

1. Question: Given the activities most likely to locate on fill (listed above in the ANALYSIS of Criterion (a)), what are the comparative costs for each of these activities between locating on piling and locating on fill?

   Answer: I could answer this question for each of the activities only with as yet nonexisting data or with a considerable amount of research or with both.

2. Question: What are the benefits from estuarine resources when development is located on piling that are foregone when development is located on fill?

   Answer: I could answer this question for each of the activities only with as yet nonexisting data or with a considerable amount of research or with both.

E. GENERAL REACTION to Criterion (b): The questions raised above in the ANALYSIS of Criterion (b) will be raised (or at least should be raised) whenever an applicant for a permit to fill an estuary seeks to demonstrate that the net social benefits of the proposed development on fill exceed the net social benefits of placing the development on piling. The criterion, therefore, allows for exceptions to the general rule of prohibiting development on fill.

F. ANALYSIS of and GENERAL REACTION to Criterion (c): Since it is unlikely that the kind of systematic analysis that this criterion calls for has been conducted by the "appropriate agencies" in the past, the application of this criterion will increase administrative costs. Because there appears to be significant external (or social) costs associated with each of the alternative methods of storage (depending on the conditions peculiar to the material being stored and to the estuary), the application of this criterion should increase net social benefits associated with the storage of materials on or near estuaries.

V. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: State and local government should maintain the character of historic, unique and scenic waterfront communities.

A. ANALYSIS: A rigorous economic analysis of the likely consequences of this recommended action would focus on the meaning of the following terms: "maintain", "historic", "unique", and "scenic". Until these terms are defined more precisely, such an analysis would have to make heroic assumptions about the definitions.

B. GENERAL REACTION: Although there may remain some disquieting issues of equity should this recommendation ever be followed (because owners of waterfront communities are likely to receive substantial transfers or subsidies from the public sector), the general economic impact on the coast is likely to be positive and significant.

The statement of the recommended action is vague, but the purpose is probably best served by allowing the undefined terms to acquire more precise meanings as the coastal management program evolves.

VI. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: State and local government should prohibit transit corridor, roadbeds, and other transportation facilities in estuarine areas, unless the net social benefits associated with using reasonable alternative routes (including those benefits associated with preserving the estuarine area) are less than the net social benefits of locating the transportation facilities in the estuarine area.

A. ANALYSIS AND GENERAL REACTION: Although I suggested this wording, I now favor deleting the term "reasonable" because there are no criteria by which to select reasonable alternatives and to ignore unreasonable ones.

B. SUGGESTED REWORDING: Delete "reasonable".

VII. POLICY 1, RECOMMENDED ACTION 3

Statement of Recommended Action 3: Where dredging is necessary in estuarine areas, state and local governments should permit disposal of dredged material in a proposed disposal area only if it is demonstrated that the net social benefits generated by the total dredging operation (including disposal of dredged materials), in the proposed estuarine site exceed the net social benefits generated by disposing of the dredged material in alternative non-estuarine sites.

A. ANALYSIS AND GENERAL REACTION: This recommended action is consistent with past actions taken by the Commission.

B. SUGGESTED REWORDING: Delete the comma!

VIII. POLICY 1, RECOMMENDED ACTION 4

Statement of Recommended Action 4: State and local government shall include in estuarine plans (including sites), for dredged material disposal.

A. ANALYSIS AND GENERAL REACTION: I don't understand this one. Perhaps I stepped out of the room when the Commission adopted it.

IX. POLICY 2

Statement of Policy 2: State and local government shall prohibit alterations of estuarine areas unless all the following conditions are found to exist:

a. the proposed alteration satisfies existing statutes, administrative rules and permit criteria of the Oregon Division of State Lands;

b. the alteration will be the minimum amount required for the proposed use;

c. the proposed use of the alteration is in conformance with adopted estuary plans, unless such a plan does not exist at the time of application in which case this condition does not apply.

A. ANALYSIS of Condition (a): Before one could estimate rigorously the economic consequences that application of this condition would cause, one would need to know answers to the following questions:

1. Question: What are the activities most likely to alter estuarine areas?

   Answer: The list of activities identified by the OCC&DC Estuary Inventory as being located on fills in estuarine areas is presented above in my ANALYSIS of Criterion (a) under POLICY 1, NECESSARY ACTION 2. It is not clear, however, that the composition of these activities will remain constant in the future. With several days work using the inventories (including the Economic Study), I and an assistant could estimate changes in the composition.

2. Question: How restrictive are the existing permit criteria?

   Answer: One indication is ORS 541.625 (1967), which defines the permit criteria are presented in Footnote 18 on page 11 of the staff report item on "estuary and Wetland Resources", and they appear to be sufficiently general to leave much flexibility in their interpretation. An alternative indication of how restrictive the present permit criteria are would be an analysis of the permits actually granted and rejected by the Division of State Lands. I and an assistant could do this in a couple of days.

B. GENERAL REACTION to Condition (a): I see no evidence that the application of this condition alone would effect any change in the granting of permits for altering estuaries from what is practiced now.

C. ANALYSIS of Condition (b): Before one could estimate rigorously the economic consequences that application of this condition would cause, one would need to know answers to the following questions:

1. Question: To what extent have developers in the past filled or altered estuaries not only for proposed uses but also for future undetermined uses?

   Answer: A rough answer to this question for all the activities that have located on filled or altered estuarine areas would probably take five or six days. To give a precise answer might not be possible unless accurate records exist of past alterations and associated uses.

2. Question: If developers in the past have altered estuarine areas not only proposed uses but also for further undetermined uses, then to what extent would this condition reduce the incentive to alter because of the reduced expected return from such alterations?

   Answer: Given a good answer to the first question above, answering this second question would take only a couple of days.

3. Question: What benefits would be generated from the reduction in altered estuarine lands that this condition is designed to effect?

   Answer: Give good estimates of the amount of estuarine areas that this condition most likely would preserve, then one could estimate the benefits (although perhpas only roughly) in several days.

D. GENERAL REACTION to Condition (b): Aside from the various regulatory costs of application, compliance and enforcement, this condition would reduce the incentive to alter estuarine lands for speculation.

E. ANALYSIS of and GENERAL REACTION to Condition (c): This seems very reasonable.

F. GENERAL REACTION to Policy 2: Below I present a point-by-point disucssion of the economic consequences of Policy 2.

1. First Point: Policy 2 will cause reduction in the rate at which estuaries are filled.

If the only condition that a proposed fill must satisfy (to receive approval) were adherence to "existing statutes, administrative rules and permit criteria of the Oregon Division of State Lands", then the rate at which estuaries and wetlands were filled would likely remain unaffected. (Since the total supply of estuaries and wetlands is fixed, however, a constant rate of fill would mean a diminishing amount of fill over time.) There are, however, other conditions that this policy imposes, and, therefore, the policy is likely to decrease the rate at which estuaries and wetlands are filled.

2. Second Point: The reduction in economic activity that normally would locate on fills will be less than the reduction in the rate of filling of estuaries and wetlands.

   Since a constant rate of fill would mean a diminishing amount of fill over time (because the total supply of estuaries and wetlands is fixed), then a decrease in the rate of fill will further reduce the amount of fill over time.

   Assuming that location on fill represents a least-cost solution for those activities most likely to locate on fill (thus implying that revenues are locationally constant), then a decrease in the amount of fill over time will increase the costs of some factors of production, e.g., land, transportation services, water and waste disposal.

   In order to establish that the decrease in amount of fill would decrease by the same amount the output of those economic activities that normally locate on fill, the following conditions have to hold:

a. the supplies of at least some factors of production are found only on fill in estuaries and wetlands; and

b. there is no possibility for factor substitution.

Neither of these conditions holds, and, therefore, the Second Point is established.

Regarding each of the conditions listed above, my guess is that:

a. the price elasticity of supply of each of the various factors is rather high, or, alternatively, is largely independent of location on fill; and

b. there is significant opportunity for factor substitution.

3. Third Point: The present economic system systematically and greatly underprices estuaries and their associated resources.

Private markets in general and the private land market (including the market for estuaries and wetlands) in particular rely on prices to signal or reflect the costs of acquiring goods and services. If, for whatever reasons, the price of a good is lower than the costs of resources used in the provision of that good, then an inefficient allocation of resources occurs.

There are several characteristics of land in general and of estuaries and wetlands in particular that disturb allocative efficiency, and these characteristics are:[1]

a. irreversibility of development decisions;

b. the nonexcludability of the value of public goods;

c. the omission of adjustments for externalities;

d. the lack of consideration of the option demand value; and

e. zero pricing for the use of public antural resources.

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[1]Examples of the large amount of professional literature dealing with these characteristics and their impact on private markets are: Jae H. Cho, "Externalities and Land Economics", Land Economics, 47(1), February 1971, pp. 65-72; Marion Clawson, "Methods of Measuring the Demand for and Value of Outdoor Recreation", Reprint No. 101, Washington, D.C., Resources for the Future, February 1959; Conference on Conservation Easements and Open Space, Madison, Wisconsin, University of Wisconsin, 1962; J.H. Dales, Pollution, Property and Prices, Toronto, University of Toronto, 1968; Anthony C. Fisher and John V. Krutilla, "Determination of Optimal Capacity of Resource-Based Recreation Facilities", Natural Resource Journal, 12(3), July 1972, pp. 417-444; Anthony C. Fisher et al, "The Economics of Environmental Preservation: A Theoretical and Empirical Analysis", American Economic Review, 62(4), September 1972, pp. 777-786; Joseph James Shomon, Open Land for Urban America: Acquisition, Safekeeping and Use, Baltimore, John Hopkins Press, 1971.

4. Fourth Point: Stiff regulations or special user-charges on filling of estuaries and wetlands will increase the net social benefits to this and succeeding generations of Oregonians.

The argument outlined in Points 1-3 above is representative of arguments in many economic publications dealing with ownership, conversion and pricing of private lands. Although each of the characteristics listed above in Point 3 biases the land market toward retaining too few lands with so-called natural properties, they are not proof that there are in fact too few, because government ownership of a portion of such lands may more than compensate for the various market imperfections. In the case of estuaries and wetlands on the Oregon coast, however, the amount of such lands in public hands is so small relative to the present supply (let alone the supply available 50 years ago), and the measurable (but not privately appropriable) benefits are apparently so large that the losses (discussed in Point 2 above) from forcing the private market prices to reflect accurately the opportunity costs of filling estuaries do not rationalize continuing the inefficiency of our present practices.

X. POLICY 3 and its associated NECESSARY ACTION

Statement of Policy 3: State and local government shall designate certain estuarine areas for different levels of management within the comprehensive planning process ranging from intensive development to preservation. The designations shall be in conformance with the state's classification system of estuarine areas and shall be reviewed by the state coastal zone management agency.

Statement of Necessary Action 1: State and local government shall designate within the comprehensive planning process:

a. those estuarine areas which are to be managed in a high state of development;

b. those estuarine areas which are to be managed for a moderate level of development;

c. those estuarine areas which are to be managed for preservation in as close to natural conditions (undeveloped) as possible, while providing for certain appropriate, beneficial uses; and

d. those estuarine areas which are to be managed for restoration, to provide greater benefits from resources which have been destroyed, damaged or degraded by some natural or man-made process.

A. ANALYSIS AND GENERAL REACTION: I cannot see any way to analyze or evaluate this POLICY and its associate NECESSARY ACTION except by taking each of the categories of development (e.g., "high state of development") estuary by estuary. The approach embodied in the policy is sound and consistent with Objective 3 (that the Commission adopted on 9 August) in which the management program is viewed as an evolving process.

XI. POLICY 3, RECOMMENDED ACTION 1

Statement of Recommended Action 1: The State of Oregon should establish within the state coastal zone management program, a process for coordination of planning for estuarine areas by local government and federal and state agencies.

A. ANALYSIS AND GENERAL REACTION: This seems very reasonable.

XII. POLICY 3, RECOMMENDED ACTION 2

Statement of Recommended Action 2: State and local government should provide special consideration in planning for significant salt (tidal) marsh areas within the estuarine system, such as protective zoning for these areas and upland areas immediately adjacent to them.

A. ANALYSIS AND GENERAL REACTION: Although my general reaction is that this seems reasonable, any rigorous analysis could not proceed until one knew the meaning of "special consideration in planning".

WEW:wk
3/5/75

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 6, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Approved Policies for "Visual Values of the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Visual Values of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from the comments of Lance Zaklan, but my recommendations, of course, do not necessarily reflect his views.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "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 accruing to this and succeeding generations of Oregonians."

A. ANALYSIS AND GENERAL REACTION: Although at first glance the statement of POLICY 1 may appear to be so general as to be innocuous, the criterion of net social benefits (coupled with the definition in the Glossary) provides direction and limits to the protection, maintenance and enhancement of the visual resources of the Oregon coastal zone. It is strictly consistent with the Commission's decision to design the management program as a process.

III. POLICY 1, NECESSARY ACTION 1

Statement of Necessary Action 1: "State and local government shall identify, prioritize, and designate open space, scenic vistas and scenic corridors in comprehensive plans within areas which have an exceptional or strong visual association with coastal processes (as identified in the OCC&DC inventory)."

A. ANALYSIS: Substitute "rank" for "prioritize" because (1) "rank" has fewer syllables than "prioritize"; (2) "prioritize" doesn't appear in any of the dictionaries in the reference section of the U. of O. library; and (3) I think "rank" means what the Commission had intended the term "prioritize" to mean.

Before one could estimate rigorously the economic consequences of this necessary action, one would need answers to the following questions:

1. Questions: In which localities does an "exceptional or strong visual association with coastal processes" occur along with other uses? Have "open space, scenic vistas and scenic corridors" been designated yet in any of these localities? To what extent can designation of additional "open space, scenic vistas and scenic corridors" accommodate other uses or to what extent will designation of additional visual uses generate conflicts?

   Answers: This necessary action assigns, by implication, a greater relative weight to the designation of "open space, scenic vistas and scenic corridors" within areas which have an "exceptional or strong visual association with coastal processes" than within areas without such visual associations. The OCC&DC Visual Resource

Analysis identifies the areas of exceptional and strong visual association, but not specific "open space, scenic vistas and scenic corridors" locations, and other uses which would occur in these same areas. Therefore, given this assignment of relative weights, one can provide answers to the first question above only on an area-by-area basis. Conflicts among uses can be resolved by application of the criterion of net social benefits implied in policy 1 or by application of the system of preferences.

The second question is partially answerable only with much research using tax assessment records.

The third question can be answered only on an area-by-area basis.

B. GENERAL REACTION: The visual uses specified in this necessary action can be accommodated in comprehensive plans without significant disruption to the economy or the ecology of the coastal zone.

C. SUGGESTED REWORDING: State and local government shall identify, rank and designate open space, scenic vistas and scenic corridors in comprehensive plans within areas which have an exceptional or strong visual association with coastal processes.

IV. POLICY 1, NECESSARY ACTIONS 2 and 3

Statement of Necessary Action 2: "The State of Oregon, in cooperation with local units of government shall develop planning criteria for areas of exceptional or strong coastal association and shall require that these criteria be used in local comprehensive planning processes as well as in state agency programs."

Statement of Necessary Action 3: "The State of Oregon, in cooperation with local units of government, shall establish criteria for evaluating the impact of development proposals on the visual quality and character in areas of exceptional or strong visual association with coastal processes. An evaluation of the net social benefits should be included as one of the criteria.

A. ANALYSIS AND GENERAL REACTION: Aside from the possible economic consequences implied by the questions I raised in the ANALYSIS of Necessary Action 1, the three necessary actions associated with Policy 1 will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends, of course, on how these and other policies are implemented.

V. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local governments should extend their protection of the visual quality and character by also

designating significant open space, scenic vistas and scenic corridors in areas less directly associated with coastal processes."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this recommended action, one would need answers to the following questions:

1. Questions: Have "significant open space, scenic vistas and scenic corridors" been designated in any areas other than those with an "exceptional or strong visual association with coastal processes"? Among the "open space, scenic vistas and scenic corridors" in areas less directly associated with coastal processes, what is the magnitude (measured in units of area) and location of those likely to be designated as significant relative to the magnitude (measured in units of area) and location of other uses in the area? To what extent can designation of additional "open space, scenic vistas and scenic corridors" accommodate other uses or to what extent will designation of additional visual uses generate conflicts?

   Answers: The thrust of this recommended action is to assign a relatively greater weight to visual resources than has been assigned in the past. Given this assignment of relative weights, and given the more specific designation of significant visual resources, one could provide answers to the questions above only on an area-by-area basis. Conflicts among uses can be resolved by application of the criterion of net social benefits implied in Policy 1 or by application of the system of preferences.

B. GENERAL REACTION: Additional visual resources on the coast can be designated and protected without disruption to the economy or the ecology of the coastal zone. How many additional visual resources can be accommodated, however, will depend on the specific conditions of the areas in which the designation of these additional visual resources occurs.

VI. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "County governments should establish a design review process to consider development proposals in areas of exceptional or high visual significance."

A. ANALYSIS AND GENERAL REACTION: This recommended action is strictly consistent with Objectives 3 and 4 adopted by the Commission on 9 August 1974. The institutional arrangement developed during implementation of the entire program should assure that the design review process suggested here is coordinated with, or perhaps incorporated into, the first level of the institutional structure of the system of preferences tentatively approved by the Commission at its 18-20 December 1974 meeting.

VII. POLICY 1, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "Local government should review undeveloped open space areas and scenic vistas and designate certain ones for preservation."

A. ANALYSIS AND GENERAL REACTION: This seems very innocuous.

VIII. POLICY 1, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "State and local government should identify and provide special protection to those historical and archaeological resources which contribute to the visual attractiveness and character of the coast."

A. ANALYSIS AND GENERAL REACTION: Although it isn't stated explicitly, I assume these standards and guidelines refer to visual chacteristics of the various uses. This recommended action will tend to increase the administrative costs of application, compliance and enforcement. The magnitude of these costs depends, of course, on how this and other policies are implemented.

IX. POLICY 1, RECOMMENDED ACTION 5

Statement of Recommended Action 5: "State and local governments should develop programs to encourage private maintenance and enhancement of the visual attractiveness and character of the coast, particularly in open space areas."

A. ANALYSIS: The only way I can see that this differs from the policies on historical and archaeological resources is that the "special protection" must provide not only protection of the resource itself but also its visual environment. In order to estimate the economic consequences of this recommended action, one needs to answer questions similar to those I raised above in the ANALYSIS of Recommended Action 1.

B. GENERAL REACTION: Implementation of this recommended action is unlikely to have a marked impact on the economy and ecology of the coast. Its implementation though will tend to increase the administrative costs of application, compliance and enforcement.

X. POLICY 1, RECOMMENDED ACTION 6

Statement of Recommended Action 6: "State and local governments should remove or cause to be removed abandoned and dilapidated structures when

they are found to detract from the visual and cultural character of the landscape, unless it is demonstrated that the net social benefits of removing the structures are less than the net social benefits of not removing the structures."

A. ANALYSIS AND GENERAL REACTION: Since it is likely that there are or will be abandoned or dilapidated structures for which the costs of removal would be prohibitive no matter how ugly their continued existence is, the "unless it is demonstrated ..." clause allows for special cases to be considered.

XI. POLICY 1, RECOMMENDED ACTION 7

Statement of Recommended Action 7: "Local government should control outdoor advertising signs in non-urban areas and should control all signs to protect the visual attractiveness and character of the Oregon coast."

A. ANALYSIS AND GENERAL REACTION: Rigorous analysis of this recommended action is hampered by the term "control", because it isn't clear how strictly the signs should be controlled. Assuming that implementation of this recommended action actually would reduce the number or magnitude of signs on the coast, then for one to argue that this action would decrease efficiency in the coastal economy, one must demonstrate that it would decrease the information available to consumers and firms. I know of no studies that indicate this would be the case. (I assume that this recommended action would not prohibit signs that merely identify the location of firms.)

XII. POLICY 1, RECOMMENDED ACTION 8

Statement of Recommened Action 8: "State and local government should develop public education programs which interpret the natural environment and cultural heritage of the coastal landscape to encourage greater understanding of its visual character and values."

A. ANALYSIS: Provided the same cost-benefit analysis that lurks behind most of the other policies and actions of the management program applies here as well, the implementation of this recommended action would increase benefits to Oregonians.

XIII. POLICY 1, (prospective) RECOMMENDED ACTION 9

Statement of (prospective) Recommended Action 9: "State and local government should develop guidelines and standards for the following uses or activities: offshore construction (if the need arises),

mineral extraction, utility and communication structures, public facilities, timber harvest and revegetation, roads and parking, mobile homes, and night lighting; because of their impact on the visual amenities of the coast."

A. ANALYSIS AND GENERAL REACTION: This recommended action is similar to Necessary Action 3, and my ANALYSIS and GENERAL REACTION for that action are applicable here.

B. SUGGESTED REWORDING: The State of Oregon, in cooperation with local units of government, should establish criteria by which the impact of the following uses or activities on the visual resources of the coastal zone can be evaluated: offshore construction; mineral extraction; construction of utility, communication and public facilities; timber harvesting and revegetation; the construction and use of roads and parking facilities; mobile homes; and night lighting.

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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 10, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Policies for "Freshwater Resources of the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Freshwater Resources of the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from the comments of S. Lance Zaklan, but my conclusions and recommendations do not necessarily reflect his views.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall maintain and enhance the uses and values of the water resources of the coastal zone in a manner consistent with the adopted policy of the State of Oregon to:

a. promote, secure, and control the water resource for multiple purposes and maximum beneficial uses;

b. preserve and protect adequate and safe supplies of water for human consumption while conserving supplies for other beneficial uses;

c. improve water quality for public supplies, for the propagation of wildlife, fish and aquatic life and for domestic, industrial, municipal, recreational and other legitimate beneficial uses; and

d. provide that waste discharged into any state waters which requires treatment or other corrective action to protect the other legitimate uses of the water resource conform to Department of Environmental Quality and Environmental Protection Agency standards and policies."

A. ANALYSIS AND GENERAL REACTION: Given that POLICY 1 merely restates existing policy and that POLICY 1 is likely to be enforced as strictly as existing policy is, then there will be no change.

III. POLICY 1, NECESSARY ACTION 1

Statement of Necessary Action 1: "State and local government, in cooperation with federal agencies shall develop and adopt guidelines and criteria which apply to the different levels of management within the comprehensive planning process; and which take into account the different geographic, physical, cultural, historic, aesthetic, recreational, environmental and economic characteristics associated with the development and use of the water resource."

A. ANALYSIS AND GENERAL REACTION: Given that such guidelines and criteria do not exist, this is an obviously necessary action to implement POLICY 1. the development and updating of them will increase the costs of state and local governments.

IV. POLICY 1, NECESSARY ACTION 2

Statement of Necessary Action 2: "The appropriate state agency shall coordinate and expedite the activities of state and federal agencies which administer programs dealing (directly or indirectly) with the management of water resources, in order to:

a. eliminate duplication and conflicting activities; and

b. provide clear and integrated direction to local units of government regarding water resource development and compliance with state and federal management policies."

A. ANALYSIS AND GENERAL REACTION: This necessary action is consistent with a goal of increasing efficiency in governmental activities and is, therefore, consistent with the GOAL and OBJECTIVES of the coastal zone management program.

V. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "Within the comprehensive planning process, state and local government should provide for:

a. the reduction of contamination of groundwater and surface waters by septic tanks and other sources; and

b. the reduction of adverse of negative effects on the character and use of surface freshwaters caused by groundwater withdrawals

up to that point where net social benefits no longer increase."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of implementation of this recommended action, one would need answers to the following questions:

1. Question: What proportion of sewage treatment on the coast is by septic tanks?

   Answer: I and an assistant could provide a rough answer to this question within one day.

2. Questions: What costs would state and local governments incur if they had to protect groundwater and surface waters from any contamination by septic tanks and other sources? What changes in social benefits and costs are caused by decreasing the contamination of groundwater and surface waters?

   Answers: I and an assistant could provide rough but informative answers to these questions within two days. Complete and accurate answers might take forever. As an example of the type of social costs that can be generated by removal of groundwater, the OCC&DC Beaches and Dunes Inventory states that too much removal of groundwater can destroy dunes.

3. Questions: How sensitive are the character and use of surface freshwaters to groundwater withdrawals? Is the relation linear?

   Answers: I and an assistant could provide rough but informative answers to these questions within three days. Data do not exist, however, that would allow rigorous estimation of the relationships.

4. Questions: What policy instruments are available to state and local governments for influencing the use of septic tanks, other sources of contamination, and groundwater withdrawals? How effective are these instruments?

   Answers: The issuance of permits is the primary instrument, and it is effective in the sense that it can prevent any of these activities as long as the proscribed use can be detected or predicted at the time of the application for a permit.

B. GENERAL REACTION: The importance of the phrase "up to that point where net social benefits no longer increase" is that there is provided to state and local governments a criterion by which to impose rigorously upper and lower bounds on the amount of water pollution and on the amount of groundwater withdrawals. The recommended action urges state and local governments (a) to estimate how much water pollution and groundwater withdrawal exists; (b) to determine how much there should be; and (c) to assure that the two amounts coincide. Nothing could be more reasonable.

VI. POLICY 1, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The state and federal government should continue to improve control of industrial waste discharges including control over releases and accidental spills."

A. ANALYSIS: The analysis of the consequences of this recommended action is hampered by the vagueness in the phrase "should continue to improve control". First, it isn't clear whether the intent is to increase the efficiency of control at the present levels of pollution or to reduce the present levels of pollution. Second, if the intent is to reduce levels of pollution, it isn't clear how much further the state and federal governments are being urged to reduce pollution.

   If the intent is to increase the efficiency of control at the present levels of pollution, and if the recommended action is successful, then the benefits to Oregonians will increase.

   If the intent is to reduce pollution, then whether benefits increase or decrease depends on several conditions that I identify with the following questions:

   1. Question: What industries discharge wastes in the coastal zone?

      Answer: I (and an assistant) could answer this question in one day.

   2. Questions: For which industries that discharge wastes are the rate of profit and the propensity to relocate or to shut down sensitive to the internal costs of pollution abatement? How much more pollution abatement is likely to occur if this recommended action were implemented?

Answer: I could provide precise answers to these questions only with as yet nonexisting data and with a considerable amount of research.

B. SUGGESTED REWORDINGS:

(1) "The state and federal government should maximize the efficiency of control of the discharge of industrial wastes."

(2) "The state and federal government should decrease or cause to be decreased the rates at which industrial wastes are discharged and the frequency with which emergency releases and accidental spills occur."

C. GENERAL REACTION: The first suggested rewording is not an innocuous as it might appear. It asks that the state and federal governments, given a target rate of pollution, select that control or combination of controls that minimizes the costs of achieving the target rate of pollution. Since the technology of pollution and its abatement is changing rapidly and is likely to continue to do so for awhile, this suggested rewording urges constant review and updating of the methods of control at the disposal of state and federal governments.

The second suggested rewording doesn't even appear to be innocuous. It implies that the present level of pollution is too high and urges that it be reduced. My guess is that the rates of industrial wastes in the coastal zone could be reduced significantly without inducing any firms to relocate or to shut down.

VII. POLICY 1, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "The state and federal government should develop or cause to be developed, for the use of local government, practical and satisfactory methods of controlling waste disposal from water craft, and they should control waste disposal from water craft, except in emergencies, by imposition of fees or regulations or both."

A. ANALYSIS AND GENERAL REACTION: I confess to being responsible for the confusing wording of this recommended action, because it was I who frantically wrote this comproxmise statement during the meeting in which it was being considered. The confusion derives from the inconsistency between the first part of the statement (where the state and federal governments are urged to develop methods of controlling waste disposal) and the second part (where the methods of control are specified). This problem can be resolved by deleting the term "controlling" from the statement.

Another, more fundamental, source of confusion derives from the phrase "for the use of local government". The implication is that the local governments will be disposing of the waste from water craft and not the users of the water craft, which is absurd. This problem can be resolved by deleting the phrase "for the use of local government".

B. SUGGESTED REWORDING: "The state and federal governments should develop or cause to be developed practical and satisfactory methods of waste disposal from water craft, and they should control waste disposal from water craft, except in emergencies, by imposition of fees or regulations or both."

VIII. POLICY 1, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "Appropriate agencies should consider the net social benefits of land storage vs. water storage prior to the approval of water storage of any material; and, that alternative with the highest net social benefits shall be authorized. (This necessary action is repeated here, as approved in the Estuaries and Wetlands policy category, because of its general application to water.)"

A. ANALYSIS AND GENERAL REACTION: Since it is unlikely that the kind of systematic analysis that this criterion calls for has been conducted by the "appropriate agencies" in the past, the application of this criterion will increase administrative costs. Because there appears to be significant external (or social) costs associated with each of the alternative methods of storage (depending on the conditions peculiar to the material being stored and to the estuary or other body of water), the application of this criterion should increase net social benefits associated with the storage of materials on or near estuaries.

XI. POLICY 1, RECOMMENDED ACTION 5

Statement of Recommended Action 5: "The state should develop standards, implement programs and finance the regulatory actions to reduce the pollutional effects of storage and handling of materials in public waters."

A. ANALYSIS AND GENERAL REACTION: Implementation of this recommended action will increase the costs to the state unless other programs are reduced, which is true of most of the other policies, necessary actions and recommended actions. Beyond this, one cannot estimate economic consequences until one knows the standards, programs and regulatory actions referred to in the recommended action.

X. POLICY 1, RECOMMENDED ACTION 6

Statement of Recommended Action 6: "The state should investigate and encourage beneficial uses of thermal discharges."

A. ANALYSIS AND GENERAL REACTION: POLICY 1 and NECESSARY ACTION 1, by implication, call for reduction in thermal discharges. This recommended action urges the state to encourage benefical uses of whatever thermal discharges occur, which is reasonable. Unless action stronger than mere encouragement is implemented, however, little is likely to happen.

XI. POLICY 1, RECOMMENDED ACTION 7

Statement of Recommended Action 7: "Proposed uses which may significantly alter water quality, hydraulics, tidal prism, surface area or volume should be studied to determine the probable consequences, and these should be evaluated according to the criterion of maximum net social benefits by state and local governments before approval or disapproval is given for the proposed uses."

A. ANALYSIS AND GENERAL REACTION: This seems very reasonable.

XII. POLICY 1, RECOMMENDED ACTION 8

Statement of Recommended Action 8: "The State of Oregon should determine the impact on water quality of:

a. land runoff from urban, agricultural and forest lands;

b. irrigation return waters; and

c. water impoundment (supply) reservoirs, and develop procedures to control or reduce adverse impacts from these sources."

A. ANALYSIS AND GENERAL REACTION: It seems imperative that the state should determine the impact on water quality of all activities if it is to treat pollution satisfactorily. This particular recommended action, if it were implemented, would increase the costs of state government unless other expenses are reduced. Beyond this, one cannot estimate the economic consequences until one knows what the state will do once the impact is determined.

XIII. POLICY 2

Statement of Policy 2: "State and local governments shall develop or cause to be developed regional water supplies as identified and described in the OCC&DC inventory, to meet present and future demand for water, and furthermore, shall:

a. assure adequate water supplies from the most reliable sources; and

b. establish or cause to be established water storage and groundwater sources of supply rather than develop additional direct diversions from natural stream flows.

The unification of water supply districts, while possibly desirable from an economic viewpoint, is not the thrust of this policy. Rather, the development of regional water supply potentials is intended, in part, to organize the wholesale of water to individual districts which may continue the retail distribution of water in their local areas, and thus retain control of their districts."

A. ANALYSIS: Rigorous analysis of POLICY 2 is hampered by the lack of precision in the terms "adequate" and "most reliable". The Commission apparently is content to allow the state and local governments to use their own judgment as to what is adequate and most reliable.

Before one could estimate rigorously the economic consequences of implementing this policy, one would need (in addition to more precise terms that "adequate" and "most reliable") answers to the following questions:

1. Question: What are the full economic costs per unit of water of water storage and groundwater sources of supply as compared to additional direct diversions from natural stream flows?

   Answer: Even though the OCC&DC Freshwater Resources Inventory addresses the general issue, the specific data necessary to answer this question on comparative costs are not available in the inventory. I and an assistant could provide a rough but informative answer to the question in five days.

B. GENERAL REACTION: In light of the inventory on freshwater resources, my general reaction is that implementing the shift in sources of water supply that the policy requires would reduce the full economic costs per unit of water supplied substantially.

XIV. POLICY 2, NECESSARY ACTION 1

Statement of Necessary Action 1: "The appropriate state agency, in cooperation with local units of government, shall identify, evaluate, and designate suitable water sources for regional supply development (either groundwater or surface storage)."

A. ANALYSIS AND GENERAL REACTION: Any analysis of this necessary action is hampered seriously by the lack of a criterion by which the "suitable" water sources shall be evaluated and designated. Given the action of the Commission in the past, the obvious choice is maximum net social benefits.

B. SUGGESTED REWORDING: "The appropriate state agency, in cooperation with local units of government, shall identify, evaluate, and designate suitable water sources for regional supply development (either groundwater or surface storage), according to the criterion of net social benefits."

XV. POLICY 2, NECESSARY ACTION 2

Statement of Necessary Action 2: "Local governments shall designate, within the comprehensive planning process, those areas in need of service from regional supply systems and the suitable regional water supply sources."

A. ANALYSIS AND GENERAL REACTION: Analysis of this necessary action is hampered by the lack of precision in the terms "need" and "suitable". In almost every other situation in which such lack of precision existed, I have recommended inserting the criterion of net social benefits. In this case, however, since I have already suggested it for NECESSARY ACTION 1, I recommend that the Commission rely on the local governments to have as a goal the maximization of the welfare of the citizens under their jurisdiction and thereby assume that the criterion of maximum net social benefits is contained implicitly in the necessary action.

XVI. POLICY 2, NECESSARY ACTION 3

Statement of Necessary Action 3: "State and local governments shall coordinate and estimate present and future demands for water."

A. ANALYSIS AND GENERAL REACTION: This is an obviously necessary action to implement POLICY 2. The rewording I suggest below merely improves the logic of the necessary action because one must first estimate the demands before one can coordinate them.

B. SUGGESTED REWORDING: "State and local governments shall estimate and coordinate present and future demands for water."

XVII. POLICY 3

Statement of Policy 3: "The state shall provide flow protection including augmentation and restoration where appropriate, in all streams important for aquatic life, recreation, or pollution abatement."

A. ANALYSIS AND GENERAL REACTION: Any rigorous analysis of the policy is hampered seriously by lack of direction and precision in the terms "protection", "augmentation", "restoration" and "important". For example, the only criterion for how much "augmentation" should occur is "where appropriate". The possible economic consequences range from trivial to enormous depending on (1) how much protection, augmentation and restoration is provided the streams, and (2) how many streams are judged important for aquatic life, recreation, or pollution abatement. The rewording suggested below provides upper and lower bounds to the various treatments that might be provided streams and it provides a criterion for ranking and selecting streams for treatment.

B. SUGGESTED REWORDING: "The state shall maintain or cause to be maintained stream flows at levels sufficient to support aquatic life, to enhance recreation, or to abate pollution, or to accomplish all three purposes, up to that point where net social benefits no longer increase."

XVIII. POLICY 3, NECESSARY ACTION 1

Statement of Necessary Action 1: "The appropriate state agency shall coordinate the appropriation of water rights; the development of basin

plans for water quality management; and the classification of unappropriated waters to assure the restoration, establishment and maintenance of minimum stream flows. Minimum stream flow standards and requirements shall be developed cooperatively by the Oregon Fish and Wildlife Commissions, the Department of Environmental Quality and the State Water Resources Board."

A. ANALYSIS AND GENERAL REACTION: As in POLICY 3 (and in many other policies that have come before the Commission), the actions required by NECESSARY ACTION 3 are reasonable, but there is no indication how many resources (i.e., how much effort) should be devoted to each of them. Unless one knows at what point the state agency should stop coordinating, developing and performing the other tasks required by this necessary action, one cannot put an upper limit on the costs incurred by the state in implementing this policy. Again, imposing some specific criterion by which the costs and benefits of the actions are compared is a reasonable solution to this problem.

B. SUGGESTED REWORDING: "The appropriate state agency shall coordinate the appropriation of water rights; the development of basin plans for water quality management; and the classification of unappropriated waters to assure the restoration, establishment and maintenance of minimum stream flows. Minimum stream flow standards and requirements shall be developed cooperatively by the Oregon Fish and Wildlife Commissions, the Department of Environmental Quality and the State Water Resources Board. All these actions shall be directed to maximizing the net social benefits associated with the use of water resources by Oregonians."

XIX. POLICY 3, NECESSARY ACTION 2

Statement of Necessary Action 2: "The local governments in the coastal zone shall designate, within the comprehensive planning process, land and water uses for specific areas in a manner consistent with developing regional water supply potentials, meeting stream flow requirements and maintaining in-stream water quality."

A. ANALYSIS AND GENERAL REACTION: This seems very reasonable.

XX. POLICY 3, NECESSARY ACTION 3

Statement of Necessary Action 3: "The state shall share in capital costs of water storage development projects which provide low flow augmentation for the purposes of maintaining water quality, sustaining aquatic life, and supporting water-based recreation."

A. ANALYSIS AND GENERAL REACTION: Although this seems reasonable, one cannot estimate the consequences until the shares of the costs borne by the various governmental units are determined. It really is innocuous.

XXI. POLICY 3, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local government should identify those sites suitable for reservoir development and protect them from incompatible development."

A. ANALYSIS AND GENERAL REACTION: The analysis of this recommended action is hampered by the vagueness in the term "suitable" and by the lack of guidance in the phrase "protect them for incompatible development". For example, what development is considered incompatible with reservoir development? The economic consequences of implementing this recommended action could vary enormously depending on the answer to this question.

B. SUGGESTED REWORDING: "State and local governments, according to the criterion of maximum net social benefits, should identify sites for reservoir development and should protect them from incompatible development."

XXII. POLICY 3, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The state should acquire, through adjudication, purchase, or other means of transfer, water rights on streams where flows exist that are insufficient to protect aquatic life."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of implementing this recommended action, one needs to know the answers to the following questions:

1. Question: What is the market value of the water rights on all those streams in the coastal zone where flows exist that are insufficient to protect aquatic life?

   Answer: There is not even an inventory of the streams in which flows exist that are insufficient to protect aquatic life. I and an assistant could provide a rough but informative answer to this question within one month.

2. Question: What are the costs of alternative methods of protecting aquatic life in streams in which the flows are insufficient to protect the aquatic life?

   Answer: Given an answer to the first question above, I and an assistant could answer this question within five days.

B. GENERAL REACTION: I have mixed feelings about this recommended action. One the one hand, I think there must be a better way of accomplishing what appears to be the purpose of this recommended action. On the other hand, I cannot think of any,

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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 11, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II Policies for "Shoreland Resources in the Oregon Coastal Zone"

I. INTRODUCTION

The discussion that follows applies to the Phase II Policies for "Shoreland Resources in the Oregon Coastal Zone" that were approved for public review by OCC&DC. My analysis has benefited from the comments of S. Lance Zaklan, but my conclusions and recommendations do not necessarily reflect his views.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall establish a process to cooperatively describe and designate on maps the geographic boundaries of the shorelands of the coastal zone. Such designation shall be based on identification of landforms that limit or control the hydraulic action in the water course or in the periodically wetted fringes of the water course, such as wetlands and floodplains."

A. ANALYSIS AND GENERAL REACTION: Aside from the increase in the costs of state and local government (or in the reduction of other public expenditures), this policy does not have any economic consequences.

III. POLICY 1, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local government, in identifying and designating the shoreland areas of the coastal zone, should:

(1) compile a map or series of maps depicting generalized existing land uses, ownership patterns, topography, and similar information which lends itself to presentation in graphic form; and

(2) prepare a series of descriptive analyses of the water characteristics and of the natural features of the shorelands. The descriptive analyses should be done on an area-by-area (e.g., using shore process zones described in the pilot study, or drift sectors) basis and should be keyed to the map element in a clear and direct manner."

A. ANALYSIS AND GENERAL REACTION: The economic consequences of this recommended action are similar to those for POLICY 1. Implementation of this recommended action will result either in an increase in the costs of state and local governments or in a reduction in other public programs for which the activities suggested by this recommended action would be substituted.

IV. POLICY 2

Statement of Policy 2: "State and local government shall identify shorelands within the comprehensive planning process, and shall designate uses for these areas based on:

a. recognition of the critical inter-relationships between shorelands and the freshwater, estuarine and marine resources of the coastal zone;

b. promotion of the concept of shorelands as "environmental corridors" where there is a coincidence of natural resources and land use concerns in which there is a major public interest;

c. consideration of the needs and desires of landowners who maintain or propose uses reasonable and appropriate for shoreland locations; and

d. consideration of shoreland uses related to the public interest in navigation."

A. ANALYSIS AND GENERAL REACTION: It is impossible to provide a rigorous (or even a casual) analysis of the economic consequences of this policy because of the vagueness (whether by intent or by cause) of such terms as "critical inter-relationships", "major public interest", and "reasonable and appropriate". I do not take these terms to be meaningless, but they do not provide any indications of limitations or bounds imposed on each of the actions required by the policy. The economic consequences, therefore, could be trivial or enormous. Since they do have meaning and since each of the actions contributes important concepts and processes to the management program, it is sufficient merely to add the general criterion of maximum net social benefits to the entire policy, but allows the actions required by the policy to acquire more precision as the management program evolves as a process over time.

B. SUGGESTED REWORDING: Add to the present policy statement the following item:

"e. adherence to the objective of maximizing net social benefits accruing to this and succeeding generations of Oregonians."

V. POLICY 2, NECESSARY ACTION 1

Statement of Necessary Action 1: "The State of Oregon shall coordinate shoreland planning and management activities of state and federal agencies to implement shorelands management policies and to provide more specific and unified guidance to local governments."

A. ANALYSIS AND GENERAL REACTION: This is consistent with increasing the efficiency of governmental activities.

VI. POLICY 2, NECESSARY ACTION 2

Statement of Necessary Action 2: "The State of Oregon, in cooperation with local units of government, shall provide criteria for designating reasonable and appropriate uses for shorelands in comprehensive plans prepared by local governments. The criteria shall provide for:

(a) identification and designation of shorelands of regional or statewide concern;

(b) preservation of the natural character and amenities of waterways;

(c) increased public access where needed;

(d) increased public recreational opporutnities;

(e) continuance of agricultural uses without restriction except as otherwise provided by law;

(f) retention of shoreland vegetation (including tree species) in as natural a state as possible and restoration of vegetation without delay after disturbance in order to protect water quality, aquatic life and wildlife habitat; and

(g) regulation of building sites, placement of buildings, and location of septic tank disposal fields to control pollution."

A. ANALYSIS AND GENERAL REACTION: This necessary action suffers from the same failing as POLICY 2 does, namely there is no indication of limitations or bounds imposed on each of the actions required by the statement. For example, the statement fails to indicate how much preservation there should be. The economic consequences, therefore, could be trivial or enormous. It is sufficient merely to add the general criterion of maximum net social benefits to the entire statement.

B. SUGGESTED REWORDING: "The State of Oregon, in cooperation with local units of government, shall provide criteria for designating reasonable and appropriate uses for shorelands in comprehensive plans prepared by local governments. The criteria shall be consistent with maximizing net social benefits accruing to this and succeeding generations of Oregonians and shall provide for:

(a) identification and designation of shorelands of regional or statewide concern;

(b) preservation of the natural character and amenities of waterways;

(c) increased public access where needed;

(d) increased public recreational opportunities;

(e) continuance of agricultural uses without restriction except as otherwise provided by law;

(f) retention of shoreland vegetation (including tree species) in as natural a state as possible and restoration of vegetation without delay after disturbance in order to protect water quality, aquatic life and wildlife habitat; and

(g) regulation of building sites, placement of buildings, and location of septic tank disposal fields to control pollution."

VII. POLICY 2, NECESSARY ACTION 3

Statement of Necessary Action 3: "Cities and counties in the coastal zone shall use state criteria (as described in (2) above) in designating uses for shorelands in comprehensive plans."

A. ANALYSIS AND GENERAL REACTION: This seems very reasonable, and as long as the wording I suggested above for NECESSARY ACTION 2 is used, then the economic consequences are likely to be positive.

VIII. POLICY 2, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "State and local government should prohibit channelization and use of seawall and similar bulkhead methods of bank stabilization unless it is demonstrated that the net social benefits of that type of construction are greater than the net social benefits of alternative actions, including the alternative of leaving the waterway in its natural form."

A. ANALYSIS AND GENERAL REACTION: Although there will be an initial increase in the various costs associated with demonstrating net social benefits, those are fixed costs that need not be incurred indefinitely. The management program is designed to accommodate learning, and the initial cost-benefit analyses will serve as prototypes for subsequent development proposals.

IX. POLICY 2, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "State and local government should manage timber and vegetation zones along streams primarily for water quality, stream protection and wildlife habitat."

A. ANALYSIS AND GENERAL REACTION: The analysis of the consequences of this recommended action is hampered by the alternative interpretations that can be attributed to the term "primarily". If the term is interpreted to mean "exclusively", then the opportunity costs imposed by implementation of this action could be enormous. If it is not interpreted to mean "exclusively" but something less restrictive, then the other uses and purposes are accommodated will determine how the water quality, stream protection and wildlife habitats will be compromised. The ambiguity in the wording can be eliminated by use of the criterion of net social benefits.

B. SUGGESTED REWORDING: "State and local governments should manage timber and vegetation along streams exclusively for water quality, stream protection and aquatic life and wildlife unless it is demonstrated that the net social benefits accruing to Oregonians can be increased by accommodating additional purposes."

X. POLICY 2, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "State and local government should encourage where appropriate developers of residential, commercial and industrial sites on shorelands to allow for water-related public recreational opportunities."

A. ANALYSIS AND GENERAL REACTION: The terms "should encourage" and "where appropriate" are buzz words. At the least, "where appropriate" should be deleted. The recommended action is innocuous even without it.

B. SUGGESTED REWORDING: "State and local government should encourage developers of residential, commercial and industrial sites on shorelands to allow for water-related public recreational opportunities."

XI. POLICY 2, RECOMMENDED ACTION 4

Statement of Recommended Action 4: "State and local government should develop site selection criteria (including landscaping and methods of development) for the location of nuclear and thermal power plans in those areas of the coastal zone designated as "suitable" by the Oregon Nuclear and Thermal Energy Council."

A. ANALYSIS AND GENERAL REACTION: To be consistent, the Commission should add the criterion of net social benefits as one of the criteria for selecting sites for nuclear and thermal power plants.

B. SUGGESTED REWORDING: "State and local government should develop site selection criteria (including landscaping, methods of development and the criterion of maximum net social benefits) for the location of nuclear and thermal power plans (plants?) in those areas of the coastal zone designated as "suitable" by the Oregon Nuclear and Thermal Energy Council."

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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March 12, 1975

TO: Oregon Coastal Conservation and Development Commission

FROM: Ed Whitelaw, Staff Economist

SUBJECT: Economic Analysis of the Phase II "General Policies"

I. INTRODUCTION

The discussion that follows applies to the Phase II "General Policies" that were approved for public review by OCC&DC. My analysis has benefited from the comments of S. Lance Zaklan, but my conclusions and recommendations do not necessarily reflect his views.

For each of the policies, necessary actions and recommended actions, I have provided at least one of the following three types of comments:

A. ANALYSIS: I raise those questions that need to be answered before a rigorous estimate of the economic consequences of the policy can be made. When I have a ready answer (from my own knowledge or from the inventories), I record it. When I cannot answer the question immediately, I try to place it in one of the following three categories:

   1. a question I (and an assistant) could answer with a little more time (e.g., two or three days) using ONLY the inventories;

   2. a question I (and an assistant) could answer with substantially more time (e.g., five to ten days) using the inventories plus other EXISTING data and expertise; or

   3. a question I (and an assistant) could answer ONLY with as yet nonexisting data or with a considerable amount of research (e.g., two or three months or more) or with both.

B. GENERAL REACTION: I present my general or gut reaction to the policy, and I do so (somewhat hesitantly) at the request of a couple of members of the Economic Steering Committee.

C. SUGGESTED REWORDING: I present an alternative statement of the policy or action so that criticisms implied by my analysis might be eliminated or at least blunted.

II. POLICY 1

Statement of Policy 1: "State and local government shall base modifications, approval or disapproval of proposed developments, plans or programs on the short and long term economic, ecological, cultural, aesthetic, historic and recreational factors."

A. ANALYSIS AND GENERAL REACTION: The policy calls for the gathering and analysis of data relating to the various factors, and it therefore would effect a reallocation of resources — both labor and materials — to these activities. Aside from the specific economic consequence described above, other economic consequences cannot be estimated until the relative weights that will be assigned to the various factors are known.

B. SUGGESTED REWORDING: The wording that I suggest below merely makes the statement more precise and more consistent with past actions by the Commission.

"State and local governments shall base modifications, approval or disapproval of proposed developments, plans or programs on the short- and long-term economic, ecological, cultural, aesthetic, historic and recreational values that are likely to be affected by the proposed developments."

III. POLICY 1, NECESSARY ACTION 1

Statement of Necessary Action 1: "The appropriate state agency shall require a written evaluation of social costs and social benefits for proposed developments, plans and programs that are likely to adversely affect areas of critical state concern."

A. ANALYSIS AND GENERAL REACTION: Besides the costs of the written evaluation that this necessary action would require, there are also the costs incurred by the "appropriate state agency" when it must determine if the proposed developments are likely to affect adversely areas of critical state concern. This additional set of costs are likely to diminish markedly over time as the agency accumulates experience in identifying proposed developments that would affect such areas adversely.

IV. POLICY 2

Statement of Policy 2: "State and local government through planning and management shall provide for multiple uses of natural resources. When several uses are proposed in the same location, state and local governments shall provide for multiple use based on the needs of each uses, the degree of compatibility among various uses, and the effects of each use and combined uses on the natural resources."

A. ANALYSIS AND GENERAL REACTION: This policy, whenever it results in multiple-purpose use (among compatible uses) of scarce resources will increase economic efficiency and thus will tend to increase incomes and decrease unemployment on the coast. Any specific estimates of the economic consequences of this policy, however, must be based on the characteristics of the uses proposed for a given location.

B. SUGGESTED REWORDING: To be consistent with past actions taken, the Commission should substitute the term "demand" for the term "needs".

"State and local government through planning and management shall provide for multiple uses of natural resources. When several uses are proposed in the same location, state and local governments shall provide for multiple use based on the demand of each user, the degree of compatibility among various uses, and the effects of each use and combined uses on the natural resources."

V. POLICY 3

Statement of Policy 3: "The issuance of building permits shall be contingent upon the ability of the builder to provide safe and adequate water supply and approved sewage disposal methods."

A. ANALYSIS AND GENERAL REACTION: The apparent intent of this policy is distorted by the terms "ability" and "adequate". Regarding the term "ability", there is nothing in the statement to require that the builder do anything once the public agency has determined that the builder has the ability. I would not care to rely on the good will of my fellow man in this situation, because there are far too many examples of costly blunders in the past in the provision of sewage and water services.

Regarding the terms "safe" and "adequate", there is no indication in the policy who decides what is safe and adequate.

To resolve these problems with the policy statement, I suggest the Commission adopt the wording below.

B. SUGGESTED REWORDING: "The issuance of the building permits shall be contingent upon a written commitment by the builder to provide safe and adequate water supply and sewage disposal, where the criteria for safety and adequacy are determined by the state."

VI. POLICY 3, appended statement

Appended Statement to Policy 3: "Development which requires the use of distribution and collection systems for the provision of water supply and sewage disposal shall be allowed only in areas where these services are available or will be made available concurrently with construction."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this policy, one would need answers to the following questions:

1. Question: What proportion of development in the coastal zone occurs where distribution and collection systems for the provision of water and the disposal of sewage are unavailable and are not made available concurrently with construction?

   Answer: A complete answer to this question is possible but would require a tedious investigation of individual building permits in planning departments up and down the coast. I and an assistant could provide a rough but informative answer within two days merely by calling planners who are familiar with the experience of their respective planning departments.

2. Question: What changes in private costs would be incurred by those activities that comprise the proportion referred to in Question 1 above if the policy were implemented? What changes in social costs would be effected by implementation of this policy?

   Answer: I and an assistant could provide rough answers to these questions within four days.

VII. POLICY 3, NECESSARY ACTION 1

Statement of Necessary Action 1: "The state shall develop criteria to determine if a water supply is safe and adequate."

A. ANALYSIS AND GENERAL REACTION: This is an obviously necessary action if POLICY 3 is to be implemented. The wording suggested below includes local government in the development of criteria, and it increases the precision of the statement.

B. SUGGESTED REWORDING: "The state, in cooperation with local government, shall develop criteria for evaluating the safety and adequacy of systems of water supply and sewage disposal."

VIII. POLICY 4

Statement of Policy 4: "The local evaluation of proposed residential, commercial, industrial and recreational development in the coastal zone shall be based in part on the following factors:

a. the compatability of the proposed use with existing and planned uses of the site and the surrounding area;

b. the physical suitability and limitations of the proposed site;

c. the demand for and availability of adequate public services including: water, sewage disposal, schools, police and fire;

d. the demand for parking and commodity storage areas on the development site; and

e. the adequacy of transportation access and linkage to transportation facilities."

A. ANALYSIS AND GENERAL REACTION: The specific economic consequences cannot be estimated until the relative weights that will be assigned to the various factors are known. It is important to remember that POLICY 1 requires that all the factors that the Commission has included in social benefits be considered in the evaluation as well.

IX. POLICY 5

Statement of Policy 5: "The appropriate authority shall require developers to minimize the disturbance of vegetative cover during development and shall require developers to re-establish an acceptable vegetative cover for all exposed earth within a period of time specified by the authority, to reduce erosion and slope instability and to protect the visual attractiveness of the coastal zone."

A. ANALYSIS: Before one could estimate rigorously the economic consequences of this policy, one would need to know answers to the following questions:

1. Question: What proportion of development currently violates the apparent regulations that implementation of this policy would impose?

   Answer: Although the analysis might be primarily anecdotal (because systematic measures of such violations do not exist), I and an assistant could provide a rough but informative answer to this question within three days.

2. Questions: If the policy were implemented, what changes in private costs would be incurred by those activities that comprise the proportion referred to in Question 1 above? What changes in social costs would be effected by implementation of the policy?

   Answers: I and an assistant could provide rough answers to these questions within four days.

X. POLICY 6

Statement of Policy 6: "Utility lines shall be located on or adjacent to existing public or private rights of way, wherever possible, and the design and siting of new facilities shall be consistent with land and water use plans."

A. ANALYSIS AND GENERAL REACTION: Rigorous analysis of this policy is hampered by the vagueness in the phrase "wherever possible". Alternative interpretations of the phrase could generate enormous and trivial

economic consequences. To protect us from our own ignorance, I suggest, once again, the criterion of net social benefits.

B. SUGGESTED REWORDING: "Utility lines shall be located on or adjacent to existing public or private rights of way, unless it is demonstrated that an alternative location would increase net social benefits, and the design and siting of new facilities shall be consistent with land and water use plans."

XI. POLICY 7

Statement of Policy 7: "State and local government shall estimate existing and future demand for highway, rail, trail, pedestrian, air, water, and mass transit facilities in state transportation plans and comprehensive plans for the coastal zone."

A. ANALYSIS AND GENERAL REACTION: I can only hope that the estimation of future demand is done with more sophistication than 99% of such estimation has been done with in the past. In any event, the action called for by the policy is imperative for any reasonable provision of transportation services in the future.

XII. POLICY 7, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "Transportation plans should provide for more than one mode of transportation."

A. ANALYSIS AND GENERAL REACTION: This recommended action is unnecessary, because there has not yet been a transportation plan prepared in the United States that did not provide for more than one mode of transportation. Either the Commission should request that a more elaborate statement involving the intricacies of multi-modal systems of transportation be prepared, or it should delete the statement.

XIII. POLICY 7, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "A compatible system of long range hiking and bicycle trails, urban trails, and trails connecting population centers with recreation attractions should be planned for the coastal zone in cooperation with local, state and federal agencies and interested public groups."

A. ANALYSIS AND GENERAL REACTION: Given what appear to be secular trends in the demand for recreation and for hiking and bicycles, this recommended action seems very reasonable.

XIX. POLICY 7, RECOMMENDED ACTION 3

Statement of Recommended Action 3: "Transportation plans should consider the need for public transit facilities, including: continuous bus

service along the coast, intra-urban transit for the non-driving population and east-west bus and rail connections to recreation areas and key coastal communities."

A. ANALYSIS AND GENERAL REACTION: The apparent intent of this policy is distorted markedly by the term "need". The present wording suggests that there is some fixed amount of public transit facilities necessary for existence. The mistake is emphasizing the need for transit facilities and not the demand for them, and the flaw in examining only "need" is that the entire burden of adjustment is placed on the supply side. The correct policy would be to use both supply and demand to determine the optimal amount of transportation. Obviously, if the price (or cost to government) were higher, less of it would be used.

   For example, if the price charged users of the transportation facilities were zero and if the need were determined to be great, then the costs to state and local governments would be enormous. Alternatively, if the users of the transportation facilities cover the costs (including the opportunity costs) of the resources used, then the proportion of the costs born by general taxes would be small.

   Aside from the problem with the term "need", the recommended action will remain innocuous until it is determined what the transportation plans will do once they have finished considering the various items listed in the statement.

B. SUGGESTED REWORDING: "Transportation plans should consider the demand for public transit facilities, including: continuous bus service along the coast, intra-urban transit for the non-driving population and east-west bus and rail connections to recreation areas and key coastal communities."

XX. POLICY 8

Statement of Policy 8: "State and local government shall base decisions to construct or improve transportation facilities on the needs and desires of the entire affected region as identified in state transportation plans and local comprehensive plans and on the projected impacts and costs of alternative designs and locations, including the no build alternative."

A. ANALYSIS AND GENERAL REACTION: Except for the terms "needs" and "desires", this policy is reasonable and requires no economic analysis. The problem with the term "needs" is discussed above under POLICY 7, RECOMMENDED ACTION 3. The problem with the term "desires" is that there is no price-constraint on the choice, and, therefore, is similar to requests for Christmas gifts. As long as one need not pay for the gifts, one asks for a great deal more.

B. SUGGESTED REWORDING: "State and local government shall base decisions to construct or improve transportation facilities on the

demands of the entire affected region as identified in state transportation plans and local comprehensive plans and on the projected impacts and costs of alternative designs and locations, including the no build alternative."

XXI. POLICY 9

Statement of Policy 9: "The state through the Department of Economic Development shall make efforts to increase the number of year-round or winter season commercial, industrial and recreational employment opportunities which are compatible with the character of the coastal zone, as long as it is demonstrated that such efforts do not decrease per capita income or increase the rate of unemployment on the coast."

A. ANALYSIS AND GENERAL REACTION: The clause "as long as it is demonstrated that such efforts ...." is necessary, because reducing the seasonality of employment and earnings or increasing the number of year-round jobs on the coast will not necessarily increase per capita income or decrease aggregate unemployment on the coast. For example, if aggregate demand were to remain constant, then increasing the number of year-round jobs must come at the expense of seasonal jobs. The resulting distortion of the market solution will not necessarily increase economic efficiency on the coast, and thus it may cause no change or even a decrease in per capita. Given the opportunity cost of the resources employed in effecting the change from seasonal unemployment and no change in per capita incomes, then economic welfare is reduced.

Precisely because neither the Department of Economic Development nor anyone else knows the probability of the events I described above, the qualifying clause is necessary to protect Oregonians and, in particular, coastal residents. Notice that if the Department of Economic Development manages to increase the aggregate demand for coastal output, then the probabilities of the inefficiencies are greatly reduced.

XXII. POLICY 10

Statement of Policy 10: "The state shall improve the economic conditions for utilization of the fishery resources."

A. ANALYSIS AND GENERAL REACTION: I realize that at a previous meeting, the Commission rejected the rewording I suggest below, but I was not present during the discussion, and I would like to suggest it again merely to make sure that the reasons I support the rewording are understood. Then the Commission may reject or accept as it chooses.

The reasons are identical to the reasons I cited above in the ANALYSIS AND GENERAL REACTION to POLICY 9. In short, I am skeptical that the Department of Economic Development has at its disposal the policy instruments necessary to effect the changes POLICIES 9 and 10 require without affecting the economy adversely.

B. SUGGESTED REWORDING: "The state shall improve the economic conditions for utilization of the fishery resources as long as it is demonstrated that such efforts do not decrease per capita income or increase the rate of unemployment on the coast."

XXIII. POLICY 10, NECESSARY ACTION 1

Statement of Necessary Action 1: "The Fish Commission, in cooperation with the Sea Grant Program and with commerical fisheries, shall study and evaluate alternative programs for limiting entry or by other means improving the economic conditions for commercial fishing."

A. ANALYSIS AND GENERAL REACTION: To most economists, the phrase "limiting entry" means limiting the number of firms that may or are willing to operate in an industry. In other words, limiting entry is the means whereby monopolies or oligopolies are created, and I doubt that the Commission intended to create monopolies with this statement. The wording I suggest below retains the intent of the original statement but avoids the ambiguity I mentioned above.

B. SUGGESTED REWORDING: "The Fish Commission, in cooperation with the Sea Grant Program and with commercial fisheries, shall study and evaluate alternative programs for increasing per capita income and decreasing unemployment on the coast by utilizing fishery resources."

XXIV. POLICY 10, RECOMMENDED ACTION 1

Statement of Recommended Action 1: "The state and federal governments should create programs to improve processing methods, marketing techniques and financing for commercial fisheries."

A. ANALYSIS AND GENERAL REACTION: My interpretation of the phrase "should create programs to improve" suggests that this recommended action is in direct conflict with action taken by the Commission on 9 August 1974. At that time, the Commission adopted the following statement in reference to the phrase "orderly development" in the GOAL which was also adopted that day:

"The term 'orderly' means well-considered, directed change in which the consideration and direction is embodied in comprehensive planning controlled by the public. The term does not rule out encouraged development, but it does not mean stimulated development in which private development is subsidized by the public."

The rewording I've suggested below, then is strictly consistent with the Commission's past actions.

B. SUGGESTED REWORDING: "The state and federal governments should encourage improvements in processing methods, marketing techniques and financing for commercial fisheries."

XXV. POLICY 10, RECOMMENDED ACTION 2

Statement of Recommended Action 2: "The state and federal governments should support private development of aquaculture in coastal waterways suited for such use through:

a. the state's permit granting procedures;

b. educational programs describing methods and types of aquaculture and their public benefits; and

c. incentive funding."

A. ANALYSIS AND GENERAL REACTION: For the same reason I present above in the ANALYSIS AND GENERAL REACTION under RECOMMENDED ACTION 1, I suggest that everything after the term "waterways" in RECOMMENDED ACTION 2 be deleted.

B. SUGGESTED REWORDING: "The state and federal governments should encourage private development of aquaculture in coastal waterways."

Appendices J through V are under separate cover.

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