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]

[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:

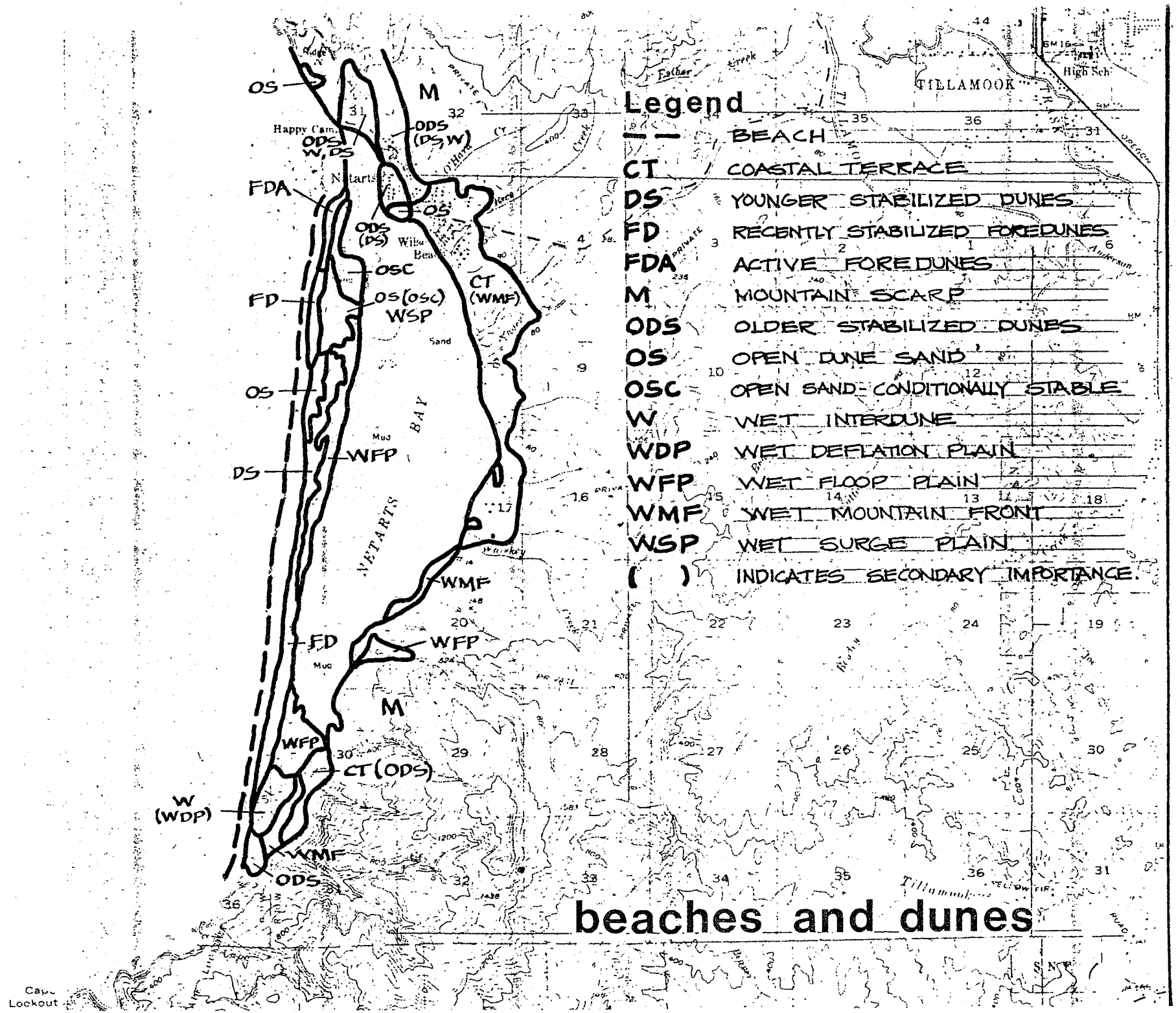
Netarts Bay

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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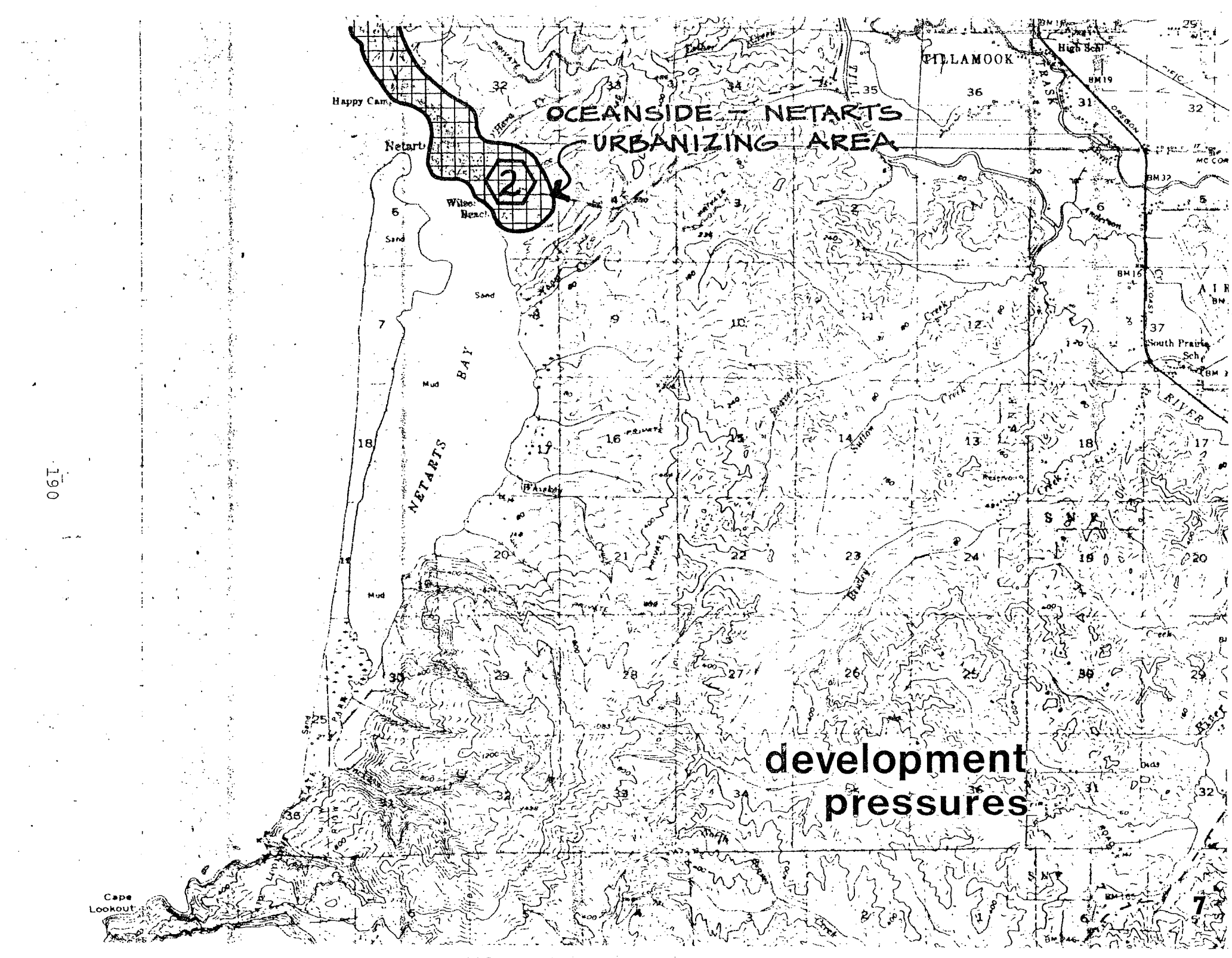
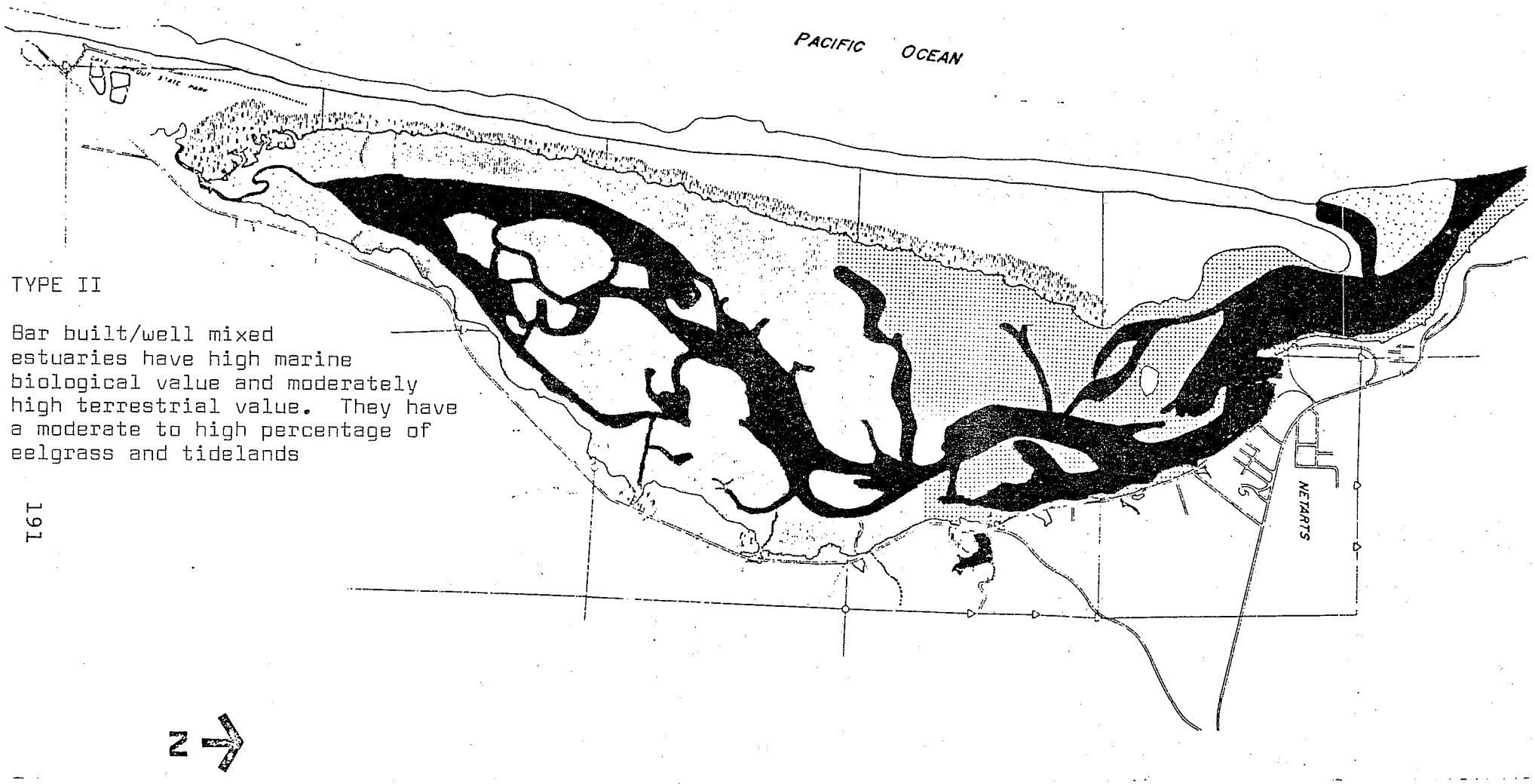
WMF
ODS
Legend
BEACH
CT / COASTAL TERRACE
DS YOUNGER STABILIZED DUNES
FD RECENTLY STABILIZED FOREDUNES
FDA ACTIVE FOREDUNES
M MOUNTAIN SCARP
ODS OLDER STABILIZED DUNES
OS OPEN DUNE SAND
OSC OPEN SAND-CONDITIONALLY STABLE
W WET INTERDUNE
WDP WET DEFLATION PLAIN
WFP WET FLOOD PLAIN
WMF WET MOUNTAIN FRONT
WSP WET SURGE PLAIN
( ) INDICATES SECONDARY IMPORTANCE.
NETARTS BAY
TILLAMOOK
beaches and dunes


OCEANSIDE - NETARTS
URBANIZING AREA
2
Happy Camp
Netarts
Wilson Beach
TILLAMOOK
High Sch
NETARTS BAY
Sand
Mud
South Prairie Sch
RIVER
Cape Lookout
development
pressures
7



TYPE II

Bar built/well mixed estuaries have high marine biological value and moderately high terrestrial value. They have a moderate to high percentage of eelgrass and tidelands

191

N

NETARTS

EELGRASS

MARSH

CLAM BEDS

SUBMERGED LANDS

EELGRASS AND CLAM BEDS

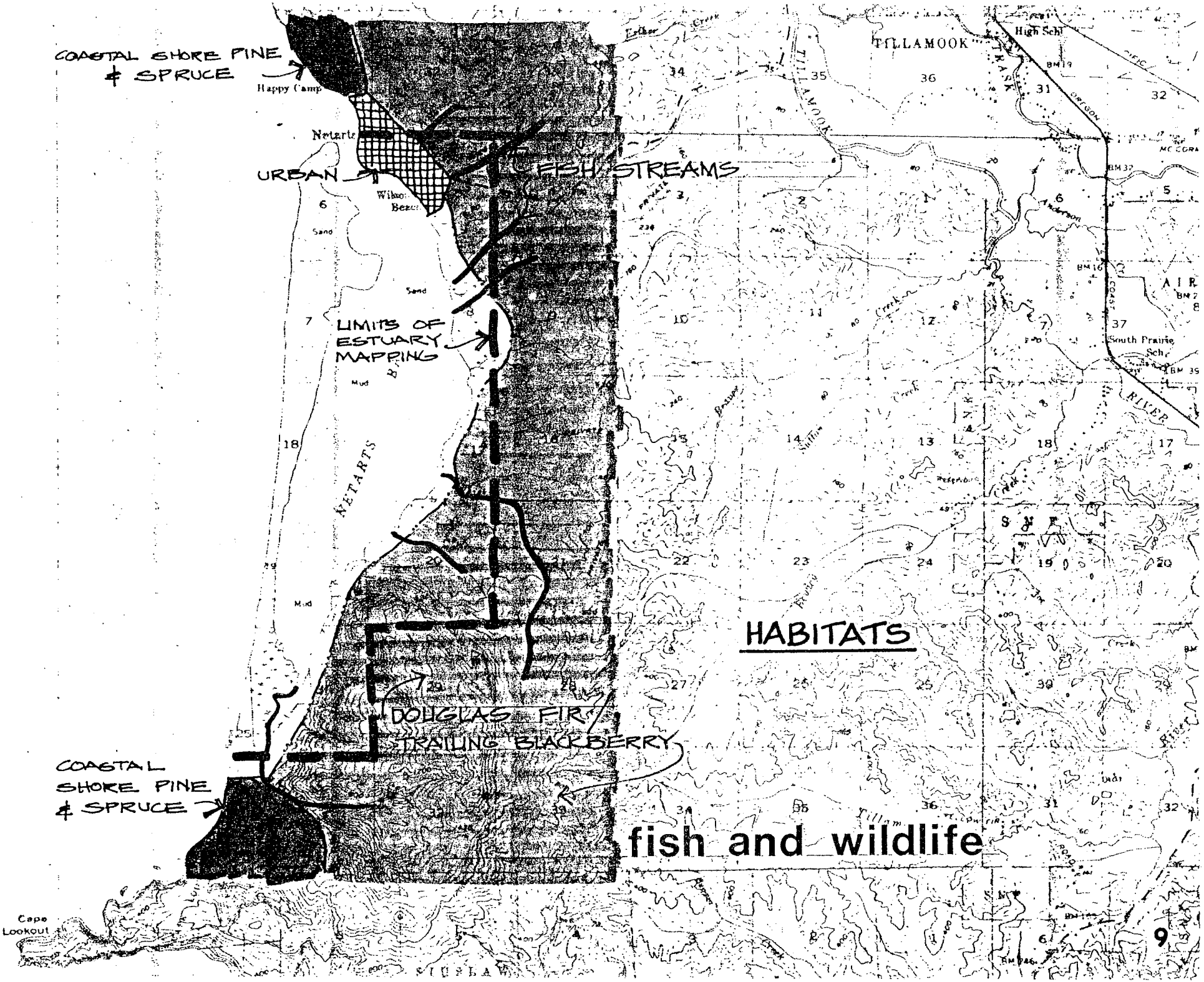
TIDELANDS

THE OREGON COASTAL ZONE

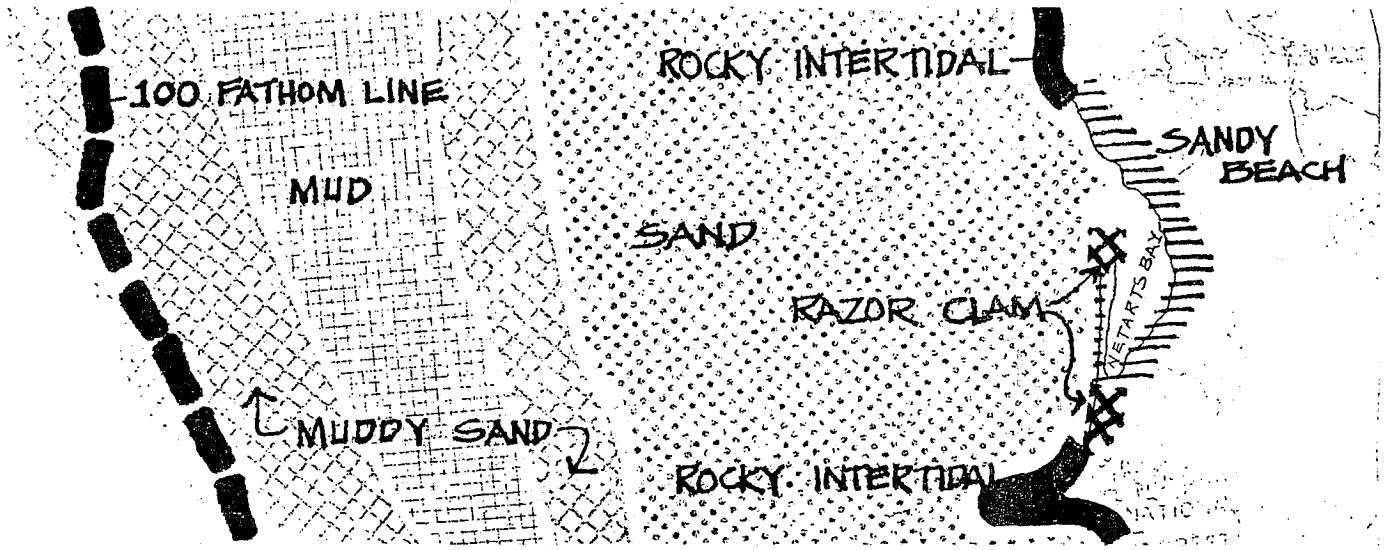
ESTUARINE RESOURCES

8

Oregon Coastal Conservation & Development Commission

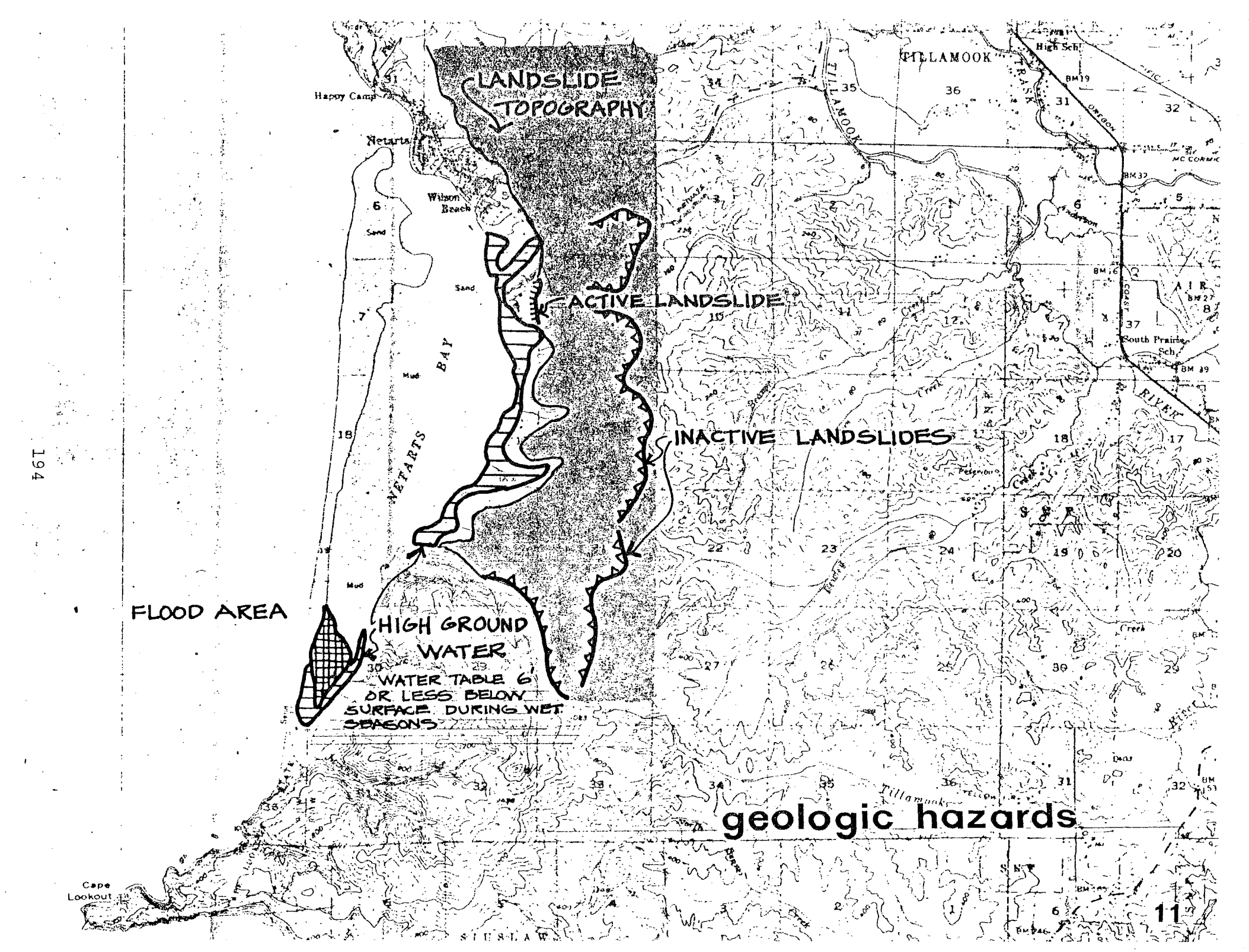

COASTAL SHORE PINE & SPRUCE
URBAN
FISH STREAMS
LIMITS OF ESTUARY MAPPING
HABITATS
DOUGLAS FIR
TRAILING BLACKBERRY
COASTAL SHORE PINE & SPRUCE
fish and wildlife
TILLAMOOK
Happy Camp
Netarts
NETARTS
Cape Lookout
South Prairie Sch.
High Sch.
9

HABITATS

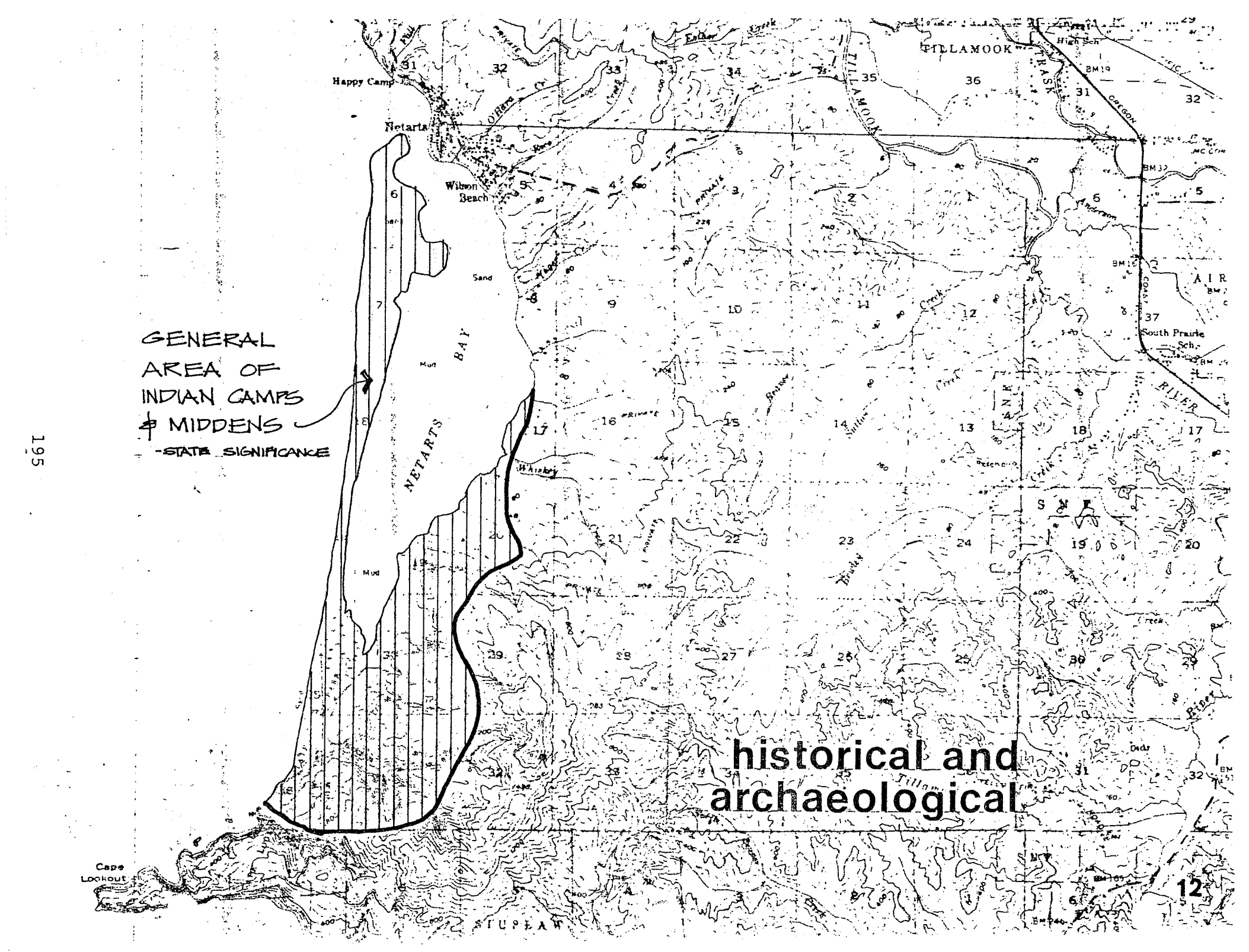


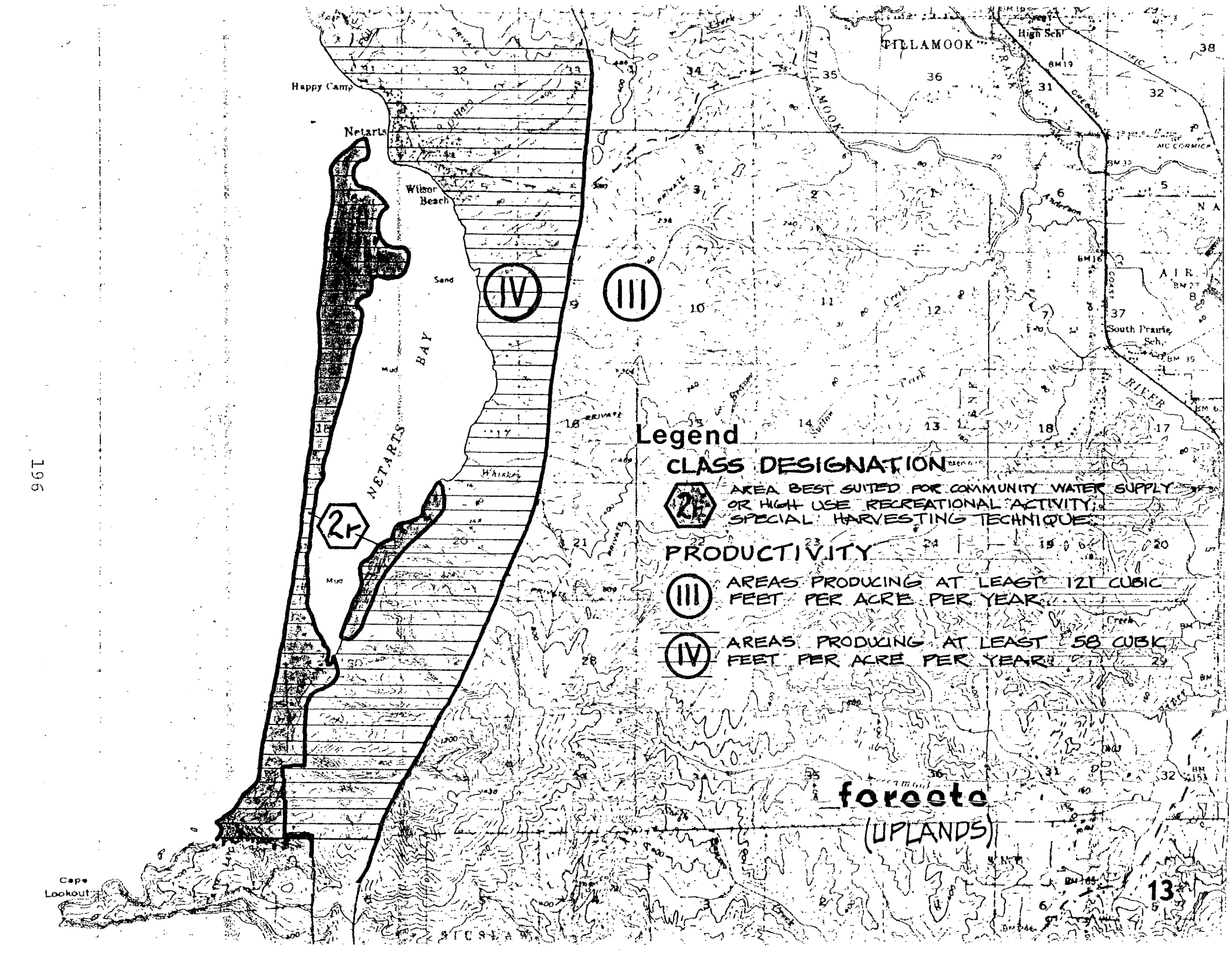
SCALE: 1-250,000

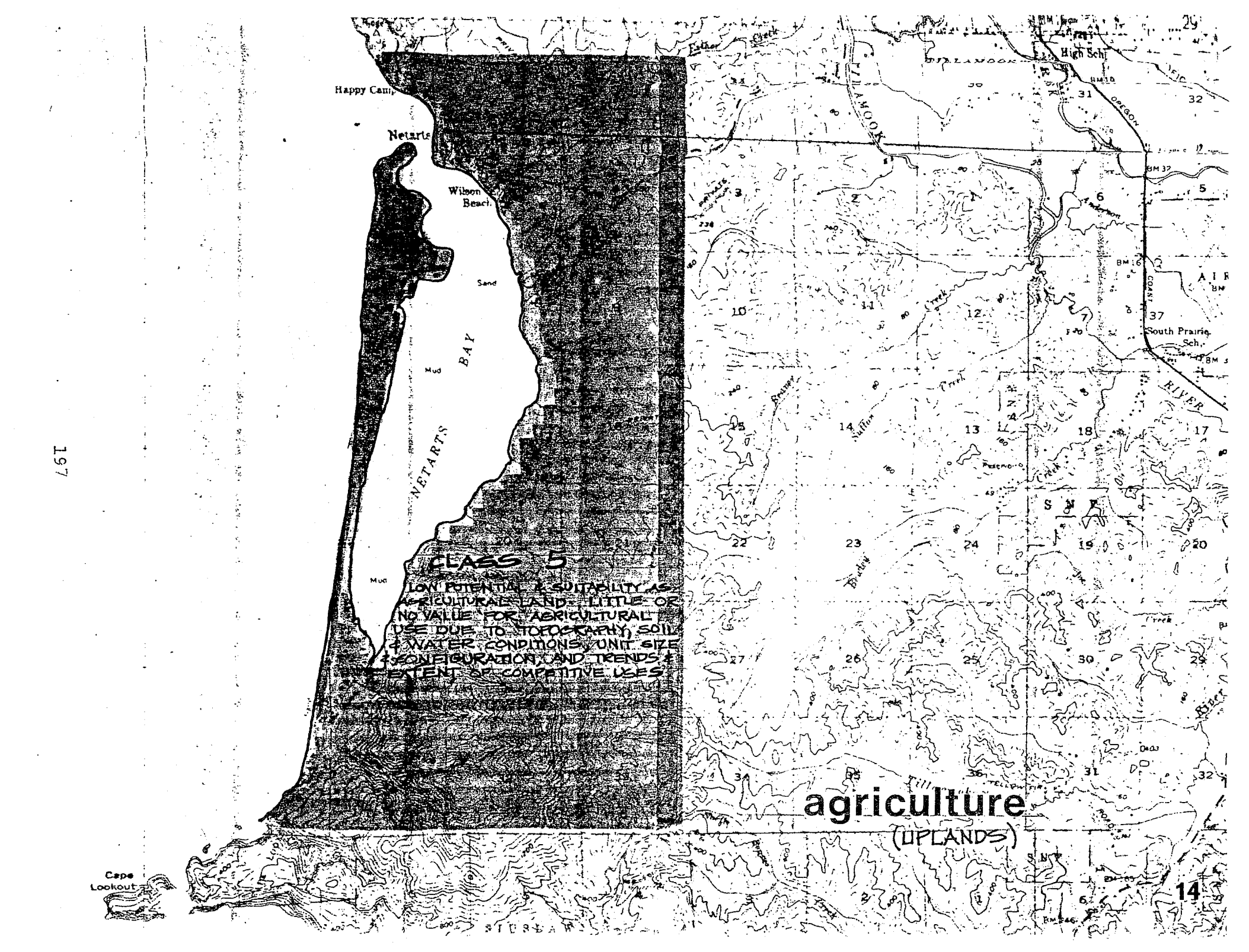
fish & wildlife (offshore)

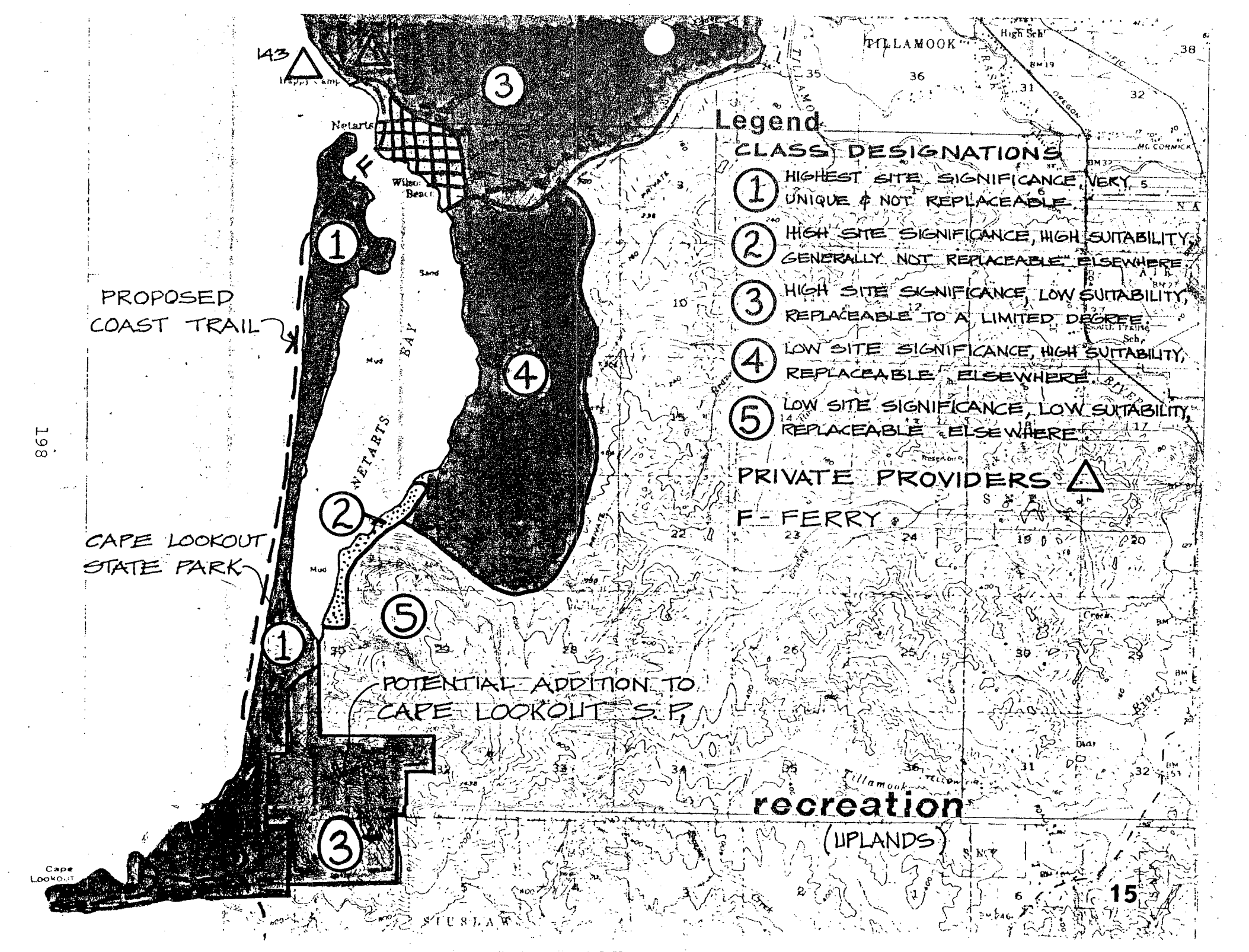


geologic hazards

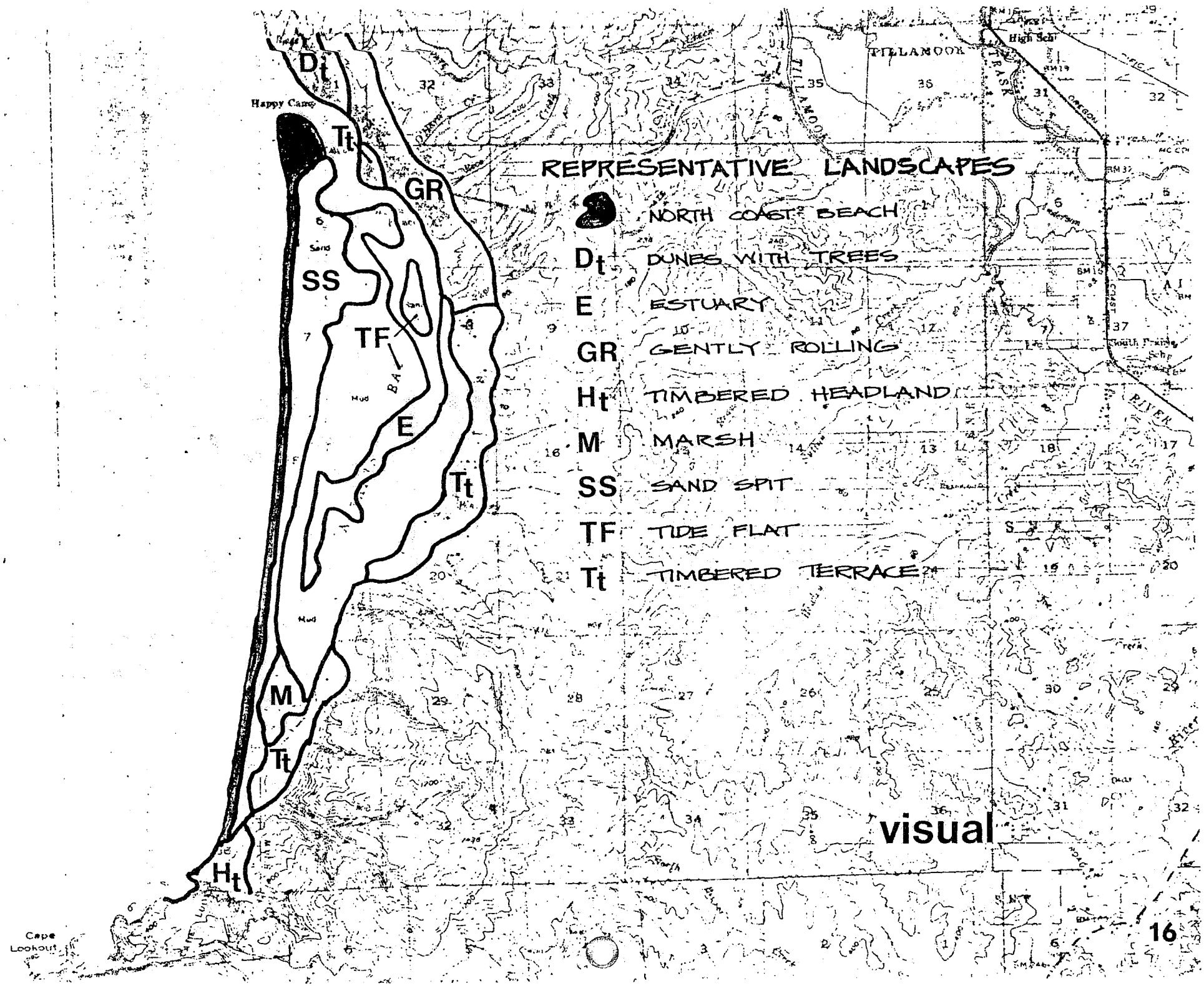

GENERAL
AREA OF
INDIAN CAMPS
& MIDDENS
-STATE SIGNIFICANCE
historical and
archaeological
12


Happy Camp
Netarts
Wilson Beach
Sand
NETARTS BAY
Mud
Cape Lookout
TILLAMOOK
High Sch
South Prairie Sch.
IV
III
2r
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


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
Cape Lookout
TILLAMOOK
High Sch
OREGON
South Prairie Sch.
RIVER
agriculture
(UPLANDS)



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
PROPOSED COAST TRAIL
CAPE LOOKOUT STATE PARK
POTENTIAL ADDITION TO CAPE LOOKOUT S.P.
recreation
(UPLANDS)
143
Netarts
NETARTS BAY
TILLAMOOK
Cape Lookout


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
Happy Camp
TILLAMOOK
High Sch
Cape Lookout
visual
16

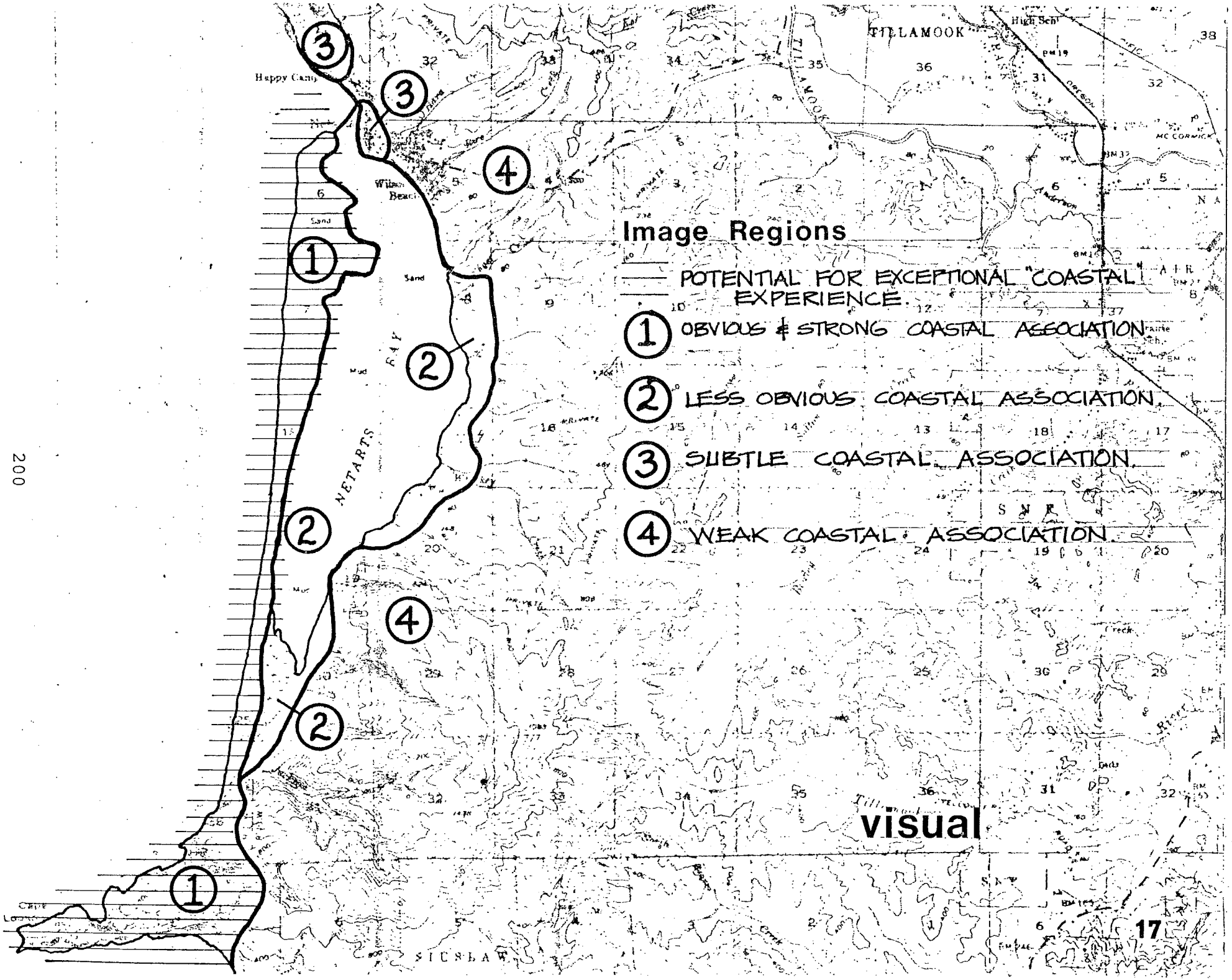
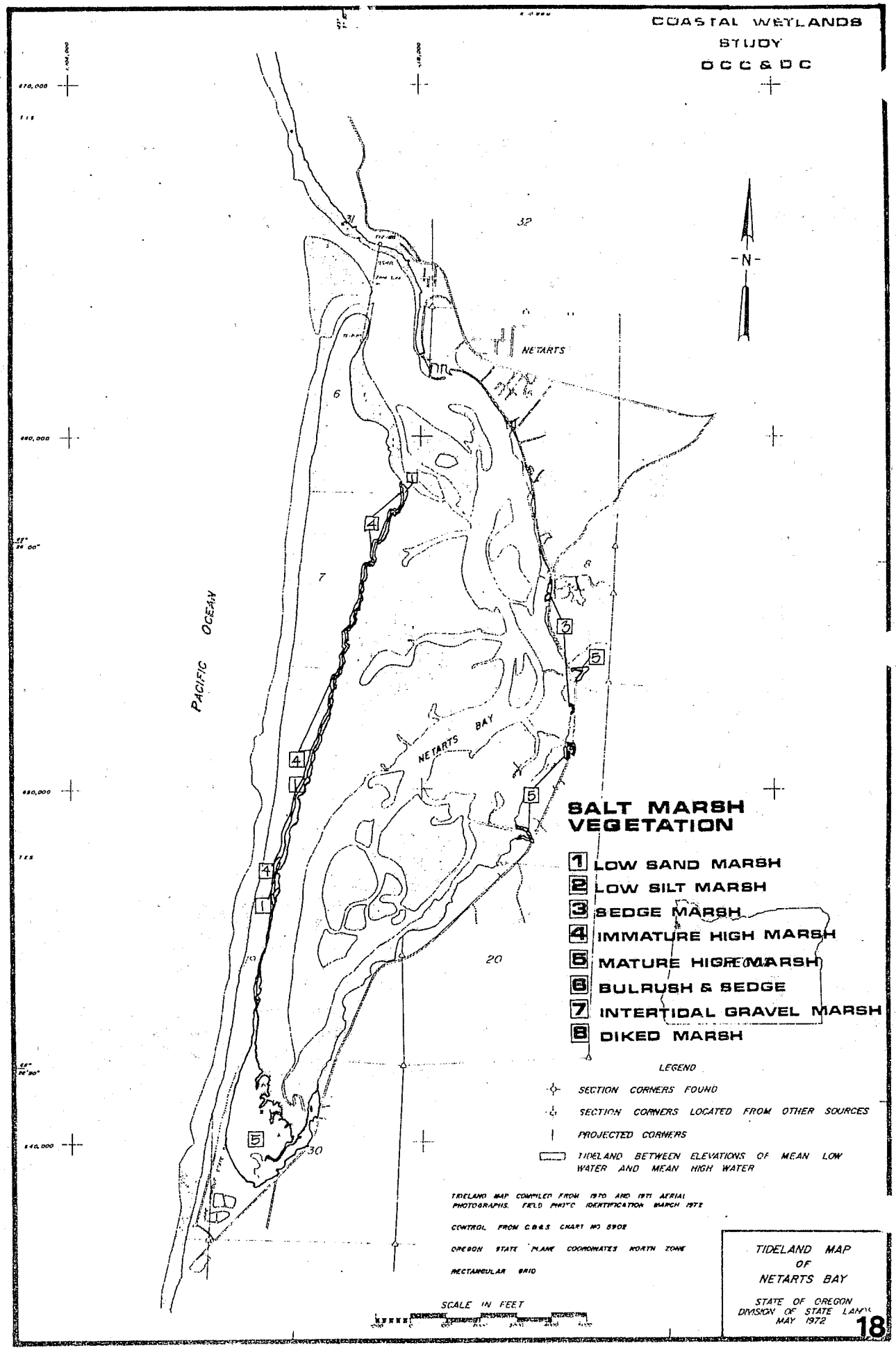


Image Regions
POTENTIAL FOR EXCEPTIONAL COASTAL EXPERIENCE.
1 OBVIOUS & STRONG COASTAL ASSOCIATION.
2 LESS OBVIOUS COASTAL ASSOCIATION.
3 SUBTLE COASTAL ASSOCIATION.
4 WEAK COASTAL ASSOCIATION.
NETARTS BAY
TILLAMOOK
visual


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.B.&S. CHART NO. 6908
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

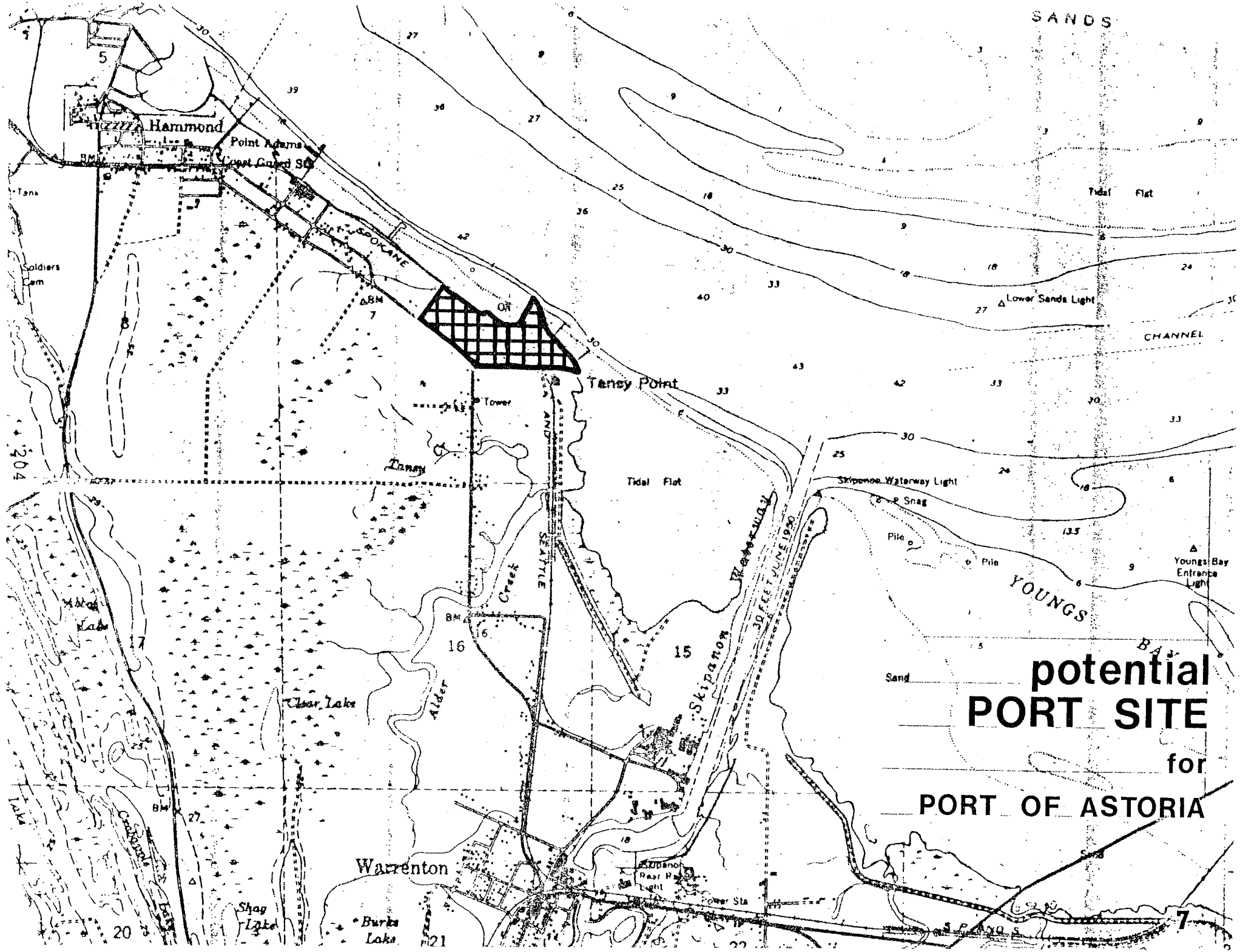
The unincorporated communities of Oceanside and Netarts are identified as "urbanizing" areas, with severe limitations for development due to steep terrain, moderate soils limitations, and other severe natural limitations. Governmental limitations include severe lack of sewerage service, moderate limitations due to water service, and a moderate limitation due to existing land ownership.

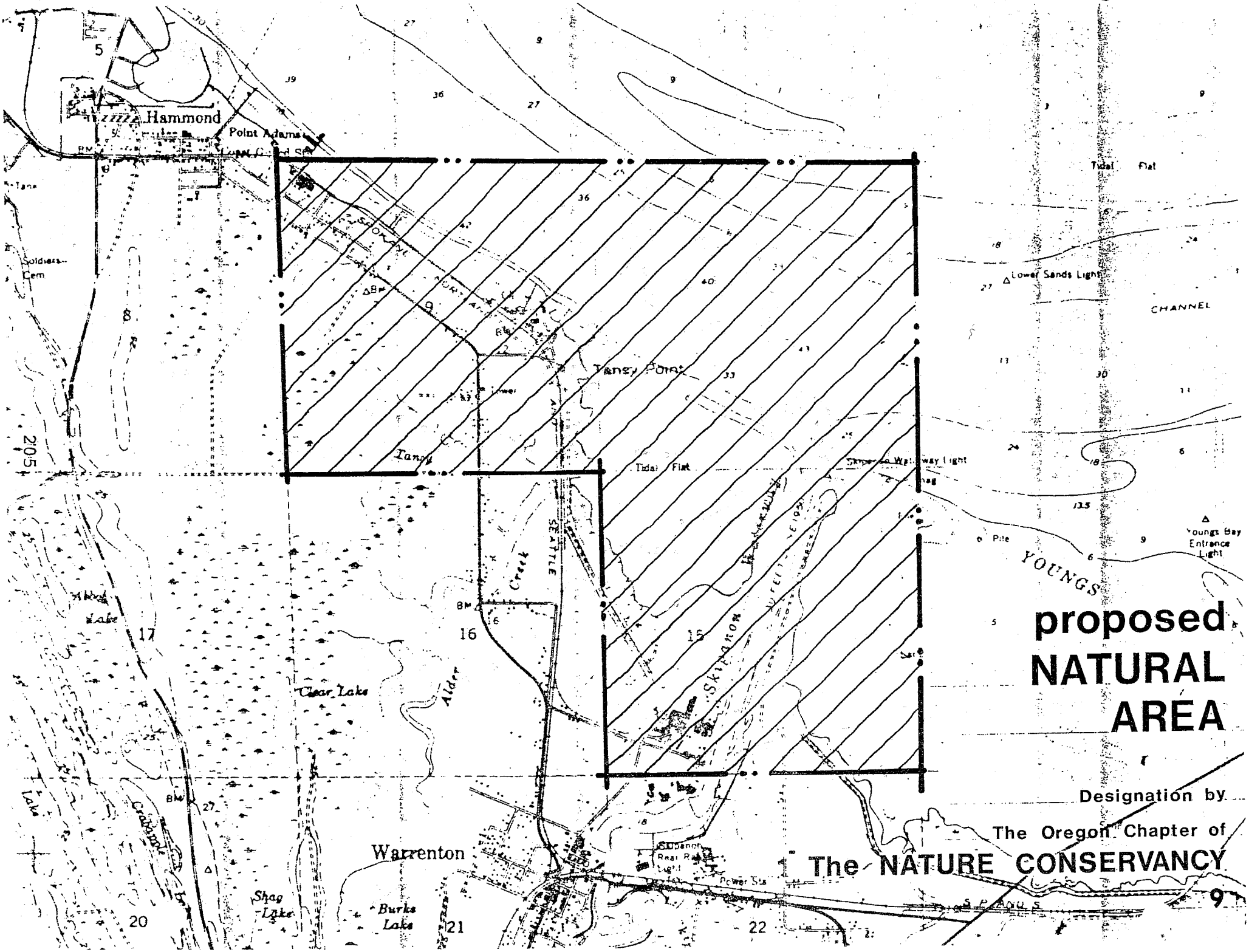
The sanitation district in the Netarts Bay area is proposing to serve the area with a secondary level treatment plant. The proposal is partly in response to the existing problems of septic tank leakage into the bay. The decision regarding the area to be sewered and the method of financing the facilities 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.

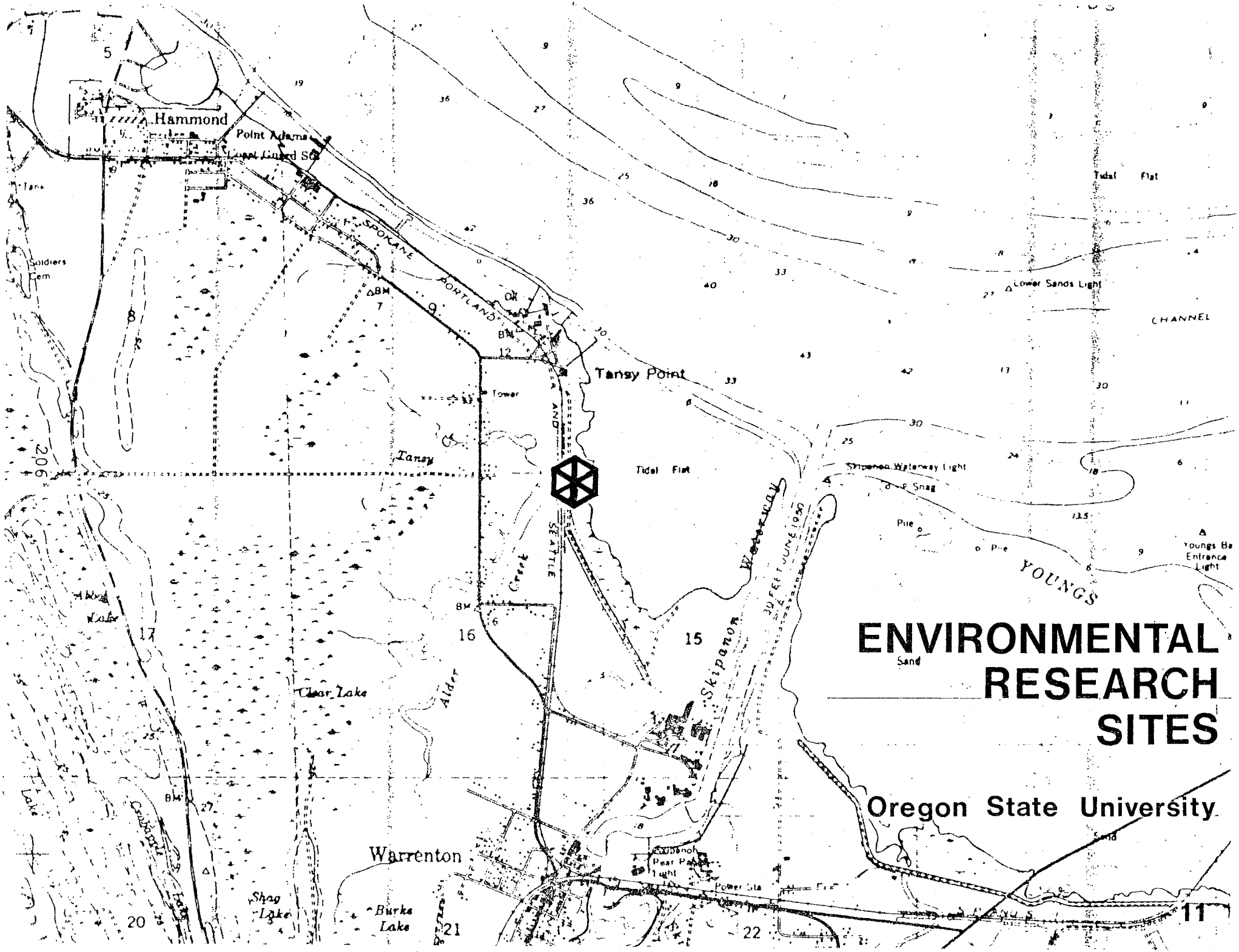
Tansy Point

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,

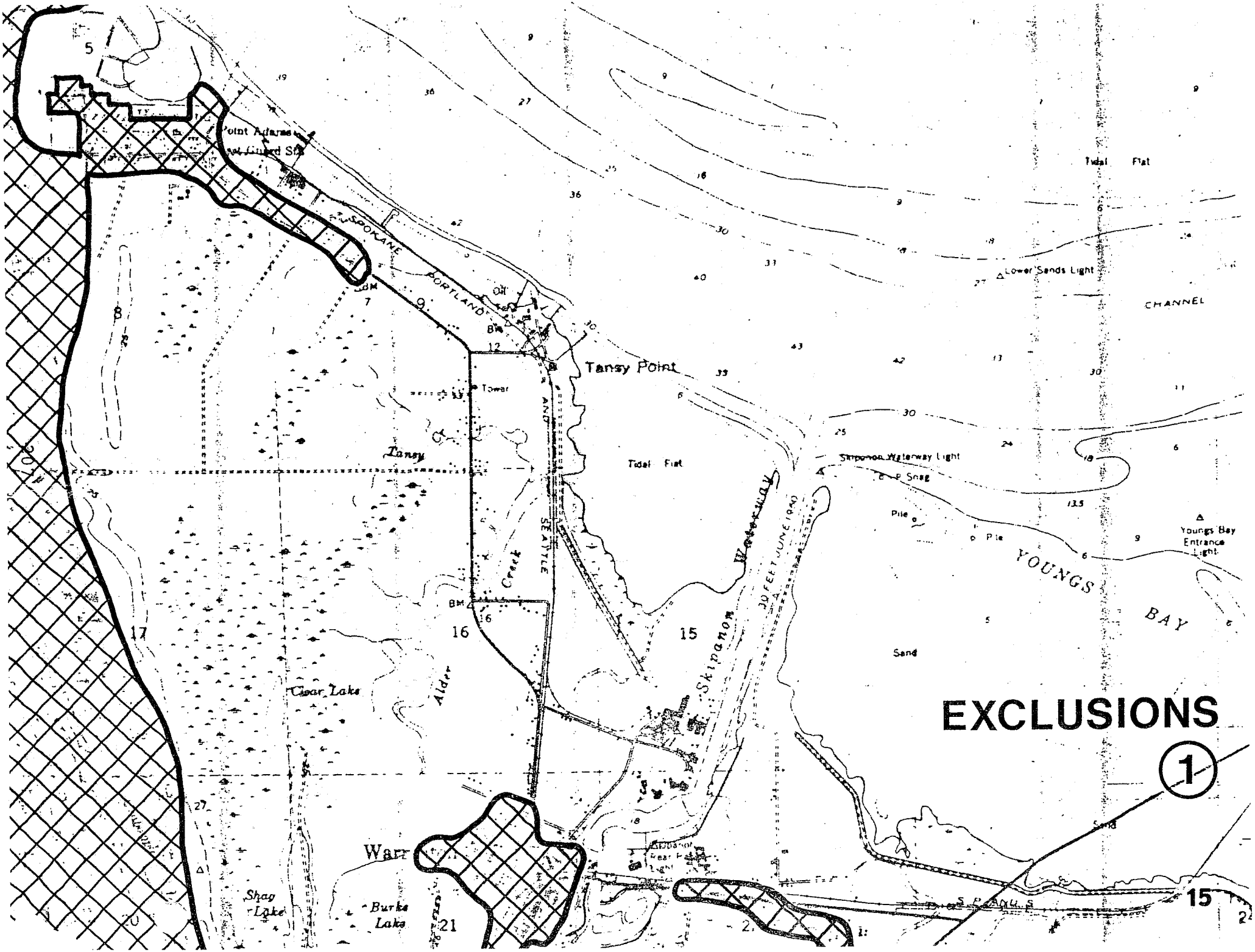

SANDS
Hammond
Point Adams
Coast Guard Sta
Tank
Soldiers Cem
SPOKANE
Tansy Point
Tower
Tansy
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS BAY
Sand
Skipanon Waterway
30 FEET JUNE 1950
SEATTLE
Creek
Alder
Clear Lake
Warrenton
Shag Lake
Burks Lake
Skipanon Rear Range Light
Power Sta
204
potential
PORT SITE
for
PORT OF ASTORIA

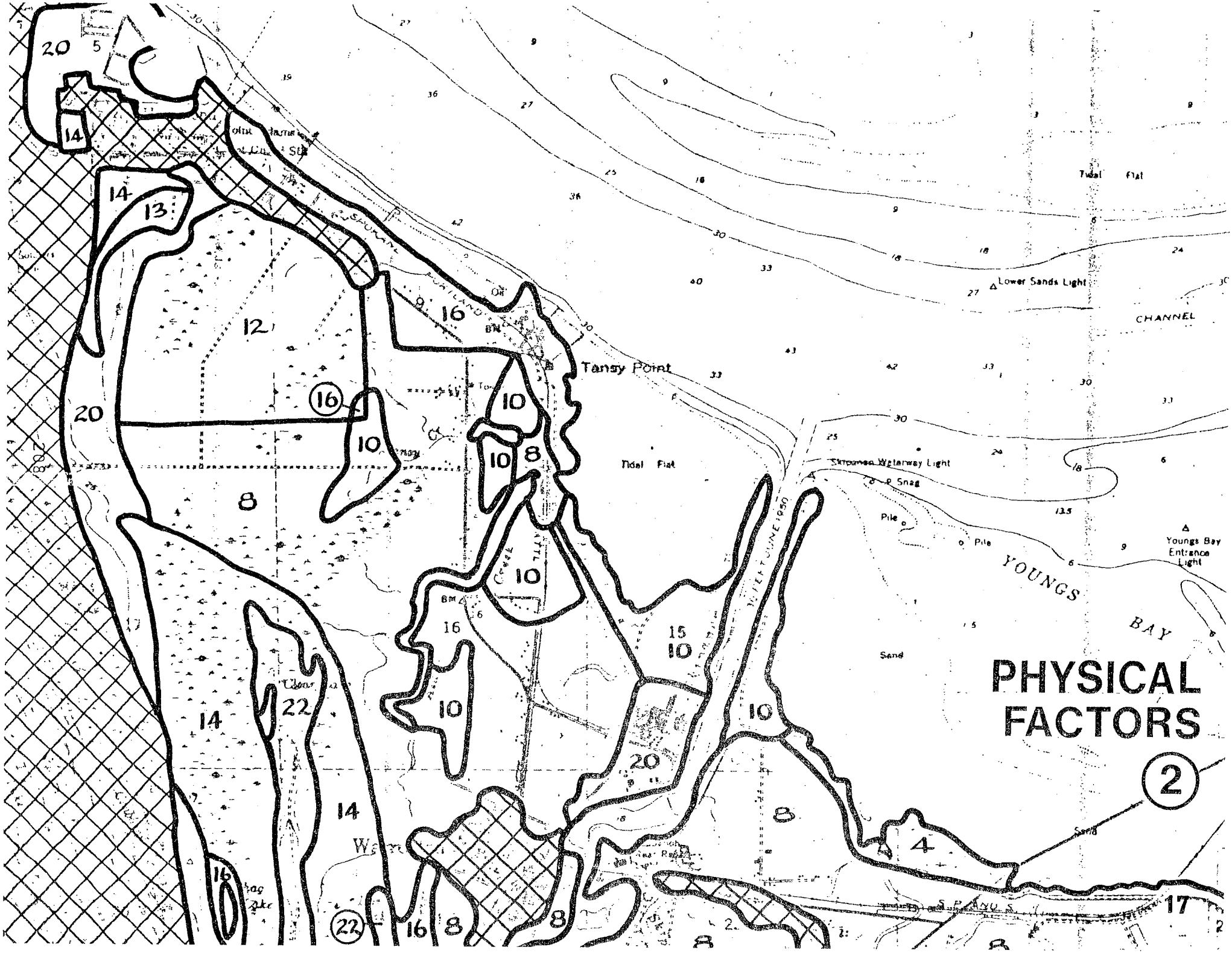

Hammond
Point Adams
Soldiers Cem
Tansy Point
Tansy
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Youngs Bay Entrance Light
YOUNGS
Pile
SEATTLE
Creek
Alder
Clear Lake
Warrenton
Shag Lake
Burke Lake
Power Sta
Skipanon Rear Range Light
205
5
8
9
15
16
17
20
21
22
proposed
NATURAL
AREA
Designation by
The Oregon Chapter of
The NATURE CONSERVANCY

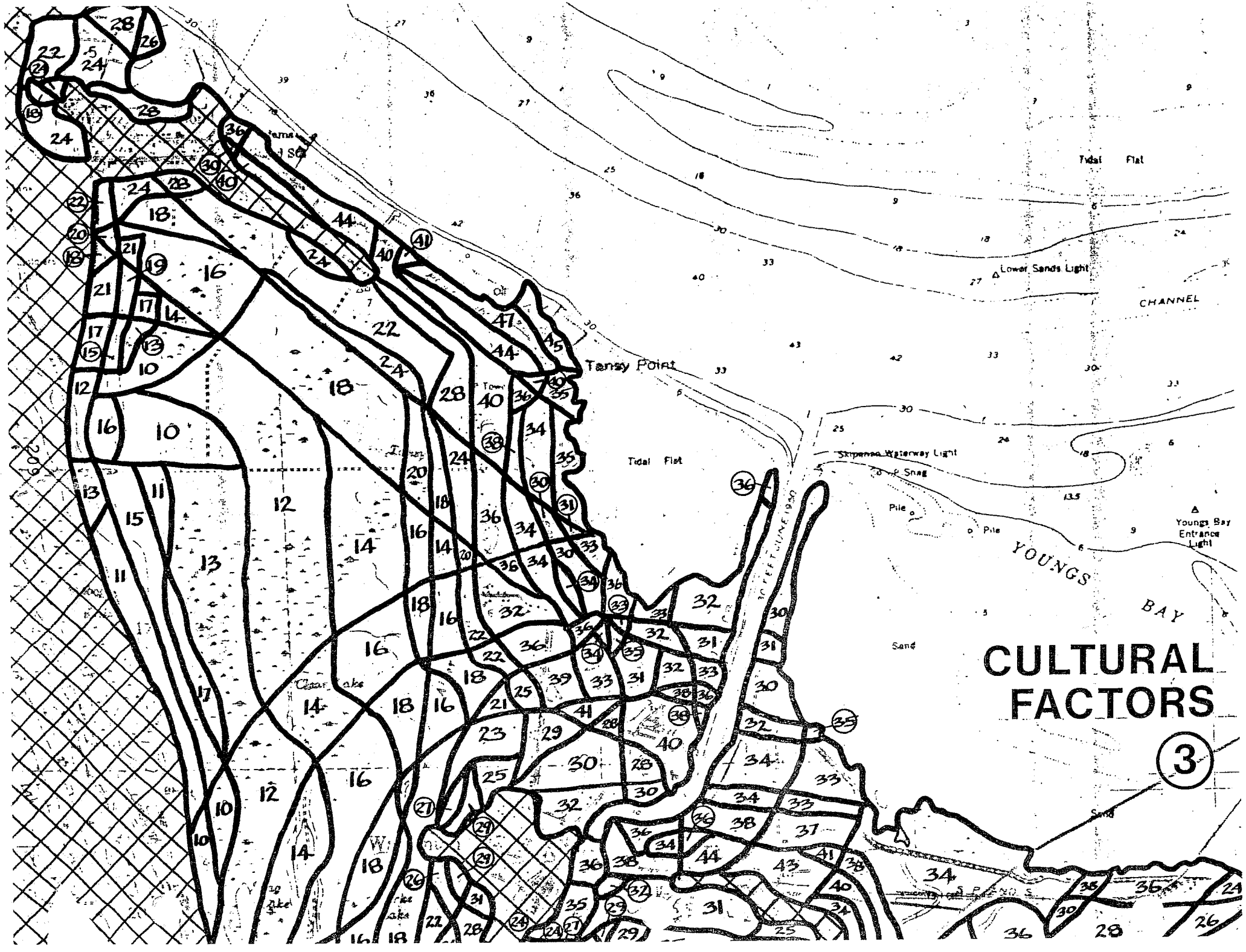


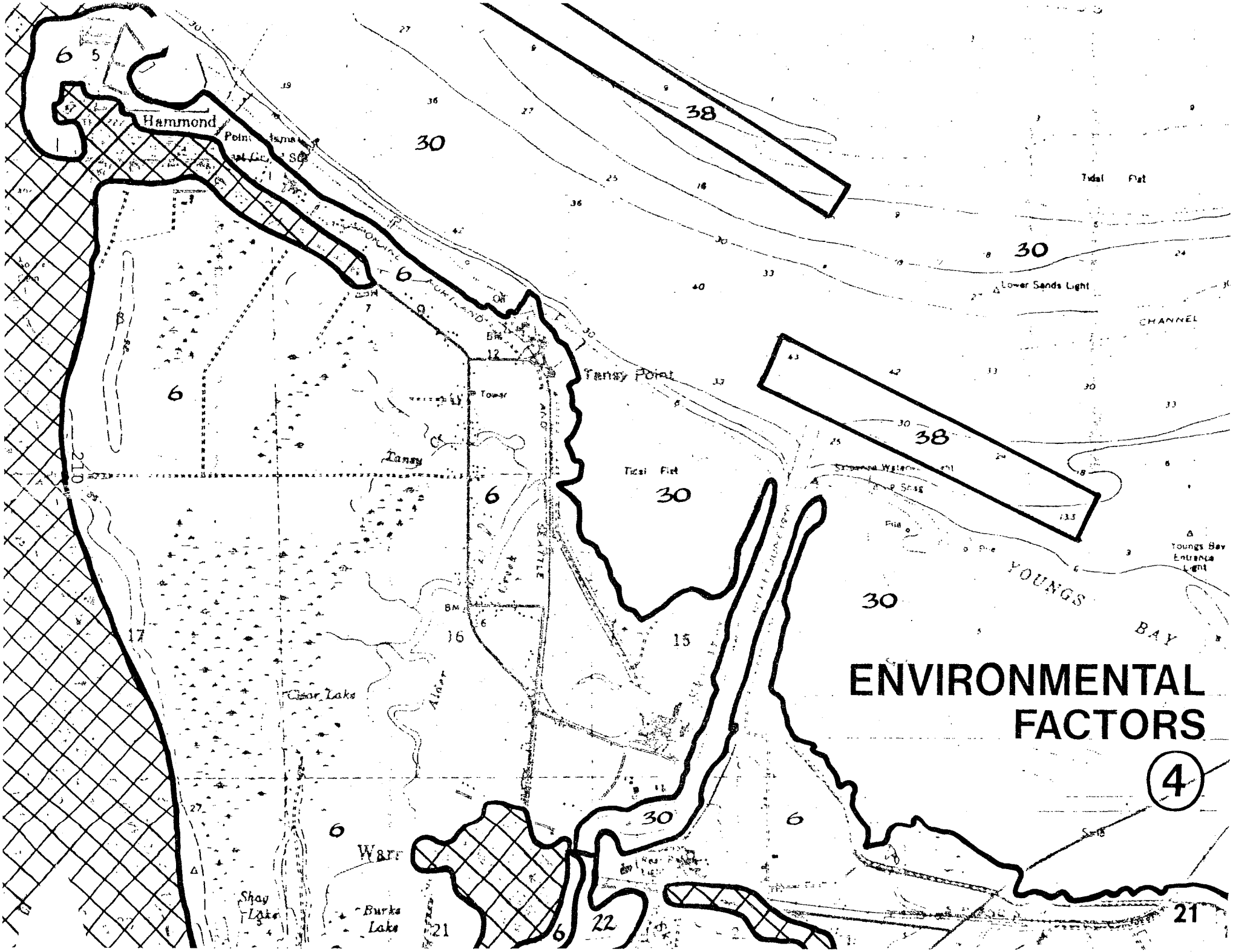
ENVIRONMENTAL RESEARCH SITES

Oregon State University


EXCLUSIONS
1
Point Adams
SPOKANE
PORTLAND
SEATTLE
Tansy Point
Tower
Tansy
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS
BAY
Sand
Skipanon Waterway
30 FEET JUNE 1940
Creek
Alder
Clear Lake
Warr
Shag Lake
Burke Lake
Skipanon Rear Range Light
S. PANUS
5
7
8
9
12
15
16
17
21
15

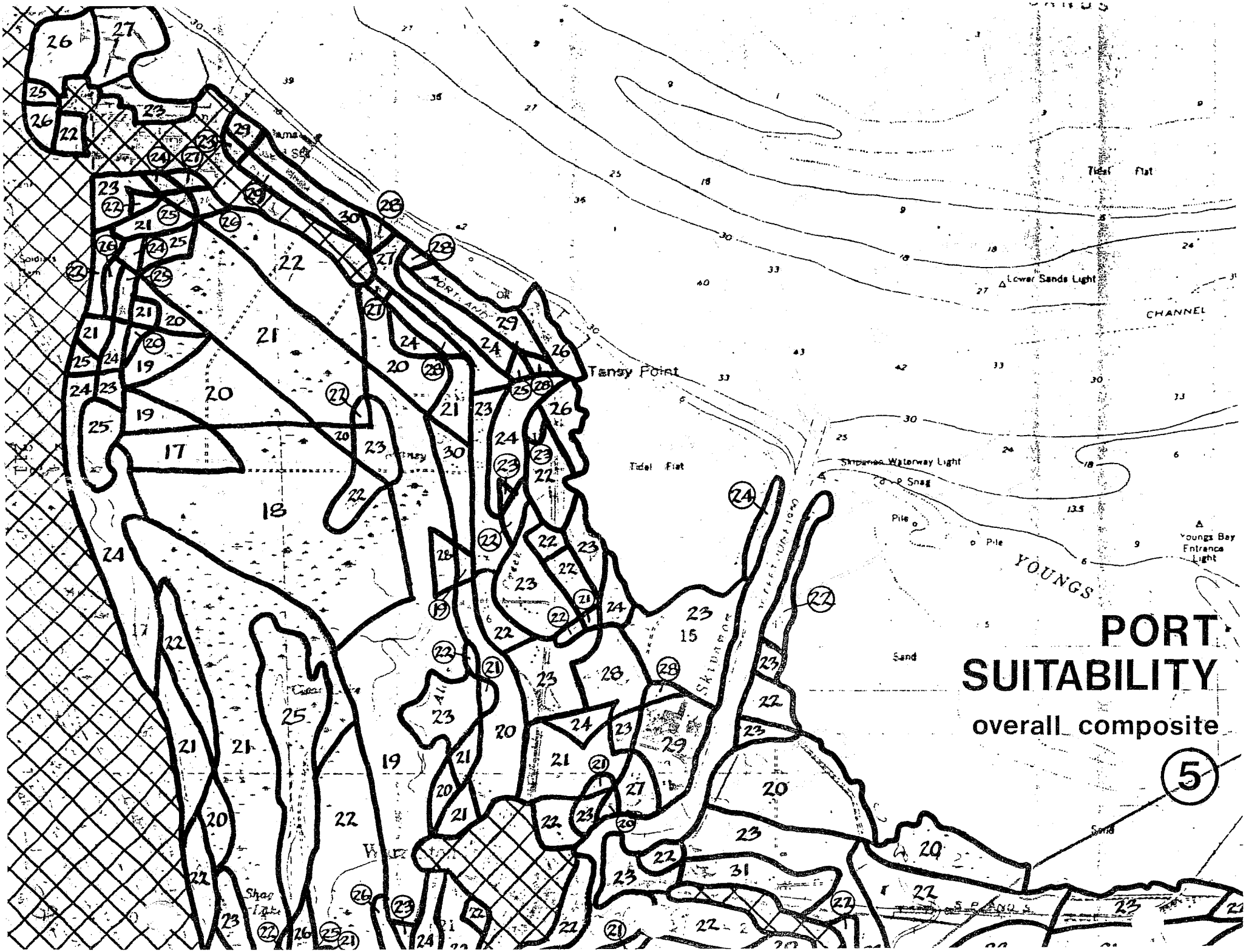

PHYSICAL FACTORS
2
Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS BAY
Sand
Creek
20
14
13
12
16
10
8
22
15
4
17

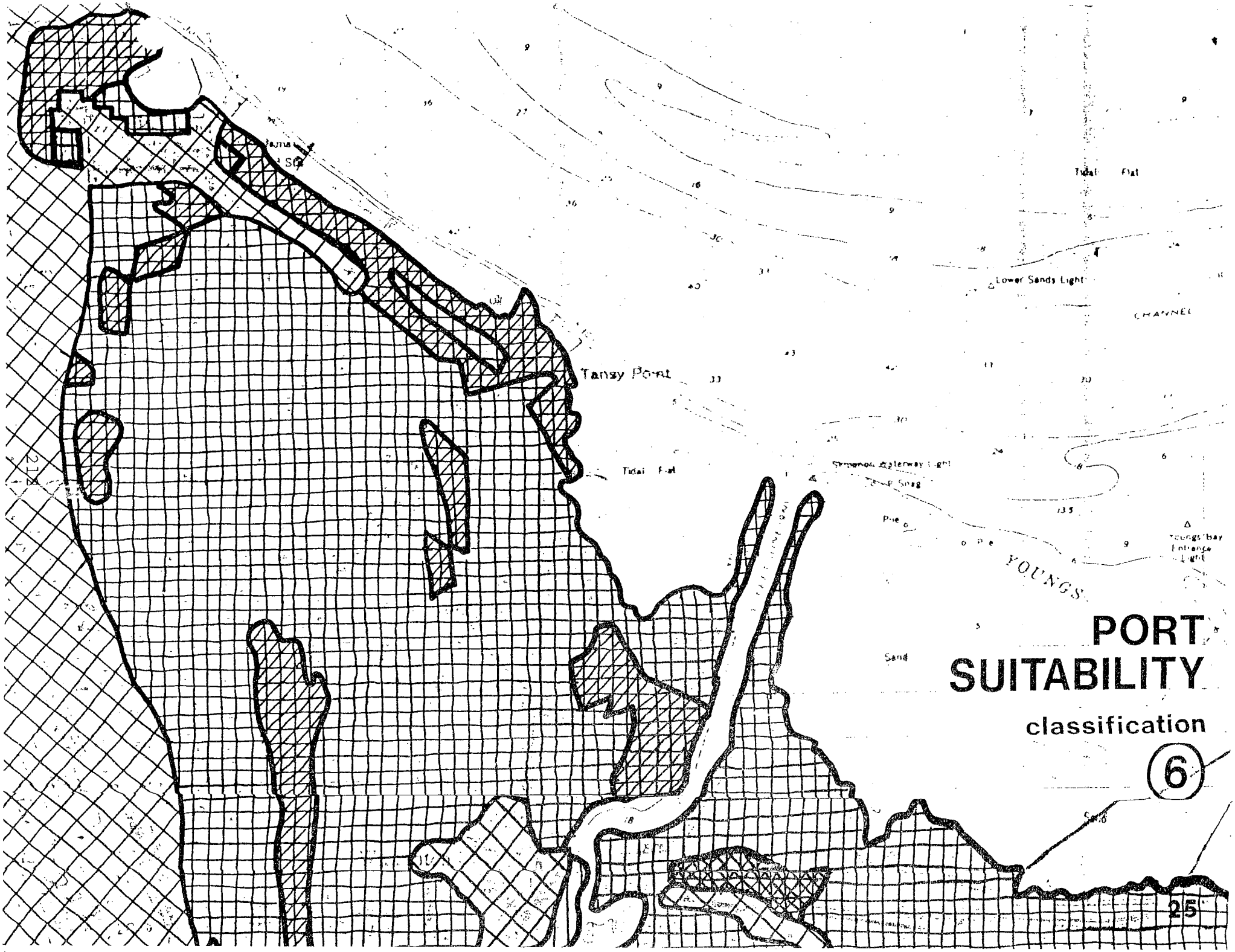

Tansy Point
Tidal Flat
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Pile
Youngs Bay Entrance Light
YOUNGS
BAY
Sand
Sand
CULTURAL FACTORS
3

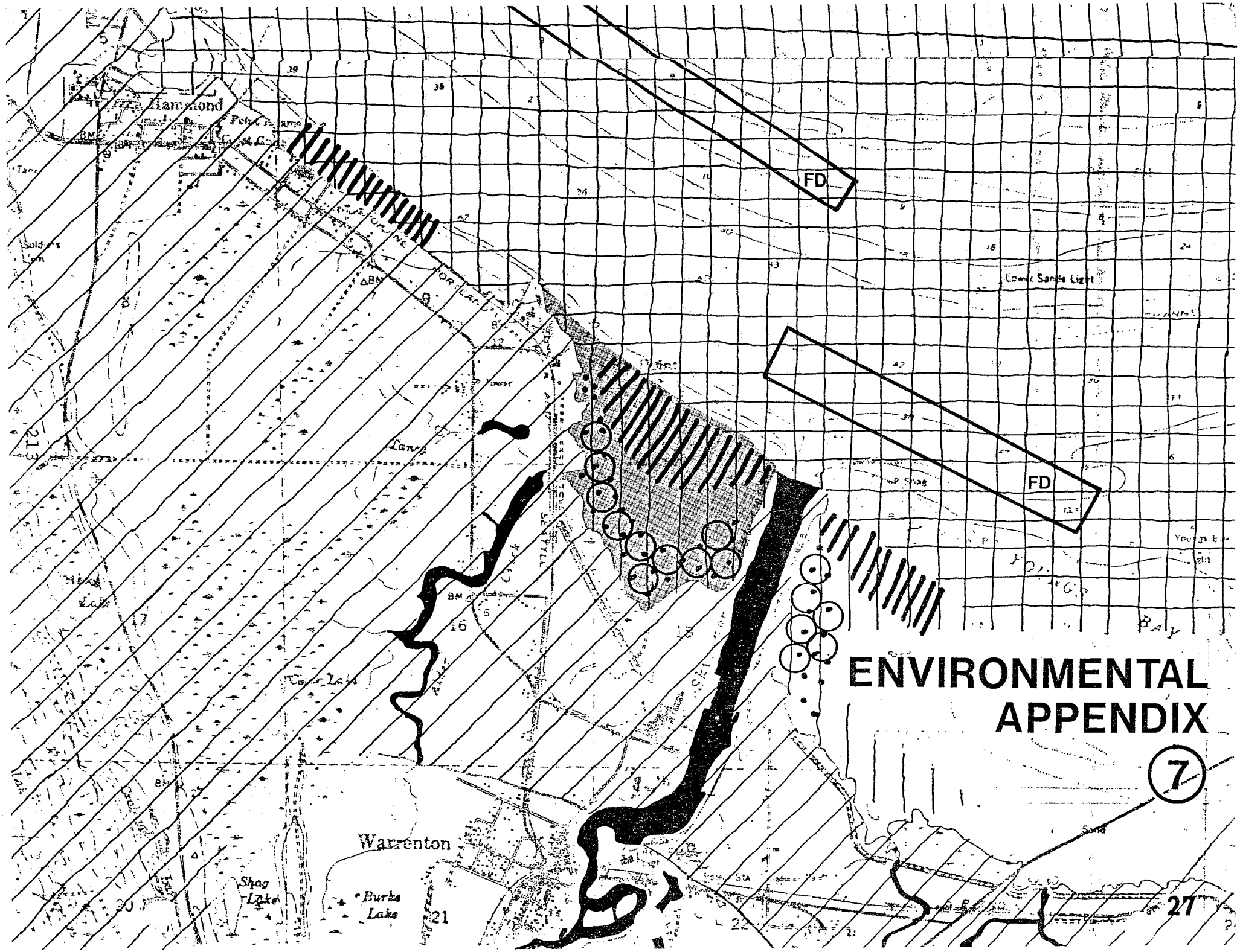


ENVIRONMENTAL FACTORS

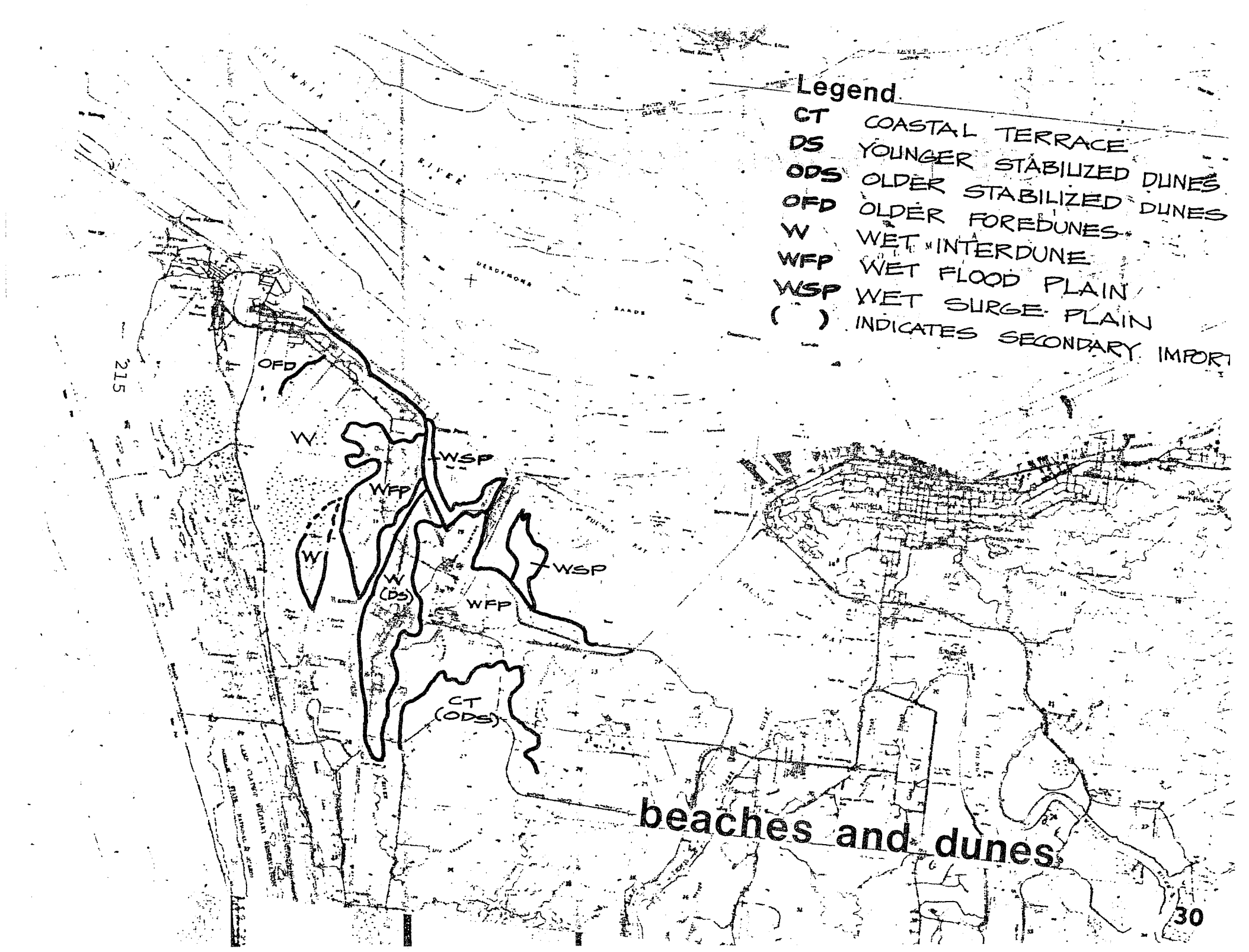
4


Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Skipanon Waterway Light
Snag
Pile
Youngs Bay Entrance Light
YOUNGS
Sand
PORT SUITABILITY
overall composite
5

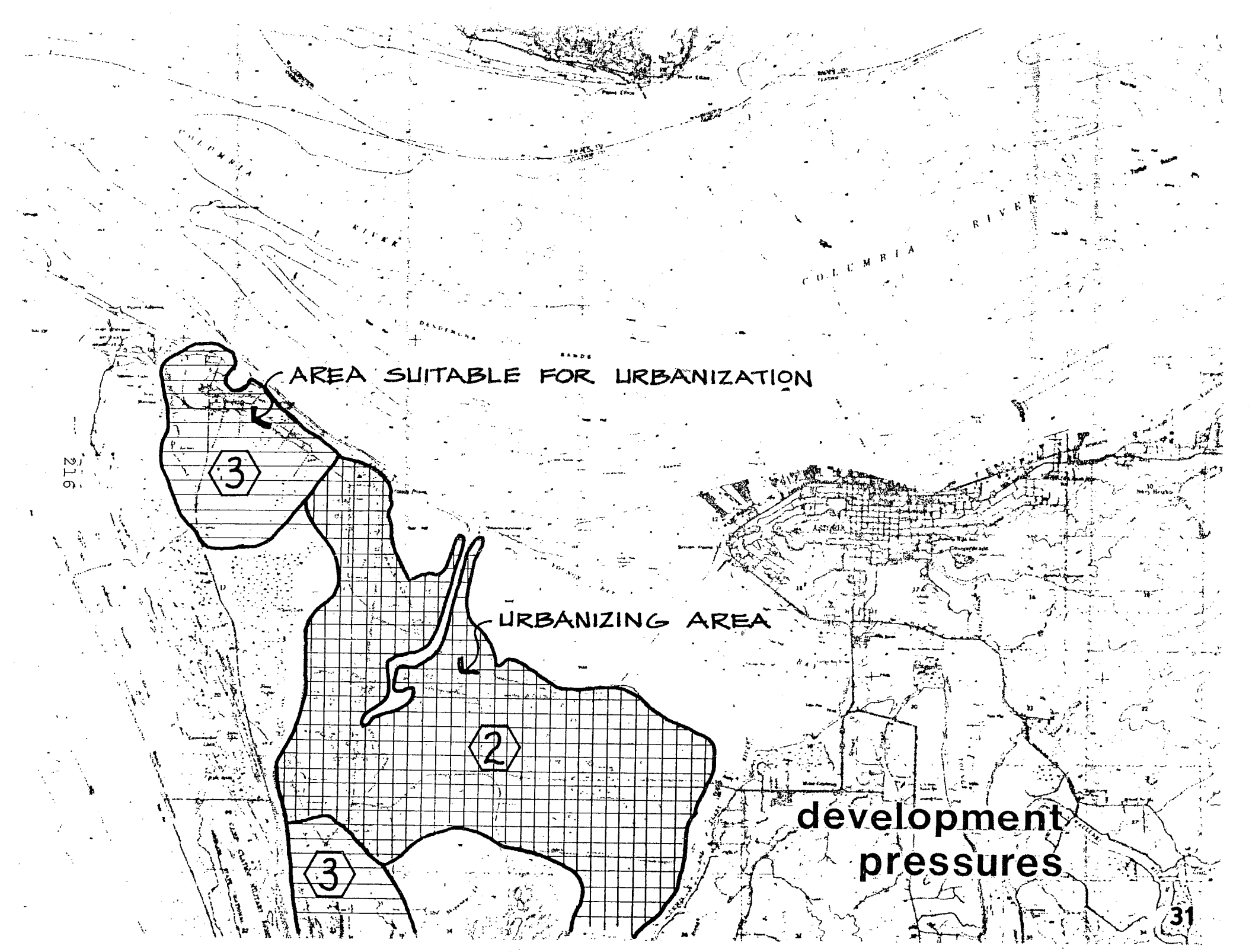

Tansy Point
Tidal Flat
Lower Sands Light
CHANNEL
Tidal Flat
YOUNGS
Sand
PORT
SUITABILITY
classification
6
25


Hammond
FD
FD
Lower Sands Light
Warrenton
Shag Lake
Burke Lake
ENVIRONMENTAL APPENDIX
7
27

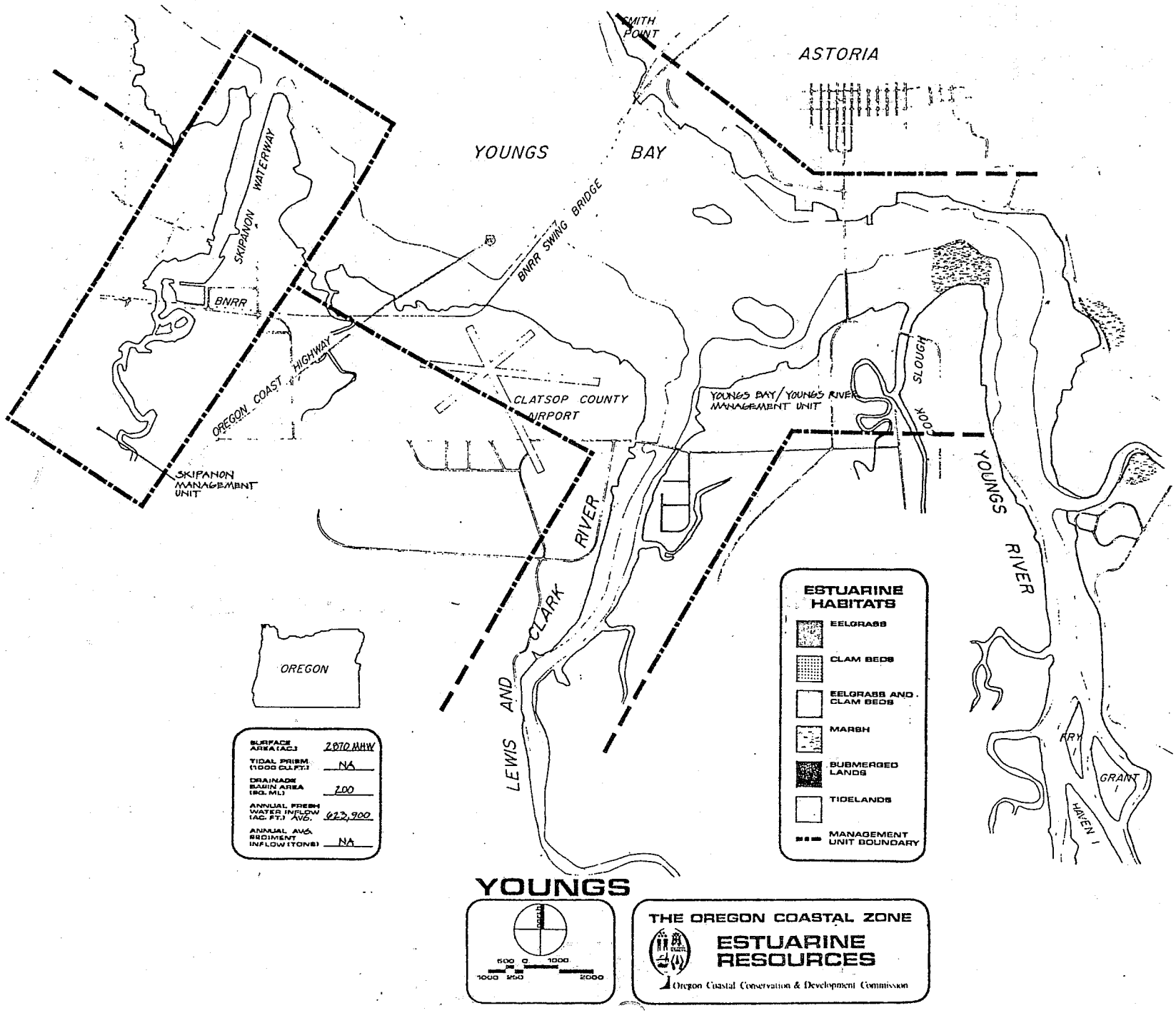
OCCDC INVENTORIES

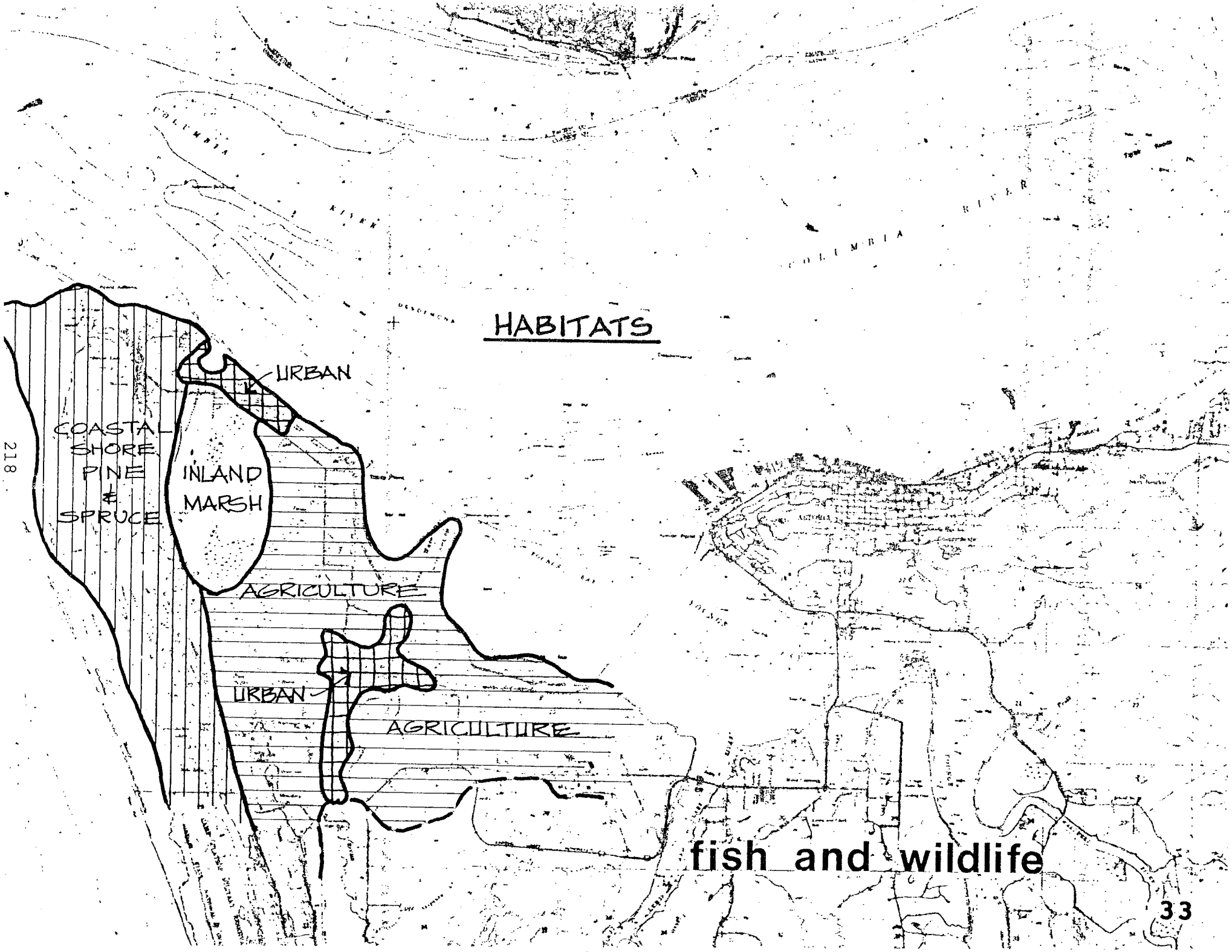


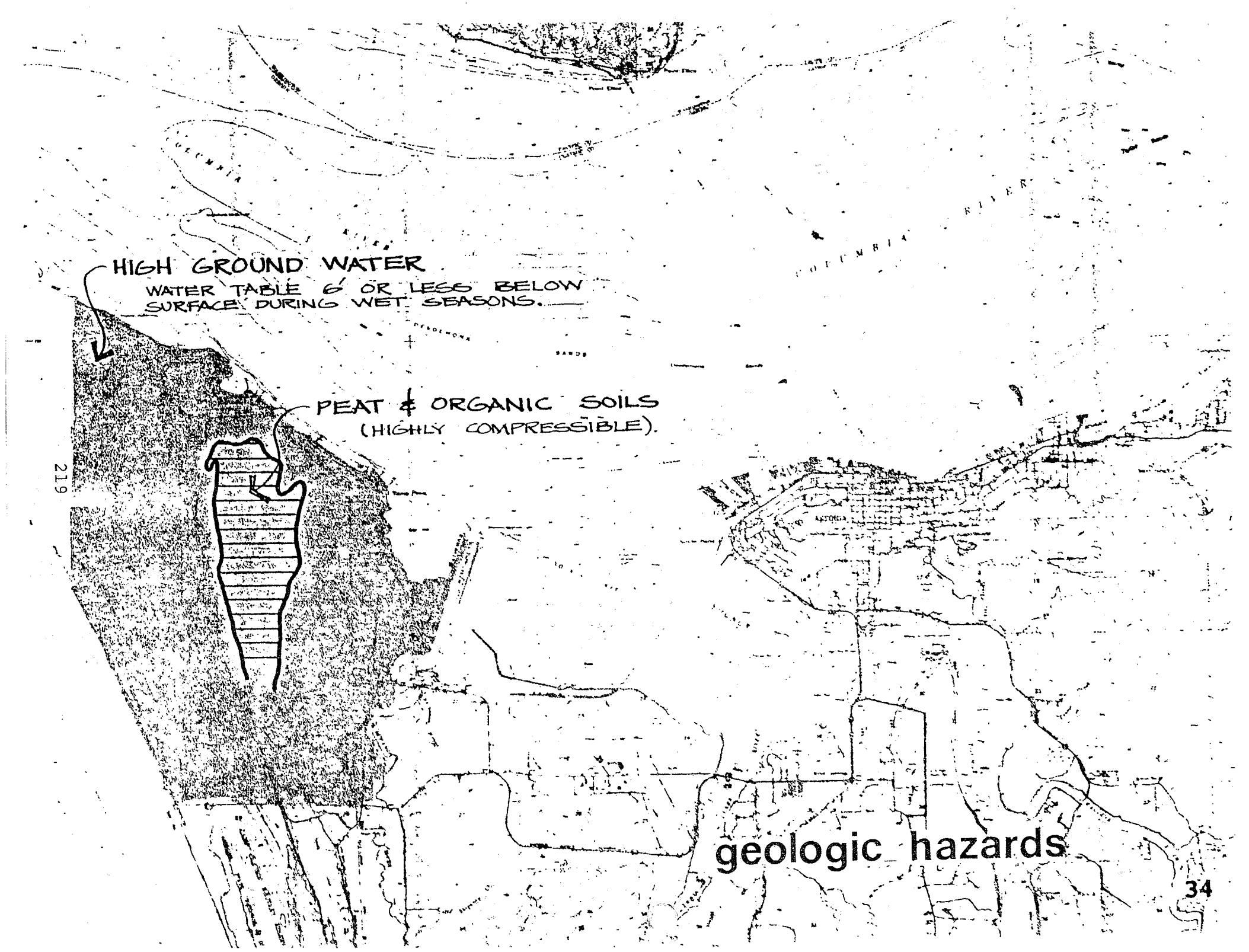
beaches and dunes

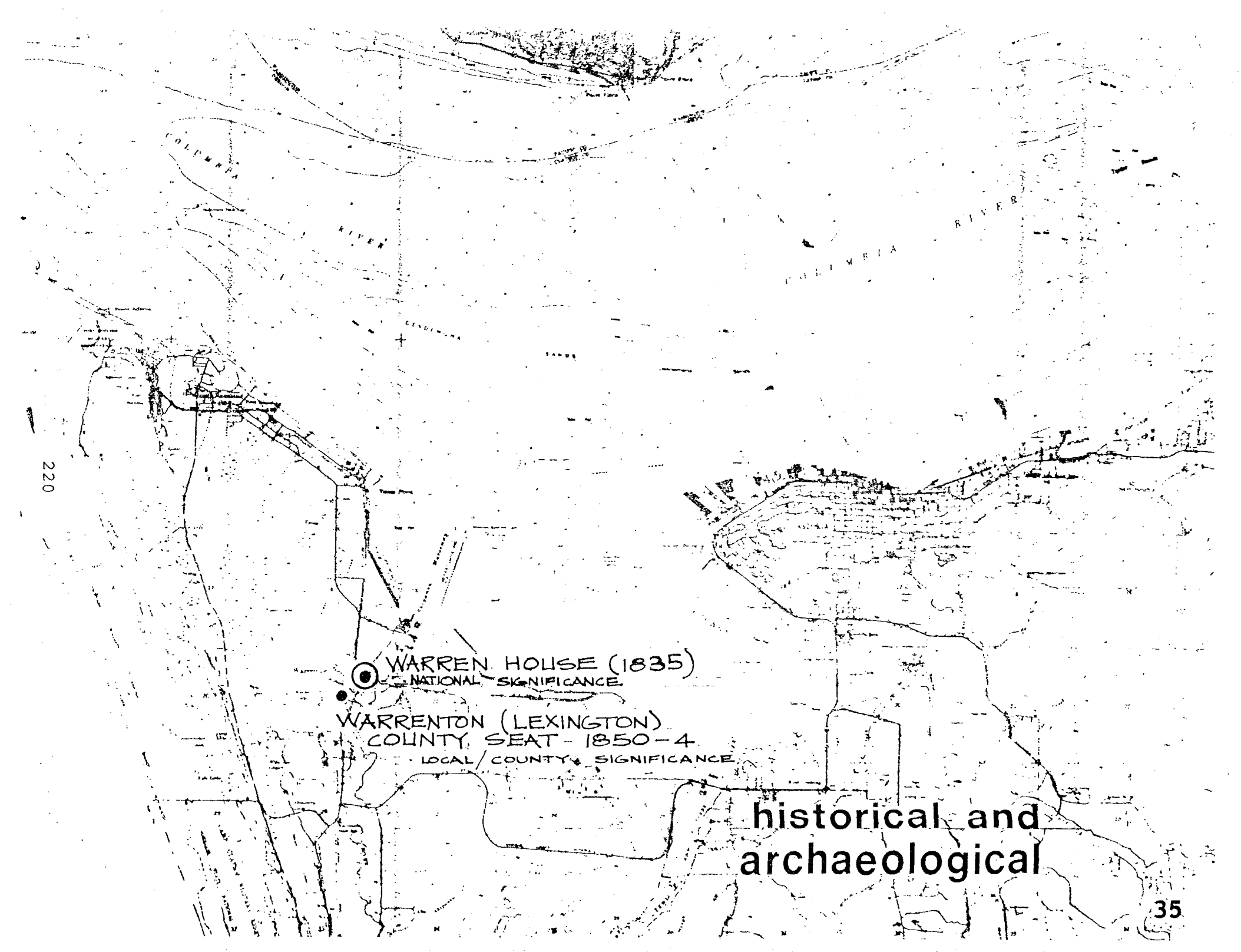


development pressures

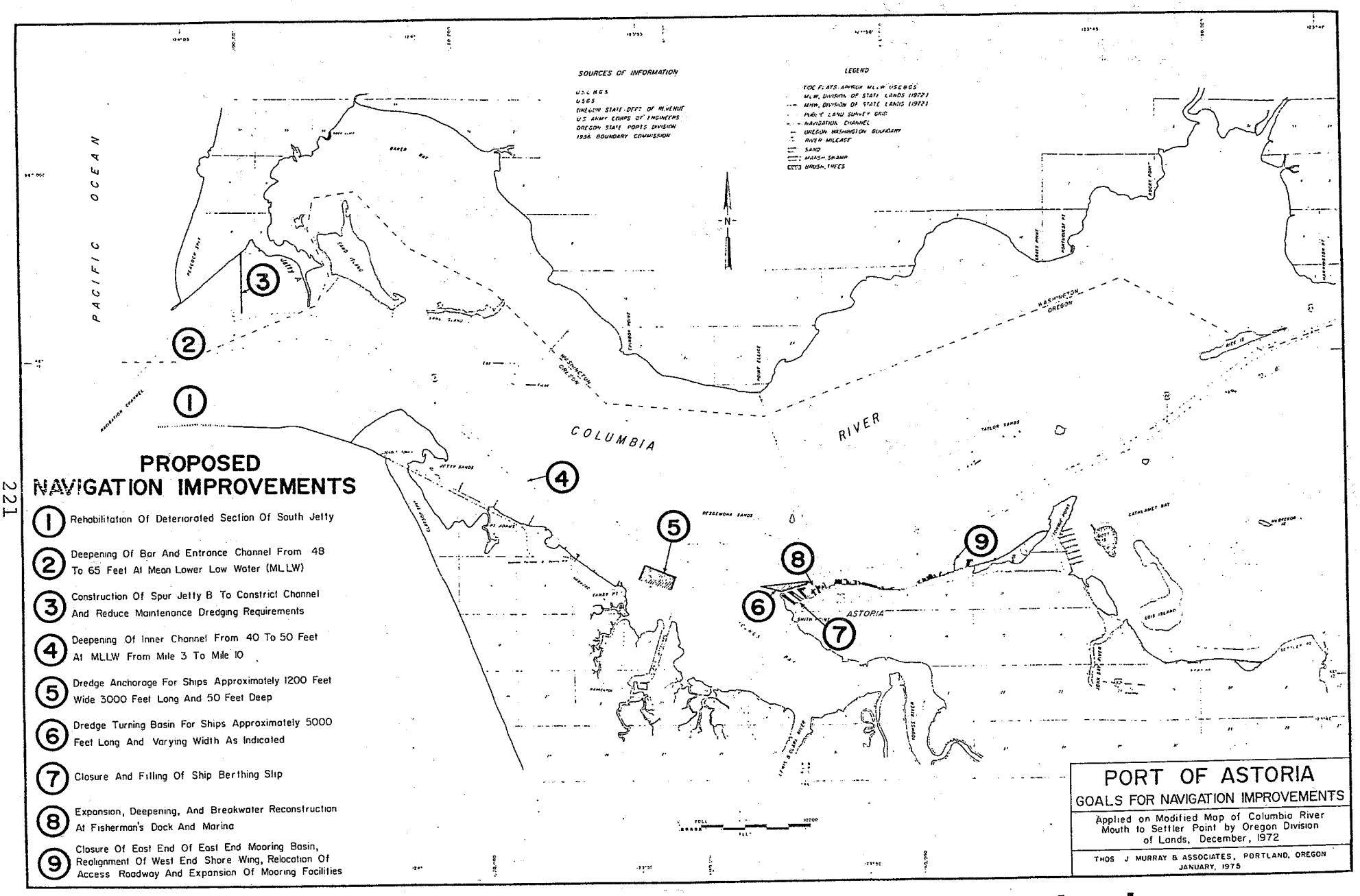

SMITH POINT
ASTORIA
YOUNGS BAY
SKIPANON WATERWAY
BNRR SWING BRIDGE
BNRR
OREGON COAST HIGHWAY
CLATSOP COUNTY AIRPORT
YOUNGS BAY/YOUNGS RIVER MANAGEMENT UNIT
SLOUGH
SKIPANON MANAGEMENT UNIT
LEWIS AND CLARK RIVER
YOUNGS RIVER
OREGON
SURFACE AREA (AC.) 2070 MHW
TIDAL PRISM (1000 CU.FT.) NA
DRAINAGE BASIN AREA (SQ. MI.) 200
ANNUAL FRESH WATER INFLOW (AC. FT.) AVG. 623,900
ANNUAL AVG. SEDIMENT INFLOW (TONS) NA
ESTUARINE HABITATS
EELGRASS
CLAM BEDS
EELGRASS AND CLAM BEDS
MARSH
SUBMERGED LANDS
TIDELANDS
MANAGEMENT UNIT BOUNDARY
500 0 1000
1000 250 2000
YOUNGS
THE OREGON COASTAL ZONE
ESTUARINE RESOURCES
Oregon Coastal Conservation & Development Commission


HABITATS
URBAN
COASTAL SHORE PINE & SPRUCE
INLAND MARSH
AGRICULTURE
URBAN
AGRICULTURE
218

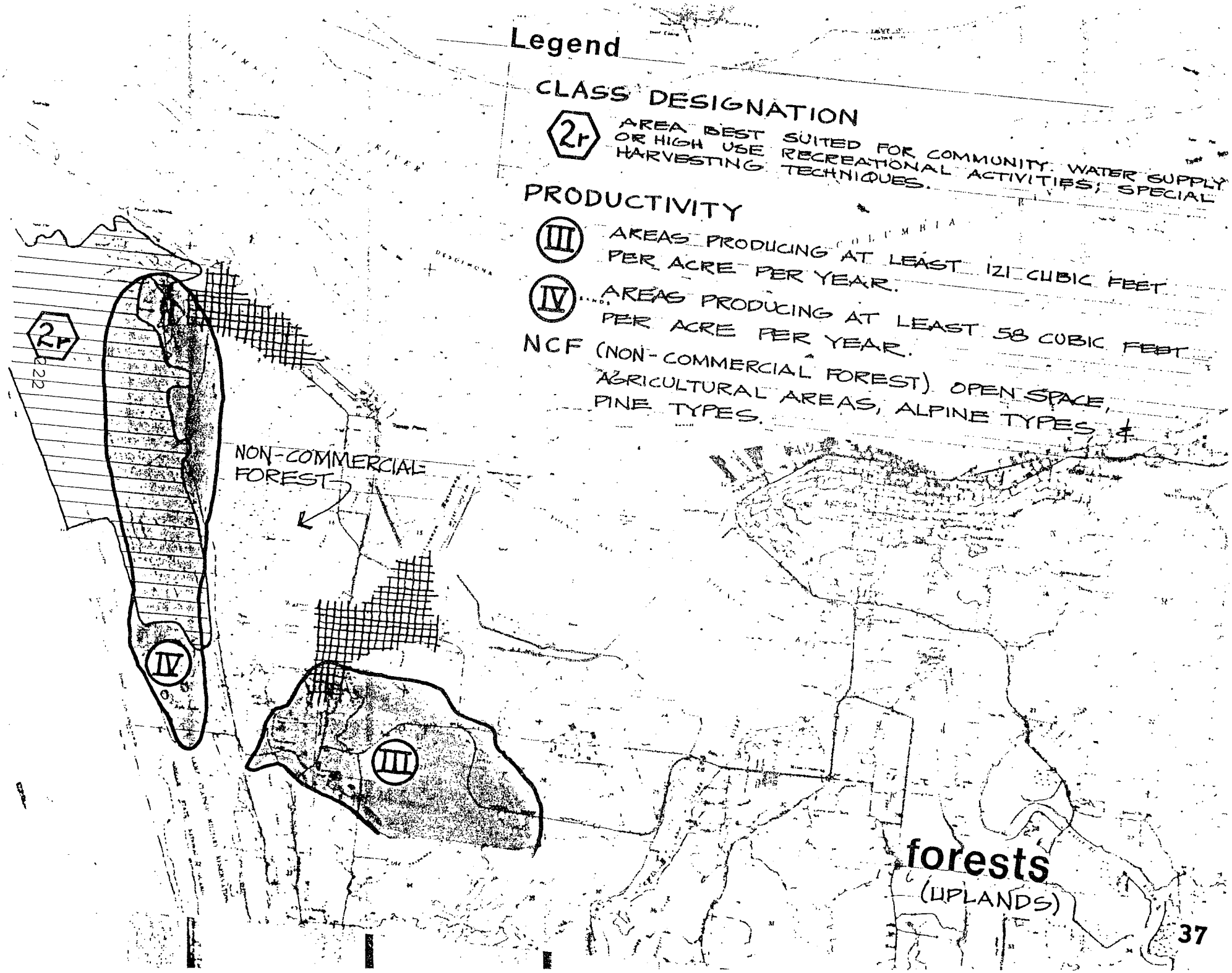

HIGH GROUND WATER
WATER TABLE 6' OR LESS BELOW SURFACE DURING WET SEASONS.
PEAT & ORGANIC SOILS
(HIGHLY COMPRESSIBLE).
219



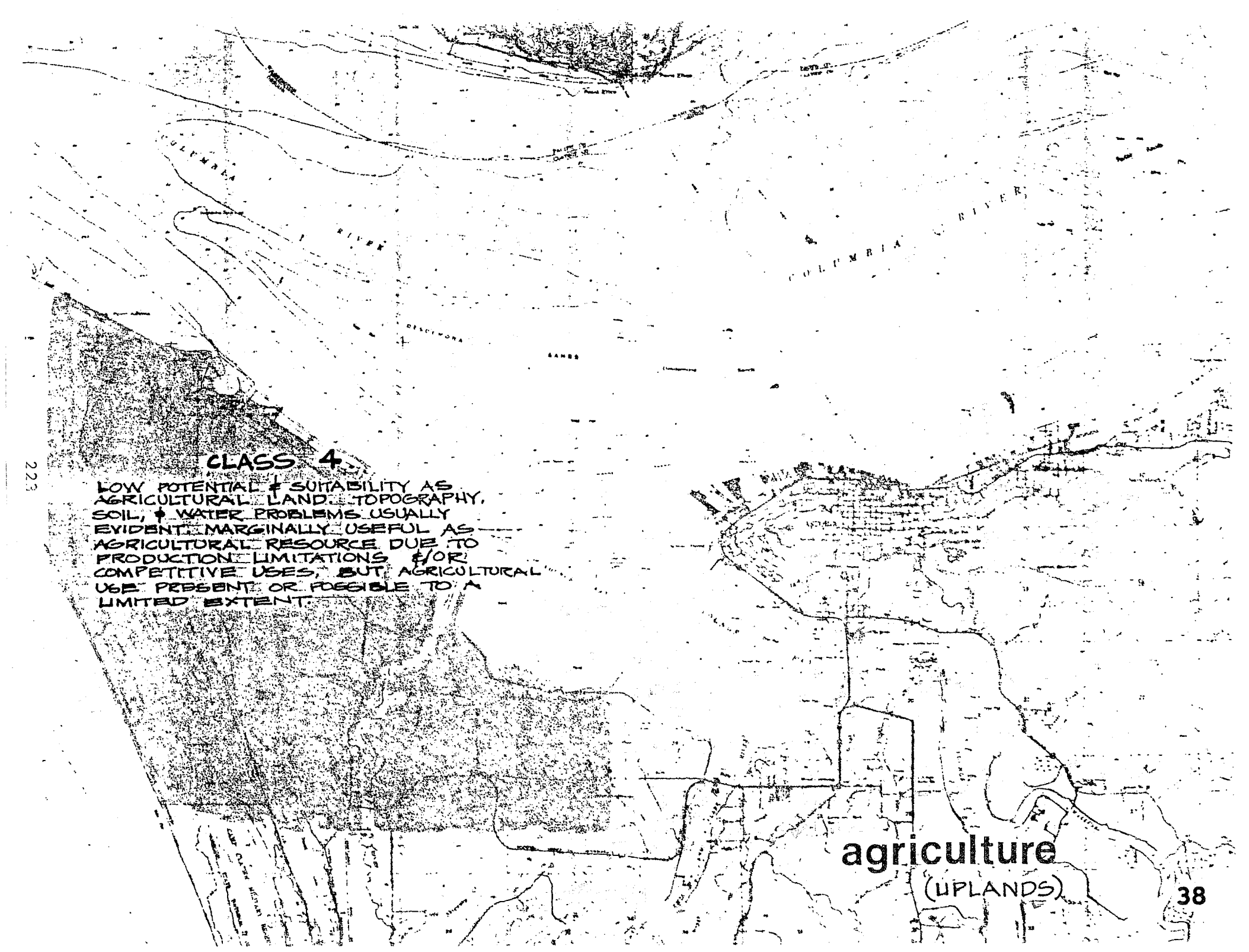
historical and archaeological

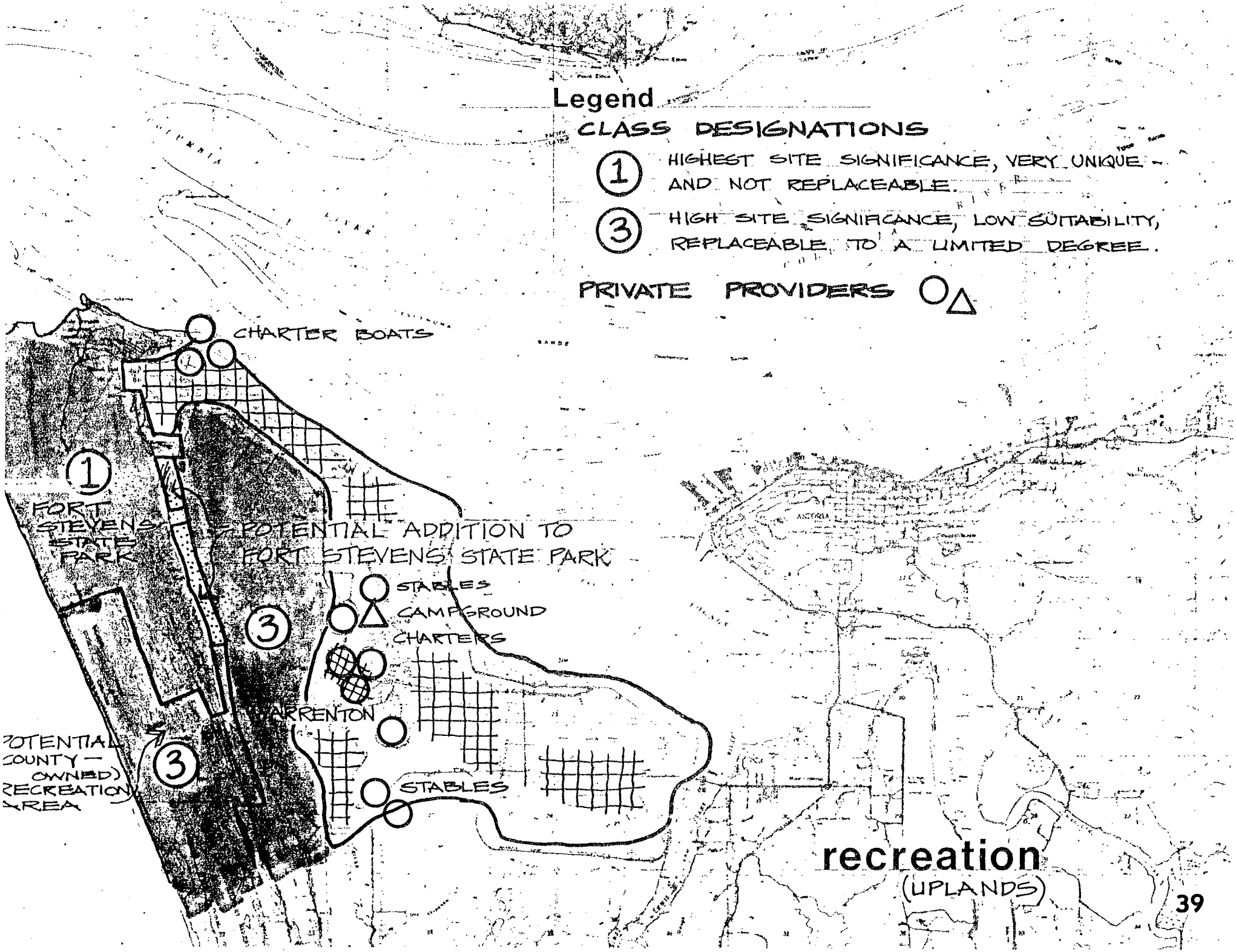

SOURCES OF INFORMATION
USCE NGS
USGS
OREGON STATE DEPT OF REVENUE
U.S. ARMY CORPS OF ENGINEERS
OREGON STATE PORTS DIVISION
1936 BOUNDARY COMMISSION
LEGEND
TIDE FLATS: ARMOUR MLLW USCEGS
MLW, DIVISION OF STATE LANDS (1972)
MHW, DIVISION OF STATE LANDS (1972)
PUBLIC LAND SURVEY GRID
NAVIGATION CHANNEL
OREGON WASHINGTON BOUNDARY
RIVER MILEAGE
SAND
MARSH SWAMP
BRUSH, TREES
PACIFIC OCEAN
COLUMBIA
RIVER
WASHINGTON
OREGON
ASTORIA
N
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

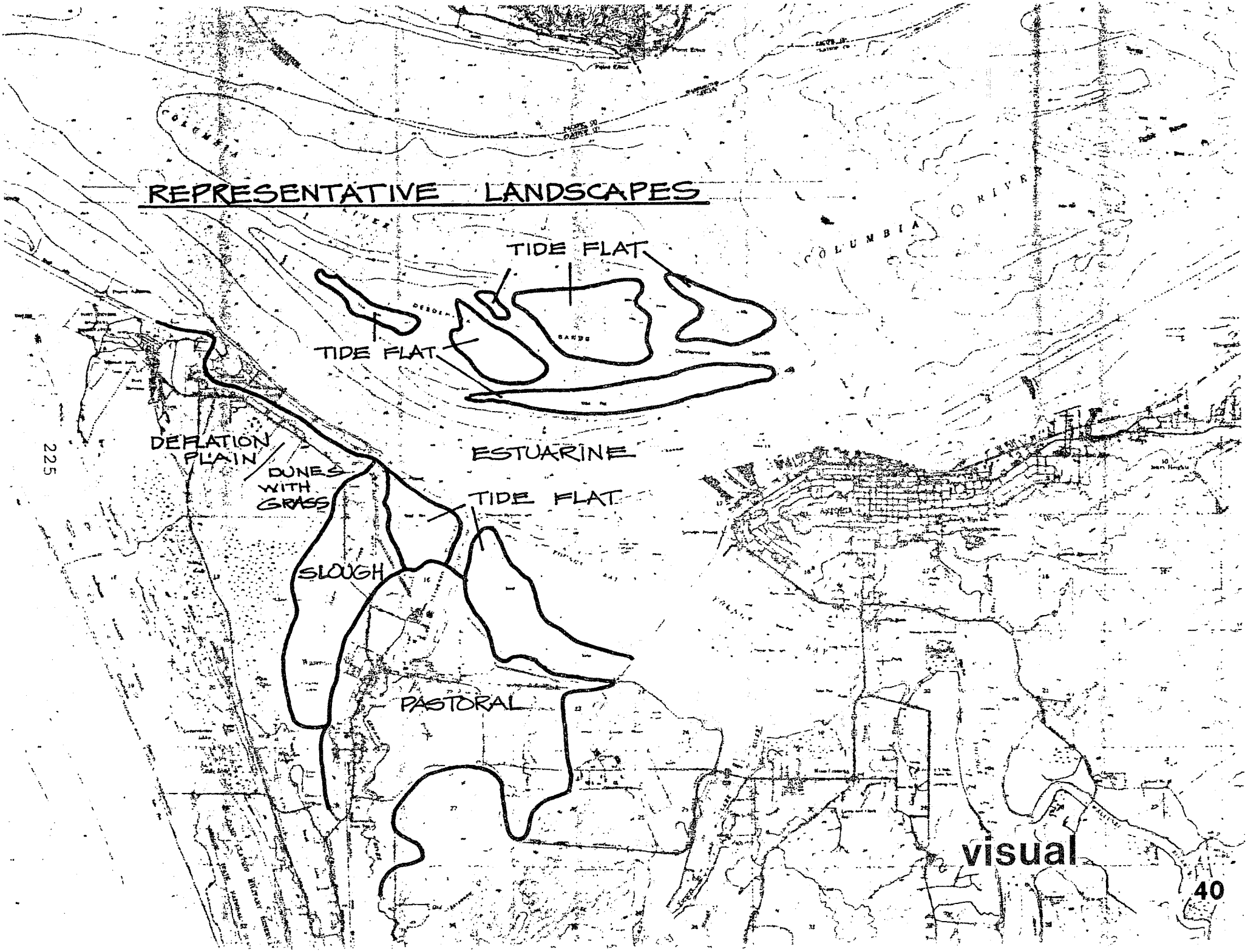
221



forests
(UPLANDS)


CLASS 4.
LOW POTENTIAL & SUITABILITY AS AGRICULTURAL LAND. TOPOGRAPHY, SOIL, & WATER PROBLEMS USUALLY EVIDENT. MARGINALLY USEFUL AS AGRICULTURAL RESOURCE DUE TO PRODUCTION LIMITATIONS &/OR COMPETITIVE USES, BUT AGRICULTURAL USE PRESENT OR POSSIBLE TO A LIMITED EXTENT.
COLUMBIA RIVER
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
WARRENTON
STABLES
POTENTIAL (COUNTY-OWNED) RECREATION AREA
3
recreation
(UPLANDS)


REPRESENTATIVE LANDSCAPES
TIDE FLAT
TIDE FLAT
DEFLATION PLAIN
DUNES WITH GRASS
ESTUARINE
TIDE FLAT
SLOUGH
PASTORAL
COLUMBIA RIVER
225

visual

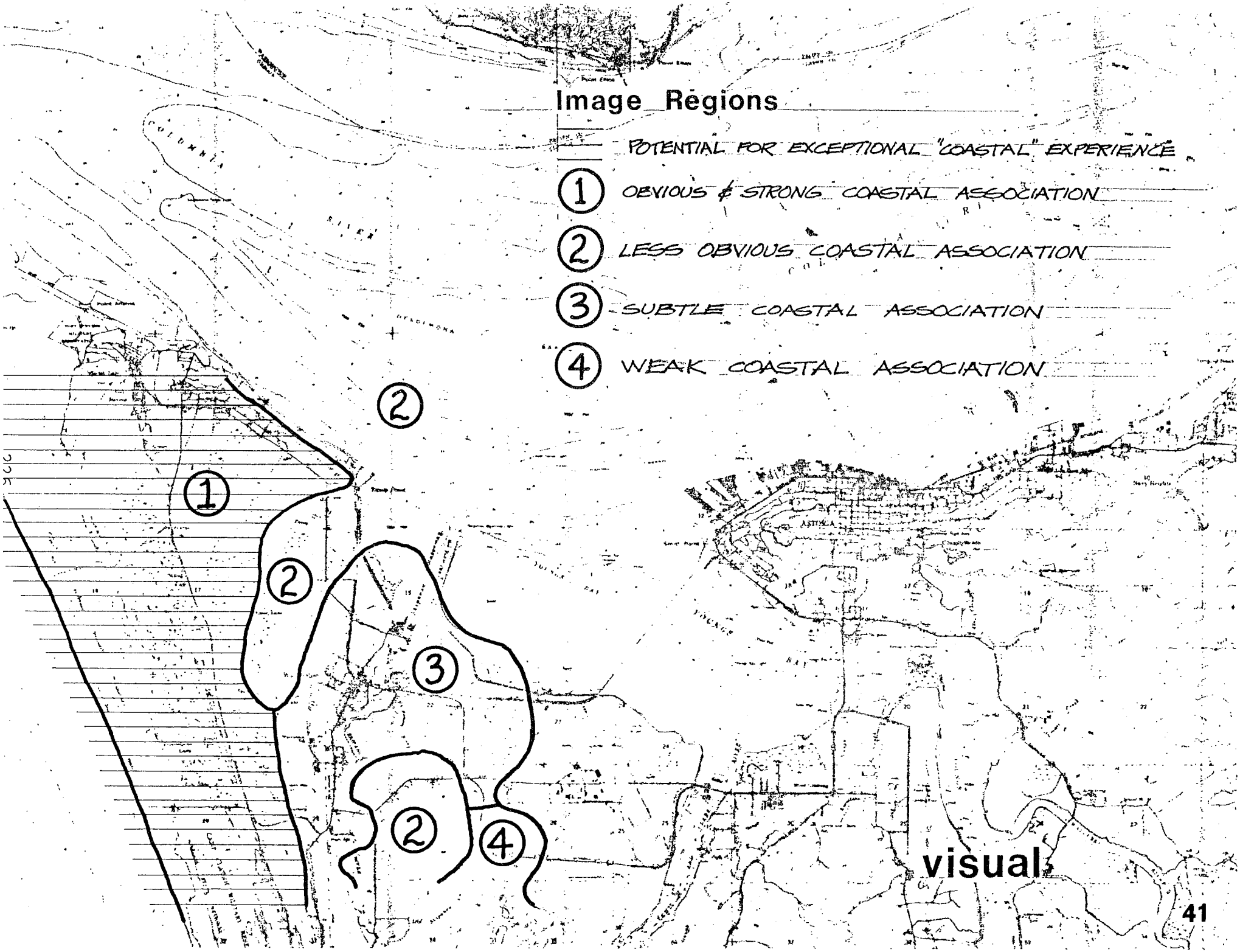


Image Regions
POTENTIAL FOR EXCEPTIONAL "COASTAL" EXPERIENCE
1 OBVIOUS & STRONG COASTAL ASSOCIATION
2 LESS OBVIOUS COASTAL ASSOCIATION
3 SUBTLE COASTAL ASSOCIATION
4 WEAK COASTAL ASSOCIATION
1
2
2
3
2
4

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
Devils Lake
Sutton Lake
Mercer Lake
Collard Lake
Lily Lake
Clear Lake
Munsel Lake
Cleawox Lake
Woahink Lake
Siltcoos Lake
Tahkenitch Lake
Eel Lake
North Tenmile Lake
Tenmile Lake
Floras 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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