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An Introduction to the Maine Coastal Plan

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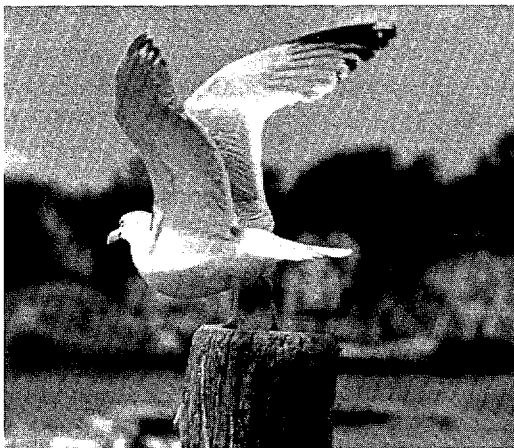
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An Introduction to the Maine Coastal Plan

November 20, 1974

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*Why is the sea king of a hundred streams?
Because it lies below them.
Therefore it is the king of a hundred streams.
If the sage would guide the people, he must serve with
humility.
If he would lead them, he must follow behind.
In this way when the sage rules, the people will not feel
oppressed;
When he stands before them, they will not be harmed.
The whole world will support him and will not tire of him.
Because he does not compete,
He does not meet competition.*

— Lao Tsu

From a translation by Gia-fu Feng and Jane English, *Lao Tsu: Tao Te Ching*; Reprinted with the permission of Random House.



State of Maine
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PHILIP M. SAVAGE
STATE PLANNING DIRECTOR

October 15, 1974

To the Governor, Legislature and People of Maine:

This report on the Coastal Planning Operation of the Maine State Planning Office represents a triumph of persistence. Since June 1969, the State Planning Office has attempted to obtain the support of the State and Federal government for this vital task. State support was realized in 1973 and Federal support in the form of the National Coastal Zone Management Program was finally produced in March of this year.

This continued and persistent emphasis on the coastal zone by the State Planning Office reflects the obvious fact that this zone is one of the most valuable features of our State and the Nation. The great number of activities, by an increasing number of users, that focus on the coastal zone has and will continue to generate important issues, many conflicts and sharp controversies at the local, regional, State, national and even international levels.

These issues and conflicts over environmental protection, economic development, and utilization of resources can best be solved by a unified management approach including full public participation and the application of the latest planning and management techniques. As the first step towards a viable management system, we are attempting to illuminate our understanding of the interactions between natural and artificial systems in this zone. In considering the relevant features of the coastal zone we must; therefore, clearly indentify the relationships between the basic physical characteristics of our coastal environment and those human activities requiring management control.

It is our main responsibility as planners to make these conflicting problems and demands of the coastal zone more manageable by acquiring, analyzing and presenting for the use of the decision-makers at all levels of government a qualitative understanding of the program elements and their relationships. This publication is part of a continuing effort to achieve progress toward this objective.

Sincerely,

Philip M. Savage
State Planning Director



Martin Meltz

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Map of Maine

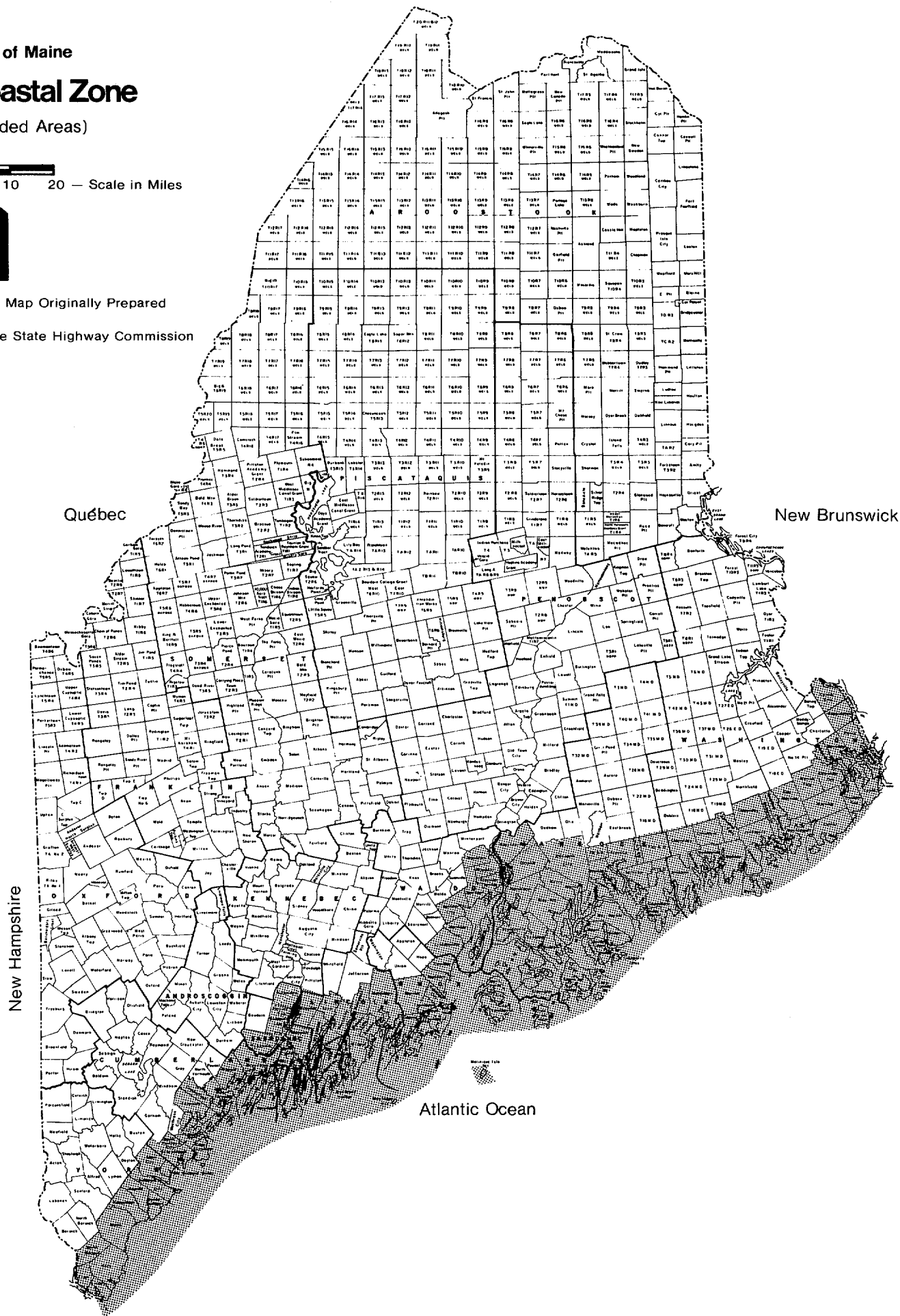
Coastal Zone

(Shaded Areas)

0 10 20 — Scale in Miles



Base Map Originally Prepared by
Maine State Highway Commission



Preface

Planning for the Future of Maine's Coast — It's Your Job Too

The purpose of this publication is to acquaint people interested in the Maine coast with some of the thought and effort currently underway here in the Coastal Planning Group of the State Planning Office.

We are not strangers to the task of planning for the future of the Maine coast. At a professional level, coastal planning has been underway at least since 1969, when its importance was underscored by the initial "Maine Coastal Development Plan — Work Program."

But there is a non-professional aspect of planning which needs to be stressed. For it is true that no plan, however well conceived, will ever make it off the shelf without full public awareness and support.

Therefore, we offer you, in this publication, a chance to view our planning process. And we urge you to provide us with the benefit of your knowledge and opinion.

In this way we, as your public servants in the area of planning, will have your help in shaping the Maine Coastal Plan into a living expression of the policy of the people of the State of Maine toward this bountiful resource, Maine coast.

Ronald Poitras, Supervisor
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Introduction

The Maine Coastal Plan: What Is It?

The Maine Coastal Plan can be many things to many different people. To Selectmen or Planning Board members, it may represent the first time so much data has been gathered about their town's land and resources; data useful in making town plans and ordinances.

To the conservationist, it may represent a careful inventory of areas along the coast worth preserving. To the developer, it may provide clues as to where development activities can take place without undue restriction.

To the state or federal agency, it may represent a detailed policy guideline for the state and national interest in Maine's coast, along with detailed resource information to guide governmental regulatory and management activities.

And to the resident or visitor, it may represent the first time he has come across a unified explanation of all the competing forces for change or stagnation which are shaping the future of the coast he knows and loves. Understanding these forces, he will be able to direct his own future with more success.

In common with the legislative description of a comprehensive plan, the Maine Coastal Plan is not so much a single document, but a process wherein: (1) data is gathered and analyzed, (2) the facts made known to the citizen, (3) a decision is made as to the desirable future of the coast and (4) the logical steps to proceed towards achieving that future are outlined.

For example: Tidal marshes will be located and mapped and their wildlife and fisheries value described by professional staff. This inventory information is taken to the public, which then may decide that an area as rich in the wildlife and fishery resources as a tidal marsh is desirable to keep unaltered. The steps toward achieving that future may include local plans and ordinances, state regulations or acquisition to protect the marsh area.

Sometimes, the need for a particular land use decision becomes apparent before any resource information is gathered or presented to the public, as in recent attempts to locate suitable sites for heavy industry. Maine has economic needs, as everyone knows, and with adequate information suitable sites can be sought which are most compatible with land and resource limitations.

It is important to stress that the Maine Coastal Plan is — and shall continue to be — the result of cooperation and interaction between individual citizens, private groups, and all levels of government — local, regional, state and federal. No one unit of this partnership has a monopoly on which direction we should take.

The Maine Coastal Plan, then, is a continuing process important to the future of our State, and which will unfold for you through the pages of this explanatory booklet.

Historical Development of the Maine Coastal Plan

The following events have marked the passage of time in the progress of the Maine Coastal Plan:

- 1969** Formulation of purpose and procedures by Maine State Planning Office: "Maine Coastal Development Plan — Work Program." (November, 1969).
- 1970** Formation of State Coastal Advisory Task Force — representing state agencies, research institutions, and private conservation interests. The Task Force was provided with financial assistance from the New England Regional Commission and has met several times over the last few years.



June 1970

Publication of findings of Task Force — this Task Force delineated the boundaries of the coastal zone, defined the goals and objectives for the Maine Coastal Plan, and outlined in general terms how the Plan was to evolve.

July 1971

Publication of the *Maine Coastal Resources Renewal Plan*, a research project dealing with possible aquaculture, energy, and recreational uses of the Maine coast, what their impacts might be, and offering some solutions to resolving siting problems. This also was funded by the New England Regional Commission.

August 1972

Publication of the *Penobscot Bay Resource Plan*. The Penobscot Bay was the pilot area in which the methodology of the Maine Coastal Plan was tested and refined. Publication of the Report of the Governor's Task Force on Energy, Heavy Industry and the Maine Coast, which recommended the establishment of only two zones for oil and heavy industrial development, namely Portland and Machias. These efforts received financial assistance from the New England Re-

January 1973

gional Commission and the federal Department of Housing and Urban Development.

Delay in the planning process caused by impoundment of funds. During this period of "stormy weather," however, the Coastal Planning staff proposed suggested revisions to the Acadia National Park Master Plan, prepared a draft Environmental Impact Statement for the proposed Park plan and developed approaches for getting the public involved. The Acadia project, funded by the National Park Service, is now complete.

March 1974

Federal support by a grant under the Coastal Zone Management Act of 1972 to push the Plan to completion within a two-year period. This is the subject of this report. The grant for \$230,000 was matched with state and local funds for a total project amount of \$345,000.



Alda Stich

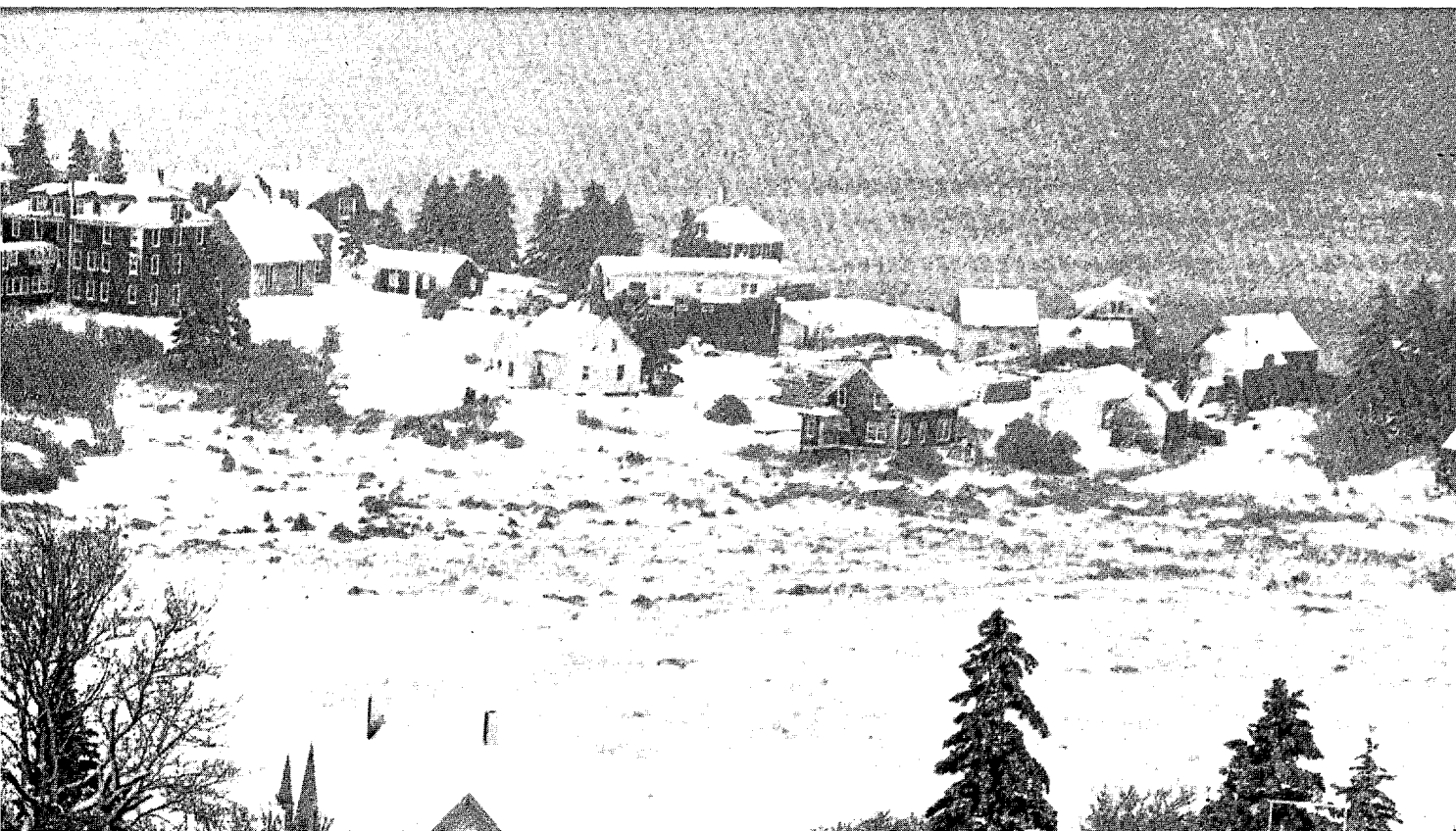


Current Status of the Maine Coastal Plan

Creation of an adequate plan for the whole coast of Maine is an undertaking of noble proportions. There are 139 municipalities involved, and 4,058 miles of coastline ranging from urban industrial character to wilderness. Many persons, corporations and communities have an intense interest in the coast and its future, from seekers of solitude to seekers of profit. Development pressures related to the siting of energy facilities on the Maine coast have become particularly intense since the "energy crisis."

Maine is not unique by any means in feeling the effects of these conflicts between competing uses of the coast. Nationally, even worldwide, the bulk of the population expansion is occurring in the coastal zone. This is because most major cities developed in the coastal areas. The pressure has intensified in the United States due to the decline in our rural communities: jobs are generally more available in the cities, and hence in the coastal zone. In some parts of our country (the Mid-Atlantic states, for example) pressures on the use of every available square foot of land have led some engineers and industrialists to think it might be cheaper to build manufacturing plants, or even neighborhoods, on artificial floating islands!

While the intensity of pressure on the Maine coast has nowhere reached these proportions, considerable pressure from several fronts has pushed the value of coastal land to alltime highs and greatly accelerated the development of coastal lands. Coastal planning is an attempt to sort out these conflicts and pressures. These concerns provided the motivation behind the original Task Force and continue to provide impetus to the current efforts of the Coastal Planning Group.



Martin Meltz

The goal and objectives of the Maine Coastal Plan were carefully delineated in the report of the original Task Force (June, 1970) and for the most part apply equally well today. They are:

Goal: To develop a comprehensive plan providing for compatible and multiple uses of the coastal zone, optimizing those intrinsic and real values assuring the greatest long-term social and economic benefits for the people of the State of Maine.

Objectives:

1. Inventory coastal resources and existing uses.
2. Develop a resource classification system with appropriate uses and development standards as a basis for regulating activities within the coastal zone.
3. Identify areas of major and impending conflicts and indicate priorities for immediate action.
4. Propose regulations and controls to ensure that coastal resources will be used in a manner that is consistent with their natural

character and ecological relationships.

5. Elicit public views and interests through public hearings and other concurrent planning.
6. Coordinate efforts with other New England coastal states.
7. Propose institutional arrangements, state legislation, and local ordinances necessary to implement the Maine Coastal Plan.

As will be seen through reading of this report, the following objectives from the above list will be completed by December of 1975: (1) Resource Inventory, (2) Classification, (3) Identification of Conflict Areas (Areas of Major State Concern) and (6) Coordination with other New England states. Objectives (4) Proposed Regulations, and (7) Proposed Institutional Arrangements, are essentially questions of public policy which depend in large part upon objective (5) Public Input. These public policy aspects of the Maine Coastal Plan are also covered in this report.



Lynn Franklin

Methodology of the Maine Coastal Plan

Methodology of the Maine Coastal Plan

Part 1: The Natural Resources Inventory

A complete and detailed inventory of resources is of critical importance to planning, but such inventories are time-consuming and expensive to produce. Frequently, the services of scientists and expert technicians are required. Local and regional planners are often unable to make land use decisions because they lack sufficient funds to obtain necessary resource information.

It is the philosophy of the Coastal Planning Group that actual planning decisions *should* be made at the local or regional levels, with only limited state guidance. One of the services which we as professionals can provide to assist in the decision-making process, is the detailed resource inventory.

For the coastal area of Maine, data on the following natural resources are being gathered and mapped:

Geological Resources

- Slopes

Hydrology

- Drainage/watersheds

- Groundwater

- Water Quality Classification

- Coastal lakes

Land Use Cover Types

Living Resources

- Wildlife Habitats

- Marine Environments

- Marine Resources

Scenic Resources

Recreational Resources

For many of these resource categories, actual field investigations have been necessary as the data has never before been gathered for the Maine coast. In addition to this original work, the maps themselves represent the first time that most of the information necessary for planning has been gathered together in one place and mapped at one scale, which is useful in visualizing the interrelationships of these resources.

A Word about Scale:

The scale which the Coastal Planning Group has chosen to use in mapping this resource information is one inch equals 4000 feet (1:48,000). For certain urbanized areas of the coast, this scale may not appear to be sufficiently detailed. For other rural coastal areas, the level of detail is greater than any map heretofore available.

The Coastal Planning Group recognizes that for specific site plans, our mapping scale is not sufficiently detailed. But it does provide, we think, a useful framework for identification of areas which are a resource to the state or region as a whole.

It also should be of significance to the comprehensive planning process of a town.

The Coastal Resource Atlas:

A good many of the resource maps mentioned previously have been completed. Once all these maps have been finished for the whole coast, they will be published in a Coastal Resource Atlas, along with other information to be described further on in this booklet. It is intended that this Atlas will be understandable to the layman: it will not require reinterpretation by professional planners but instead will fit into the growing network of local and regional planning and decision-making.

We will now describe each resource category, what information we are gathering and why it is important for planning.

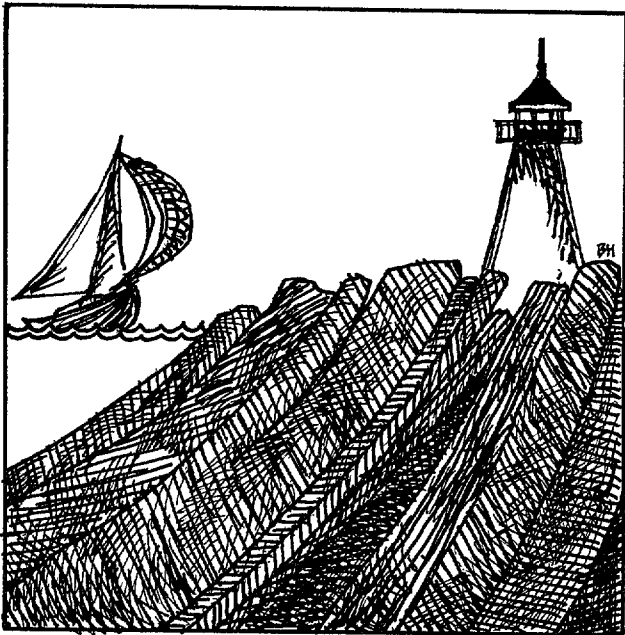
Geologic Resources

Geologic inventories are important in understanding and evaluating the potential of the land for drainage, water-bearing and foundation characteristics, solid and liquid waste disposal suitability, as well as agricultural productivity of land and the extent of exploitable minerals and rocks.

The earth materials of the Maine coastal zone may be divided into three major categories: (1) bedrock, or ledge, which underlies the entire area, (2) surficial deposits, which include all of the unconsolidated or loose materials overlying the bedrock, and (3) soils, which form a thin surface layer, supporting vegetative growth. Many additional subdivisions of these three categories have been recognized, only a few of which are described below.

Bedrock

For the most part it is the bedrock, with an occasional contribution of surficial deposit, which gives rise to the legendary visual beauty of the "rock-bound coast of Maine." Two types of bedrock found in the coastal area are metamorphic rocks, (including pelite, quartzite and limestone) which were



originally soft sediments laid down in marine environment and subsequently altered both physically and chemically by heat and pressure within the earth, and plutonic rocks, (including granite, granodiorite, diorite, and gabbro) which formed from melted material that moved upward into pre-existing "country" rocks where it cooled and crystallized. Later erosion of the overlying country rock

has left these plutonic rocks exposed at the surface today. Bedrock geology provides some explanation of the development of soils within a region and whether there may be mineral deposits of commercial value. A bedrock map can also show areas where problems may exist in the location of foundations or subsurface waste disposal facilities.

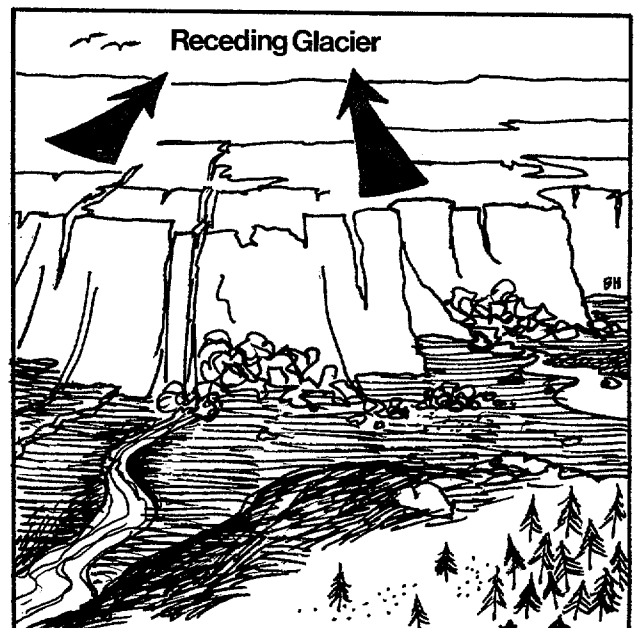
The Bureau of Geology is mapping bedrock geology for the coastal zone.

Surficial Deposits

This refers to the loose surface material lying over bedrock but beneath the layer of organic soils. These surficial materials are largely the result of the last continental ice sheet that advanced, melted, and readvanced across the State of Maine. The advancing ice incorporated into its mass great quantities of debris as it plowed up soils and loose rocks, and plucked, gouged, and ground up boulders from the bedrock. During transport, and when the ice eventually melted, these materials were redeposited resulting in a number of distinctly different sediments.

Among the surficial materials likely to be present in the coastal zone are till, sand and gravel, marine clay, and swamp deposits.

Surficial geological deposits are being inventoried by the Bureau of Geology.



Till

Till is a poorly-sorted sediment deposited directly by the ice in much the same way a plaster spreads plaster across a wall. Till may consist of 99 percent clay or 99 percent boulders or any combination of these in intermediate sizes.

Sand & Gravel

Sand and gravel deposits consist of sediments of all sizes that were transported by the ice and later released and washed away during the melting of the ice by meltwater streams. Movement by water resulted in the sorting of these materials.

Because of their high permeability, sand and gravel deposits are generally unsuited for waste disposal operations. Even if these permeable deposits are locally thin or for other reasons are not important aquifers, contaminants introduced into them could migrate to other aquifers and pollute active and potential ground water supplies. Only under a few circumstances are large gravel or limestone deposits suitable for waste disposal regardless of the tempting convenience of existing pits and quarries.

Sand and gravels are valuable because of two of their natural characteristics: Because they consist of hard particles, they are able to support heavy loads — buildings, highways etc. Also, since sand and gravel particles have a relatively large size and generally round shape, water drains through these materials very readily. Thus natural land deposits of sand and gravel can under some conditions make excellent building sites.

Gravel and sand make excellent fill, again because of their drainage and load-bearing characteristics. Therefore, naturally occurring sand or gravel beds have two potential resource values: They help in making their site suitable for development, and they can be dug out, carried away and placed at another site to give that area the load-bearing and drainage characteristics necessary for heavy construction.

Marine Clay

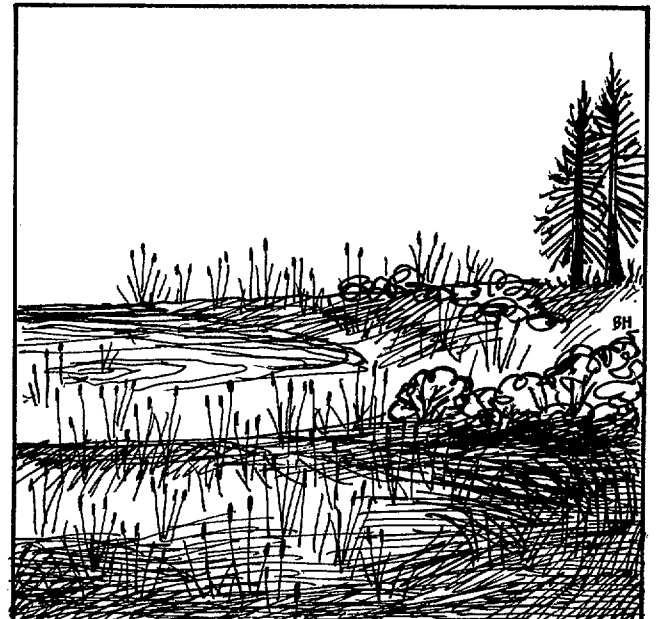
As the climate grew warmer the ice mass retreated and gradually disappeared from the state. During the time of final glacial melting the sea flooded the lands reaching far into central Maine. Today we find throughout the area a layer of blue-gray silty marine clay up to a maximum elevation of 290 feet above mean sea level generally conceded to be the height which the sea reached during this period of flooding.

The low permeability of some marine clays imposes severe limitations to the proper functioning of ground sewage disposal systems. Development on clays without regard for this trait can cause pollution of downstream watercourses. Clays also tend to be unstable under heavy loads, making them relatively unsuitable for construction.

The water which accumulates in the clay tends to lubricate the flat particles of the clay, and when a heavy load is placed on these materials, they will slip and shift, especially in steeply sloping areas. The drainage and expulsion of water from the relatively well-sorted sands and gravels occurs readily, however, making the bearing capacity of these materials much greater.

Swamp & Wet Land Deposits

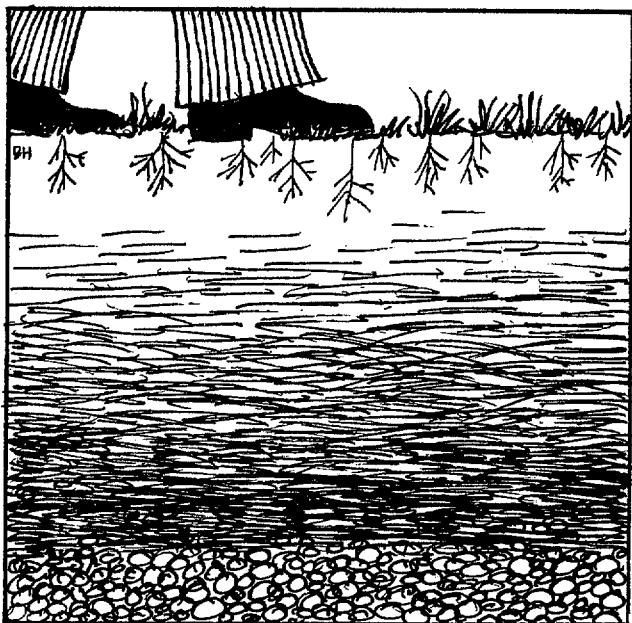
Swamp and wetland deposits occur in local, poorly-drained, water-saturated ground. They are made up of partly decomposed organic matter with some intermixing silt, clay, and sand.



Soils

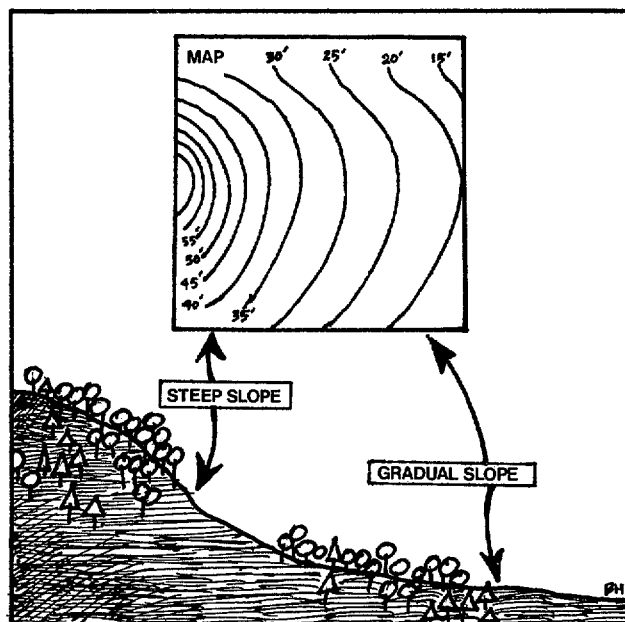
Soils are the upper layer of surficial materials which contain organic matter contributed by the growth of plants: Soils identifications offer additional aid in analyzing load-bearing and drainage characteristics. The type and amount of organic matter present also determines to some extent the suitability for ground disposal of sewage and for agriculture. Thus, soils conditions are a major factor in determining where dwellings or concentrations of people can be supported. Moreover, the identification and analysis of soils types as a major determinant in land use decisionmaking process has gained almost universal acceptance — not as a function of conformity, but as accepted scientific fact.

Currently, the Soil Conservation Service is conducting a generalized, medium-intensity soil survey of the entire coastal zone of Maine for the Coastal Planning Group.



Slopes

This map is probably the simplest yet one of the most useful of the resource maps. Basically it gives an indication of the ridge-valley sequence throughout the area and thus allows the viewer to "get the lay of the land."



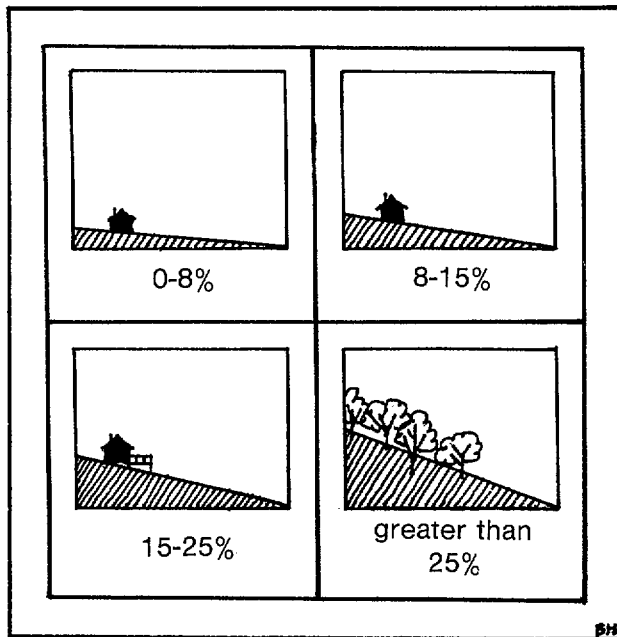
Slopes also play an important role in determining the suitability of a site for almost any kind of activity. Flat areas, suitable for activities such as farming, highway and railroad building, or intensive development, can be easily identified. On the other hand, steep slopes are unsuitable for this type of development. They are unstable, easily eroded, and unsuitable for proper disposal of sewage. Development in such situations can contribute silt or pollutants to downstream watercourses. Areas with high or varied relief are suitable, however, for scenic and recreational use.

Various planners have used slope maps to establish land use guidelines. Naturally the slope limitations for certain land uses will change in different topographic areas of the world. The Soil Conservation Service recommends that areas with slopes greater than 12 percent be left as forest land, to prevent erosion. Such areas should not be cultivated or developed. In general, however, transportation corridors require slopes under 15 percent, and ski areas require average slopes of 15 percent or more.

Slopes

(The slope of a hill is determined by expressing the vertical change as a percent of horizontal change, for example, a vertical change of 1 foot with a horizontal change of 10 feet is a slope of 10 percent.) Of course, the economic advantages of building on steep slopes often seem to outweigh the problems of safety, cost or inconvenience as the City of San Francisco and the terraced gardens of Japan vividly illustrate.

Slopes of all land areas in the coastal zone are being determined and mapped. Using contour base maps, four shades of color designate four ranges of slopes: 0-8%, 8-15%, 15-25%, and greater than 25%.



Hydrology

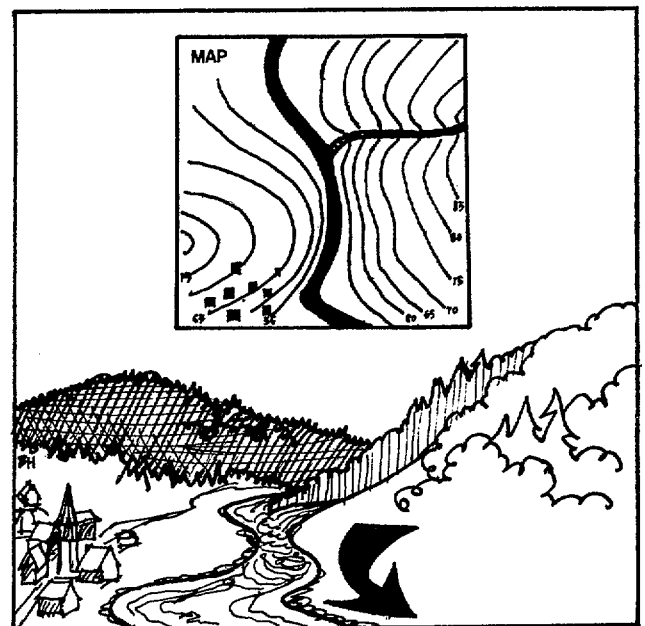
Work done in this portion of the inventory is divided into four major areas:

1. Drainage/Watersheds
2. Groundwater
3. Water Quality
4. Coastal Lakes

Drainage and Watersheds

The orientation of slopes and the movement of water reinforce one-another. That is, water follows the downhill direction dictated by the slope, but water also cuts and carves soft rocks and soils, changing the slope by its action.

The force of gravity causes many of the results of man's and nature's activities to move downhill with the water. For this reason, it is important for land owners and water users to know what substances and activities exist upstream from them. To aid in servicing this need, the Hydrology map has been prepared from the topographic contours and slope patterns on the Slopes map to designate rivers, streams, major drainage areas and dams.



Knowledge of and respect for the drainage system of an area is vitally important for planning purposes. In addition to supplying water, the rivers, streams, lakes, and groundwater systems are the principal transportation network servicing the environmental systems of plants and animals. Particles and dissolved minerals from rocks, soils, and plants as well

Hydrology— cont'd.

as "waste" material from animals and people are all transported by water from high elevations to low elevations and from producers to consumers throughout the interdependent chain of nature. The balance of plants, animals, and men which support and provide for one-another is dependent upon the continued supply of proper materials by this water transportation network.

Man's use of the water system has included human consumption of water and surface water, transport of sewage and industrial waste materials, power production, transportation of goods, and recreational swimming, boating, and fishing. The discharge of sewage and industrial waste has, in many cases, disrupted the environmental balance by placing large concentrations of specific substances in the water, threatening the health of many humans as well as overwhelming many species of plants and animals. Construction of dams for water supply or power generation has further disrupted the environmental system. The dams cause the river water to slow down, with the result being that much of the suspended material is dropped behind the dams. Those plants and animals downstream which require these suspended nutrients are diminished. Another well-publicized problem with dams is the obstruction to the migration of salmon, alewives, smelt and other anadromous fish.

In particular, communities have an interest in maintaining the quality of water's flowing into public water supply ponds. Concentrated activities such as construction within these watersheds could constitute a threat to the quality of these water supplies. The most critical position of these watersheds is the strip of land directly adjacent to each water supply pond.

Groundwater

Most earth materials are not solid, but contain openings or voids. At some depth below the land surface, these voids become filled with water and the materials are saturated. The upper surface of the saturated material is called the water table. The position of the water table changes seasonally. This is caused by varying amounts of precipitation and the nature of the vegetative cover which influences the amount of water moving downward. The rate of water flow through the earth materials depends on the interconnections of the voids and is called permeability. Sand and gravel particles being larger in size also have larger pore spaces and therefore more permeable than till. Those materials that are permeable enough to yield usable quantities of water are referred to as aquifers.

The aquifers that yield the most water in Maine, are the coarse to medium-grained and well-sorted sand or gravel deposits. These unconsolidated glacial deposits have both high porosity (capacity to store water) and high permeability (capacity to transmit water). At the opposite extreme is the marine clay, which is nearly impermeable and in this area often separates overlying and underlying permeable units into two distinct aquifers. Materials of intermediate permeability include Type 1 and Type 2 till, with the latter being moderately sorted and therefore the better aquifer.

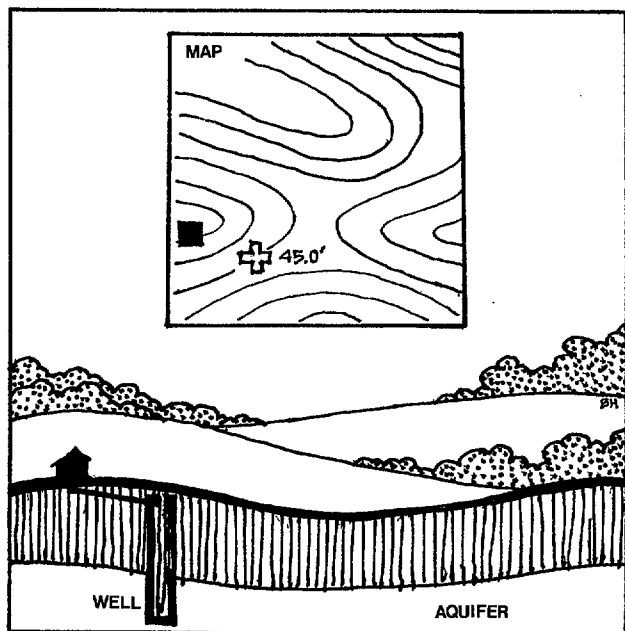
The rock types shown on the bedrock geologic map generally are not high yield groundwater sources. The metamorphic or melting processes to which these rocks were subjected have destroyed any original permeability. Groundwater can, however, move through and is often stored in numerous fractures or cracks in bedrock. Fractures are often connected together thus wells drilled in bedrock most likely intercept one of these fractures which will supply enough water for domestic use. High yield wells in bedrock intercept many water bearing fractures and are often a result of shear or fault zones.

To continue to furnish sufficient groundwater to wells, fracture systems or shear zones must be recharged. Water may enter the system at the surface where fractures are exposed to surface runoff, or where they come into contact with fresh water bodies such as rivers and lakes. The bedrock aquifers are, however most commonly recharged by the percolation of water through overlying unconsolidated surficial sediments. The quantity and quality of water in bedrock aquifers can be affected by conditions of water and soil closer to the surface.

Underway is an attempt to determine the potential for groundwater and related surface water pollution. To arrive at this determination it is necessary to know the depth of the water table, the direction of groundwater flow, and the location of slowly permeable strata (aquicludes or aquitards). This study is developing a three-dimensional hydrogeological picture indicating the water quality and stream-flow data which will then serve as a bench mark for future pollution problems.

Hydrologic data is plotted on geologic maps to show correlations between the hydrology and topography, stratigraphy, structure, and lithology.

The final hydrology map shows the depth of water table surface, low flow rates of streams at gauging points, and locations of permeable aquifer units.



During the field season, the hydrological survey staff works closely with the Maine Bureau of Geology and the University of Maine Department of Geological Sciences to see what correlations are appearing and what areas should be looked at again. All important is the interchange between other scientific personnel working in corresponding estuaries and lakes. A professional hydrologist attached to the Water Resources Division of the State Planning Office supervises this hydrologic research program. An assistant working with him collects water-well information from homeowners and local well drillers, conducts some water analyses, and helps with other field work.

Water Quality Classification

As an important tool for the implementation of land use planning suggestions, the state's classification of surface waters should be complete, understandable and consistent with the findings of the coastal plan. It is intended that the coastal planning staff point out situations of inconsistency and confusion in the classifications and also make recommendations of how classifications should be changed to better serve the needs of people and of the natural environment.

Department of Environmental Protection Classifications of Surface Waters have been mapped for the first two project areas of the Maine Coastal Plan. A brief synopsis of the Department of Environmental Protection Classification System follows: (1). In general, Class A (fresh) water "shall be maintained in a condition suitable for recreational purposes, including bathing, and for public water supplies after disinfection." Class SA water (tidal water) "shall be suitable for all clean water usages, including water contact recreation and fishing; and must be suitable for harvesting and propagation of shellfish and for a fish and wildlife habitat." (2). Class B-1 water "shall be acceptable for recreational purposes, including water contact recreation, for use as potable water supply after adequate treatment and for a fish and wildlife habitat." (3). Class SB-1 waters must meet these standards, and in addition they "shall be suitable for the harvesting and propagation of shellfish." Class B-2 and SB-2 waters require basically the same restriction as do B-1 and SB-1 waters; however, specific water quality restrictions-dissolved oxygen levels, coliform bacteria levels, hydrogen ion concentration-water quality restrictions — dissolved oxygen

Hydrology- cont'd.

levels, coliform bacteria levels, hydrogen ion concentration, etc. — are stringent for B-1 and SB-1 waters. (4). Class C waters "shall be of such quality as to be satisfactory for recreational boating and fishing, for a fish and wildlife habitat and for other uses except potable water supplies and water contact recreation, unless such waters are adequately treated." Class SC waters, in addition to these requirements, "may be used for the propagation of indigenous shellfish to be harvested for depuration purposes... and for industrial cooling and process use."

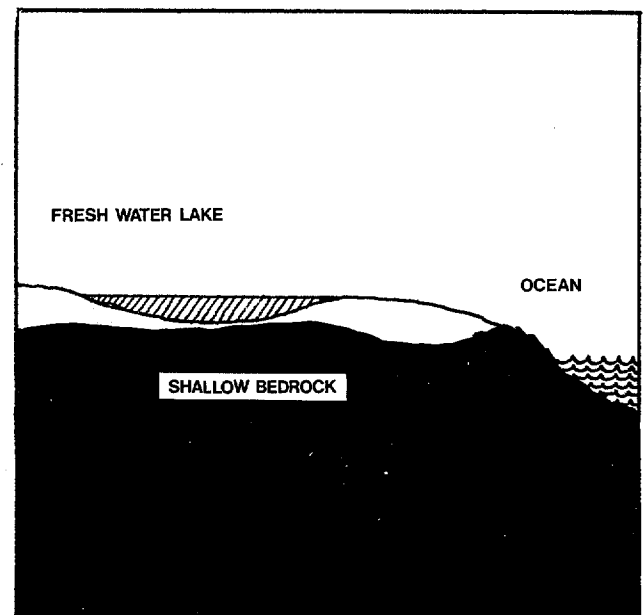
Through the mapping procedure, many confusing classification descriptions and questionable classifications have become apparent. The problem arises primarily because the local classifications of streams are described verbally with references to points which may be difficult to locate on a map or which may be subject to personal interpretation. Problems which have been identified include: (1). Questionable town boundaries; (2). Jurisdiction of islands; (3). Relationship of islands to nearby shore areas; (4). Uncertain limit of tidal influence; (5). Limits of classifications from the shores of estuaries and bays; (6). Landmarks which no longer exist; (7). Unclassified water.

Following completion of the set of water classification maps for each project area, they will be submitted as rough copies to the Department of Environmental Protection, which will: (1). Correct any misinterpretation of the law on our (Coastal Planning Group) part; (2). Settle on a firm policy with regard to specific unclassified or questionable areas; (3). Change the manner of identification of areas with confusing classification descriptions.

As part of a cooperative program with the Coastal Planning Group (see Aquaculture and Marine Environment section) the Department of Marine Resources and Maine Bureau of Geology would make suggestions for reclassification of water where such action would be necessary to protect the integrity or the productive capacity of prime aquaculture sites and to conform more closely to actual resource characteristics.

Coastal Lakes

The lakes which lie within Maine's coastal zone are, in many cases, the most valuable and most vulnerable lakes in the state. They are an integral part of the high resource value of the coastal zone as a whole. Wetland-lake systems contribute directly to the primary productive support of estuaries and coastal marine systems. Fresh water sport fisheries contribute to the recreational value of Maine's coastal region, and an extensive system of accessible lakes provide convenient spawning areas and seasonal habitat for Maine's commercially valuable anadromous species — alewives, smelt, salmon, and eels. The predominantly shallow bedrock structure and high relief of the Maine coast allow extensive fresh bodies of water to exist very near to the shore with little or no threat of salt water contamination. Elevated fresh water bodies located close to concentrations of population comprise natural water towers for municipal water supplies. Heavy upstream pollution has virtually eliminated use of Maine's major rivers for water supply purposes, leaving lake systems as the major water sources for many large coastal towns and cities.



Coastal salt waters and adjacent land areas of Maine provide recreational value in the forms of scenic beauty and harbors perfectly suited for recreational boating. However, with the exception of the beach areas of southern Maine, the coast does not offer many sites which are considered appealing to swimmers. The steep, rocky shoreline and

cold sea water together shift the focus for swimming to the nearby lakes and ponds within the coastal zone. Thus, the coast and the readily accessible lakes together constitute a valuable, integrated recreational unit.

The importance of the coastal lakes and great ponds to the coastal zone, is ample reason to understand better how each lake functions by identifying those factors which contribute to the resource value of each lake system.

To plan for the proper management of the coastal lake and surrounding land environments, a research and inventory program is now underway with the University of Maine's Environmental Studies Center. Personnel of the Center work closely with the Department of Inland Fisheries and Game. This survey utilizes information already contained in the Maine Department of Inland Fisheries and Game's *Inventory of Maine Lakes*. Both the limnologist and resource planner also work closely with the existing hydrological survey team of the Water Resources Division of the State Planning Office.

The objective of the program is to provide an identification and explanation of the processes and resource values of each lake and great pond within the coastal zone. The information presented in such a fashion as to allow the Coastal Planning staff and local and regional planners to assess the implications of land and water uses which will directly influence the lake resource.

In summary, the lake survey seeks to accomplish three specific tasks: (1). The synthesis of existing research data; (2). The definition of areas of immediate or direct influence upon each lake environment; (3). Determination — in a general fashion — of what degree of development or intensive land use can safely be incorporated into or tolerated by the lake system. Toward this end, a "Lakes Quality Model" (or "Carrying Capacity Model") is being developed based largely upon the classification system developed by the Maine Land Use Regulation Commission (LURC).

The model attempts to separate lakes which are suitable for development from those which are not, and to assign for each body of water determined suitable for development, a relative level of devel-

opment which will be compatible with the maintenance of water quality. ("Maintenance of water quality" basically means prevention of eutrophication. Levels of development refer to general densities of recreational houses along the shore).

The "Carrying Capacity Model" offers a framework within which a system can be devised for classifying the coastal lakes according to their ability to assimilate nutrient pollutants. Data for determining the relative strength of lake systems has been gathered from completed lake inventories, interpretation of USGS air photos and field surveys. Field survey work includes depth, temperature and dissolved oxygen profiles, turbidity measurements, discharge calculations, analysis of predominant fish and plant types, and substrate sampling. Interviews with Inland Fisheries and Game regional biologists and with local planners and fishermen have provided an important input to the inventory process.

This Carrying Capacity Model, when coupled with the definition of areas of direct or immediate influence upon each lake environment and the synthesis of existing research data, will yield the complete lake survey.

The completed lake survey will provide the state and the regional and local planners of the coast with a comprehensive but understandable explanation of the opportunities offered and limitations imposed by the lake resources. The lake survey will identify those factors which constitute the resource value of each lake. The carrying capacity model shows, on a much wider scale, which lakes offer resources which can be intensively developed or utilized by man, and which lakes will be most productive if left largely undeveloped.

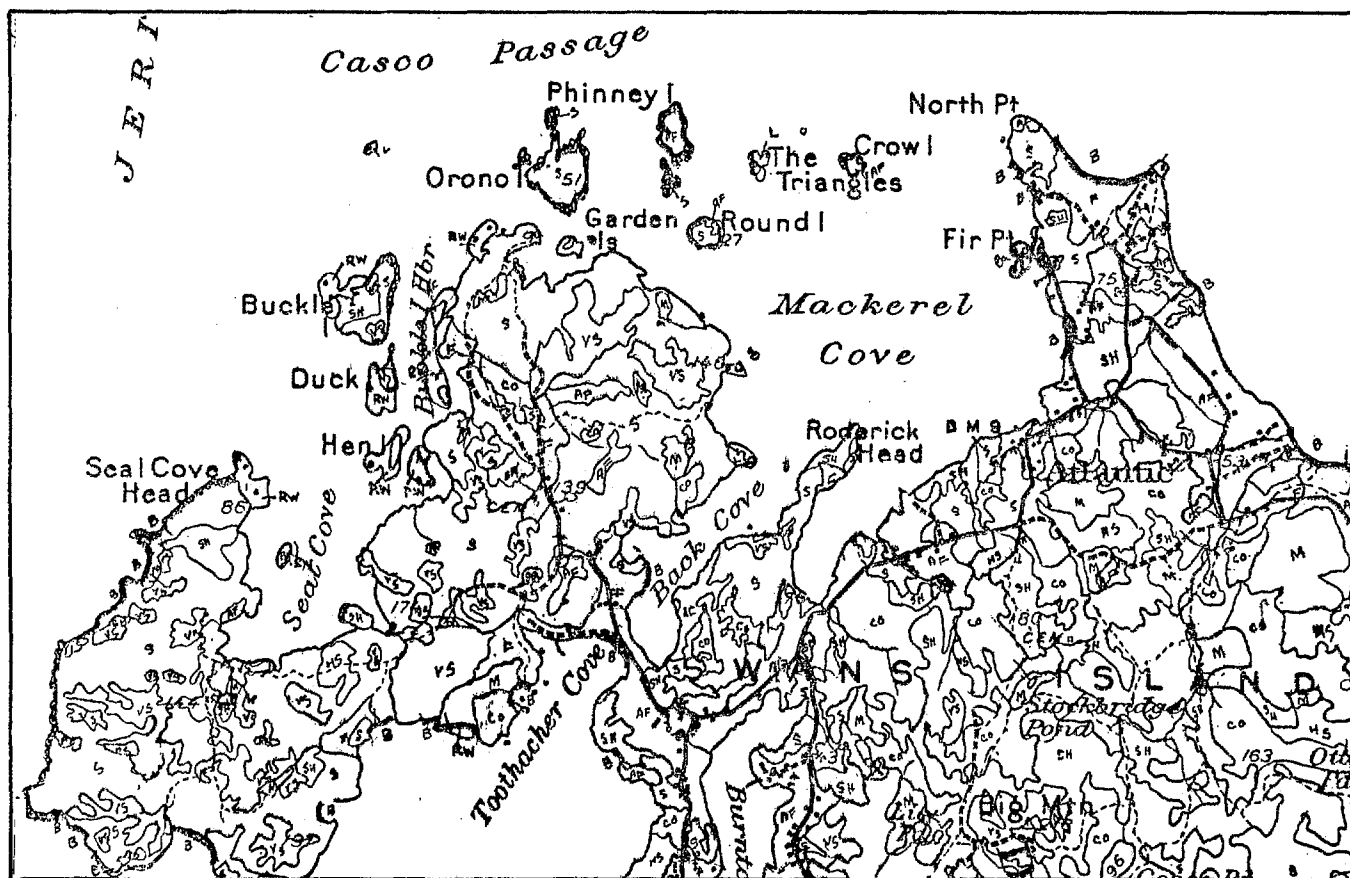
Land Use and Cover Types

The term "Land Use" is used quite loosely to refer to a broad range of concepts. Literally speaking, "land use" generally refers to man's activities on land which are directly related to the land. This definition may be followed strictly in land use inventories which are conducted through surveys on the ground, direct observation of ongoing activities or discussions with landowners. In these cases, human activities are viewed directly, or their existence is confirmed by a reasonably reliable authority. Aerial photography and remote sensing imagery have altered this situation somewhat. The photographs show the nature of the land surface at a single instant in time, and air-photo interpreters can identify human activities from the nature of the land surface with considerable accuracy, especially when the activity leaves an unmistakable imprint on the land surface. For example, a field showing parallel furrows caused by plowing can be assumed to reflect man's agricultural activities. However, in other areas the interpreter may simply indicate the nature of the land surface because man's activities are not present

or visible in the photograph, and no solid evidence is apparent. For example this can be the case for sandy lake shores which support heavy concentrations of people, but only during certain periods. Another such case is that of forested areas where man's primary use of the land may be for growth of timber, wildlife preservation or recreation. A single photograph may show no conclusive evidence of such activity, and the interpreter will often simply indicate the character of the land surface, in this case that of forested land.

These situations make it obvious that "land use" inventories have come to the point where quite often they are indicating two different things; (1) man's activities on land (transitory features, and (2) the vegetational and artificial constructions covering the land surface (more stable features).

Rather than mix and confuse two separate and distinct characteristics of land use, we have chosen to produce two separate systems for land classification; a land use code for man's activities on the land and a land cover code to indicate the nature of the land surface itself.



Living Resources

Major land cover categories include:

- (1) Wetlands (including inland fresh water wetlands, coastal wetlands, and intertidal lands)
- (2) Natural Forest Lands
- (3) Surface water (including flowing waters, standing waters, and tidal waters)
- (4) Naturally exposed, barren lands.

Major land use categories include:

- (1) Forest Law Plantations.
- (2) Agricultural Land
- (3) Abandoned Agricultural Land
- (4) Man-generated exposed lands (including cleared lands and extraction activities)
- (5) Urban or Built-up Land

The Maine land cover categories are essentially organized according to the nature of surface conditions; such as forest vegetation, agricultural vegetation or plowed lands, wetland vegetation, water, bare soil and rock, unnatural materials and conditions that are built or maintained by man and miscellaneous cover types that are not covered by the other categories.

The identification of land cover categories tells the analyst a great deal about the biological and visual character of large portions of the coastal zone of Maine, and ultimately, the ability of those regions thus identified to tolerate or enhance man's activities.

Similarly, the identification of land-use categories tells the analyst a great deal about the extent of man's activities within the coastal zone of Maine — and when coupled with ecological, economic, sociological, and recreational data, provide a strong and accurate informational base from which appropriate land-use decisions may be made.

Wildlife Habitats:

Both terrestrial and aquatic habitats which either permanently or seasonally support relatively large populations of important animal species or populations of rare and endangered species are of major concern because of the tangible and intangible values of these wildlife populations. This inventory category includes specifically significant deer wintering areas, waterfowl breeding and overwintering areas, fish breeding areas and habitats.

Under the auspices of the Coastal Planning Group, is the funding of a staff position within the Department of Inland Fisheries and Game with responsibilities for coordinating the collection of wildlife information from regional fish and game biologists in each planning region. In addition, upland areas adjacent to wetlands have been identified and assessed for recreation potential, vulnerability, and relation to the wetland resource.

Three types of information are being collected in cooperation with the Department of Inland Fisheries and Game:

- A. The identification of types and examples of significant waterfowl and wildlife habitats, including feeding areas, nesting areas, cover areas, and other stop-over areas where acquisition, easements, or zoning might protect, maintain or enhance the resource;
- B. The identification of species and habitats already hard pressed as a recreation resource, species and habitats which are endangered or otherwise threatened, and species and habitats which are important economic or educational resources;
- C. The identification of primary waterfowl and other wildlife species found within coastal areas with an indication of the habitat requirements, frequency of occurrence, and relative abundance of species.

In certain cases, due to traditional use for wintering, nesting or migration, specific areas can be delineated and shown to be of particular importance to certain species. Where information is available such areas are presented on the map.

In other cases, certain definable areas such as wetlands and tidal flats that are of great value to many species are also presented on the map.

Living Resources

In most cases, however, an animal's habitat is too ill defined and complex to allow presentation on a map. This is particularly true for upland species that are quite mobile and utilize various types of habitat. In such cases, the value of an area is best measured by the "harvest" annually taken by hunters, for habitat quality is reflected by the number of animals supported or produced and their condition. Annual "harvests" for several species are tabulated, and although such figures largely reflect animal abundance and habitat suitability, many factors are involved and further interpretation of these indicies should be left to trained biologists.

By the same token, the fish maps are a compilation of information prepared by the Maine Department of Marine Resources and data gathered by the Department of Inland Fisheries and Game for their Lake Surveys. These maps are not intended to provide a definitive inventory of all fish species. They simply locate species of commercial or recreational value whose presence has been observed in particular ponds, lakes, streams, and rivers.

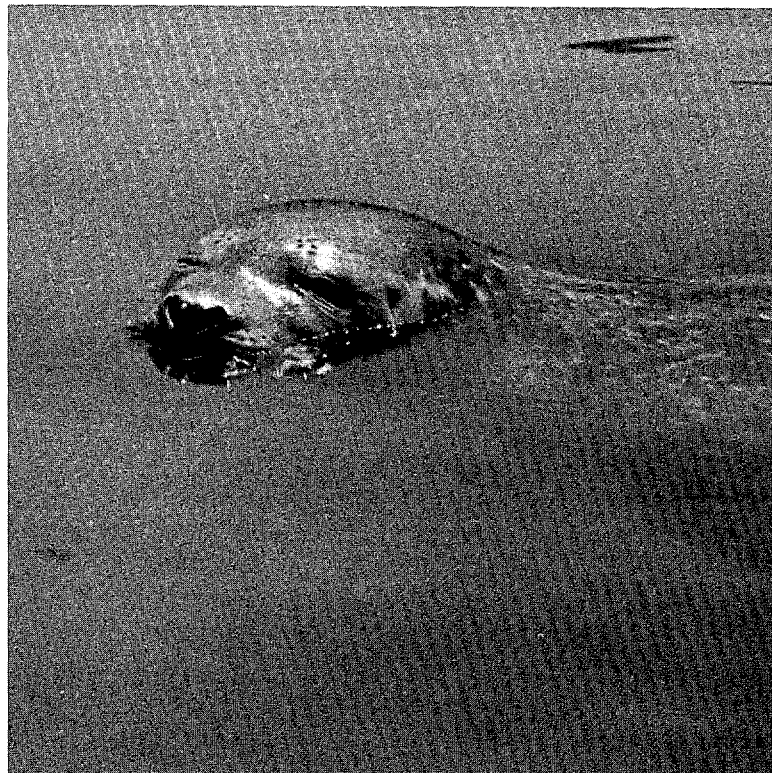
Alteration of land and water environments within wildlife habitats is liable to disrupt the wildlife community. Aquatic wildlife systems, particularly fish and waterfowl, follow drainage patterns, and disruptions anywhere within the system may be felt throughout it. The towns and the State have an interest in preserving wildlife systems, especially those which might be threatened by development which services traffic, or which are viewed from scenic points along highways.

Marine Environments

Marine environments are distinguishable by the conditions which so dominate the region as to be the primary force in determining what lives there. Such regions as distinguished by natural and man-affected conditions are delineated on the marine environments maps. Some general categories of marine environments or regions are: coastal fluvial systems, fluvial estuarine transition systems, estuarine environments, tidal inlet systems, barrier island, tidal strand plain beach system, open or closed bay or lagoon systems, delta systems, etc. Because of certain especially vulnerable — and valuable — characteristics, we shall hereinafter concentrate on one specific marine environment: the estuary.

The estuaries of Maine, like those of most other regions of the world, form some of the most valuable and productive portions of the marine environment. The people of Maine have a great interest in the condition of the State's estuaries because of their value for transportation, recreation, food production and waste assimilation.

An estuary is defined as "a water passage where the tide meets a river current. Physiologically, an estuary is an area of transition between a rather unstable fresh water source and a more stable salt water zone.



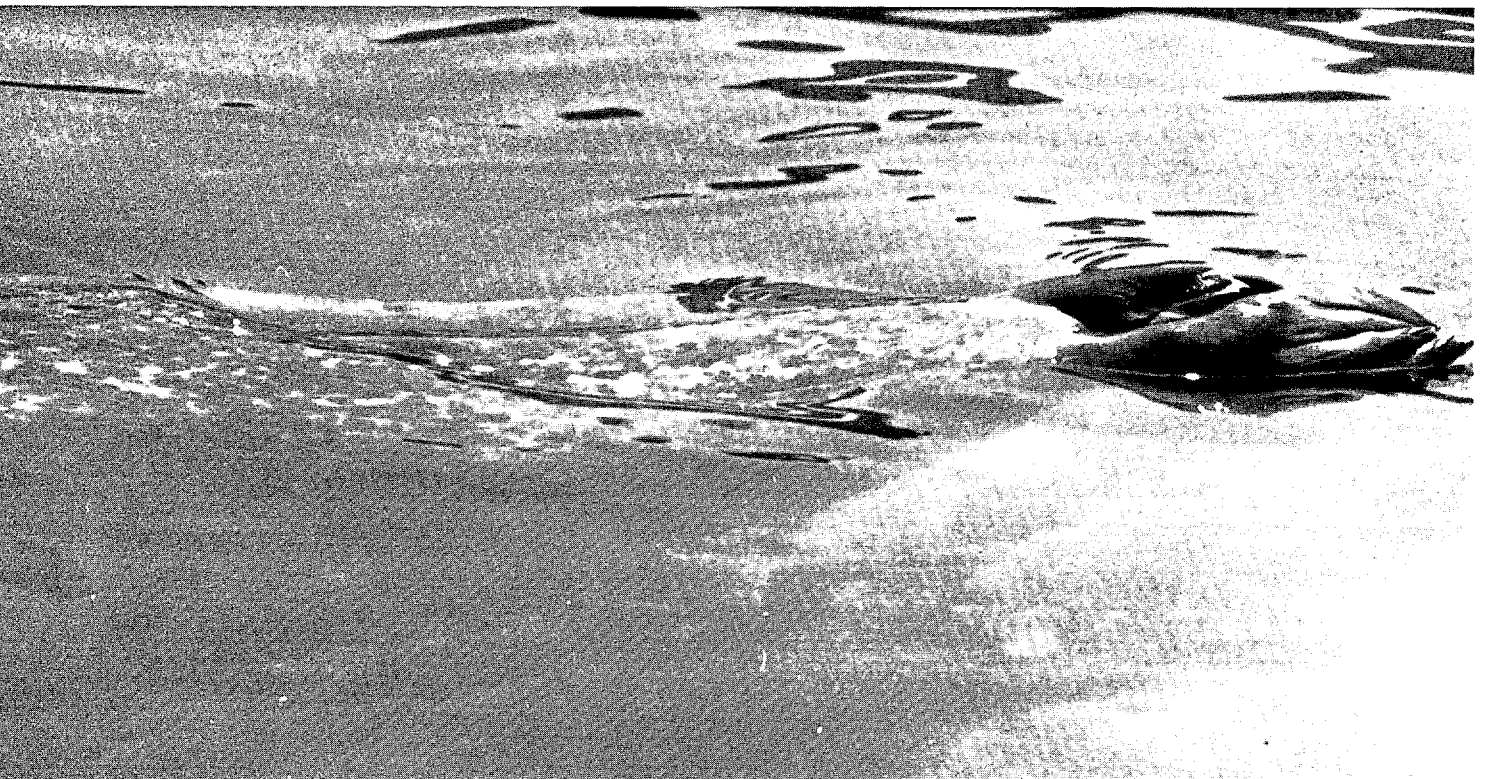
Marine Resources

Man is only one of the many creatures which takes advantage of the estuary. For numerous fish, shellfish and plants, the estuary is a rich area for habitation and protection. The rivers entering the estuary carry dissolved minerals from the rocks and soil as well as decayed plant minerals from the swamps and forest. The tide mixes the nutrients from the river, circulates the detritus produced by plants and animals in the estuary and gradually flushes the unusable matter to other consumers out to sea.

The physical environment of an estuary is in many respects much more harsh than that of the open ocean. The influence of the land causes sudden changes in the temperature, salinity, oxygen content and chemical quality of the water in the estuary.

This portion of the coastal zone inventory is intended to be a general inventory of commercially valuable marine plants and animals found in the ponds, streams, bays and estuaries within the Maine coastal zone. The survey includes freshwater, saltwater, and anadromous fin-fish species, as well as saltwater shellfish.

This objective of definitively locating concentrations of particular species certainly cannot be completely realized because few fish species can be pinned down to a small area. Over a span of years and through a wide range of climate conditions most fish species will have visited a large proportion of the marine region which our map includes. However, for each marine species certain environmental conditions do place particular marine regions definitely out of range. Simply stated, for every fish type there are some areas where the fish simply cannot exist. On the other hand, as any successful fisherman knows there are "good spots" for every type of fish. For instance, despite a wide geographic range of activity, striped bass or shad or herring are known to favor certain areas.



Marine Resources – cont'd.



Man's knowledge of these areas is probably quite limited by accessibility, however, these known "good spots" provide the basis for a generalized but valuable identification of regions within the marine environment which are or could be of substantial value to fishermen or to marine resource users.

The marine resources map identifies and locates those important species which are known to inhabit or to frequent a particular area within the marine environment. The species which have been included on the map are those which have considerable value as a commercial commodity or resource or which are of substantial importance to the recreation activities of Maine's residents and visitors. (Refer to table)

No new field research has been conducted for preparation of this map. All data has been gathered from existing marine resource inventories or from the first hand knowledge of Department of Marine Resources personnel, commercial fishermen or Irish Moss processors.

It is a well-publicized assumption that the nutrient-rich sea waters along Maine's coast, the configuration and orientation of the shoreline and the wide diversity of physical conditions in Maine's inlets and estuaries constitute the circumstances which could support a successful aquaculture industry.

This assumption has not yet been proven but if this is the case, areas with excellent conditions for fish-farming are valuable resources. Such sites could become the focus for significant commercial activities.

Obviously, not all areas within Maine's environment are equally suited for such "sea farming" operations. The site requirements for land-based agriculture are fairly well understood, and the analysis of soils conditions conducted by the U.S. Soil Conservation Service can indicate land areas which meet the requirements for good farm production. However, aquaculture is a relatively new enterprise, thus few criteria have been developed for determining which marine sites offer the greatest potential for fish producing in Maine.

Nevertheless, few site requirements are generally agreed upon by experimental aquaculturalists and fisheries researchers: If an area of water can be enclosed and protected from storm waves, physical conditions within the enclosure can be regulated to some degree. Some tightly constricted embayments can be modified to hold a large volume of deep water during low as well as high tides. Lobster pounds are ready-made for this purpose.

These sites (lobster pounds and deep, constricted coves) presently seem to offer the greatest potential for fish farming on the Maine coast. If aqua-

culture does indeed offer an opportunity to the Maine coast, then these sites should be a focus for further efforts to gain some additional profit from the marine environment.

For sedentary species which are able to tolerate or adapt to changing circumstances, inshore water and estuaries provide protection from less tolerant predators, competitors or parasites.

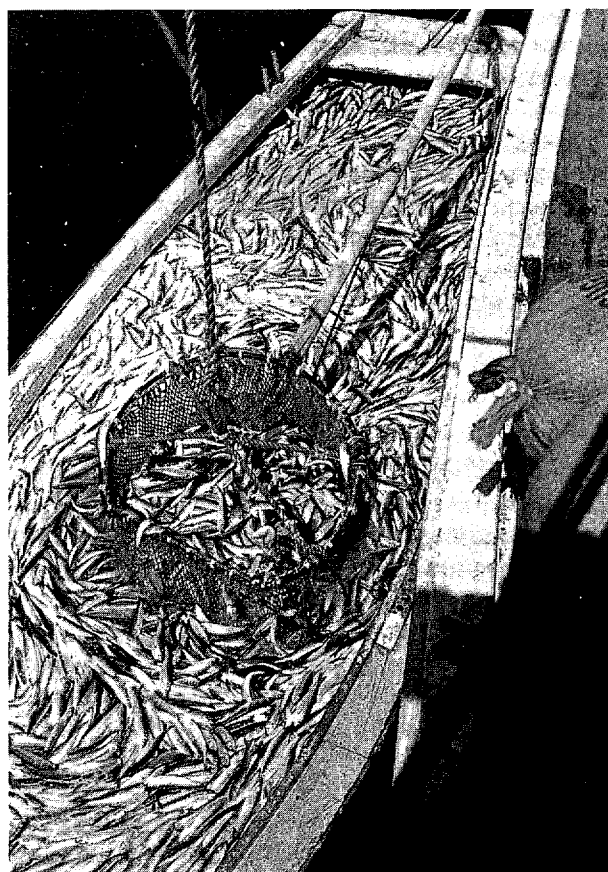
Mobile species such as lobsters and crabs possess a certain degree of tolerance to changing conditions, and in addition they are capable of escaping to stable areas within the system. Species with an even greater degree of mobility such as shrimp, herring, alewives, salmon or striped bass enter the estuary systems at certain periods of the year or during a particular portion of their life cycle. They take advantage of the estuarine environment much as man does — as a source of food, or as a means for traveling from the ocean to an inland environment. They possess the capability to escape extreme changes that occur in the estuary.

Stress situations in an estuary may be caused either by naturally occurring changes — tide, runoff or temperature — or by man's use of the estuary. Man has considerable ability to exploit the resources and situation of the estuary, and to use them to support large numbers of people. Thus in most of the world's estuaries, man's involvement is by far the most influential. The high productivity of specialized industries along the shore of the estuary or within its watershed produced high concentrations of dissolved chemicals and minerals, suspended solids or bacteria. Species which can utilize such waste products thrive, while others are overwhelmed. The result is usually a reduction in the diversity of species in the area affected, although the number of individuals may remain the same or even increase.

The estuary is often the ultimate destination of much of man's waste. The results of his activities can converge in the estuary in a high concentration. Like natural nutrients, man-made pollutants are continually recirculated by the tide and retained by fine bottom sediments. Thus the very factors which enable the estuary to support a rich and diverse colony of life also contribute to the estuary's destruction. Although few individual plants or animals are directly affected by the materials or conditions which man produces, tidal mixing and the interdependency of species causes most of the individuals in an estuary to eventually be

affected by any significant pollution. In addition, many pollutants which do not decompose can become more concentrated as they are consumed by other species higher in the food chain. In many cases man is the ultimate consumer.

The relatively static nature of land areas and our everyday familiarity with such areas allows us to explain and to represent on maps the natural conditions of land area. The constantly changing fluid environment of an estuary is, however, both foreign and elusive to most people. However, the natural productivity and economic importance of most estuaries require that we gain an understanding of how they function. We are thus compelled to: (1) fully understand the natural processes which constitute and support the natural environment of the estuary, (2) identify those ways in which man has altered the natural framework of the estuary and, (3) devise techniques to repair, protect and monitor the environmental conditions in the estuary. The first step in this process is to locate and map regions or sections of the estuary according to physical conditions.



Marine Resources

The following are the parameters which have been considered for classification purposes:

- A. Static parameters:
physical configuration, associated drainage areas, bottom sediment and shore materials, mean depth of water
- B. Variable parameters:
tidal range, tidal and river currents, river and stream discharge rates, kinds and sources of pollution, flushing rates, dissolved oxygen levels, water salinity, water temperature and turbidity

Scattered and unrelated sources of data are available to explain some of these parameters for some areas of the Maine coast although the gaps in necessary information are substantial.

Table

Marine Resources

Marine worms
Soft-shell clams
Quahogs
Mussels
Oysters
Irish Moss
Rockweed
Lobsters
Scallops
American Eels
Alewives
Smelt
Tom Cod
Salmon
Sea-Run Brook Trout
Blueback Herring
Herring
Striped Bass
Major Anadromous fisheries
Normal inshore limit of Northern Shrimp
Herring weir sites (historic)

Scenic Resources

Areas of significant scenic quality are a major concern of the Coastal Planning Group since the scenic quality of the Maine Coast is ultimately why people live on — and visit — the Maine Coast.

As the coastal region of Maine develops, its visual integrity — that is, the balance between nature and man's works as perceived by the eye — is seriously threatened. Thus, an inventory of areas of significant scenic value is as crucial a component in the ultimate direction of land use decisions as the inventory of any other ecological element.

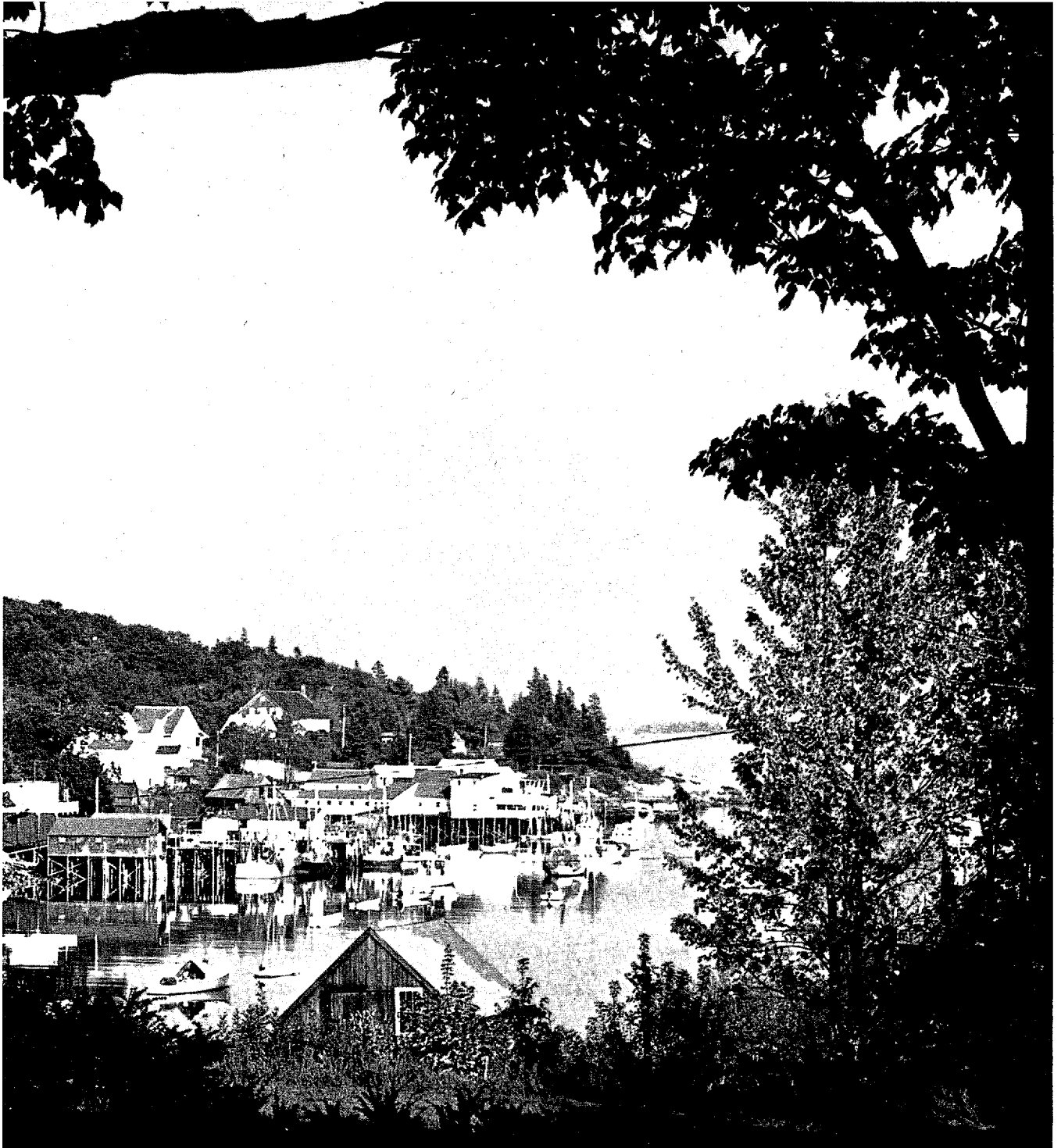
The basic Scenic Inventory Process begins with field personnel taking pictures (color slides) of each scenic area. The location of the picture, and direction in which it was taken, is noted on a map, and matched to a checklist of physical features, as follows:

1. Type of View
 - a) Panorama
 - b) Focal
 - c) Enclosed
 - d) Feature (foreground, middleground, background)
2. Observer's Position
 - a) Superior (viewed from above)
 - b) Normal
 - c) Inferior (viewed from below)
3. Land Form
 - a) Magnitude of relief
 - b) Presence of water
 - c) Local uniqueness
 - d) Depth of field
4. Land Use
 - a) "Wildness" (degree of natural character)
 - b) Compatibility of existing land uses within scenic area
 - c) Local uniqueness
5. Composition (sense of "mix" of the above)
6. Seasonal variations/non-permanent conditions
7. Presence of traffic turnouts
8. Sequence and duration of view from automobile
9. Susceptability to change
10. Approximate area viewed from location of picture

Scenic Resources

Once the scenic inventory is complete, local public participation groups serve as committees to evaluate and assign "rank" to each scenic area. Scenic areas assigned a high "rank" are then incorporated into the planning process as an element in determining land use opportunities and

constraints for an area. Thus, an area of significant scenic quality may be either retained or enhanced, and thereby further assure the retention of those qualities essential to the tourist industry and the quality of life experienced by the resident of the Maine Coast.



Recreational Resources

A mapped inventory and description of recreation facilities is vital to our land use planning program: Much of the pressure for land development along the Maine coast has resulted from the demand for recreational facilities. An accurate anticipation of land demand and development pressure requires that we have a complete understanding of where such facilities are located, what services they offer and how many people they can be expected to attract.

Accommodating and controlling the growing demands for recreational land use is one of the major functions of planning in the coastal zone. The Parks and Recreation Bureau of the Department of Conservation has primary responsibility here. However, because recreation encompasses such diverse activities, the jurisdictions of almost every other state agency are somehow affected, especially through programs of resource management. In its capacity as an intragovernmental coordinator and as part of its program for coastal zone resource inventory and management the Coastal Planning Group is contributing to Maine's recreational planning efforts in three ways:

1. through the identification of existing recreational facilities and other lands with recreation potential. Several types of facilities are being located and descriptive material assembled through a combination of aerial photographic analysis and contacts with local officials of the coastal communities.
2. by recommending management solutions to resolve conflicts in the use of these lands and surrounding areas;
3. and by narrowing the gap in supply and demand for land acquisition funds through dissemination and promotion of alternative approaches to providing public amenities for recreation (i.e., effective shoreland zoning, open space and natural area programs, cooperative resource management programs and public access agreements, farm districts, scenic easements, and private conservation efforts).

Most of the research and inventory programs described previously have an obvious and direct bearing on land and water management for recreation and they need not be reiterated here. This project will also assist in meeting the planning needs of the Maine Bureau of Parks and Recreation. The Bureau will be provided with a current inventory of outdoor recreational areas and facilities in Maine's coastal communities. This will serve to update the inventories used in *The 1972 Maine Statewide Comprehensive Outdoor Recreation Plan*.

This study is intended to inventory all types of outdoor recreation-oriented areas and facilities in the coastal zone (refer to Table). Some areas and facilities will be inventoried in greater detail than others.

Table
Recreation Facilities

Campgrounds (capacity)
Summer Camps
Golf Courses (number of holes)
Ski Areas
Trails
Harbor Facilities
Marinas
Picnic Areas (number of tables)
Swimming Facilities (feet of swim beach)
Boat Launching Sites (parking capacity)
Outdoor Game Facilities and Playgrounds
Park Areas (ownership status)
Snowmobile Areas
Community Centers
Drive-in Movies and others

Methodology of the Maine Coastal Plan

Part II: Socioeconomic Resources Inventory

Intelligent planning depends on a tremendous amount of relevant and detailed knowledge about the resources available in any given area of the coast.

Equally important in planning, is knowledge of the economic and social aspects of the area — what the situation is now, what it could be in the future, and what people *want* for their area. It is no secret that people on the coast want and need both good jobs and a healthy natural environment: the question of *how*, *where*, and *by whom* those wants are being expressed is the subject of the socioeconomic inventory.



Good socioeconomic inventories (that is, complete and reliable ones) are hard to achieve. In part this may be that despite the dramatic successes of the pollsters and the advertising professionals, socioeconomic research is still a developing science. Sophisticated technical processes such as forecasting models are available which attempt to analyze the socioeconomic factors affecting a wide geographic area, however these are highly expensive and complex and of limited usefulness at this time.

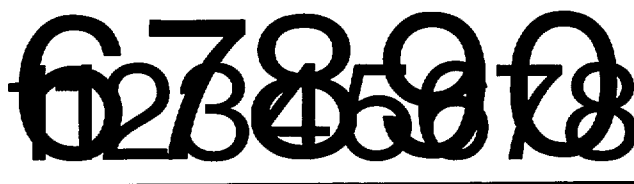
Unpredictable, externally-generated events (such as the energy crisis) also account for some of our difficulty in fully understanding and being able to predict social change affecting the Maine Coast. However imperfect, it is nevertheless useful to obtain some inkling of the overall social and economic patterns of change which are shaping our coastline just as relentlessly as the wind and tides.

To attain this understanding we are gathering all available data and attempting to put it together for a straightforward and comprehensive socioeconomic picture of the coast. This overview should prove highly useful in analyzing the trade-offs necessary when a conflict occurs between the forces of economic development and the demands of a natural system. In addition, it will provide comparison information for the towns and the Regional Planning Commissions in the coastal zone so that they can have some gauge of the pace of their own

development. Further, the socioeconomic overview will provide data on trends, so that some historic perspective can be gained and future projections made regarding land use issues currently being debated.

The following are the major elements of the socioeconomic inventory of the coastal zone:

1. population
2. taxation
3. land use
4. economics
5. housing
6. transportation
7. education
8. recreation
9. other



Population

Several aspects of Maine's coastal population are of importance and interest. We need to know how the Maine coastal zone population compares with the national population in terms of: age profiles; what the specific town population profiles and growth rates are; how births, deaths, and migration are affecting growth; what peak seasonal population is; and where most people are coming from and to what areas of the coast they are migrating.

Taxation

The purpose of taxation information is to show what effect of increased development is on taxes and resultant attitudes toward land use. Important measures here are density; percent of resident ownership of towns; taxes per capita; total valuation; and percent increase in valuation.

Land Use

Land use inventories indicate two different relationships: (1) man's activities on the land, (2) the vegetational and artificial constructions covering the land surface. Both are different concepts; land use and land cover. We have chosen to produce two separate maps for land classification — *Land Cover* (to indicate the nature of the land surface itself) and *Land Use* (for man's activities on the

Socioeconomic Resources

land). Land cover is described in the natural resource section.

Certain land uses will be shown on a facilities and activities inventory map. Specific information displayed will be up-to-date locations of roads (Federal, State, County, Town, paved, and dirt); Municipal waters, water and sewage system lines, and treatment plants; Town, State, or Federal Park lands, as well as private conservation and wildlife sanctuaries; airports; rail lines; automobile and town dumps; employment centers; developed areas of residential, industrial, and commercial use; harbors, quarries, and cemeteries; operating farms; schools, fire stations, and hospitals.

Economics

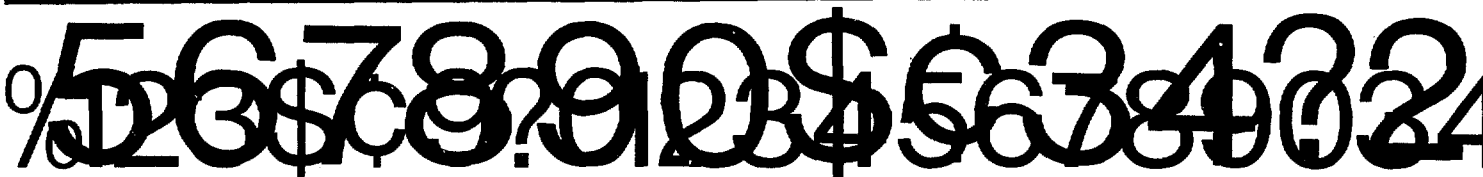
Economic statistics and trends give a simple picture of the coastal economy. Most important units are taxable sales, occupation, value of product, manufacturing wages bank deposits and loans, agricultural census and revenues and expenditures of county governments.

Recreation

An extensive inventory of recreational resources is being undertaken. The inventory of recreational facilities in the coastal zone encompasses such things as campgrounds, parks, winter sports, harbor facilities, trails of all types, museums, and incorporates former studies carried out in conjunction with the Maine Department of Parks and Recreation. Emphasis has been placed on where such facilities are located, what specific services they offer, who owns and uses them, and their intended future use. As a supplement to this recreation inventory, figures will be added to gauge the economic impact of visitors as well as trend figures on public park attendance.

Others

Miscellaneous other important statistics on resource and people are also included, i.e. timber supply and demand, fisheries supply and demand, poverty and health indices and mineral production.



Housing

The purpose of the housing inventory, is to see what coastal housing stock is available, what is worthwhile preserving, how many units are needed, and how many are being built.

Transportation

Information about the need for additional transportation and demands on current transportation, throughout the coastal zone, is being obtained by inventorying numbers of vehicles, transportation mode, average daily use of summer roads, and highway sufficiency. Fluctuations in ferry traffic, railroad freight, and harbor traffic are also included.

Education

The general level of education of coastal residents is obtained, as well as the number of students now in the various types of schools.

Synthesis of Resource Information

A great deal of information about the Maine coast is being gathered, and, in most cases, mapped. How this information is used is the crux of the planning process underway for the Maine coast. Certainly, the resource information can stand on its own as having a great deal of utility, particularly to local and regional planning boards, state regulatory commissions, conservation commissions, and land developers of many interest. But perhaps the most interesting use of this data comes in the process of determining objectively the capability for use of any particular land area.

We can only generalize into types of uses for which a land area may be suitable; it would be neither wise nor fair to attempt to plan, even in an advisory way, the specific use of each acre of privately owned land in the Maine coastal zone. But landowners, as they become familiar with coastal resource information, hopefully will be able to use their land in a manner most consistent with the natural resource capability which that land has

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and in a manner which provides the greatest benefit both to themselves and to their neighbors.

After much research and testing of various methods of assembling natural resources information and after considerable analysis of the needs of Maine at this point in time, three types of maps are felt to be most useful for the Coastal Resources Atlas. These maps are designed to show:

- Areas of Particular State Concern
- Suitability of Areas for Activities of Major State Concern
- Preliminary Land Use Plan

Because these concepts are likely unfamiliar to most, the purpose and composition of these maps are explored in some detail in the following section.

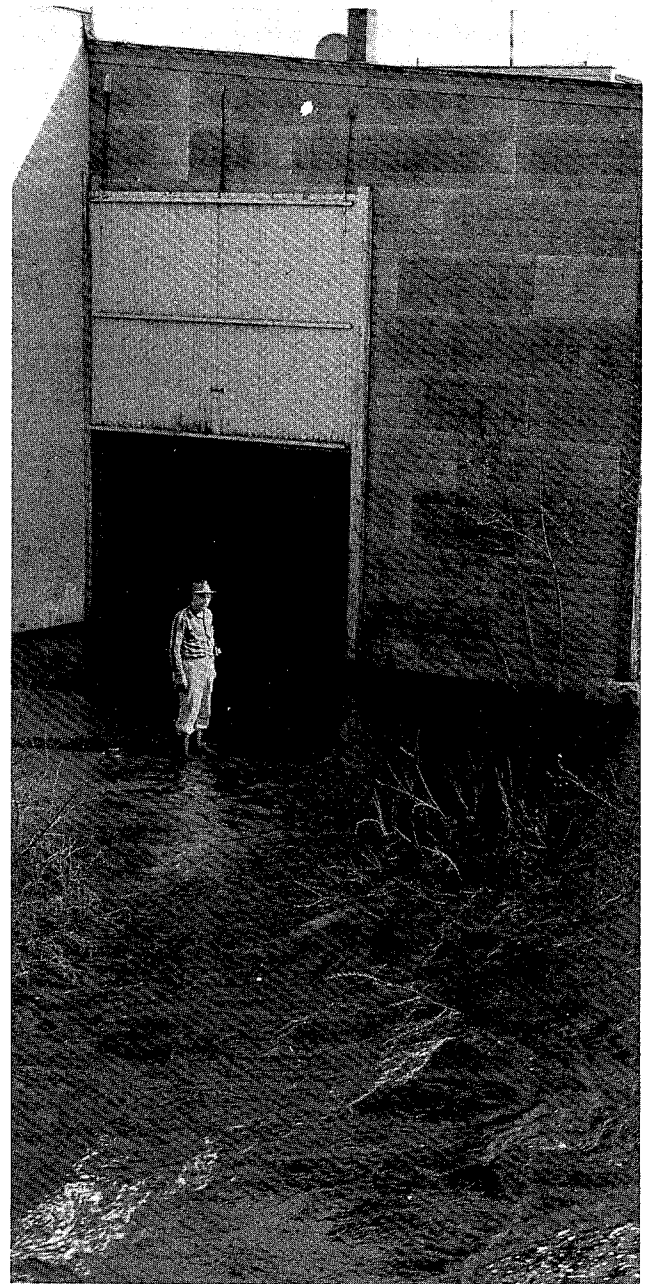
Areas of Particular State Concern

In the creation of a State Register of Critical Areas, the Maine State legislature has recognized the fact that there are areas of the State where the people of Maine as a whole have a stake in the way the land and its resources are used. The Critical Areas Registry provides for the listing of "natural, scenic, scientific and historical areas of overriding state interest."

In the Maine Coastal Plan, the definition of areas of particular state concern is similar, though somewhat broader. In general terms, areas of particular state concern consist of areas where the interests of different groups are likely to conflict and where land use significantly affects the state and its people as a whole. Following is a listing of broad categories of these areas and the reasons they are considered to be "of particular state concern." These categories are not mutually exclusive, that is, a particular area may qualify for inclusion in two or more categories for different reasons.

Hazard Areas

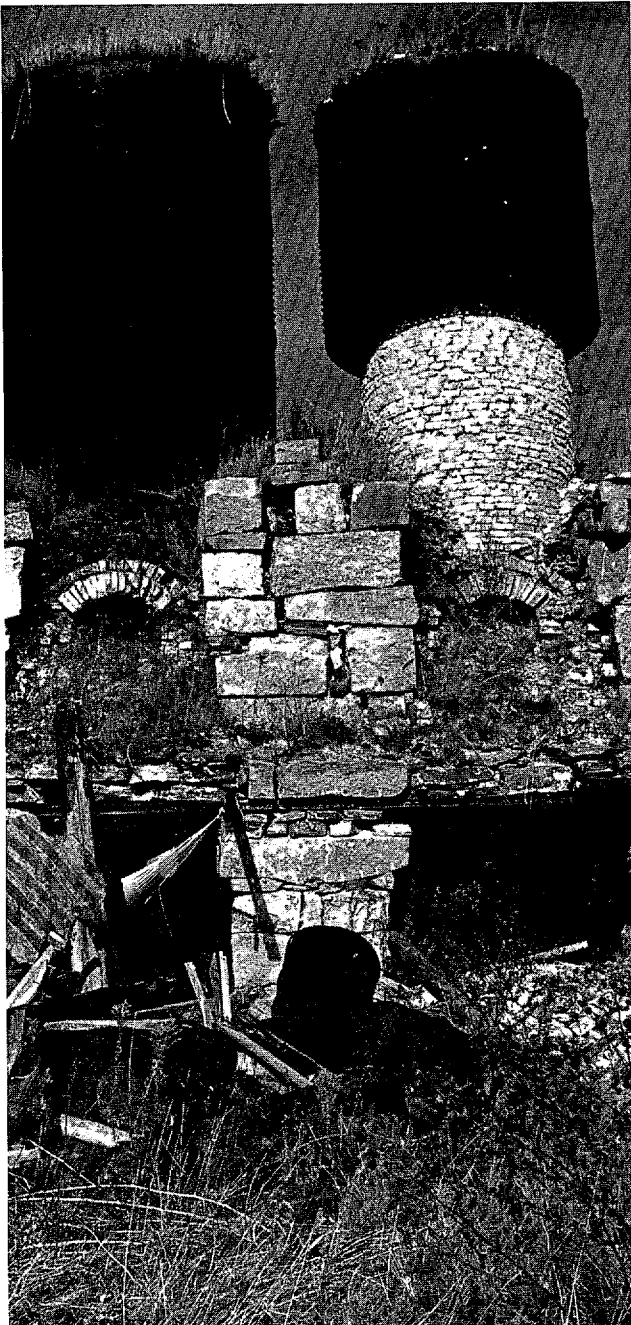
Floodplains of both tidal and inland waters as well as other types of areas which present similar hazards are of concern because of safety considerations, the danger of environmental damage, and unnecessary private and public costs associated with inappropriate development in these areas.



Areas of Particular State Concern

Significant Natural, Scientific, Historic, Cultural, or Archaeologic Resources

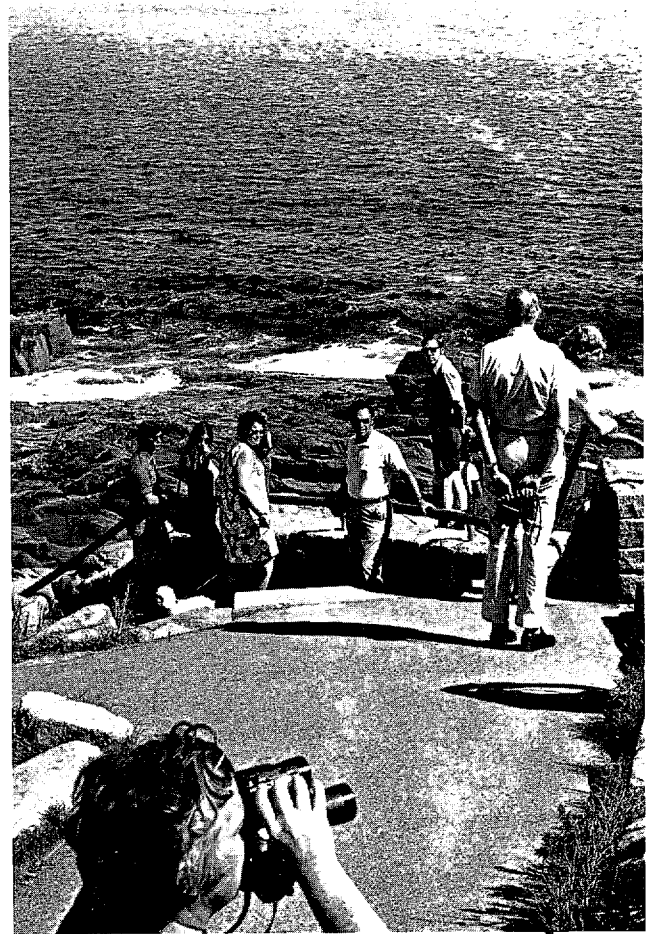
These are of concern because of their value in promoting a better understanding of the natural world and the traditions of man. This category includes a number of different types of areas as reflected in the title.



Alda Stich

Significant Scenic Areas

These areas are of concern because they affect the experiences of the general public in an area. Scenery is one of the outstanding qualities of the coast and is recognized as being a legitimate concern in numerous state statutes as well as the Coastal Zone Management Act. Examples of types of areas which are included under this broad category are scenic vistas and particularly scenic stretches of highway.



Alda Stich

Areas of Particular State Concern

Areas where Development Significantly Affects the General Public and Which are Under Intense Development Pressure

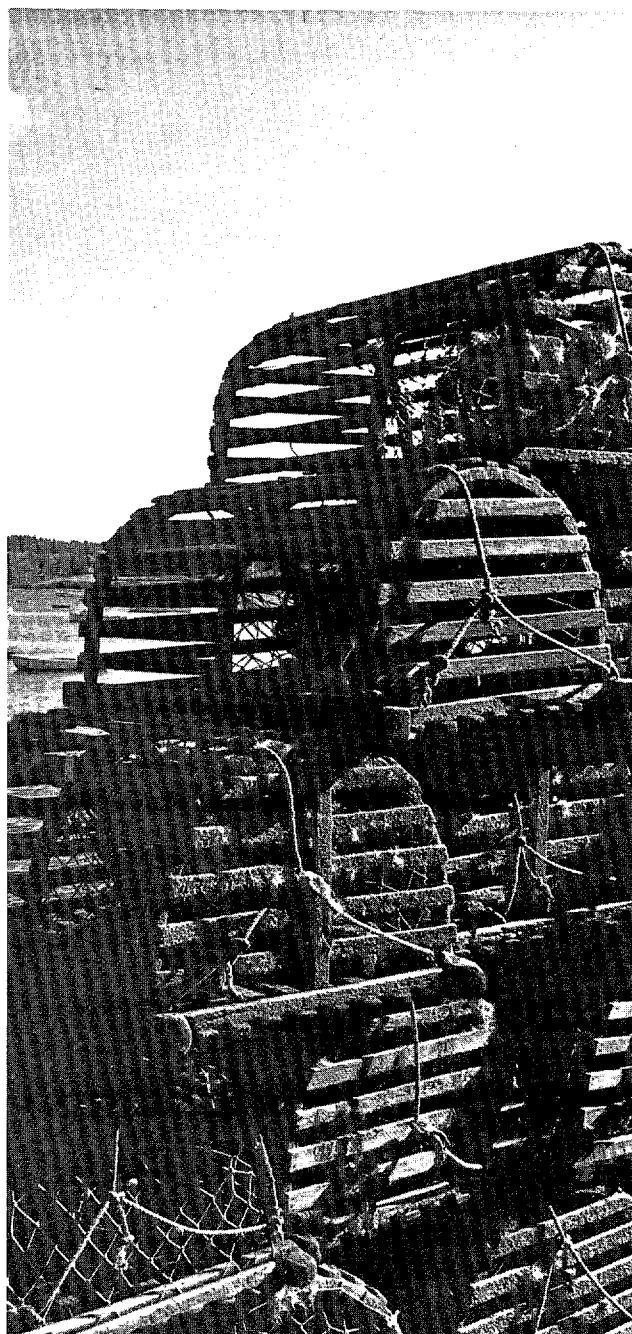
Substantial sometimes conflicting developments occur within these areas, and such development activity can significantly affect the public at large. Examples of two specific types of areas within this category are fragile shoreland areas and areas along federal and state highways.



Alda Stich

Economically Valuable and Potentially Valuable Natural Resources

The resources in these areas lend themselves to uses which can provide significant economic returns to the region. Specifically included within this category are significant mineral deposits, sites suitable for aquaculture, and prime agricultural areas.

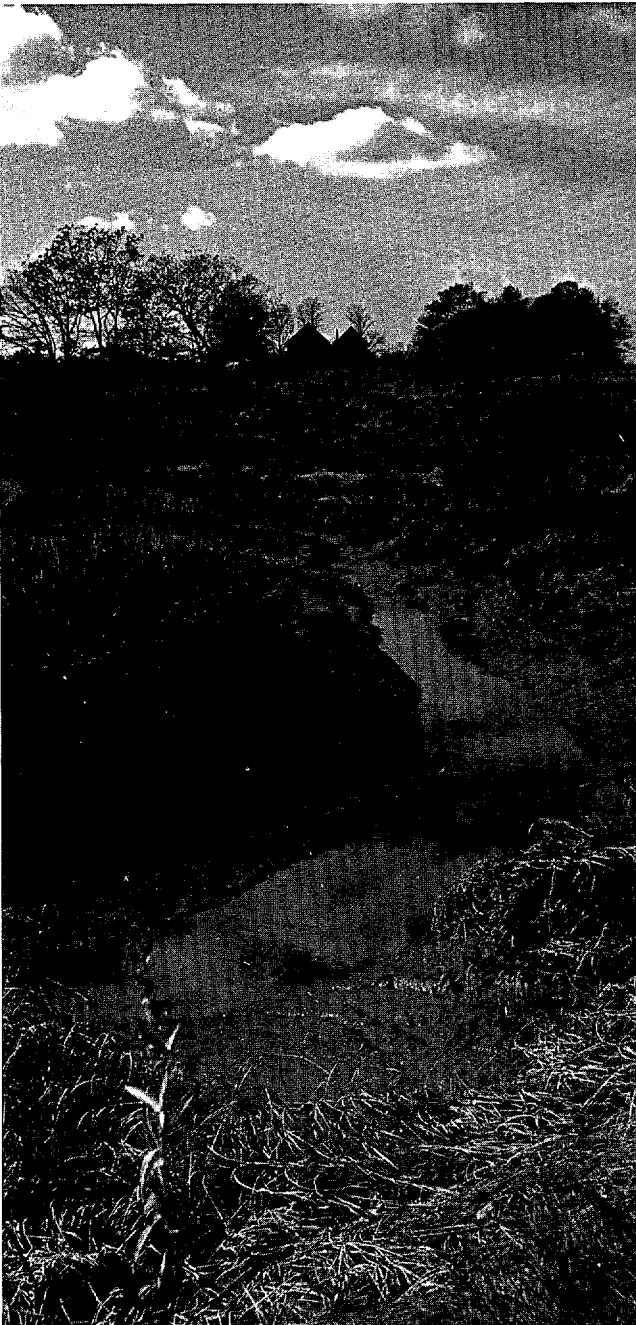


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Areas of Particular State Concern

Ecologically Sensitive Areas

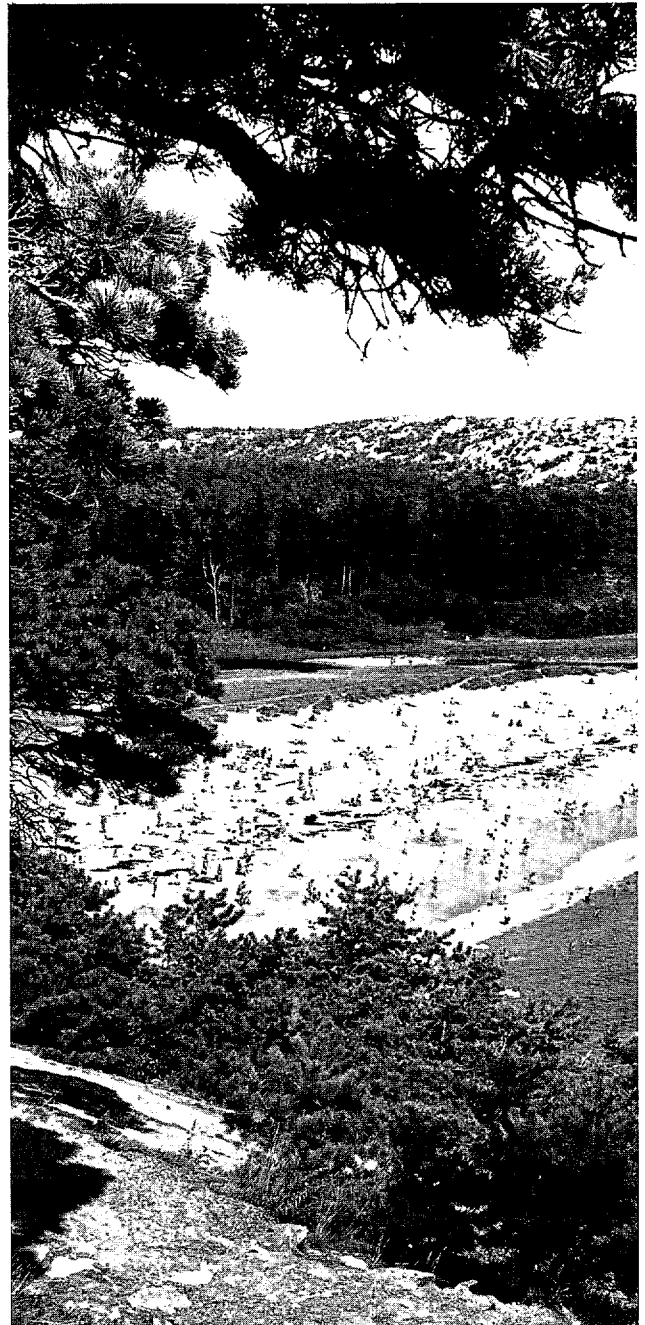
These areas are of concern both because of the vital role which they play in the functioning of natural systems and their vulnerability to changes induced by development and extensive use. This broad category includes wetlands (both fresh and salt water types), and beach and dune systems.



Aida Stich

Significant Recreational Resources

Recreational resources are particularly important in Maine's coastal zone because recreation pressures are substantial and growing. Furthermore, very little coastal land is in public ownership. Specific types of areas included in this general category are significant beaches, heavily used foot-paths, and others.



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Areas of Particular State Concern

Existing and Potential Routes of Public Access

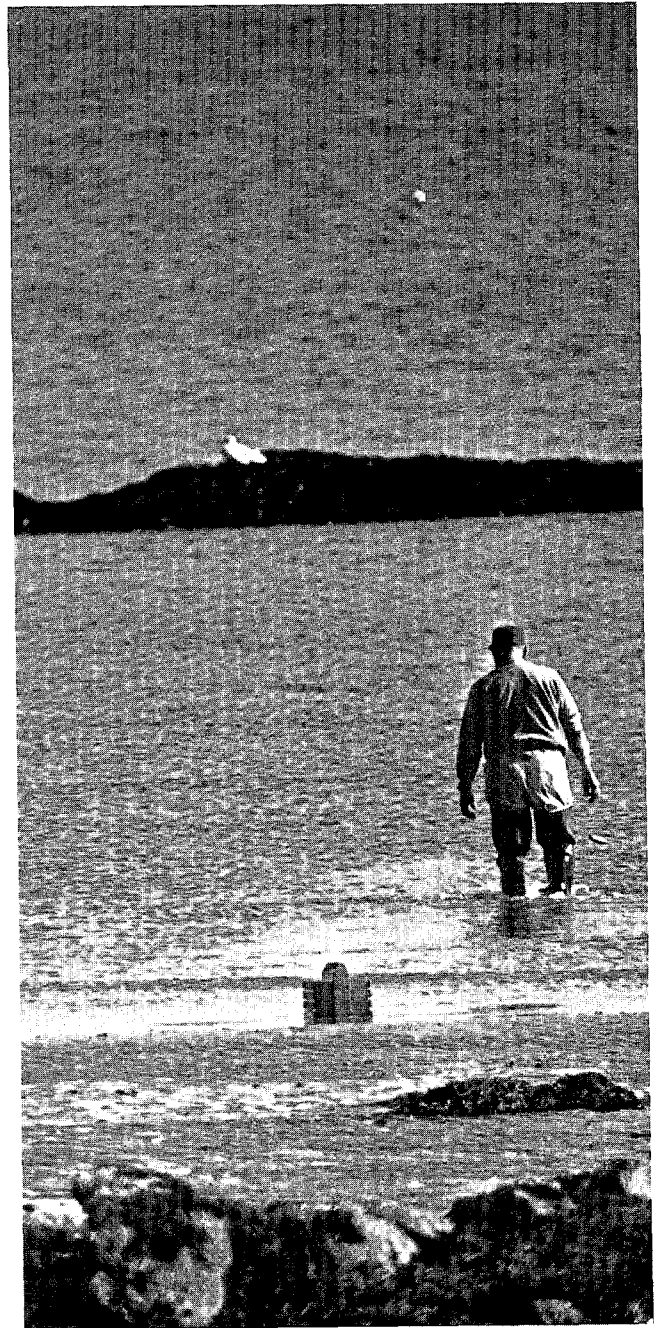
Access is a key element in the public's use and enjoyment of coastal resources. Lack of access to the coast is a real and growing problem in Maine. While the public is guaranteed the right of navigation and fishing in the intertidal zone, in many areas this right is in fact nonexistent since adjacent shorelands are privately owned. For these reasons, existing and potential routes of access to the coastline are of prime concern.



Alda Stich

Important Habitats

Habitats which support relatively large populations of important animal species (or rare and endangered species) are of concern because of the tangible and intangible values of these populations. This category includes significant deer wintering areas, waterfowl nesting areas, waterfowl overwintering areas, clam and worm flats, and lobster concentration areas.



Alda Stich

Table
Areas of Specific State Concern

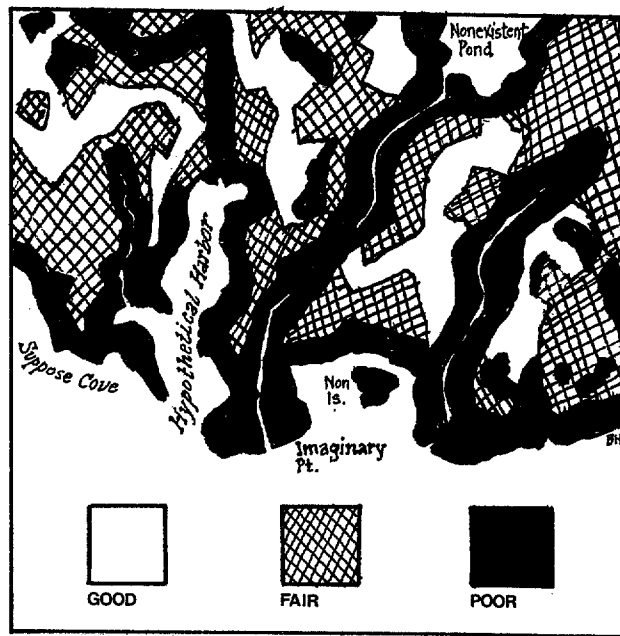
I. Hazard Areas: 1. Floodplains 2. Other hazard areas	II. Areas of scientific, historic, and prehistoric significance: 1. Areas of scientific significance 2. Areas of historic and prehistoric significance
III. Areas of scenic or visual significance: 1. Significant scenic vistas, foreground components, and viewpoints 2. Significant scenic or aesthetic areas or sites	IV. Areas where development affects the public and which are under intense development 1. Shoreland areas as defined in state law 2. Areas within 250 feet of federal and state highways 3. Approach and egress routes of town centers
V. Areas with economically valuable or potentially valuable natural resources: 1. Areas with valuable mineral resources 2. Aquaculture sites 3. Significant agricultural areas	VI. Ecologically Sensitive Areas: 1. Wetlands 2. Beach and dune systems 3. Shoreland areas especially vulnerable to erosion or slumping 4. Other significant, ecologically sensitive areas
VII. Areas which offer significant recreational opportunities: 1. Significant beaches 2. Heavily used footpaths 3. Other areas which offer significant recreational opportunities	VIII. Routes of Public Access: 1. Existing routes of public access 2. Potential routes of public access
IX. Important Habitats: 1. Deer wintering areas 2. Waterfowl nesting areas 3. Waterfowl overwintering areas 4. Clam flats 5. Worm flats 6. Lobster concentration areas 7. Scallop concentration areas 8. Other important habitats	Where possible, the relative importance of these areas will also be indicated on the Synthesis map. Three categories of importance will be used: (1) high importance; (2) of higher importance; and, (3) of highest importance. Where it is not possible to categorize the importance of areas, this rating will be omitted.

The Suitability of Land and Water Areas for Selected Activities of Major State Concern

The purpose of this type of map is to indicate, from the perspective of the natural resources inventory, the suitability of land and water areas for certain activities of major concern. The activities chosen for consideration in this presentation are those which are felt to be the major resource use issues facing coastal Maine, and which have not yet been dealt with effectively from a planning perspective. At present these are two in number: large scale, land based development, and the discharge of effluents to surface waters. In the case of both these activities, the state's interest and concern have been enunciated in legislation (the Site Location of Development Law and Protection and Improvement of Waters Laws) and are widely accepted.

Ultimately, proposals to conduct such activities should be reviewed for conformance with a regional resource use plan (which considers the full range of concerns involved). However, pending the formulation and implementation of regional plans this presentation serves to interject certain systematic natural resource planning considerations into the dialogue concerning the location of such activities, in addition to providing a policy framework for the case-by-case review of proposals currently prescribed by State law.

The factors considered in the determination of an area's suitability for this purpose do not constitute an inclusive list, but do include the most important and readily acknowledged factors. These include the relative capacities of the natural resources involved to support and accommodate the intensity of activity involved. There is also an attempt to potential use conflicts which clearly involve state interest. More detailed information on the criteria used in determining the various categories of land and water suitability are as follows:



The Suitability of Land Areas for Selected Large-Scale Development Activities

Land-based development activities selected for consideration here are of two major types:

1. Activities which involve the construction of large buildings such as industrial plants, warehouses, port facilities, power plants, commercial complexes, office buildings, shopping centers, auditoriums, etc.
2. Large residential developments or subdivisions (further differentiated by the method of sewage disposal employed.)

These two types of activities were chosen because they include the most prevalent and important development pressures in the coastal zone of Maine. Further, these activities are of concern because of the possibility of unnecessary private and public costs incurred, hazards to public health and safety, and conflicts with other uses or values which are associated with such developments on unsuitable sites. A variety of conflicts between uses may result if development is improperly sited such as: conflicts between sewage disposal and water supply, water related recreation, and pro-

The Suitability of Land and Water Areas for Selected Activities of Major State Concern

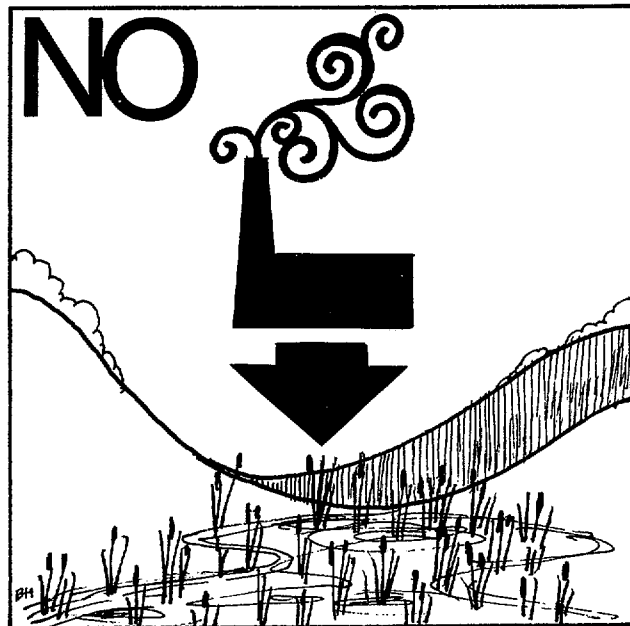
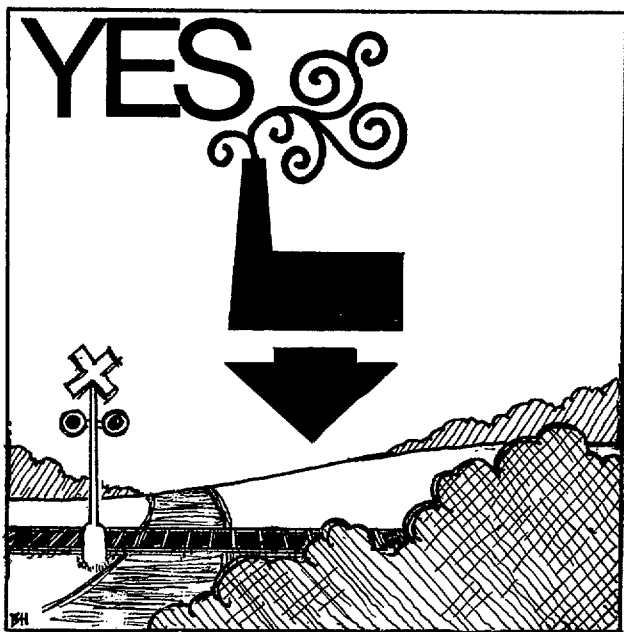
duction of aquatic life; or conflicts between building siting and wildlife production, scenic enjoyment, and recreation.

The intent of this portion of the Plan is to minimize these problems by pointing out areas which are appropriate for different kinds of development. To accomplish this end, land areas have been divided into three classes of suitability for each of three land use activities:

1. Areas which are suitable for *(one of the three uses below)*;
2. Areas which are of intermediate suitability *(one of the three uses below)*; and
3. Areas which are unsuitable for *(one of the three uses below)*.

The three general categories of land use activities considered are used as sites for:

1. Large buildings; (over 60,000 square feet of floor space)
2. Large subdivisions (over 20 acres in size) with septic sewage disposal; and
3. Large subdivisions with sewage collection systems.



There are three principal land and resource features which are involved in making these determinations:

1. Soil and surficial geologic material which are either improperly drained, unstable or otherwise unsuitable for construction and maintenance of large buildings;
2. Bedrock geologic conditions which are either waterbearing, unstable or otherwise unsuitable for the construction and maintenance of large buildings;
3. Locations on or in floodplains, areas of scientific significance, areas of historic and pre-historic significance, significant scenic or aesthetic areas, the foregrounds of significant views, wetlands, significant beach areas or beach and dune systems, shoreland areas especially vulnerable to erosion or slumping, other significant ecologically sensitive areas, and significant wildlife habitats (including deer wintering areas, and waterfowl nesting areas).

The Suitability of Land and Water Areas for Selected Activities of Major State Concern

The Suitability of Surface Water Areas for Waste Discharge for Development Activities

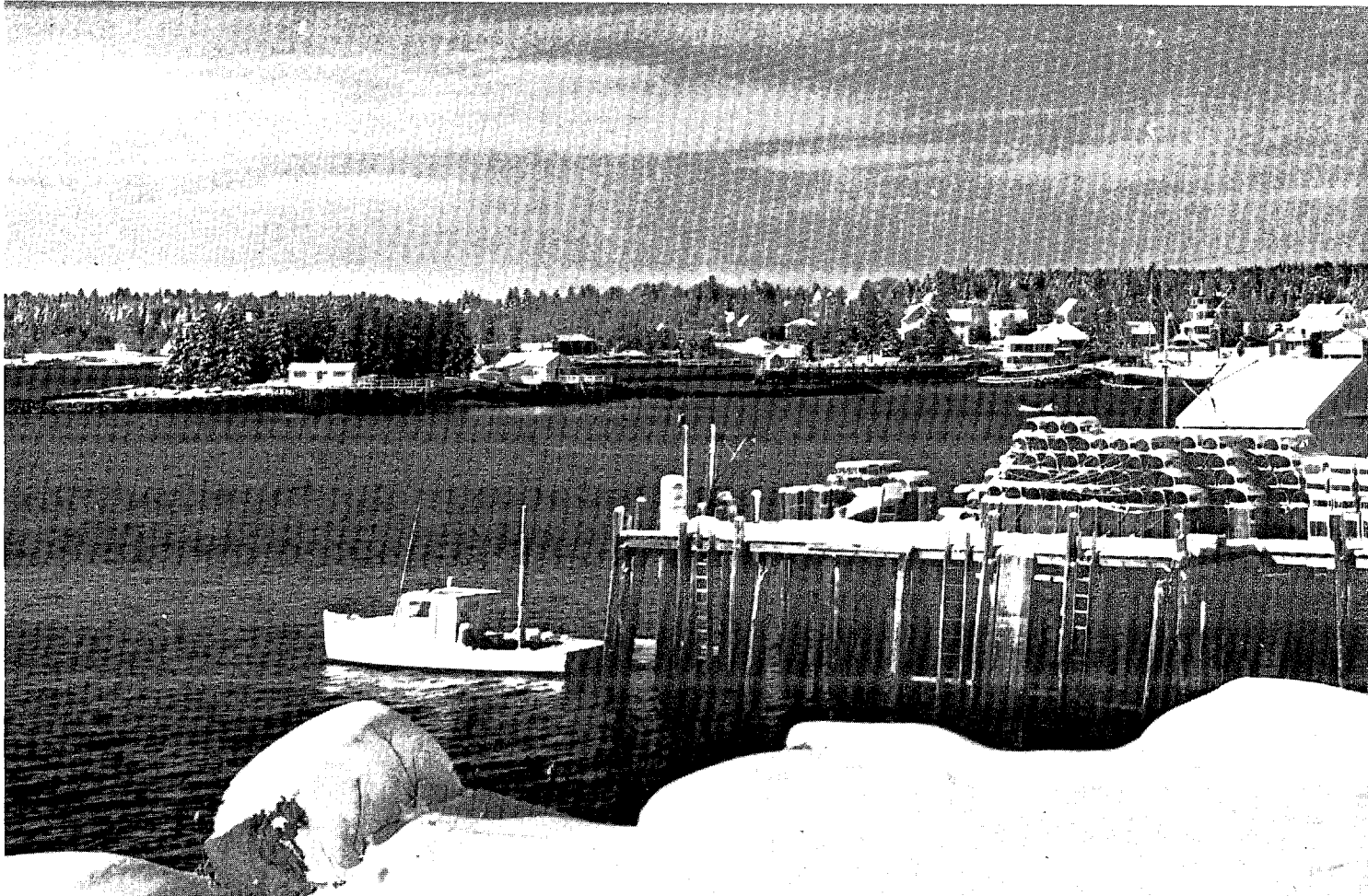
The second portion of the synthesis of natural resource information is the assessment of the capability of water areas to assimilate the currently unavoidable discharge of waste from development activities.

Our concern here is with substances which may legally be discharged into surface waters following "best practicable" treatment, including: organic materials from sewage, paper mill waste and food processing waste; disease-bearing bacteria, plant nutrients and suspended solids from sewage, urban runoff and eroding soil; heavy metals, toxic chemicals, radiation, and nutrients from industrial and other sources; and heated water from power plants and other industries.

Activities which require such discharge would logically include many of the "large-scale" industrial and commercial facilities discussed relative to land based activities, however we are also

concerned with small facilities requiring licenses and producing substantial volumes of waste. The most notable examples of this latter are municipal sewage treatment plants.

A comparable approach and methodology is being applied to the classification of Maine lakes and rivers according to their vulnerability. The end product of classification in conjunction with that generated for land areas should enable a more rational allocation of resources than would be achieved using only that information concerning land area suitability. Moreover it will provide a more specific resource information base for Maine's Water Quality Classification Law.



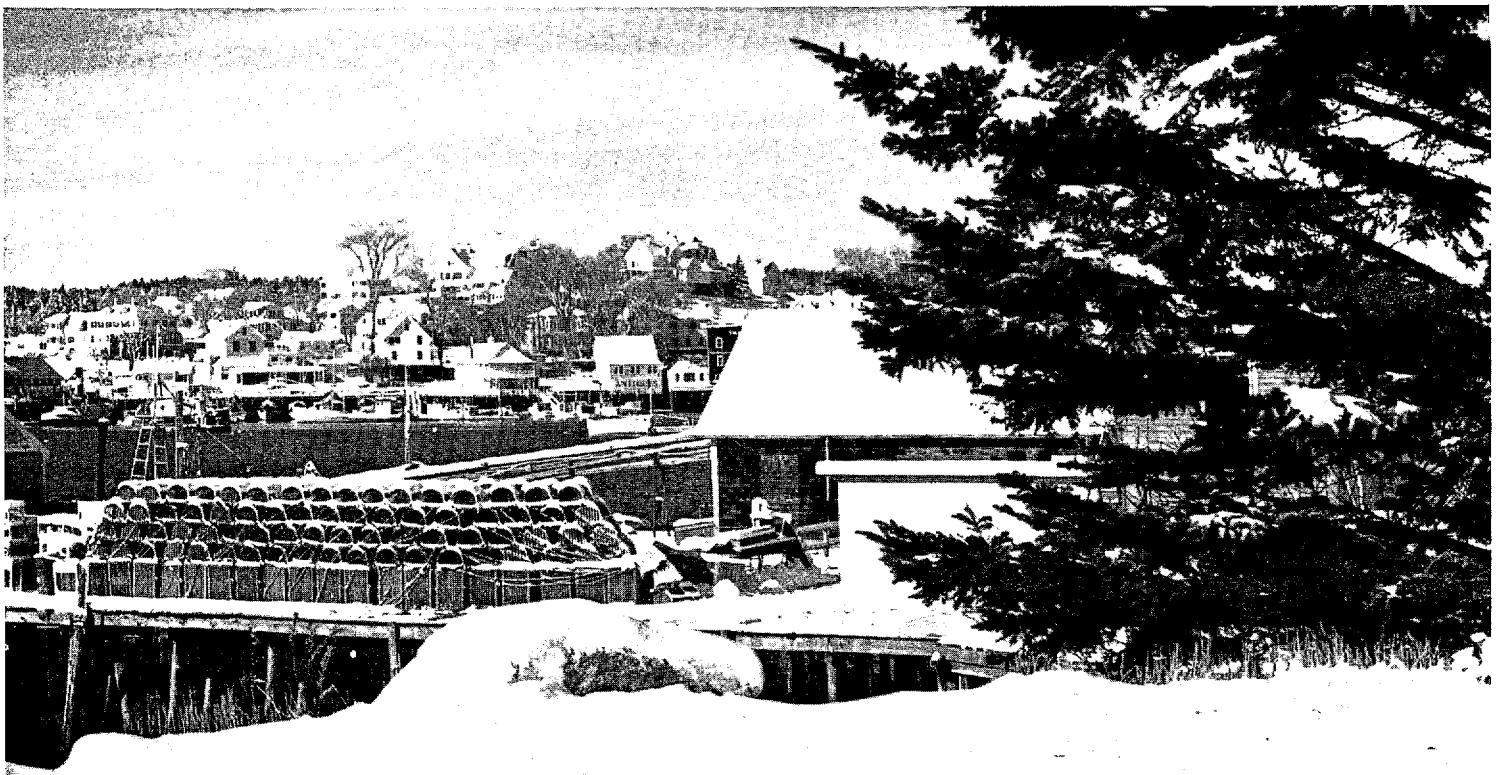
The Suitability of Land and Water Areas for Selected Activities of Major State Concern

General Considerations

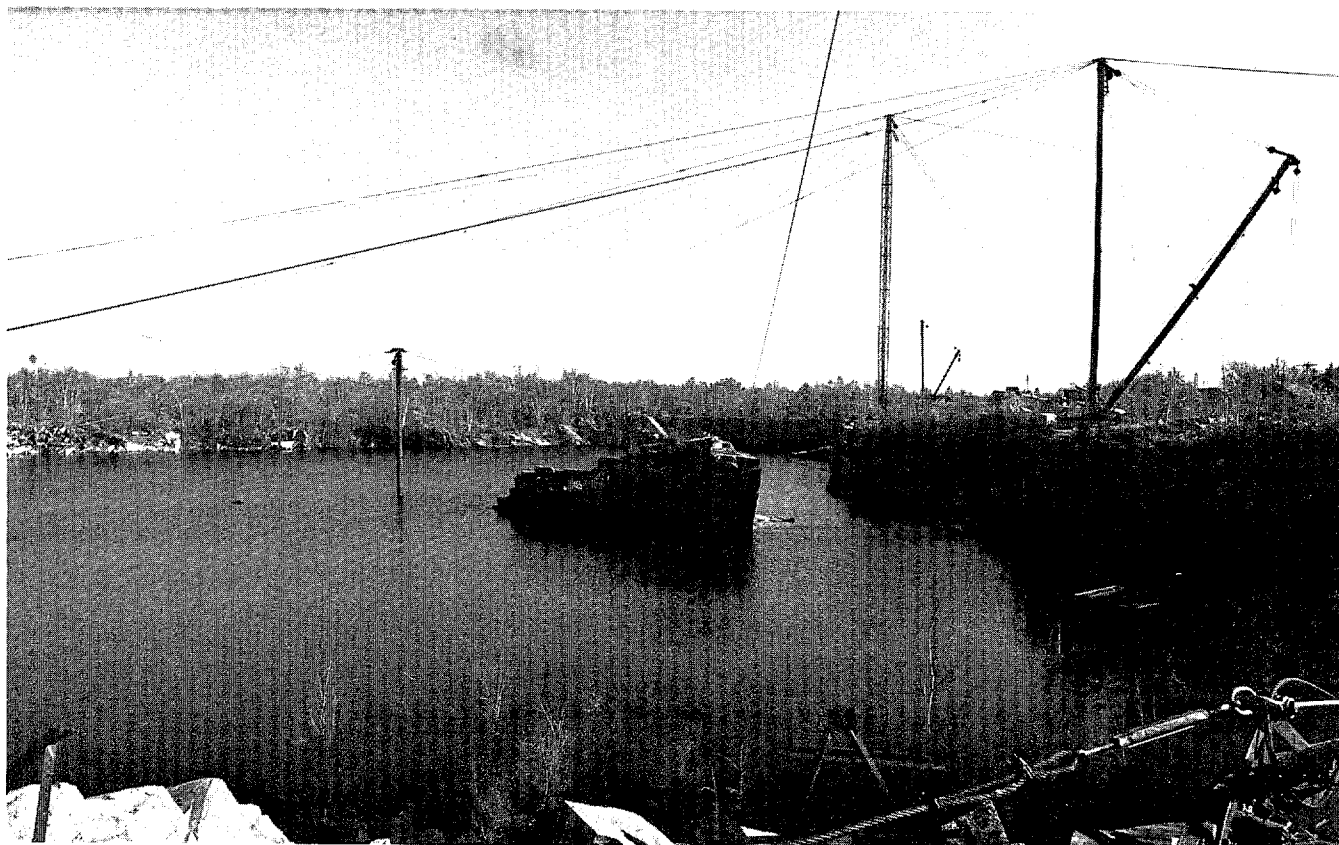
It is important to recognize that the information contained in this presentation is intended to serve regional planning purposes, and that the value represented by this classification system cannot take the place of on-site investigations and engineering studies. Also, because of the general nature of this classification system, substantial variations can exist within an area which has a single classification: a detailed investigation within the site of a proposed development is necessary to avoid areas with adverse conditions which may not be revealed by these maps. Furthermore, this evaluation of suitabilities is based upon the information which is currently available; additional investigation will uncover factors, information, and conditions which were not considered here. Moreover, classification of an area

in a category suitable for development does not mean that the area can withstand abusive development practices: the best piece of development property, when subject to poor construction and operation practices, can cause pollutants to run into watercourses, create soil erosion and siltation problems, destroy the integrity of a town center, and cause other destructive conditions.

Finally, the purpose of the land and water classification system is simply to indicate the *suitability* of land and water areas for certain development activities. Therefore, this presentation should *not* be interpreted as indicating how much development should occur or even the ideal locations for it. Additional social and economic factors in the location of different types and intensities of resource uses are considered in the "Preliminary Regional Land Use Plan," discussed next.



The Suitability of Land and Water Areas for Selected Activities of Major State Concern



Alda Stich

The Preliminary Regional Land Use Plan

The purpose of the preliminary regional land use plan is to provide a starting point for the discussion of allocation of resources in the coastal zone at a regional scale. The preliminary regional land use plan map will be most likely to change with time as it reflects the wishes and aspirations of the people of the region. This map will need continual adjustment and revision as conditions change. It is to be a temporary expression of the process of planning with the people of the coast. To accomplish this end, the plan suggests the allocation of resources to broad categories of uses by the designation of "land use classes."

The designation of land use classes is based on the assumption that where development continues, it should adhere to the following principles: (1) Development should be located in areas which are the most suitable for such use from the point of view of resource capabilities; (2) Development should avoid use conflicts; (3) Intense development should be clustered around nodes to allow efficient provision of services and maintenance of open space; and (4) In general, areas of existing development are the best nodes to build around, since they would be difficult — if

not practically impossible — to remove, and further because they represent the integration of factors which are natural focal points for development. Additionally, in designation of areas for expansion of development, a planning horizon of approximately ten years has been established. Further, this presentation presupposes gradual change and is not intended to address the problems presented by major new facilities of such great magnitude that they overshadow existing patterns of land use. Likewise, it does not consider facilities which must be segregated to a large extent from other land use activities.

A discussion of the land use classes employed, their purpose, the criteria used in designating them, and the type and intensity of uses suggested for them follows:

The Suitability of Land and Water Areas for Selected Activities of Major State Concern

Summary Chart of Criteria Used in Delineating Land Use Classes

Land Use Classes and Areas to be Included

Land Use Class I

(Moderate to high intensity development)

1. Areas with existing moderate to high intensity development (more than approximately 200 principle buildings per square mile); and
2. Areas developed at a lower intensity which have slopes less than 15%; soil, geologic, and hydrologic conditions suitable for intense development; locations where intense development would not conflict with public values as reflected in the designation of areas of particular state concern or otherwise; locations contiguous with or closely proximate to an existing or desired development center; are needed to accommodate the amount of moderate to high intensity development expected to occur over the next 10 years; and which have a comparative advantage for accommodating this intensity of development relative to other areas in the vicinity.

Land Use Class II

(Low intensity development)

1. Areas most appropriate for low intensity development because of a general land use pattern of low intensity non-agricultural or forestry development and either absolute or comparative unsuitability for moderate to high intensity development. The undeveloped portions of these areas have slopes of less than 15%; soil, geologic, and hydrologic conditions suitable for low intensity development; locations where low intensity develop-

ment would not conflict with public values as reflected in the designation of areas of particular state concern or otherwise; and are accessible.

Land Use Class III

(Management)

1. Areas most appropriate for agricultural or forest management because of a general land use pattern of agricultural or forest use; unsuitability for development because of slopes greater than 15%; poor soil conditions (including shallowness, poor drainage, presence of impervious layers, etc.) the existence of hazards such as flooding, conflicts between the use of these areas for development and public values as reflected in the designation of areas of particular state concern or otherwise (of particular importance in this regard is the value of maintaining areas highly suitable for agricultural or forest production in an undeveloped condition) and/or inaccessibility.

Land Use Class IV

(Areas with significant public values)

1. Areas with significant public values as reflected in the designation of areas of particular state concern. The public values considered in the designation of this class include scientific, historic, cultural, archaeologic, ecologic, recreational, and scenic values as well as public access.

Subdesignations Within Land Use Classes

Land Use Class I

(moderate to high intensity development)

Where areas within Land Use Class I are appropriate for only one type of development, they are designated as such. The designations are:

Industrial
Commercial, and
Residential

The factors considered in determining subdesignations include resource characteristics and compatibility with existing uses.

Land Use Class III

(management)

Areas within Land Use Class III where special care must be exercised in conducting agricultural or forest operations are designated as "caution" areas. These include shorelands, slopes over 25%, soil slump areas and others.



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Public Participation in the Maine Coastal Plan

Public Participation in the Maine Coastal Plan

The preceding section outlines our approach for assembling the experts and information for making knowledgeable decisions for coastal land use. It provides a guide for determining where land use can take place; how much and what kinds of uses are made of the Maine coast cannot and should not be answered by experts and on the basis of knowledge alone. Answers to these questions require the tempering of knowledge with wisdom — the wisdom of the people who use and live with the coast and its resources.

The guidelines for the Federal Coastal Zone Management Act, Section 305 (planning) encourages the states to move beyond formal public hearings to engage the public in the development of management plans and policies.

It is a sad but true fact that many public programs in Maine wind up in the hands of professionals and members of an upper and middle class socio-economic group. For the most part these people do not represent a majority of Maine people, and usually are themselves unaffected by the problems they tackle and the solutions they propose.

A number of state and federal agencies have begun to involve the public more deeply in resource planning: the new Maine Action Plan of the Department of Transportation centers on this theme; the Department of Conservation recently issued a call to a broad based group of citizens to help it consider policy issues; the Bureau of Forestry is conducting a series of public meetings to consider alternative forms of forest management legislation; the Land Use Regulation Commission has been increasing its informational contacts with the public; the Department of Environmental Protection will be sponsoring a series of Water Quality workshops under the Federal Water Pollution Control Act; and last year, the State Planning Office sponsored a statewide opinion poll to find out how Maine people stood on a broad range of issues facing the state.

There is no prescribed formula for successful public participation — many of the approaches are highly improvisational. The Coastal Planning Group moved into its first concerted effort to engage the public when it agreed to assist in re-drafting the Master Plan for Acadia National Park — lack of public involvement in developing the first plan had been among its major shortcomings. A series of public meetings sponsored by the Coastal Planning Group during the summer

of 1973 resulted in several policy recommendations for improving park management and especially relations between the Park and surrounding populace. A subsequent opinion poll tested the base of support for these recommendations among the general populace of the region. Out of this experiment in public participation eventually emerged a standing group in the Hancock County Regional Planning Commission which will act in the future to encourage more open planning and administration of the Park.

The current approach to public participation under the Coastal Zone Management Program owes much to the success of this initial venture in Hancock County, which has convinced us that articulate and sensible policy with state and national implications can be developed at the local level, even in rural areas, if given the opportunity and time.

The specific participatory programs for the coastal zone vary according to circumstances and requirements, but in all cases, the primary contact for our office will be the Regional Planning Commissions, which have contractual agreements with the Coastal Planning Group to assist in generating local input into the Maine Coastal Plan.

In each region, we have tried to tie our objectives to the ongoing or scheduled activities of the Regional Planning Commissions for several reasons. This was economical. It also promised to give a concrete framework to the consideration of policy issues of an elusive and diffuse nature. Also, we are philosophically committed to implementing the Maine Coastal Plan through the existing management structure of laws and institutions with as few amendments as possible. Most of the Regional Planning Commissions are working diligently to educate the public in this system, to make it a framework for policy considerations, and to make it administratively effective. Our role in part is to support them in this effort.

What goals do we seek to accomplish by involving the public in the planning process? One of our major goals is educational. Resource analysis of the sort conducted by our office provides a rational framework for considering local conservation and development issues and for designing policies to deal with these issues. These policies in turn provide a more meaningful context for the administration of local land use ordinances and give the town more real control over the direction

Public Participation in the Maine Coastal Plan

of its growth. The public meetings will, therefore, also lend themselves to consideration of implementing these growth policies in forms ranging from code enforcement programs to effective communication between the planning boards and the citizenry. The relationship of the individual landowner to the maze of local and state environmental laws will also be examined: for this purpose, a manual is being prepared to illustrate development considerations in coastal areas.

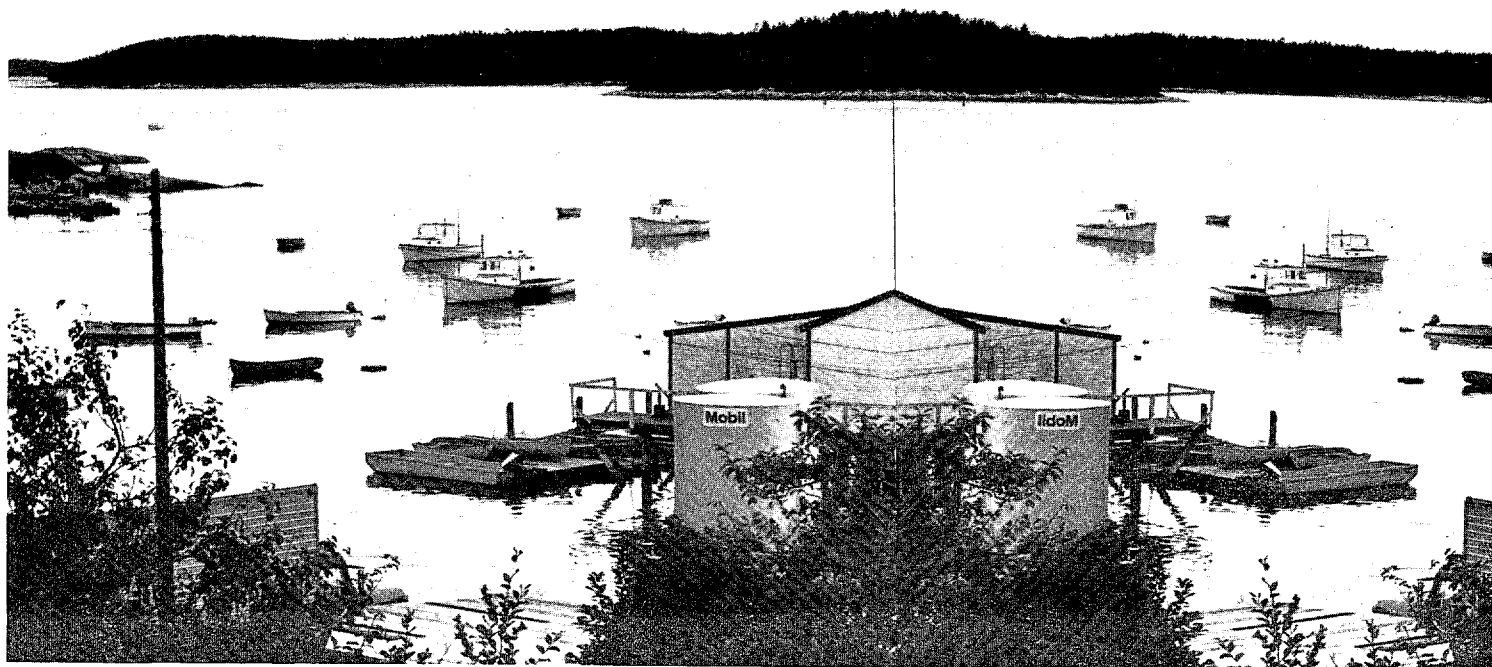
Conversely, we are also interested in what the people have to tell us. The Coastal Planning Group is charged with addressing a number of state and national issues, ranging from the preservation of critical areas to the siting of coastal energy facilities — the outcome of which will have an obvious impact on some, perhaps all towns. A number of questions have to be answered at least in part by the people actually living on the coast: for instance, what sort of tradeoffs are they willing to consider to get heavy industrial development or to preserve a uniquely beautiful stretch of coastline?

The methods which we are using for informing and for involving the public are numerous: you are holding one of them in your hands. In addition to this booklet, we have planned:

- A slide show of attitudes of Maine coastal residents toward change which will serve to focus discussion at meetings.
- A series of regional meetings at which coastal issues will be identified and discussed. These will be organized by the Regional Planning Commissions and will provide a forum two-way communications between the planners and the people of the coast.
- A public opinion poll, which will help us to understand what the people of the coast wish for their future, and how they think their desired future should be achieved.
- A series of informative news releases to acquaint coastal residents with some of the technical aspects and implications of resource planning.

This series will eventually be bound into a book for use by planning boards and other interested citizens.

The Regional Planning Commissions will be assisting towns in the coastal zone in evaluating their own land use policies and controls to see if those policies are truly capable of achieving the goals which the town has set for itself.



Cooperating Agencies and Institutions

Given the scope and complexity of the Maine Coastal Plan, it would be impossible for one small staff to accomplish it singlehandedly, and indeed many hands are working at the technical level to bring about the fulfillment of the plan. These cooperators and their general areas of responsibility are outlined below:

State Planning Office

Responsible for overall coordination and policy direction, mapping and several areas of resource inventory: Synthesis mapping.

Maine Department of Marine Resources

Marine resources inventory: (biological assemblages)

Maine Department of Conservation — Bureau of Geology

Geological inventory: (groundwater, bedrock, surficial and estuarine)

Maine Department of Inland Fisheries and Game

Resources inventory: (wildlife and upland fish)

University of Maine

Anthropology Department — Social Sciences Research Center — Environmental Studies Center

Lake classification

Regional Planning Commissions

Resource inventory: (current land use), public participation, local assistance

New England River Basins Commission

Assistance in regional cooperation

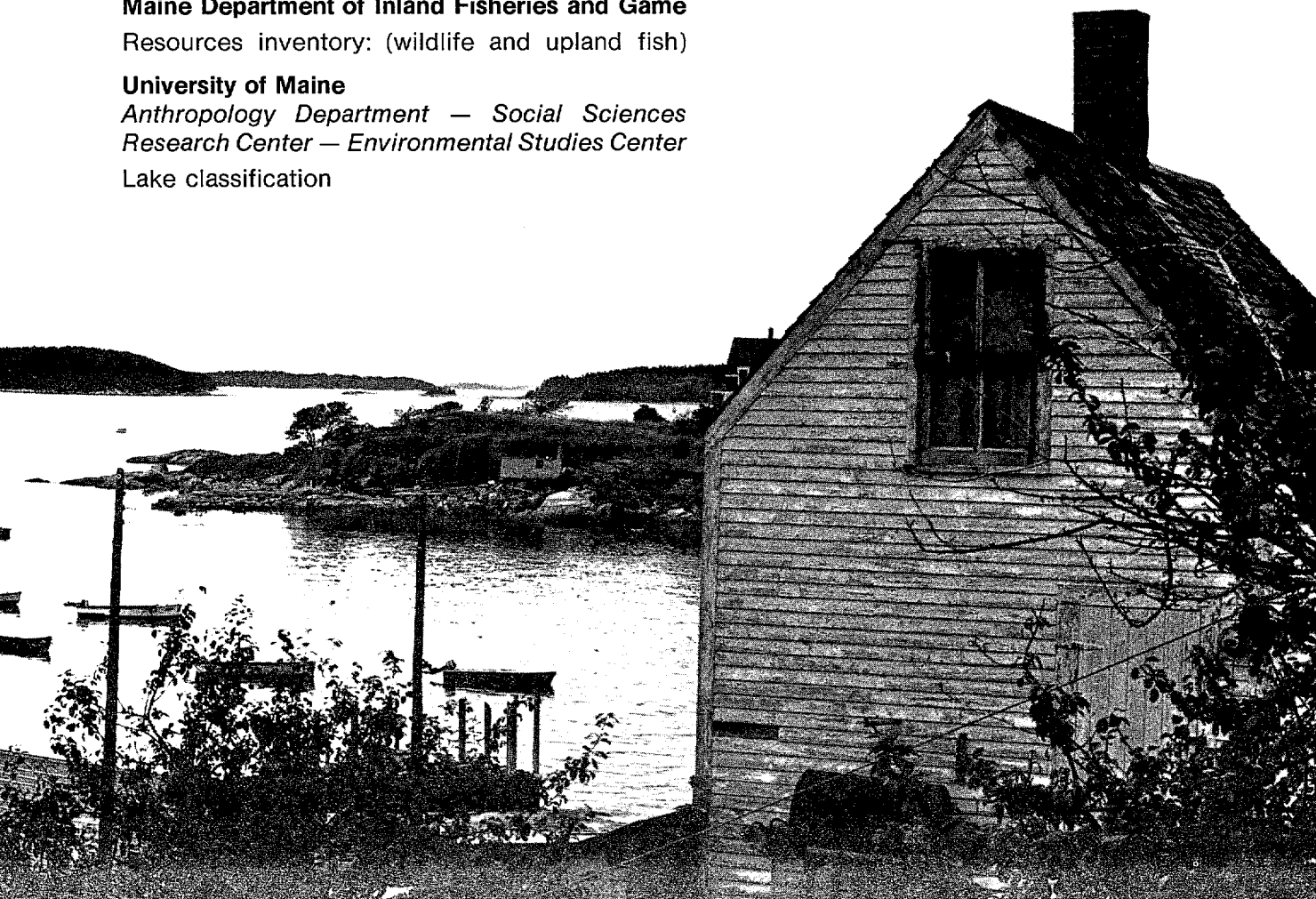


Photo — Lynn Franklin

Summary

In this booklet, we have presented a general picture of our philosophy and our work, which is briefly the incorporation of a physical resource inventory and a socioeconomic inventory into a recommended land use plan for Maine's coastal zone. A method has been outlined for determining the areas in the coastal zone where the people of the State of Maine as a whole have a legitimate interest in the way land is used and developed in the future. The critical importance of the advice and participation of the people of the coast in the formation and implementation of this plan have been stressed.

Where do we go from here? Of all the United States, the State of Maine can claim to be one of the best prepared to direct and control its own development to the benefit of all its citizens. The laws which have recently been enacted in Maine, provide a good framework for managing the resources of the coastal zone. The Maine Coastal Plan will provide a rational basis for state, local, and regional decisionmaking within the context of the existing regulatory framework in the coastal zone.

What is needed now, is the commitment on the part of Maine citizens to carry it through, to work together, and to seek equitable solutions to the inevitable conflicts that arise in the use of our coastal resources.

Sources of Further Information

The following bibliography is a selection of references intended to serve as a first step for the reader wishing to pursue a subject further than it is dealt with in the report. The works included are, by in large, of general nature. More detailed and technical references pertaining to specific planning considerations will be cited in subsequent publications of the State Planning Office.

State Planning Office Publications and Materials Pertaining to Coastal Zone Management

Maine Coastal Plan

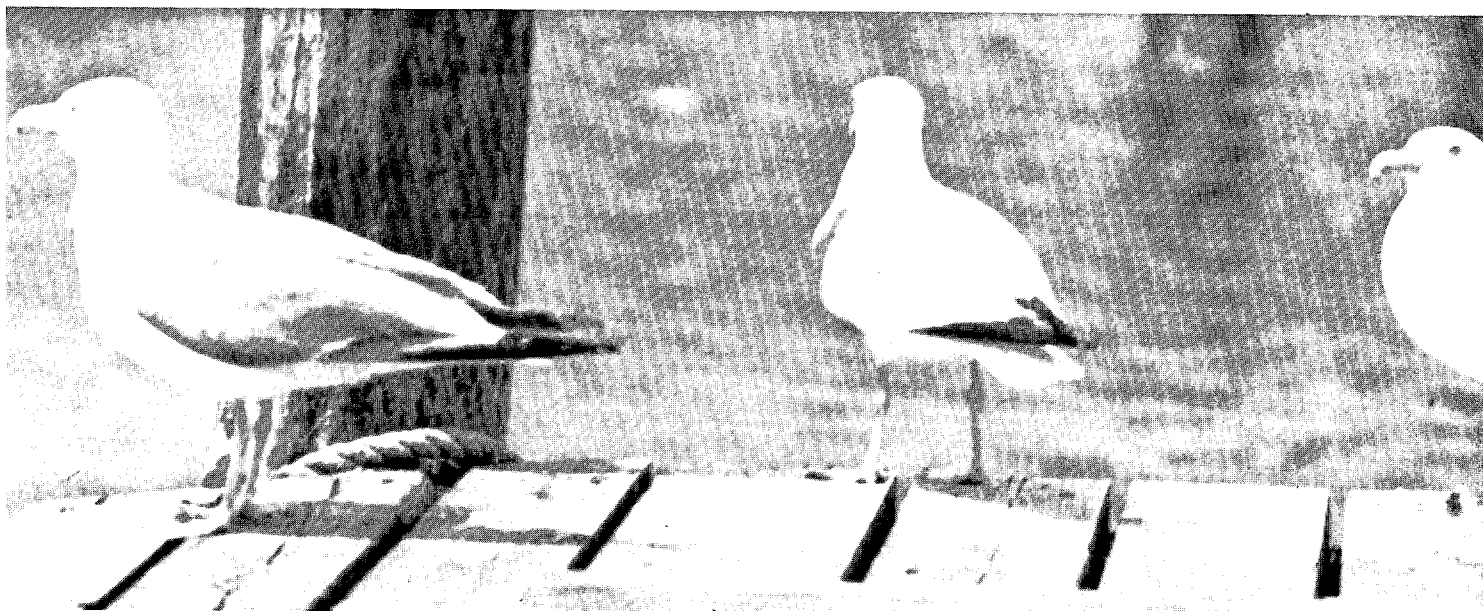
Maine Coastal Plan Progress Reports," September 24, 1974 and June 30, 1974; Submitted to the Office of Coastal Zone Management, Department of Commerce.

Maine Coastal Plan: Application for Financial Assistance from Federal Coastal Zone Management Act of 1972; January 15, 1974: Submitted to the Office of Coastal Zone Management, Department of Commerce.

Coastal Zone Management in Maine: A Legal Perspective, Harriet P. Henry, December, 1974 (for the State Planning Office.)

Maine Coastal Plan: The Penobscot Bay Resource Plan, State Planning Office, August, 1972.

Maine Coastal Resources Renewal: Aquaculture, Recreation, Energy, State Planning Office, July, 1971.



Sources of Further Information

Maine Coastal Development Plan: Phase I Report, State Planning Office, 1970.

Coastal Planning Information Gathering: A list of specific resource data being gathered for the Maine Coastal Plan; Contact Gary Higginbottom, State Planning Office, Coastal Planning Group, Augusta, Maine.

Socio-economic Inventory: A list of the various socio-economic data being gathered for the Maine Coastal Plan.

An Inventory of State Land Use Legislation Affecting the Coastal Zone (draft); Contact Robert Elder, State Planning Office, Coastal Planning Group, Augusta, Maine.

Code Enforcement Questionnaire: A questionnaire being administered by the coastal Regional Planning Commissions pursuant to offering a regional code enforcement program designed specifically for smaller communities; Contact Michael McMillen, State Planning Office, Coastal Planning Group, Augusta, Maine.

Shoreland Zoning

Local Shoreland Zoning Progress Report, August 8, 1974. Periodically revised. For further information contact Rich Rothe, State Planning Office Shoreland Zoning Coordinator.

List of Municipalities with State-imposed Shoreland Ordinances, August 7, 1974. Periodically revised.

Sample Forms for Shoreland Zoning Administration, June 4, 1974.

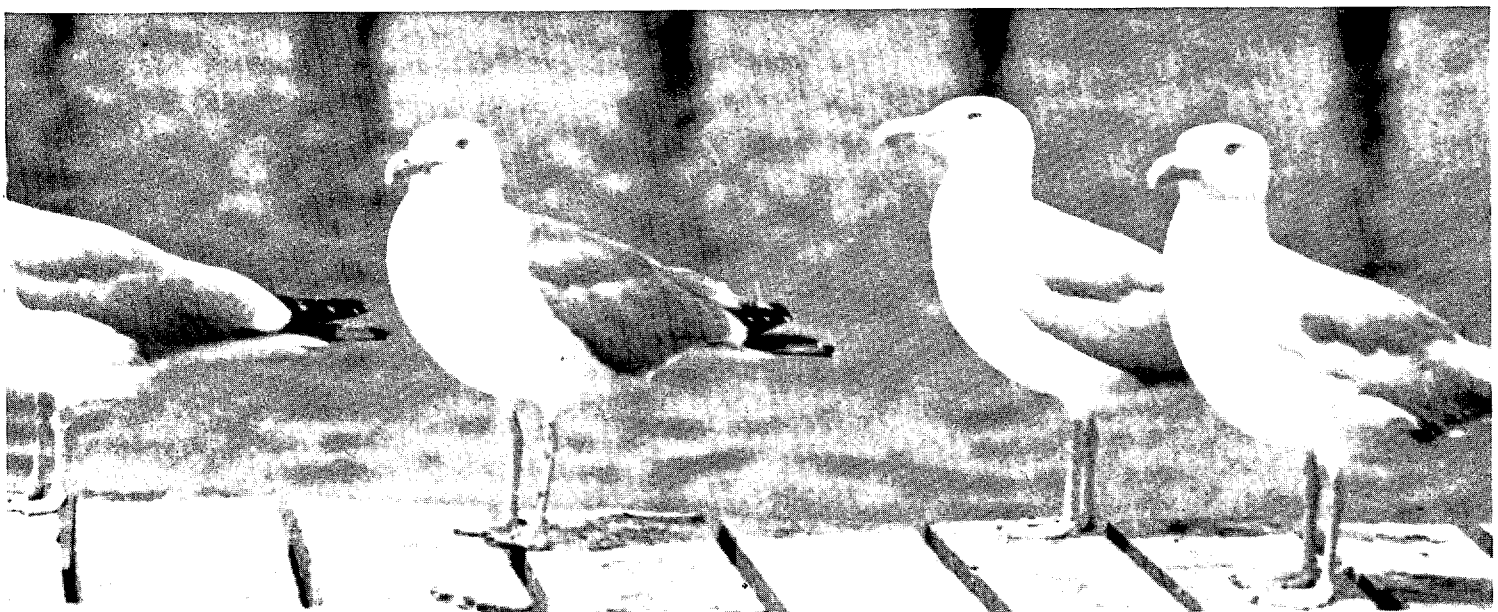
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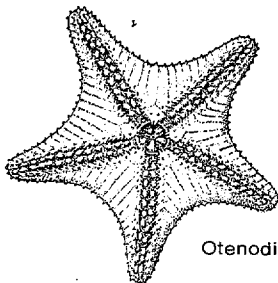
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Otenodiscus crispatus

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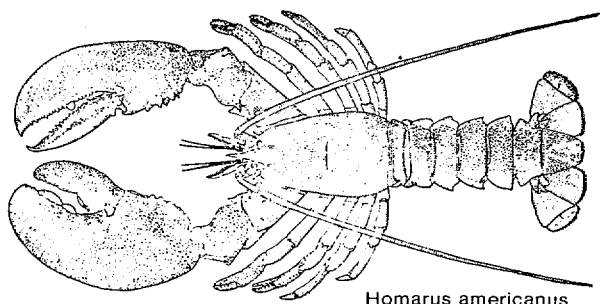
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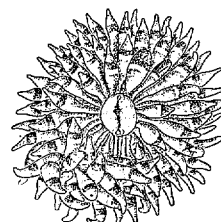
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Urticina crassicornus



Implementation of the Maine Coastal Plan

It has been the philosophy of the Coastal Planning Group that, at present, no new changes or additions are needed in Maine's Environmental Legislation. Instead, we foresee the coastal planning program as an opportunity to improve the way in which already existing laws work. Maine's environmental legislation has been widely lauded as the most progressive initiatives to protect natural resources found anywhere in the country. Administration and enforcement of this legislation, however, has suffered because of inadequate financial and technical resources to implement legislative provisions effectively. Once Maine's coastal program passes muster at the federal level, the state will then be eligible for substantial financial assistance from the Department of Commerce in Washington to bolster the state's local and regional planning capabilities. Through such assistance, the state can have a management structure which can become more responsive to both the people it serves and the environment it seeks to protect.

Coastal planning efforts will focus particularly on the following five pieces of existing state environmental legislation:

The Site Location of Development Law (38 MRSA 481-488 as amended)

A State Register of Critical Areas (Chapter 778 of the Public Laws)

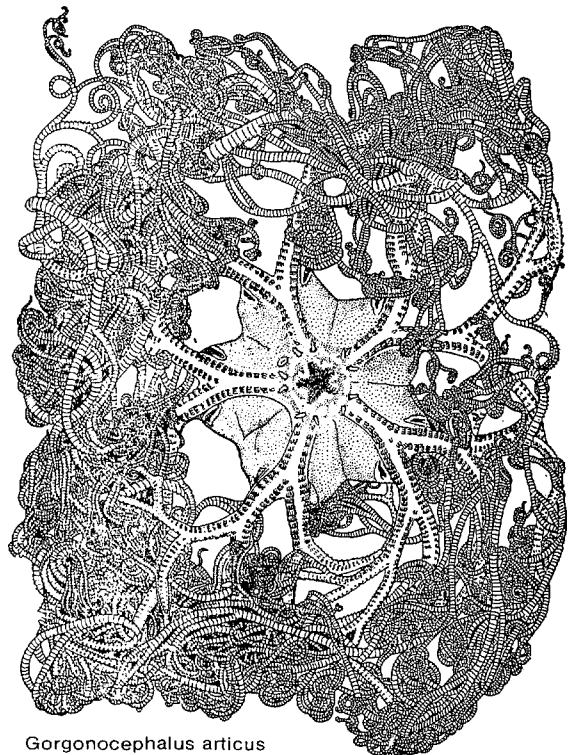
Mandatory Shoreline Zoning and Subdivision Control Law (12 MRSA 4811-14)

Wetlands Protection Act (12 MRSA 4751-4758)

State Department of Environmental Protection, Water Quality Protection Laws (38 MRSA 361-372, 411-421, 451-454)

Much of the intent of this legislation is to assert the state's interest in areas and activities which transcend the concerns of one community and affect a much wider area. The state, for example, has an interest in seeing to it that particularly fragile natural resources, such as flood plains, and highly productive areas, such as wetlands, are not inadvertently built upon to the long term detriment of people of the state.

The State Planning Office's Coastal Planning Group will serve primarily as an intermediary between the regulatory agencies and the various units of government providing technical assistance and communicating and developing Executive Department policy whenever appropriate. The State Planning Office's role will continue to be primarily with the coordination and integration of land resource use management, not with direct regulation or enforcement activities.



Gorgonocephalus articus

The Coastal Zone Management Act of 1972

Legal References

Coastal Zone Management Act of 1972 Public Law #92-583, 86 Stat. 1280 Guidelines and regulations pursuant to this Act are:

Coastal Zone Management Program Development Grants (Notice of final rulemaking) Federal Register Vol. #229, Thursday, November 29, 1973 (section 305 guidelines).

Coastal Zone Management Program Approval Regulations (criteria and procedures) Federal Register Vol. 39 #163, Wednesday, August 21, 1974 (Section 306 guidelines)

Estuarine Sanctuary Grants (Application and Selection Criteria Procedures) Federal Register Vol. 39 #46, Thursday, March 7, 1974.

Basic Philosophy of the Coastal Zone Management Act

Decisionmaking on the use of the coastal zone is basically a state prerogative subject to the overriding national interest in such areas as navigation, deepwater ports, and the production of energy. The approach is the carrot rather than the stick: the legislation is designed to act as a catalyst for state action and initiative by making funding available for coastal management if and when a state meets minimum federal guidelines. The guidelines stress that the public have an opportunity to participate in the development of this coastal management plan.

Congressional Findings

In the introductory paragraphs of the Coastal Zone Management Act, Congress noted that the coastal zone's valuable and ecologically fragile natural, cultural and visual resources were being irretrievably damaged or lost to the mounting pressures of population growth and economic development. The key to more effective protection and use of the land and water resources of the coastal zone was felt to be to encourage states by providing funds to develop land and water use programs and policies for the coastal zone. An important provision of the Act is the requirement for federal agencies to cooperate in the development of state plans and to adhere to those plans. Interstate cooperation is also stressed.

Mechanism

There are 3 major sections of the Act under which funding can be awarded to states:

Section 305: Management Program Development. This is the phase which is currently providing funds for the completion of the Maine Coastal Plan.

Section 306: Administration. Once the state has come up with a management program which adequately meets the standards set forth in the Coastal Zone Management Act and the guidelines pursuant thereto, the state becomes eligible for additional funds to implement the management program. The Coastal Planning Group is working towards an early application for these funds.

Section 312: Estuarine Sanctuaries. This section of the Act authorizes grants for the establishment and maintenance of natural field laboratories to gather data and make studies of the natural and human processes occurring within coastal estuaries. Maine is currently working on an estuarine sanctuary proposal.

continued

The National Interest

While the law and the guidelines are specific in requiring that the state give adequate consideration to the national interest, it is not defined in specific terms what that interest might be in any given case. The seven general areas of national interest have been identified and their associated facilities described.

Associated Facilities

Oil and gas wells; storage and distribution facilities; refineries; nuclear conventional and hydroelectric powerplants; deepwater ports.

National seashores, parks, forests; large and outstanding beaches and recreational waterfronts, wildlife reserves.

Interstate highways, airports, aids to navigation, ports and harbors, railroads.

Prime agricultural land and facilities, forests, mariculture facilities.

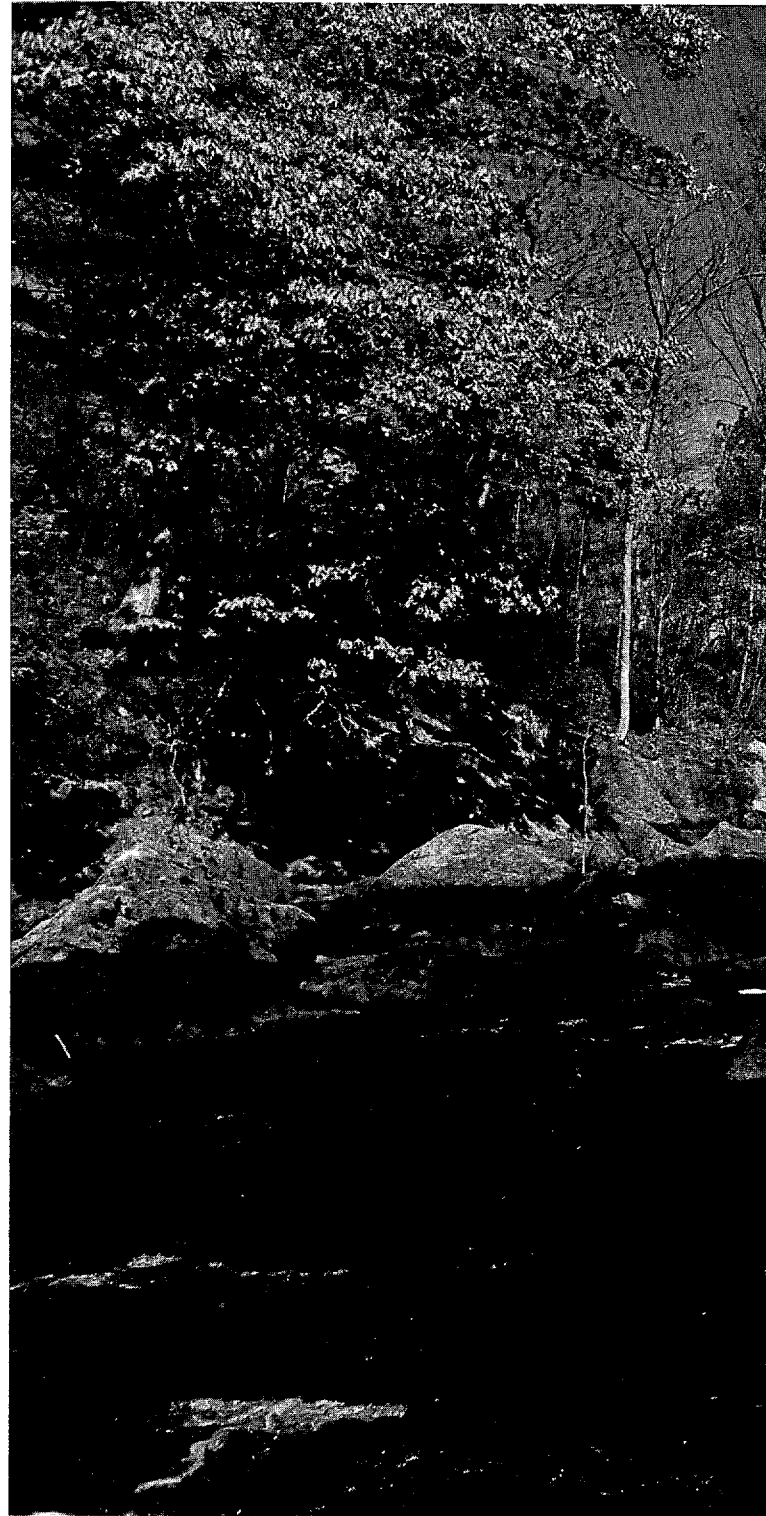
Flood protection facilities, disaster warning facilities

Military installations, defense manufacturing facilities

Historic sites; natural areas; areas of unique cultural or visual significance; wildlife refuges, areas of species and habitat preservation.

Requirements

1. Energy production and transmission
2. Recreation (of an interstate nature)
3. Interstate transportation
4. Production of food and fiber
5. Preservation of life and property
6. National defense
7. Historic, cultural, visual and conservation values



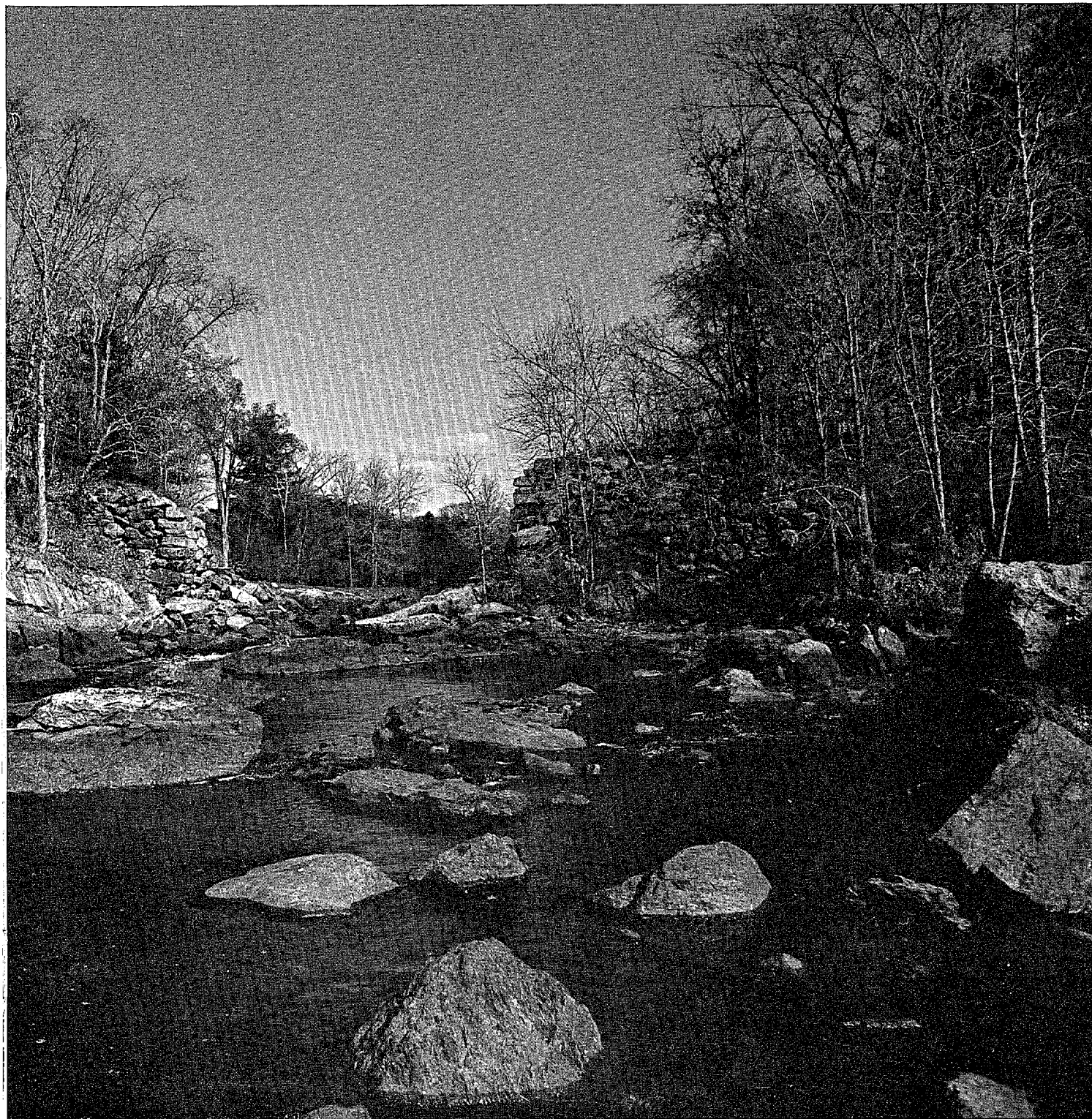


Photo — Alda Stitch

W.P.

LOUISIANA COASTAL RESOURCES

Coastal Zone Management Program

Louisiana

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Patrick W. Ryan, Executive Director

Spring 1977

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EDWIN EDWARDS
GOVERNOR

State of Louisiana

EXECUTIVE DEPARTMENT

Baton Rouge

CITIZENS OF LOUISIANA:

Louisiana must have a process for orderly, long-range conservation and development of coastal and marine resources. This publication will provide you with basic, timely information on the State's Coastal Zone Management.

With proper planning, our coastal area can grow and develop economically; additionally, these plans will enable us to maintain Louisiana's position as a leader in the energy producing field as well as protect our fine fishing areas, enhance recreational opportunities and reduce conflict between competing uses in the coastal wetlands. Without proper planning, the benefits that are increasing our growth rate---social amenities, natural resources, available labor and active communities---could diminish because of this growth.

I am highly optimistic about the development of our coastal and marine resources and have found this reference work on Coastal Zone Management very useful and informative. I hope you will share these sentiments with me.

Sincerely,



EDWIN EDWARDS

EE:rw





STATE PLANNING OFFICE OFFICE OF THE GOVERNOR

EDWIN EDWARDS
GOVERNOR

CHARLES E. ROEMER, II
COMMISSIONER OF
ADMINISTRATION

May 1, 1977

CITIZENS OF LOUISIANA

This report is an effort by the State to encourage an awareness of the coastal resources of Louisiana. In developing a coastal zone management plan for the State, we must develop a process to assure a balanced decision making process for our coastal wetlands.

Coastal zone management is designed to assure maximum production of coastal marshes and resources, and allow for maintenance and enhancement of the wetlands. It is a tool which can allow for changes to occur in our wetlands in the least disruptive manner. This program involves federal, state, and local government, and all levels must cooperate.

The State Planning Office, through its Coastal Resources Program, is attempting to provide leadership and direction in order to prepare a meaningful and successful program. In our efforts to supply the necessary information to all active participants in coastal zone management, we welcome suggestions concerning the best ways to approach the many competing interests.

Sincerely,

PATRICK W. RYAN
Executive Director

PWR/kc

PATRICK W. RYAN
EXECUTIVE DIRECTOR

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