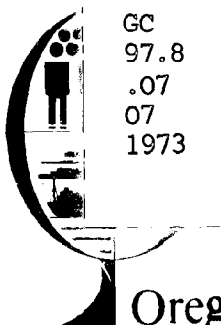
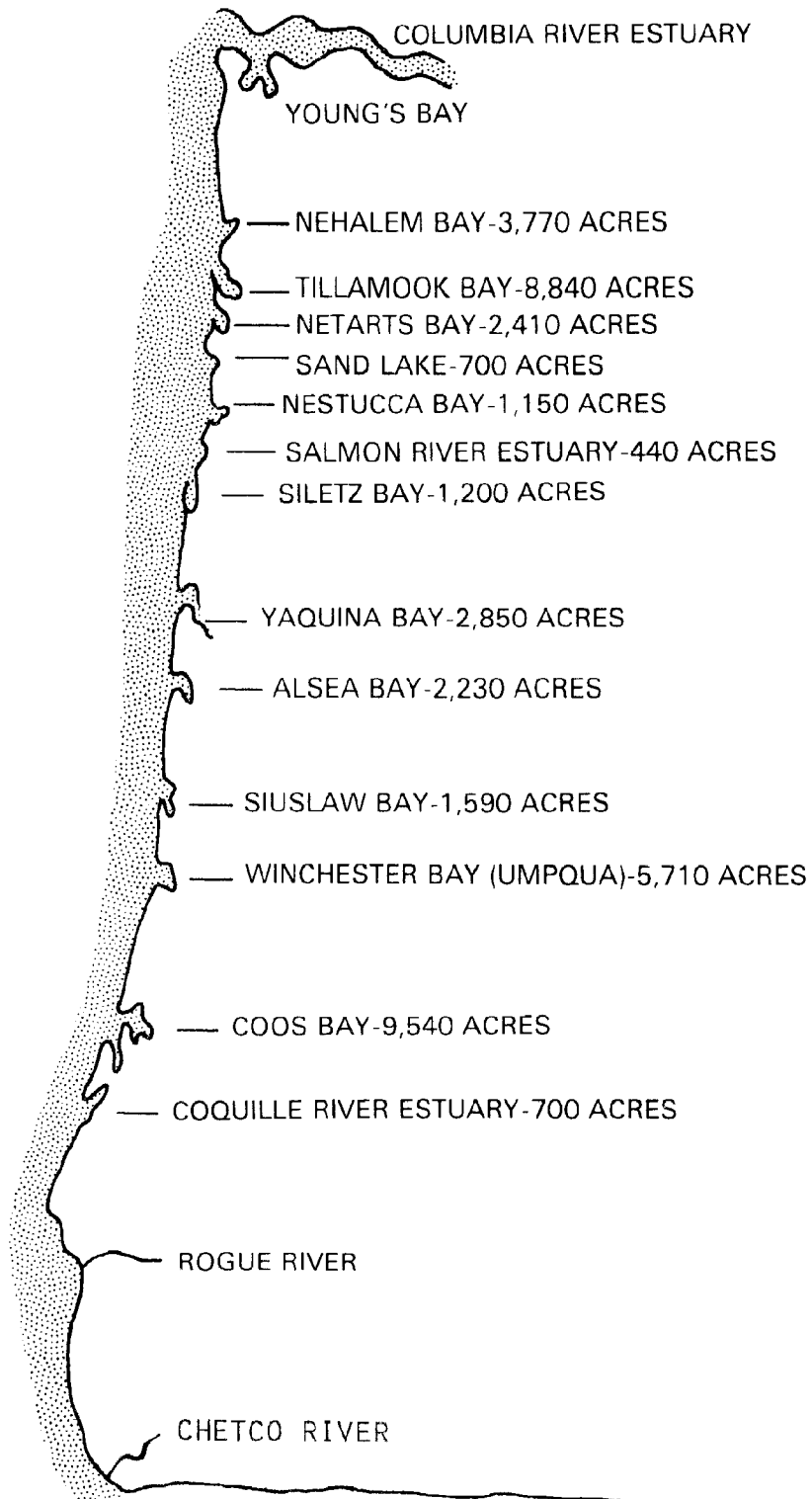


Oregon Coastal Conservation & Development Commission

Estuary Planning Guidelines



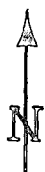
OREGON ESTUARIES



010-015724



frontispiece



Tillamook Bay, Oregon, at low tide (0.5') August 24, 1971. Bayocean Peninsula at left; partially completed south jetty at entrance; city of Garibaldi north; Bay City right center; and city of Tillamook at lower right. Photograph by Western Aerial Contractors, Inc., Eugene, Ore.

about the frontispiece-

The photograph was made available through the courtesy of Thos. J. Murray & Associates, Portland, Oregon.

AN ESTUARY IN TROUBLE??

The picture illustrates the impact of man's and nature's activities on an estuary over a period of time. The head of Oregon State University's Marine Advisory Program has expressed concern that Tillamook Bay, along with certain other Oregon estuaries may require extensive restoration in an attempt to re-establish the ecosystem. A description of the problem and possible solution are contained in a letter on page 36.

OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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January 31, 1973

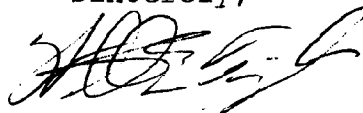
The 1971 session of the Oregon Legislature created the Oregon Coastal Conservation and Development Commission to develop a natural resource management plan for the coastal zone, with emphasis and priority placed on the land and water relationships within each estuary. In addition, a number of state natural resource agencies indicated that no permits, of any kind, would be permitted within an individual estuary until long-range land and water use planning programs were underway.

With these points in mind, the OCC&DC encouraged the formation of several estuary planning groups on different estuaries and turned to the state natural resource agencies, and subsequently to the federal level, for a set of planning guidelines. After an exhausting search, none were found.

Subsequently, the OCC&DC developed the planning guidelines contained in this document to assist local estuary planning groups, emphasizing the need for complete, coordinated land and water use planning efforts for all of Oregon's estuaries. Though somewhat patterned after the process used in developing the Yaquina Bay plan, the guidelines explicitly spell out the need for maximum public involvement in the planning process and emphasize the importance of sound management of the entire watershed of each estuary.

Appreciation must be extended to local public officials, individual members of the Oregon Coastal Conservation and Development Commission, coastal planners, state and federal natural resource agencies and interested citizens who, in reality, wrote this document. A special note of gratitude must go to Herb Riley of the State Executive Department and Paul Coyne, vice-president of the Oregon Public Ports Association.

Sincerely,



Wilbur E. Ternyik
Chairman

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OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSION

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*The OCC&DC has contracted with Oregon State University, Cooperative Extension Service for specific assistance in developing education programs regarding coastal zone management and assisting the commission in maximum public involvement in the planning process.

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INTRODUCTION

Estuary Planning Guidelines are a result of a demand for an approach to resolving conservation and development conflicts and to establish effective management tools useful in meeting economic as well as the environmental needs of today and tomorrow.

Emphasis is placed on a "partnership" arrangement involving local, state and federal interests in both plan development and plan implementation efforts.

Guidelines attempt to set forth a process which (1) involves people from varying backgrounds and disciplines, (2) provide a step by step method of putting a plan together and gaining commitment to implementing your plan, and (3) outlining the basic content to be considered in a plan.

People, process and content are closely tied and in total represent a method of achieving maximum opportunity for success in your planning efforts. However, the document does not represent a rigid set of rules but suggests an approach developed from experience with a liberal sprinkling of "common sense."

GETTING STARTED



GETTING STARTED

A first question may be, "Are the guidelines suitable or do they apply to our estuary?" The process suggested for preparing a plan remains the same for a large or small estuary. Differences may occur in the number and type of people involved or the depth to which certain aspects of the estuary are studied. Each estuary has its own "unique" characteristics and should be treated as such.

After once reading through the document it will be apparent there are three major tasks: (1) To decide who will be involved, (2) how these people will be involved and (3) what characteristics of the estuary need to be studied. In carrying out these tasks it is advisable to capitalize on the experience of others who are now involved or have completed an estuary plan. This advice may save a great deal of time and needless frustration.

Organizing a group or groups to prepare a plan is obviously fundamental to the success of your efforts. Care must be taken that no one group or interest dominates development of the plan.

Because of the county's and city's authority to zone and carry out land use control measures it is *imperative* that each unit of government including port districts cooperate from the very outset of the planning effort. There must be mutual agreement and understanding in the preparation, adoption and implementation stages. The activities of each jurisdiction will affect the other's ability (in a negative or positive

sense) to implement the decisions contained in a plan. The terms *conflicts* and *problems* have been used rather extensively in this document. The words, at times, may be used interchangeably. However, there are indeed, conflicts arising from the use of estuarine resources or between users of the same resource. A MAJOR TASK OF A PLANNING GROUP IS TO RESOLVE THESE CONFLICTS.

One last thought that may be of value. Advertise your activities. In addition to special interest groups, let the general public know about your program, your concerns, achievements and progress towards preparation of a plan. This can be accomplished through news media, special reports, meetings and minutes of meetings, etc. One caution regarding news worthy items - from the outset of the program, the planning group should establish methods of preparing and providing information to news media. Obviously inaccurate or misleading information regarding the group's actions or attitudes could be detrimental to the program.

*



OBJECTIVES



OBJECTIVES

Regardless of the planning effort to be undertaken two basic ideas must be central to that effort. First, those who have a responsibility for decision making in estuarine areas *must* share in preparing plans that direct solutions to estuarine problems. Secondly, these same people *must* have a commitment to carry out the proposals of the plan. This commitment occurs as a result of sharing in the plan development process.

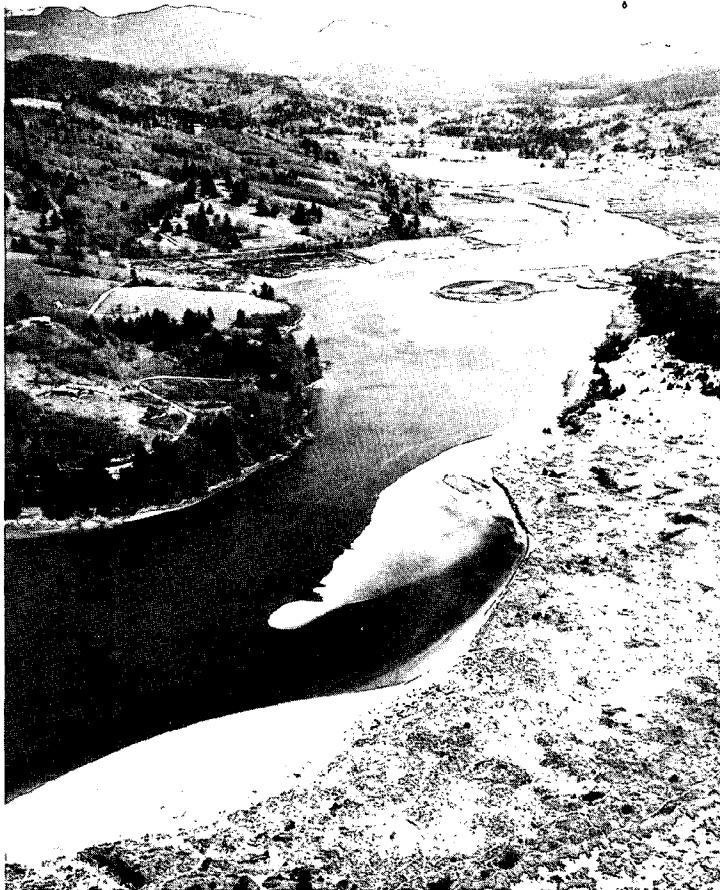
For these reasons the following are basic objectives for a planning program.

Development of a coordinated planning and implementation effort by local, state and federal agencies for the conservation and use of natural resources in the estuaries adjacent lands.

Development of a program to achieve local, state and federal consensus and commitment to solve estuarine problems.



ACHIEVING OBJECTIVES



ACHIEVING OBJECTIVES

A good question is, "How can these objectives be reached?" Perhaps the most significant aspect of preparing plans for estuaries is the method of achieving local, state and federal consensus and commitment to solve estuarine problems. The focus of planning efforts, therefore, is in solving problems and resolving conflicts, rather than producing a planning document.

We might look to *commitment* as the key word in preparing a plan and solving problems identified by the plan. In this regard, *commitment* has a special meaning. By definition, it is an agreement or pledge to carry out a specific course of action--in a sense, a determination to see that the job gets done. Without *commitment* planning is an exercise in futility and will result in frustration and meaningless expenditures of time, effort and public monies.

In addition to commitment, consensus is very important in reaching decisions. Consensus by definition means general agreement. Consensus is reached when all members of a group (rather than a simple majority) agree to a particular course of action or statement of policy. Consensus relies upon good interpersonal relationships and common understanding among those involved in the planning process.

How then can consensus and commitment be achieved? The most successful method has been by involving local decision-makers along with state and federal agencies in the following planning (and problem solving) process.

- Step 1: Problem identification and
information gathering*
 - Step 2: Identify and analyze alter-
native solution*
 - Step 3: Develop plan*
 - Step 4: Adopt plan*
 - Step 5: Implementation-carry out plan*
 - Step 6: Periodically review, evaluate
and up-date plan*
- (The steps are described in detail begin-
ning on page 19)*

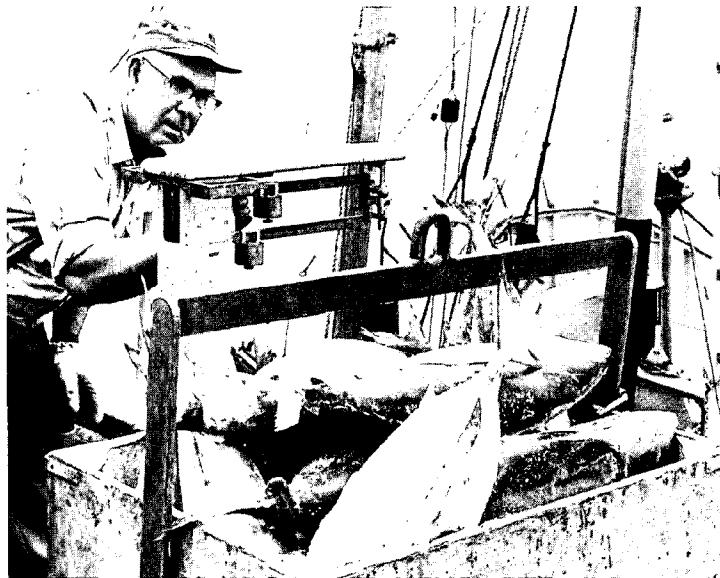
The above steps are simplified to provide an overview of the process and do not reflect the effort and cooperation necessary to prepare and carry out a plan. For example the previously mentioned necessity for city and county cooperation is not readily apparent. However, the method does provide groups with a time tested approach to developing solutions to problems.

While each phase of the process is obviously important, Step 6 is particularly significant. PLANNING FOR AN ESTUARY MUST BE VIEWED AS A CONTINUOUS EFFORT. A conscious effort must be made to review, evaluate and change to reflect the needs and aspirations of people, simply because planning is for people. This does not mean changing a plan at the whim of a special interest group but rather changing to insure maximum present and future returns from resources and balancing the rights of the present generation against the rights of future generations.

There undoubtedly will be times when decisions regarding development issues must be made during preparation of the plan. In so far as is practical, reaching these decisions should be based on a methodical approach such as is outlined in the "Steps in the Planning Process."



PARTICIPANTS IN AN ESTUARY PLAN



PARTICIPANTS IN AN ESTUARY PLAN

The major responsibility for the planning effort is shared by five specific groups, which in a general sense, form a team. The participants, their respective roles and methods of appointment are:

TASK FORCE: Local representatives of each group having an interest or responsibility in the estuary, (i. e., port districts, city councils, county boards of commissioners, school districts and other special districts.) The task force should also include in its membership interested citizens who may represent commerce, industry, environmental or other interests. Also special advisory groups may be appointed representing these interests.

ROLE: To prepare plan drafts for review and to recommend plans and methods of implementation for adoption by policy bodies. The task force also serves as a catalyst in providing ideas, reports, and recommendations to which others may react.

APPOINTMENT: An acceptable method of appointing members is by mutual resolution of several elected bodies, i.e., county commissioners, city council and port commission.

Each governmental unit or organization provide the names of those persons whom they wish to serve.

TECHNICAL ADVISORY GROUP: Composed of agency representatives who have a responsibility and/or interest in the estuary and adjacent lands. Parti-

cipants have a special knowledge or expertise which is a source of factual information for both the task force and staff. Representatives may include:

- State Water Resources Board
- State Game Commission
- Fish Commission of Oregon
- State Department of Transportation
- State Land Board
- State Marine Board
- OSU Marine Science Center
- Oregon Institute of Marine Biology - U of O
- Dept. of Environmental Quality
- Corps of Engineers
- U.S. Forest Service
- Bureau of Sport Fisheries & Wildlife
- Soil Conservation Service
- Other local, State and Federal Agencies including colleges and universities.
- Local people who may have special capabilities, i.e. attorney, engineer, architect, etc.

It may be well to form a "core" group of agencies who have coast-wide concerns in estuaries. The group should include State Water Resources Board, Department of Environmental Quality, State Game Commission, Fish Commission of Oregon, Corps of Engineers and Bureau of Sport Fisheries and Wildlife. A member of this group also may be asked to become a member of the task force. Other agencies mentioned above are invited to participate as the situation demands.

ROLE: Provide factual information and expertise regarding specific technical concerns to task

force and staff. Participants will also provide information regarding planning and regulatory policies of their respective agencies. The "core" group is to meet for the purpose of reviewing and responding to concerns and technical questions. In addition the group may suggest additional agency input.

APPOINTMENT: Suggested methods of appointment include:

1. By task force chairman requesting Oregon Coastal Conservation and Development Commission to coordinate agency involvement.
2. By task force chairman requesting agency participation.

STAFF AND/OR CONSULTANTS: Person or persons capable of providing, organizing, coordinating and managing efforts of the task force.

ROLE: Under direction of the task force, provide overall management and coordination of the program on a continuous basis. Role includes coordination and supervision of consultants who may work on specific portions of the plan. Staff will also coordinate activities of the task force and technical advisory group. In addition the staff assumes the management responsibility for the planning process. Amount of involvement and time spent depends upon the complexity of the situation.

APPOINTMENT: It is essential that competent staff be assigned to the program. Normally,

county planner will assume this position. The council of governments, depending upon the situation, may become involved in a staff role.

PUBLICS: "Publics" may be composed of civic organizations, environmental groups, chambers of commerce, industrial and commercial groups, recreational interests, property owners, employment groups, age groups, churches, granges, League of Women Voters, fraternal organizations, as well as general citizenry.

ROLE: Reviewing and responding to recommendations, suggested alternatives and plan draft's prepared by the task force. Provide input, particularly in specific areas of interest. "Publics" can contribute significantly to the development and success of a program. If ignored, these same "publics" may actively oppose efforts to implement a plan.

POLICY BODIES: Local elected bodies, state and federal boards and commissions responsible for making decisions and directing solutions to problems. Involves:

LOCAL: County boards of commissioners, city councils, planning commissions, port authorities, council of governments, and other special districts such as water districts, sewer districts, school districts, etc.

STATE: State Water Resources Board, Department of Environmental Quality, Oregon Coastal Conservation and

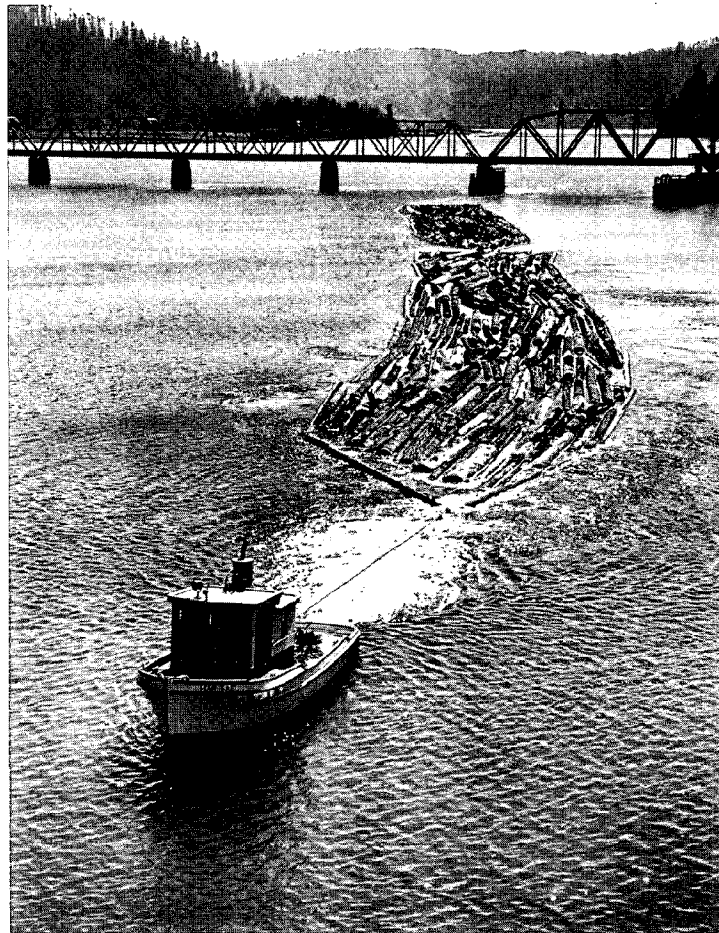
Development Commission, State
Department of Transportation,
State Game Commission, Fish
Commission of Oregon, Governor's
Executive Department,
State Land Board, State Marine
Board, etc.

FEDERAL: Corps of Engineers, U.S.
Forest Service, Bureau of Land
Management, Soil Conservation
Service, Environmental Protection
Agency, etc.

ROLE: Review of planning efforts at each step
of the process. Official adoption of mutually
agreed upon plan. In addition to adoption, *commitment*
to take action to carry out the objectives of the plan
must come from the policy bodies for the successful
resolution of problems.

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STEPS IN THE PLANNING PROCESS



STEPS IN THE PL.

STEP 1

Information
Gathering
S·TAG

Compile And
Identify Actual
Problems
S·TAG

Prepare Draft
Of Problems
TF·TAG·S

Problem
Identification
(Perceived)
TF·TAG·S

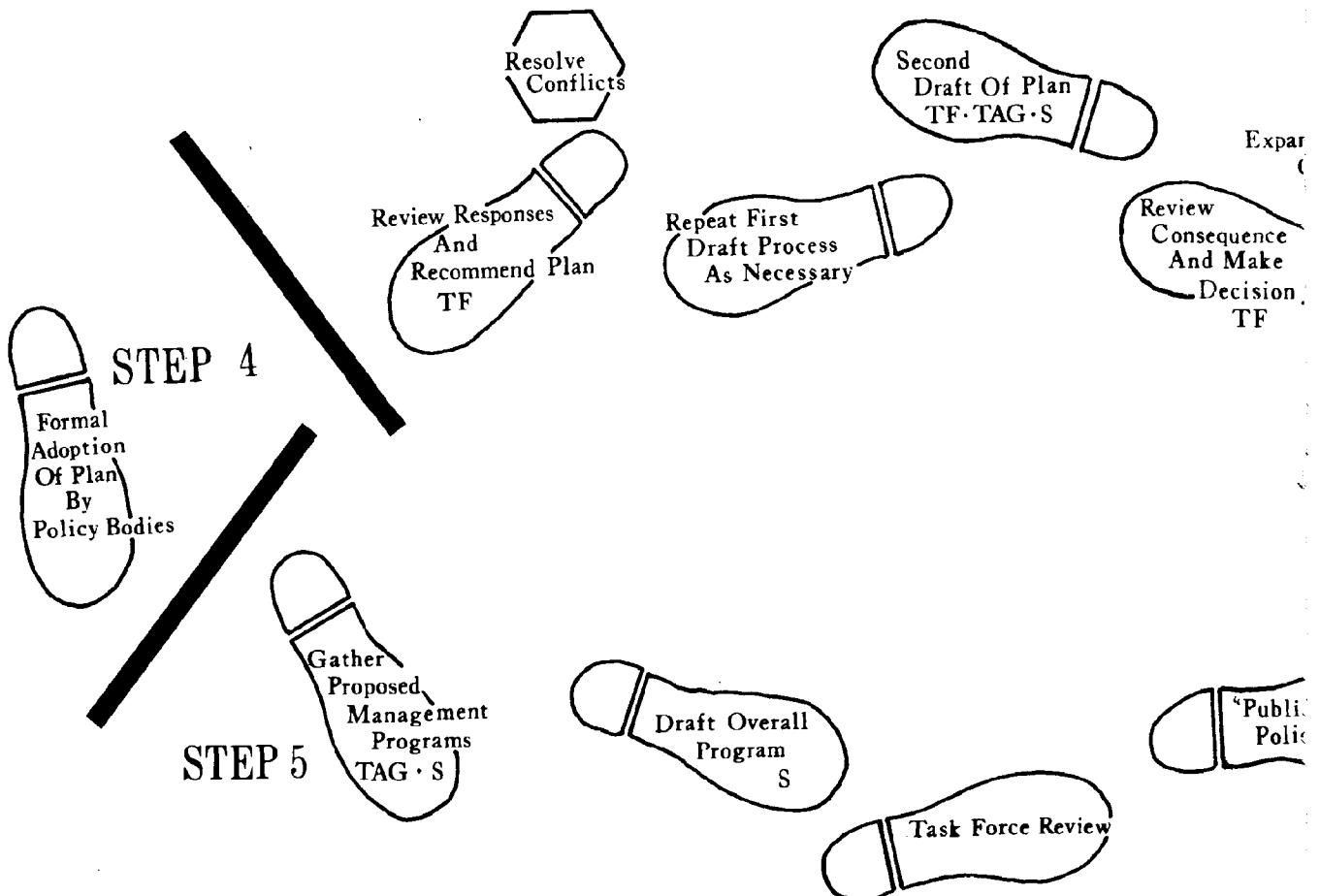
Identify
Critical Problems
TF·TAG·S

Sub
To
A

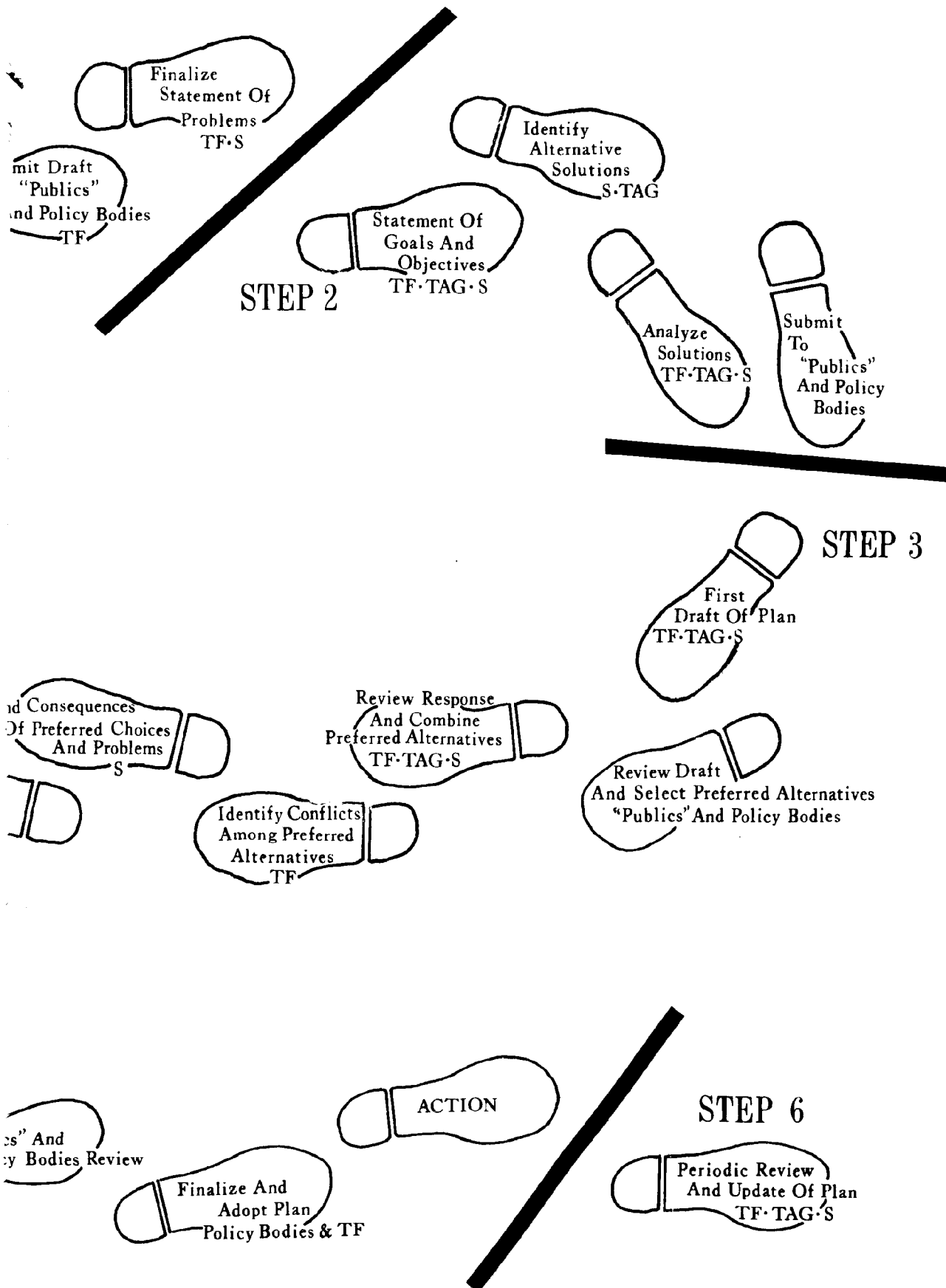
TF Task Force

TAG Technical Advisory
Group

S Staff



ANNING PROCESS



STEPS IN THE PLANNING PROCESS

The following describe in detail the steps in the planning process. Included is the development of two separate but interrelated plans. Steps I - IV outline a plan of *what* needs to be done. Step V describes the development of a management plan or *how* these needs are to be met.

The steps are portrayed graphically in a condensed form on pages 17 and 18 to give a comprehensive view of how a program progresses from problem identification through implementation and up-dating of the plan.

STEP I - PROBLEM IDENTIFICATION AND INFORMATION GATHERING:

PROBLEM IDENTIFICATION: It is essential to clearly identify specific problems for which plans are to be prepared. The initial step is the identification or listing of problems as seen by the task force, technical advisory group, staff and "publics". This initial listing will reveal what are *perceived* to be the problems. After thorough examination, the actual or real problems will be identified. The real problems may be quite different from those initially outlined.

The task force may be well advised to distribute a questionnaire particularly to various "publics" asking for their opinions as to the problems they feel are significant in the estuary. Another suggestion for public input in problem identification is to hold meetings throughout

the study area. An advantage of meetings, if properly conducted, allows not only discussion of problems, but may answer questions as to the "whys" of an estuary plan.

INFORMATION GATHERING: A substantial amount of information that relates directly to the problems identified will be gathered throughout the planning program. However, some basic types of information can be compiled during the problem identification process. (See Contents of an Estuary Plan, page 26). Information should also be identified that is needed but not available. Perhaps studies can be undertaken to meet these needs. It is important that "facts", not unsubstantiated opinion, form the basis for decision making. Also, participants must be able to trust and have faith in the information used in resolving conflicts and preparing the plan.

Suggested steps in problem identification are as follows:

1. Task force and technical advisory group discuss and prepare initial list of problems.
2. Staff, with assistance of technical advisory group prepare discussion draft of problem statements, including identification of critical problems.
3. Draft reviewed and revised by task force
4. Discussion draft submitted to "publics" for comment.
5. Draft revised and sent, together with comments, to policy bodies for review and comment.

6. Task force finalizes statement of problems and sends copies to policy bodies and interested "publics".

STEP II - IDENTIFY AND ANALYZE ALTERNATIVE SOLUTIONS: Suggested steps for the development and evaluation of alternative solutions are:

1. From problem statements task force prepares draft statement of goals and objectives to be accomplished by plan.
2. Submits draft to policy bodies and "publics" for review and comment.
3. Task force resolves conflicts and prepares final statement of goals and objectives.
4. Staff and technical advisory group identify alternative solutions and prepare a discussion draft including a quick, rough estimate of the direct and indirect consequences for each alternative, including the effect on natural resources, local and coastal economy, human resources and social values, livability, and dollar cost. Staff and technical advisory group identify and evaluate who has responsibility and management authority and whether the present mechanisms are adequate to solve problems.
5. Discussion draft reviewed and revised by task force.
6. Draft submitted to "publics" for comment and indicate their first, second and third choices and/or identify other alternatives.

7. Staff and technical advisory group revise draft and send with comments to each policy body for review and comment, including specific response and direction.
8. Staff and technical advisory group combine preferred alternatives, identify conflicts among alternatives, expand consequences of preferred choices and evaluate effects of conflicts.

STEP III - DEVELOP PLAN:

Suggested steps for the development of a plan are:

1. Task force reviews conflicts and selected alternatives and prepares first draft of plan.
2. Task force submits draft plan to "publics" and policy bodies for response and proposals for conflict resolution. "Publics" and policy bodies select preferred alternatives.
3. Task force, technical advisory group and staff review response from "publics" and policy bodies and recommends plan on areas of agreement to each policy body for their adoption.
4. Task force identifies and recommends means for resolving conflicts among preferred alternatives.
5. Staff expands consequences of preferred choices and conflicts.
6. Task force reviews consequences and makes decisions.
7. Second draft of plan prepared by task force.

8. Repeat first draft process as necessary.
9. Task force resolves remaining conflicts and recommends plan.

STEP IV - ADOPTION OF PLAN

In order for the effective use and implementation of the plan, experience has shown that not only must all parties have an opportunity to participate in the plan-making process, but also there must be formal adoption into public record of these plans for long-term recognition and guidance for implementation. The most binding method available to the policy bodies should be used (i.e., ordinance, rule or resolution). The plan is then filed with the appropriate keeper of public records, local and statewide.

STEP V - IMPLEMENTATION - CARRY OUT PLAN

Implementation of the plan is accomplished primarily through policies, ordinances, rules, regulations, orders and codes, together with capital improvement programs for necessary projects. Implementation may also involve preparation of more precise plans for certain aspects of estuary conservation and development.

Suggested steps in formulating an implementation or management plan are:

1. Each agency and local governmental unit is to draft their element of the management plan.
2. Staff and technical advisory group combine discussion plan drafts into one overall action handbook.

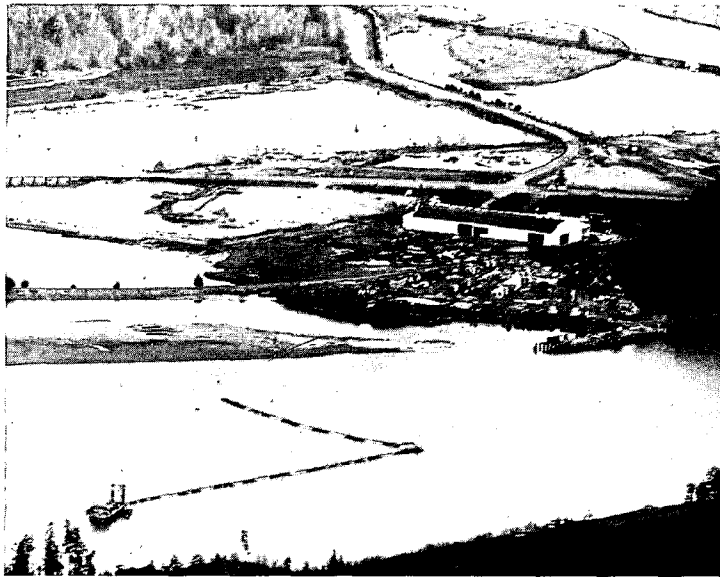
3. Task force reviews and revises draft.
4. "Publics" and policy bodies review (informally, and return comments to task force.
5. Task force revises plan and recommends to each policy body for appropriate public hearings and adoption. Policy bodies conduct hearings (joint if possible) , consider formal comments, and take appropriate action.
6. Policy bodies take action by enacting ordinances, rules, regulations, and other implementing devices.

Policy bodies, especially local units of government may wish to call upon the task force and technical advisory group in carrying out the plan to assist on questions of implementation, i.e. zoning, development in critical areas and other issues involving land and water use.

STEP VI - REVIEW, EVALUATE, AND UP-DATE

Follow up with regularly scheduled review and updating processes to keep program current with changing needs. The purposes of a plan are to solve problems and resolve conflicts. Without periodic evaluation and up-dating it is doubtful that a plan can fulfill these purposes.

This aspect of the program should utilize the same approach as that of developing the plan.



CONTENTS OF AN ESTUARY PLAN



CONTENTS OF AN ESTUARY PLAN

The participants in the estuary planning process and the steps they take in building a plan already have been discussed. The subject matter that must be dealt with in the planning process is also of great importance. This subject matter is discussed in the following section, a suggested guide to the contents of the estuary plans.

The suggested contents are divided into two main categories: INFORMATION GATHERING which is a necessary first step in understanding the characteristics of the local area; and IDENTIFICATION OF PROBLEMS, which focuses on the major issues of estuary management.

INFORMATION GATHERING

I. Resources of the Natural Environment

1. Climate (precipitation, temperature, wind)
2. Geology (historical, bedrock, surface, foundation condition, economic materials)
3. Physiography (of the estuary area and watershed)
4. Hydrology (surface water characteristics such as tides, currents, water quality; ground water characteristics such as aquifers, recharge areas, quality)
5. Soils (agricultural types, drainage, structure, texture, fertility, erodibility, stability, slope)
6. Shoreland characteristics (slope, drainage, vegetation)
7. Channels (water movement, depths, modifications)

8. Floodplains (extent, water levels, hazard potentials)
9. Tideflats (extent, importance in the estuary ecosystem)
10. Wetlands (values, resources, characteristics)
11. Fish, Shellfish and Invertebrate Resources (populations, habitats, values)
12. Wildlife Resources (populations, habitats, values)
13. Water Quality (chemical, physical, biological)

The thirteen categories as listed above are, of course interrelated, and only a general guide to the major concerns affecting an estuary region. In some areas one or more of these concerns may not be of significance or even present. In other areas one feature may overshadow all others.

In all estuaries however, the value and usefulness of the estuary resources motivate concern for protection and management. An understanding of the characteristics of these resources and their function in the estuary system is an essential step in the development of a management plan. Of special importance is an understanding of the dynamic nature of the natural environment and an appreciation of the great differences which may occur from one location to another in the estuary. An assessment of the recreational and aesthetic values of individual resources is also significant.

An understanding of physical features such as tidal movements, channel shifts and the mixing of fresh and salt water is important in the management of biological

resources and in maintaining the economic activities of the estuary.

The physical system of the estuary is affected by the adjacent shorelands, and indeed, by the entire estuary watershed. A consideration of the land area in sufficient proximity to the estuary to enable appropriate siting of water-related activities should be of special concern in estuary planning. The activities taking place in the estuary watershed which could significantly affect the physical, chemical or biological characteristics of the estuary also should be of concern in the planning process. Examples of such activities could include forest practices affecting siltation, discharge of sewage or chemical wastes or filling or dredging which would modify the hydrological characteristics of the estuary.

Assessment of resource values should be based not only on the fish, shellfish and wildlife harvested from the estuary, but on the overall importance of the estuary in the coastal and marine ecosystem.

II. Resources of the Man-Made Environment

1. Population (numbers, density and distribution, seasonal shifts)
2. Land Ownership and Use (types, characteristics, impacts)
3. Local and Regional Economy (characteristics of the lumber and wood products, agriculture, commercial fishing, tourist, and other industries of significance in the coastal zone)
4. Historical and Scientific Sites (locations and values)

5. Local Communities and State and Federal Agencies (ordinances, regulations, management policies and plans.)

The significance of these five general components also varies widely from estuary to estuary. However, each estuary is a focal point for human activities in that part of the coastal zone, and consideration of social and economic factors is essential for the development of a sound and balanced estuary plan. Important concerns include the demands of present and future population and the location and potential values of historical and scientific sites. Characteristics of land ownership and use must be evaluated in regard to constraints and potentials for estuary management.

A primary concern in this stage of information gathering is the characteristics, requirements and potentials of the local and regional economy.

The impact of management policies and plans by state and federal agencies, local jurisdictions, corporations, and public and private groups must be evaluated in the initial development of the estuary planning process.

Although information gathering is an important first step in the planning process, it is essential that a constant up-dating of information take place throughout the development of the plan. The currency (and therefore, the effectiveness) of an estuary plan will depend to a large degree on the availability of accurate and appropriate information. Assistance from county staffs or council of government or from consultants may be of great value in conducting these activities.

The preliminary information gathering activities will lead naturally to the initial identification of problems.

IDENTIFICATION OF PROBLEMS

As information is gathered regarding estuary characteristics and resources, the problems of the estuary and its management begin to be apparent. This step or problem identification is a basic and essential part of the plan. Indeed, the purpose of estuary planning is to solve the problems of estuary use.

Essential in problem identification is a proper understanding of the aspects and consequences of resource use in the estuary and the estuary watershed. Two major areas of concern should be emphasized in the identification of problems. These are resource preservation and resource utilization. Interrelationships of these concerns are the subject of the subsequent step in the estuary planning process.

Problems of resource preservation may include concern for wildlife habitat, fish spawning areas, wetlands, shorelands, and areas of special recreational or aesthetic significance. Maintenance of water quality, shoreland vegetation, shellfish resources, and fragile biological communities (such as tidepools) may be identified as concerns at the local and statewide levels. The long-term ecological consequences of man-induced changes in the estuary should also be of special consideration.

Identifying concerns of resource utilization will involve the demands of present levels of use, and the

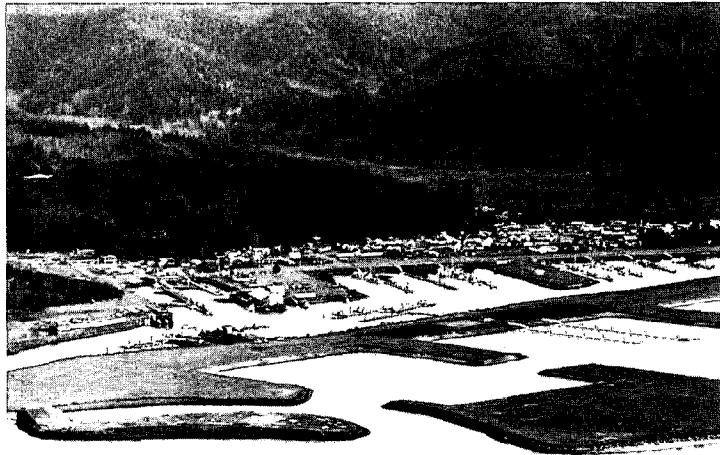
impact of future growth in the individual sectors of the coastal economy. Such factors as population changes and seasonal imbalances, the long-term consequences of estuary modifications, and the levels of economic activity necessary to support environmental quality programs should be considered.

The suggested contents as identified herein are of primary use in the initial steps of the estuary planning process. However, a refinement of both the information gathering and problem identification stages will be experienced throughout the planning process, as these steps are inherent in an effective management system.

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APPENDIX



FUNDING

Local estuary planning groups may wish to seek funding to support their efforts. Funds may be available from a variety of state and federal sources, including "701" planning program of the U.S. Department of Housing and Urban Development, the Land and Water Conservation Program of the Bureau of Outdoor Recreation, and the Coastal Zone Management Program of the National Oceanic and Atmospheric Administration.

Assistance in identifying the availability of and applying for funds is available from the Local Government Relations Division of the Executive Department, 240 Cottage Street, Salem, Oregon 97310.

DEFINITIONS

Comprehensive Plan: The legal document through which a community's ideas, goals and programs for future development are expressed. The plan includes policies, goals, and interrelated plans for private and public land use, transportation systems, community facilities, and all other elements and features that, in composite, represent the decisions of local people.

Estuary: A tidal bay or arm of the sea where freshwater from streams and rivers mix with saltwater from the sea forming habitats for marine life.

Land Use: The activities and purposes to which land and water areas are put, including public and private uses of property.

Planning: Used in the context of land use planning, the process of identifying public goals, developing a coordinated, orderly approach to achieve those goals and periodically updating plans to meet the demands of change. A PLAN may be thought of as a "scheme" to solve a problem and shape the future.

Subdivision Regulations: Subdivision regulations are guidelines for the approval of plats which divide land into lots for development purposes. They relate to the zoning ordinances since zoning sets standards for the use of land and are an important tool in implementing a plan.

Water Relatedness: A development which is *primarily* or *secondarily dependent* on an estuary location or resource is defined as water-related. *Primary Dependency* is a development requiring a specific estuary location or resource such as water, access, a beach, or a navigation channel. *Secondary Dependency* is a development seeking proximity to a use or activity which has primary dependence.

Zoning: The legal tool which regulates the use of land and, thus, helps to implement planning goals. A zoning ordinance delineates exact boundaries of various use districts and specifies the detailed district regulations.



Phone (503) 867-3011

COOPERATIVE EXTENSION SERVICE

OREGON STATE UNIVERSITY
MARINE SCIENCE CENTER
MARINE SCIENCE DRIVE
NEWPORT, OREGON 97365

September 7, 1972

Mr. Ted Cornett
Port of Tillamook Bay
Tillamook, Oregon 97141

SUBJECT: Reasons for and benefits that might be derived
from renovation of the Tillamook Bay ecosystem.

Dear Ted:

As we discussed in May, I am concerned that certain Oregon estuaries may require extensive renovation in an attempt to reestablish the ecosystem. A prime example of this need is found in Tillamook Bay. We all recognize that estuaries are filling in in a gradual, perhaps dignified manner. Man's activities tend to accelerate this process to the point of possible destruction of the system. The watershed of Tillamook Bay has been subjected to catastrophic fire damage during the last 50 years. This, combined with salvage logging and other uses of the watershed, has resulted in a tremendous silt and sediment load deposit in the Bay.

The Tillamook Bay of today does not resemble the Tillamook Bay of 1900. Is there a way to reestablish the estuarine system? It would seem to me that if a positive cost-benefit relation could be shown, a multi-step program could be activated.

Stage 1 would involve some of the work going on now in reestablishing the river channels on the Wilson, Trask, Tillamook and perhaps Kilchis.

Stage 2 would involve reestablishing the flow channels through the Bay, including making the appropriate gradients and curves necessary to stimulate the original system. This would contrast with the straight-line, sharp-angle approaches which are not natural and which tend to speed runoff without the additional value of trapping nutrients, etc.

Stage 3 could accompany the second and would involve shaving the Bay down to former tidal levels. An example of this would be on the west side, where the 1952 Bay Ocean breakthrough occurred. I haven't measured the gradient, but my eye tells me that 4 to 6 feet of sand blew in during the break. If this were removed to the outer beaches, we should be able to establish productive intertidal lands as they were before. It is my understanding that this was some of the prime oyster growing ground and clam production ground in the Bay.



OREGON STATE UNIVERSITY, U. S. DEPT. OF AGRICULTURE, EXTENSION MARINE ADVISORY PROGRAM, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND OREGON COUNTIES COOPERATING.

Mr. Ted Cornett
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An approach as described here would be very expensive, and to some might seem to be disruption of the environment. The environment, however, has been artificially disrupted already. We would be attempting to reestablish the former productive Tillamook Bay system. Let's talk more specifically about this plan at your convenience.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Bill", written in a cursive style.

William Q. Wick, Head
Marine Advisory Program,
Sea Grant
(Professor)

WQW:mal

Photo credits

- Page 2, Eugene Register-Guard
- Page 5, top, OSU Sea Grant; bottom, Salmon River entrance, State Highway Division
- Page 7, top, Siuslaw River entrance, Eugene Register-Guard; bottom, Salmon River, State Highway Division
- Page 10, top, OCC&DC; bottom, OSU Sea Grant
- Page 16, Umpqua estuary, State Highway Division
- Page 25, top, Bolin Island, Umpqua estuary, OCC&DC; bottom, Siuslaw River wetlands, OCC&DC
- Page 32, top, Siletz estuary and spit, OCC&DC; bottom, Winchester Bay harbor, OCC&DC

