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OUTDOOR RECREATION RESOURCES REVIEW COMMISSION

The Outdoor Recreation Resources Review Commission was created by the Act of June 28, 1958 (Public Law 85–470, 72 Stat. 238). The task assigned to the Commission was to seek answers to the following basic questions:

What are the recreation wants and needs of the American people now and what will they be in the years 1976 and 2000?

What are the recreation resources of the Nation available to fill those needs?

What policies and programs should be recommended to insure that the needs of the present and future are adequately and efficiently met?

The Commission's report, Outdoor Recreation for America, which was presented to the President and to the Congress on January 31, 1962, contains the findings of the Commission and its recommendations for action required to meet the Nation's outdoor recreation needs in 1976 and 2000.

In the course of its work, the Commission obtained many special reports from its own staff, public agencies, universities, nonprofit research organizations, and individual authorities. It is publishing these reports because of their potential interest to officials at all levels of Government and to others who may wish to pursue the subject further. A descriptive list of the study reports appears at the end of this volume.

In the development of the findings, conclusions, and recommendations presented to the President and to the Congress in January 1962, the Commission considered this report and other study reports, but its conclusions were based on the entire study and on its own judgment. Publication of the study reports does not necessarily imply endorsement of them in whole or in part.

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PREFACE

This report is addressed to the Outdoor Recreation Resources Review Commission, a body charged with the responsibility of seeking answers to three questions:

1. What are the recreation wants and needs of the American people now and what will they be in the years 1976 and 2000?

2. What are the recreation resources of the Nation available to fill those needs now and in the years 1976 and 2000?

3. What policies and programs should be recommended to ensure that the needs of the present and future are adequately and efficiently met?

What the authors have discovered about shoreline recreation in the United States will be presented as answers to those questions. Some of these statements will be obvious—yet important. Some are firmly backed by fact; others represent what might be termed "enlightened opinion"—enlightened by a year of investigation. The statements are fully, but it is hoped not burdensomely, explained. The bulk of the factual information on which this report is based will be found in the appendix.

A word about the appendix is in order, since this appendage constitutes the bulk of the report. During the process of bringing together as much knowledge as possible about the recreation use and qualities of the American shoreline within the time and fund limits imposed, the authors collected considerable factual information which had not been previously collected. Much of this information was collected by surveys of the various State and local agencies. Coverage was not complete and much of the information, particularly on organization and management, is of a subjective nature. Put together in a State-by-State summary form, these data constitute an important informational background for an understanding of the status of shoreline recreation today. More important, perhaps, is the significance of such information to intelligent, coordinated planning for future recreation use of the American shore. Categories of information in the appendix are as follows:

1. Physical inventory.
2. Administration of shoreline recreation.
3. Water pollution control.
4. Beach erosion control.
5. Tidelands: ownership and access.
6. Status of recreation planning.

Much of the material contained in these various sections is summarized for the entire United States in the text of the report.

The inventory of shoreline plans included in the report is based on the third chapter of a master's thesis in the Department of Geography of the George Washington University, in the course of which the author explored the status of State and municipal planning for provision of recreation shoreline in all of the shoreline States. 1/

Because such terms as "recreation shoreline," "beach" and "bluff shore" may have different meanings for different people, a glossary of terms appears in appendix A.

The report was edited by the Outdoor Recreation Resources Review Commission staff.

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1/ Adam Bilecky, "Planning the Recreational Use of the American Shoreline," the George Washington University, Washington, D.C., unpublished, 1961.

INTRODUCTION

This report is about a priceless national resource—the American shoreline, over 20,000 miles of unique and beautiful landscape. So far the natural state of this shoreline has been altered very little. Thus, it remains one of the most significant outdoor recreation resources this country possesses.

Americans are fortunate to have so much shoreline. In gross terms, there is certainly "enough for everybody" to enjoy—enough, that is, if it is both accessible and available to the public. These particular conditions constitute a major problem, as all those familiar with the needs of outdoor recreation are acutely aware.

Three difficulties now confront us. First, a good deal of the shoreline is not close enough to where people live to be widely useful for recreation. Second, some of it is so close to large metropolitan centers as to be already overwhelmed by people.

A third complicating factor is that most of the shoreline, especially that near metropolitan centers, is privately owned and therefore not available for public use.

On the basis of current trends for outdoor recreation, and recognizing the longstanding popularity of shoreline recreation, there is little doubt that the demand for recreation shoreline will be many times greater by 1976 and 2000 than at the present. It is obvious that long before the end of this century the recreation shoreline within the radius of use of large urban populations will have to be managed with an efficiency unknown today. Outside of these areas of major impact, some changes in the balance of public and private ownership will have to be made to accommodate public demands for the recreation use of these shorelines.

The purpose of this report is to discuss the problems of the recreation shoreline—present and future—and suggest national policies and programs to deal effectively with the problems.

CHAPTER ONE

WHAT ARE THE SHORELINE RECREATION WANTS AND NEEDS OF THE AMERICAN PEOPLE NOW, AND WHAT WILL THEY BE IN THE YEARS 1976 AND 2000?

Answers to the questions of present and future needs will be discussed separately. It is first necessary to understand what measures of present needs can logically be made before it is possible to project these into the future. In general no real distinction will be made between 1976 and 2000, except to point out that some situations have greater immediacy than others.

Present Shoreline Recreation Needs

Behind the "wants" and "needs" of people for shoreline recreation, or any type of outdoor recreation, is the contemporary public attitude toward recreation itself as a legitimate activity. Americans believe now, as they always have, that "the devil guides idle hands." The growing fund of leisure time in this country has made Americans keenly aware of the problems leisure can present. We need to be kept busy. Americans are basically "doers;" they are action-minded; they will not be satisfied with activities which place them in observer roles.

Significance of outdoor recreation

The very traits which have given our society much of its dynamism and spirit are those which can, unharnessed, produce increased crime rates, social delinquency, higher rates of insanity, and suicide, to mention but a few social evils. There is a direct relationship between the increase in leisure time in the last decade and the increase in the need for "substitute" activities which will keep Americans busy and occupied. Perhaps Americans need to be even more active "off the job" than "on the job." It is just as important to plan for full employment of leisure energies as it is to plan for full employment of economically productive energies, and the primary outlet for these inherent American energies should be some form of outdoor recreation.

Indicators of outdoor recreation demand

Youth Survey.—In a study to determine what young people in the National Capital Area do with their spare time, the answers of over 60,000 young people in the 9th through 12th grades suggest that a "large and unfulfilled demand" exists "for most of the outdoor sports..". 1/ The study revealed comparatively little difference between neighborhoods in the expressed desire for sports, but very great differences in the extent to which young people actually participate. The greatest need for recreation opportunities is among the lower income urbanites.

Delaware Basin Study.—A study of the Delaware River Basin, prepared for the National Park Service by the Gallup organization, indicates that all classes of people share the desire for a great participation in outdoor recreation. Sixty percent of the people queried preferred a rural setting for day outings, and 42 percent preferred the outdoors for weekend vacations. 2/

Water and outdoor recreation

A National Park Service report published in 1960 states, in part, that "...probably the major portion of outdoor recreation is associated with water areas..." 3/ The sales of outboard motors, over half a million annually for the past several years, are testimony to the great number of persons who participate in recreational boating, estimated to be as many as 40 million. 4/ In any survey of outdoor sports, swimming is sure to be one of the most popular, and water skiing is rapidly gaining in popularity. All such evidence emphasizes the importance of water features in American forms of outdoor recreation.

Popularity of shoreline recreation

Of the many outdoor recreation "environments," mountains, seacoasts, deserts, and woodlands, the shoreline appears to have an unusually strong appeal for Americans. In the Gallup study mentioned above, a marked preference was shown for the seashore. The New Jersey seashore was the first choice for 48 percent of the respondents, and second choice for 21 percent when asked about their preferred area for a day outing. In contrast, the Pocono Mountains were the first choice of 23 percent and the second choice of 24 percent. For weekend outings, the figures were 43 and 21 percent for the seashore and 30 and 23 percent for the Poconos. Seventy-seven percent of the people questioned had been to the New Jersey seashore at some time, while 35 percent had been to

1/ Edward B. Olds, "What Young People Do and Want To Do in Their Spare Time," Health and Welfare Council of the National Capitol Area, Washington, D.C., 1960.

2/ "Summary of Outdoor Recreation Activities in Preference of the Population Living in the Region of the Delaware River Basin," prepared by the National Park Service from a report prepared by Audience Research, Inc., Princeton, N.J., January 1958.

3/ "Water Recreation Needs in the United States, 1960-2000," U.S. Senate Select Committee on National Water Resources, May 1960.

4/ "Boating," National Association of Engine and Boat Manufacturers, New York, N.Y., 1960.

the Pocono Mountains.5/ These two recreation sites were the two most popular discovered by the survey. They are equally accessible to the people living in the Delaware River Basin.

In the year preceding the interviews upon which the Gallup study was based, 24 percent of the population of the area, constituting 45 percent of the vacationers, spent at least some of their time at the New Jersey shore.

Popularity of the shoreline is no accident. Coastal areas provide opportunity for a wide variety of active or passive pleasures such as:

Activities exclusively "coastal"—
- Surf-riding.
- Skindiving (spearfishing, underwater exploration).
- Beachcombing.
- Coastal hunting and fishing.

Activities associated with water bodies—
- Swimming.
- Boating (motorboating, sailing, canoeing).
- Water skiing.
- Fishing.

Activities not limited to coasts or water bodies—
- Hiking and walking.
- Sunning.
- Bird watching.
- Horseback riding.
- Picnicking.
- Camping.
- Photographing, sketching, painting.
- Sightseeing (scenic, scientific, historical).
- Nature study (biological, geologic, botanical).

Shorelines afford easy, active forms of recreation. Going into the surf is fun whether one swims or not. It isn't necessary to be a mountain climber to take walks along the beach, and beachcombing is an activity that appeals to everyone from toddler to octogenarian.

While all of the shoreline has some recreation value, and the entire shoreline constitutes a recreation resource, not all of the shoreline is equally sought out for outdoor recreation. Of the three categories of shoreline—marsh, bluff, and beach—the latter is by far the most popular kind of shoreline in present patterns of outdoor recreation activities.

Here, land and water are easily accessible; the violence of breaking surf and the warm safety of relaxing sands are but a step apart; the stimulation of the foreign environment of the water and the relaxation of sunbathing are nowhere else so easy of choice. Physical sport and mental relaxation are equally available.

Shoreline recreation target areas

Some shorelines are almost never used, either for recreation or for any other activity. Others are so overused that their recreation values are greatly reduced. The important shoreline recreation targets are those which have the characteristics of (1) accessibility and (2) availability. Accessible shorelines are those which are close enough to large using populations for day and/or overnight use. Available shorelines are those whose use is not restricted by the nature of ownership, high fees, or some other inhibiting factor.

Both characteristics are essential in any assessments of the wants and needs of the American people for recreation shorelines and in any evaluation of the ability of our resources to fill those needs. In some large metropolitan areas the per capita amount of accessible and available shoreline is extremely limited. Shorelines accessible to less densely settled parts of the country may be used by only a few people. Thus, shoreline recreation demands are highly concentrated, geographically.

Accessibility.—People who seek outdoor recreation do so within very definite time patterns; these are usually described as day outings, weekend or overnight trips, and vacations. The most important of these, in terms of its impact upon outdoor recreation resources, is the day outing. The Gallup study cited earlier indicated that, of the 71 percent of the people questioned who had been on any day outing during the past 12-month period, one-half had been on at least 10 day outings during that period. Of the 47 percent who had been on overnight or weekend trips, half had been on at least three such trips.

Fifty-four percent of the people questioned had been away from home on a vacation during the preceding 12 months.

The day outing is the basic unit of outdoor recreation at present. The Delaware Basin people queried drove a median one-way distance of 63 miles on day outings, or a driving time of about 2 hours. This is not necessarily the pattern everywhere. Data published by the National Park Service in 1941 showed considerable differences in average day outing distances from one part of the country to another. This is borne out by the recently published California Public Outdoor Recreation Plan 6/ which reported an average one-way distance of 35 miles for day outings and an average distance of 75 miles for overnight trips. The authors of this report are inclined to believe that at the present time people will drive one way about 2 hours, a distance that may vary from 30 miles to as much as 90 miles, for such outstanding recreation sites as ocean beaches provide.

Of course, when beaches are closer than this, they will be used more heavily. About three-quarters of the people in California live within an hour's drive of a beach, accounting in part for beach popularity in that State. The following table shows how long people spent en route to three public beaches in the metropolitan New York area on a summer Sunday in 1959.

New York City's beaches are so accessible that eight beaches had an estimated total attendance in 1959 of 65,595,204, according to that city's reply to the municipal facilities questionnaire. Unquestionably accessibility is a key factor in use—and in planning for the future. The Massachusetts report, "Public

5/ "Summary of Outdoor Recreation Activities of the Delaware River Basin," op. cit.

6/ Part I, Mar. 25, 1960, Sacramento, Calif., p. 26.

Table 1. Estimated range and average traveltime of users of three beaches in the metropolitan New York region, summer 1959 [1/] [2/]

One-way traveltime (range in minutes)	Jones Beach (percent of travelers)	Orchard Beach (percent of travelers)	Great Kills Beach (percent of travelers)
0-15	17.0	69.2	46.8
0-30	34.7	75.2	65.3
0-45	71.2	100.0	84.8
Less than 1 hour	83.9	100.0	94.7
Over 1 hour	16.1	....	5.3
Average one-way traveltime in minutes	40.2	23.5	27.5

[1/] Adopted from "The Race for Open Space," final report of the Park, Recreation and Open Space Project of the Tri-State New York Metropolitan Region, Regional Plan Association, Inc., New York, September 1960, table 17, p. 34.

[2/] Traveltime is a weighted average based on the distance from each county's population center to each park, via major roads at normal speeds.

Outdoor Recreation," had this to say about public beaches:

> Massachusetts is fortunate in having a system of public beaches the estimated peak capacity of which is 385,000 people—8.5 percent of the population.
>
> However, 80 percent of the ocean beach capacity lies within the Metropolitan Parks District, where 2 million people, more than 40 percent of the State's population live. Within this district, where the beaches can accommodate 15 percent of the resident population, use on peak days taxes their capacity heavily. [7/]

Availability.—In general, the only beaches widely available to the public are public beaches, and even some of these are restricted. For example, some municipal beaches admit only bona fide citizens of the municipality. Others practice some form of segregation or other restriction. The use of private beaches is normally under the control of the owners, although in some States access may be gained to the foreshore—the area below high tide—through public thoroughfares. Because of time and fund limitations, it was impossible to make an inventory of restrictive policies of either private or public beaches. The authors have assumed that public beaches are usually available to anyone. However, it may be that the extent of adjacent parking areas is the greatest single factor restricting the availability of accessible public beaches.

[7/] "Public Outdoor Recreation," Department of National Resources, The Commonwealth of Massachusetts, 1954.

Summary of Shoreline Recreation Needs

There seems to be little question that the role of the American shoreline in satisfying outdoor recreation needs is becoming more important every year. However, the usefulness of shoreline to satisfy recreation needs varies with the:

1. Type of shoreline.
2. Accessibility of the shoreline.
3. Availability of the accessible shoreline.

Accessible and available beaches

The greatest recreational use pressure is on public beaches not more than 60-90 miles away, depending upon the highways, or about 2-hours automobile traveltime, from metropolitan areas of a half million or more people. Within this range the heaviest demands are normally placed on beaches within 30 miles or less than 1-hour traveltime of metropolitan areas. The 19 metropolitan areas which presently have more than 500,000 people are shown on figure 1. Circles of 30 and 90 miles radius respectively, have been drawn around these metropolitan areas. These are the crucial beach recreation targets. The inner circles are the "bull's-eyes." Where the impact areas of a number of metropolitan areas overlap, use pressure is extremely high.

Inaccessible nonbeach shoreline

The other side of the coin is extreme nonuse. The least use pressure on recreational shoreline is on marsh or bluff coast with no beach areas and distant from metropolitan centers. While recreation use of these areas is slight at present, they are often important as superlative examples of bluff or marsh shoreline, as unique natural phenomena or as wildlife habitat.

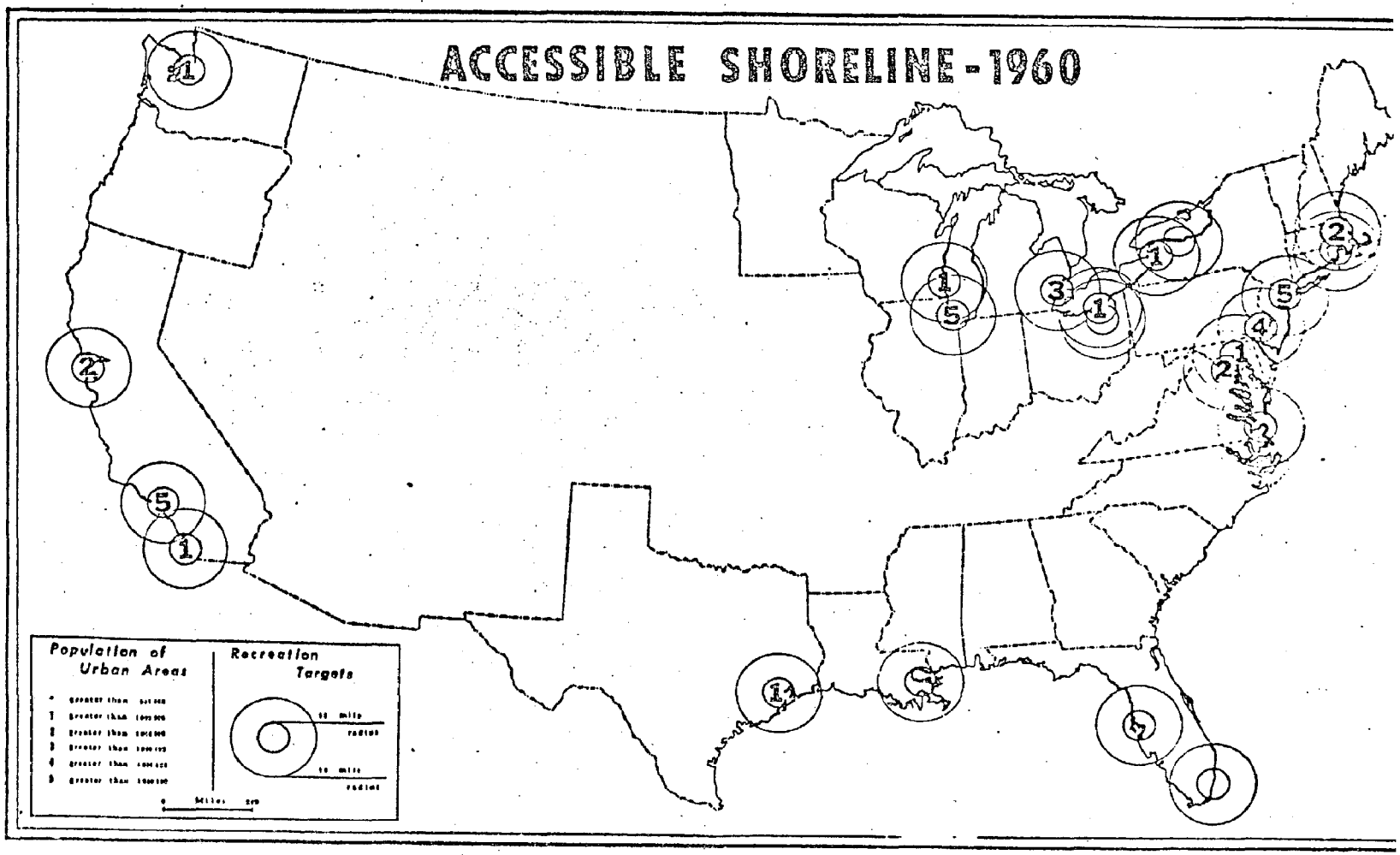
Intermediate shoreline

In between these two extremes of use and nonuse are intermediate pressures on recreational shoreline, depending upon such matters as extent of overnight and vacation demand for shoreline, relative qualities of the available shoreline, and the effects of land management decisions on availability for recreation.

The authors of both the California plan and the Gallup study agree that the median distance traveled to an outdoor recreation site for overnight or weekend vacations is about 90 to 125 miles. This does not really produce any great change in beach recreation targets except to widen them a bit in some cases and to increase the potential use in many others. That is to say, people in the Delaware Basin who go to the New Jersey shore for day outings may also go there for weekends and for their vacations.

Vacation users may travel farther than day outing and weekend users, thus considerably extending the area from which use pressure originates.

While shoreline probably serves a much smaller proportion of the public for long vacations than it does for day and weekend outings, vacation use is important because of the amount of the resource


ACCESSIBLE SHORELINE - 1960
Population of Urban Areas
Recreation Targets

needed to support vacation use. Vacation users, along with weekend outing users, require housing and associated services that are not required by day outing users. In this case, the nature of the use tends to spread people more thinly over the resource than does day outing use.

Demands on the resource: kinds and location

Demands on the shoreline resource differ in intensity and in kind depending upon the location of the resource with respect to population concentrations.

With minor exceptions, these demands are more intense and more diverse in direct proportion to the concentration and density of population.

In metropolitan areas, the demands for public recreation, private recreation, housing, commercial development, industrial development, and transportation are all heavy. Historically, those uses of shoreline that could pay the highest prices for land have preempted most of the shoreline. These are uses which call for highly capital-intensive development. Currently, those uses are exerting pressure on remaining areas of low capital intensity that are immediate to the city and also on low-intensity use areas at greater and greater distances from the heart of the city.

Public recreation is relatively low on the capital-intensity scale. It probably ranks with wildlife preserves in this respect. In ascending order might be placed private recreation and housing, commercial development, and industrial development. Public transportation is not in the same scale, while private transportation is so often invested with a public interest as to make its ranking variable from situation to situation.

At greater distances from the metropolitan centers, the pressures of commerce and industry decrease. On these shorelines, the competition is more likely to be between public and private development for recreation, and within the public sector among kinds of development.

This competition is greatest at those places where physical accessibility is greatest. This includes location near towns and close to roads.

Other institutional characteristics being equal, the competition for shoreline is most intense for areas which can be used for the most kinds of activities with the least cost of development. Both recreational and nonrecreational uses may be said to conform to this pattern.

In most cases, beach shoreline offers the cheapest and most enjoyable recreation uses for large numbers of people. These areas are also most generally useful for commercial, industrial, and transportation activities.

Marsh shorelines become more important as beach shorelines become scarcer. Development costs for marsh shoreline are greater, but the factor of accessibility tends to counterbalance these costs at intermediate points away from the metropolitan cores.

Bluff shorelines have in general the highest development costs of the major types of shorelines. For most uses they may well be the least sought after, although for certain types of recreation and travel they may have high utility for limited numbers of people. Scenically, they may be the most interesting type of shoreline. The competition that exists for most bluff shoreline is probably between public and private recreation.

All demands on a resource which require physical use of the resource are preemptive. This is as true in a multiple-use situation as in a single-use situation. Multiple-use management of a resource is possible when the various uses do not deny each other absolutely.

It is almost universally the case that recreation uses deny nonrecreation uses absolutely. Recreation and commerce, recreation and housing, recreation and industry, recreation and transportation, recreation and wildlife protection—in most cases cannot be carried on at the same place. The practical and esthetic requirements of clean water, adequate land area, safety and pleasant surroundings, and necessary recreation developments can rarely be assured in conjunction with commerce, industry, housing, and transportation. In turn, most recreation activities become nonconforming uses when considered in conjunction with wildlife preservation or the preservation of biotic communities.

All of this reemphasizes that the greatest immediate expression of wants and needs for recreation shoreline is very close to great urban concentrations of people. These needs are quantitative and impressive, but it is the nature of outdoor recreation that many needs are also qualitative, and these latter needs cannot be ignored.

This concept of a shoreline, portions of which can serve various recreation purposes according to their physical and locational characteristics, in response to differential expressions of wants and needs, suggests an integrated pattern of policies and programs that depend in part upon the ways in which the shoreline is presently being used to meet recreational needs. This will be considered in a later chapter. Before this is done, an attempt will be made to project wants and needs for recreation shoreline to the year 2000.

Needs for Recreation Shoreline in the Year 2000

Projection of the recreational element in American life over a 40-year period is subject to many sorts of errors of judgment. The factors which will be used here are of two different kinds: (1) projection of actual demand factors, and (2) projection of those factors which directly affect the trends in outdoor recreation demand—population, income, leisure time, and mobility.

The rapid increase of outdoor recreation demand

A recent Resources for the Future study has plotted the average annual percentage increase in use of various categories of recreation sites in the post-World War II years. 8/

8/ Marion Clawson, R. B. Held, and C. H. Stoddard, "Land for the Future," Resources for the Future, Inc., Johns Hopkins Press, Baltimore, 1960.

shown in table 4.

Table 2. Average annual increase in attendance for major types of recreation areas, post-World War II years

Major type of outdoor recreation area	Kind of areas representative of each type	Average annual increase in attendance in post-war years (percent)
User-oriented	Municipal parks	4
Resource-based	National parks	8
	National forest	10
	Wildlife refuges	12
Intermediate	State parks	10
	TVA reservoirs	15
	Corps of Engineers reservoirs	28
	Hunting	3
	Fishing	4

Source: Marion Clawson, R. B. Held, and C. H. Stoddard, "Land for the Future," Resources for the Future, Inc., Johns Hopkins Press, Baltimore, 1960.

It is significant that the largest increases in attendance were at resource-based and intermediate types of recreation areas, and that the largest increases were associated with reservoirs: user-oriented—accessibility and availability characterize these in- or near-city playgrounds, swimming pools, parks, etc.; resource-based—the inherent natural qualities of the area constitute the basic recreation factor; intermediate—as the term implies, these areas are usually within 2 hours driving time of the user and represent the best natural qualities available in this area of day-use accessibility. These figures point up the fact that outdoor recreation sites with significant natural advantages or which are water-associated are becoming increasingly important to Americans in the postwar world.

Recreational Boating.—One often-stated but nonetheless valuable indication of this trend is the remarkable increase in recreational boating. Table 3 shows the increase in outboard motors in use by 2-year periods since 1948 as reported by the National Association of Engine and Boat Manufacturers:

Table 3. Number of outboard motors in use, by 2-year periods[1/]

Year	Outboard motors in use (thousands)
1948	2,321
1950	2,811
1952	3,219
1954	3,740
1956	4,740
1958	5,485
1960	6,050

[1/]National Association of Engine and Boat Manufacturers, New York, N.Y., 1960.

tional boats in use, of course, from 2,440,000 in 1947, to 8,025,000 in 1960, as reported by the same organization.

The upward trend of shoreline-pressure factors

In an article entitled "The Crisis in Outdoor Recreation," 9/ Dr. Clawson projects the recreation-promoting factors to the year 2000 from the year 1950 in these terms: there will be twice as many people, with twice as much income per person, with 1 1/2 times as much leisure, who will travel twice as much. All of this, he believes, will add up to about a tenfold increase in the demand for outdoor recreation.

Dr. Clawson does not interpret this as a tenfold increase "across the board" for all kinds of outdoor recreation. Rather, he believes that in terms of the three kinds of outdoor recreation areas referred to in the previous section, the increase factors will be as follows:

User-oriented. . . . . Fourfold increase
Intermediate. . . . . Sixteenfold increase
Resource-based . . . . Fortyfold increase

These predictions can be interpreted in a variety of ways. For example, a fortyfold increase in demand for resource-based recreation shoreline—essentially national seashore areas—might be taken to mean that there should be 40 such areas, because there is now only one. Whether or not this is used "to capacity" is another question. The Hatteras beaches never experience the use impact borne by the Long Island and New Jersey public beaches, but perhaps if they did they would not represent the same sort of recreational "quality" that we like to associate with our more valuable national recreation sites.

A tenfold increase in use of intermediate areas, such as the Long Island and New Jersey beaches, would almost literally mean either providing 16 times as much beach or finding some efficient way of increasing the person per beach unit ratio. Shoreline within the heavy impact range of metropolitan areas not now used for public recreation will receive increasing pressure for conversion to public recreation use. To the extent that new public shoreline cannot meet all of the recreation demand, areas already in use will have to be managed to provide more recreation. Since the future will see increasing pressure for nonrecreation uses of shoreline as well, it is likely that management innovations will play an extremely important part in meeting future recreational demand.

The trends in today's recreation patterns point without question to an increasingly larger role for the shoreline. When one adds to this the factors of the public preference for beach shoreline, the increasing nonrecreation demands for shoreline, and the limitations on the use of relatively inaccessible beach shorelines, it becomes apparent that solutions other than the direct one of devoting more of the shoreline to recreational use will have to be sought.

[2/]Marion Clawson, "The Crisis in Outdoor Recreation," American Forests, March and April 1959.

Suggestions for increasing beach capacities and diverting interests in beach recreation will therefore be alluded to in the section of this report recommending policies and programs.

Summary of Forecast

The year 2000 will probably see a major increase in demand for recreational shoreline of all types to such an extent that in areas of metropolitan impact, most of the shoreline will be needed to satisfy the recreational demand, and some of it will have present.

Shoreline which is farther from metropolitan centers will receive increasing pressure for recreation use, although this pressure will not likely be as intense as that on close-in shoreline. Some of this shoreline has great value as superior natural environment or wildlife habitat. Other portions of it are valuable for superior recreation areas. All of these values need to be considered on their various merits, in the light of the necessity to assure shoreline use that returns the greatest public benefits.

CHAPTER TWO

WHAT ARE THE SHORELINE RECREATION RESOURCES AVAILABLE TO FILL RECREATION WANTS AND NEEDS NOW AND WHAT WILL THEY BE IN THE YEAR 2000?

The American shoreline is a geographical feature of the Nation in the same sense as its area, its rivers, its mountains, and its deserts. While in some instances its nature can be modified, its extent cannot be appreciably changed. In this context, it is a limited resource and a scarce commodity. It differs from some natural resources, such as minerals and oil, in that its location and physical structure are an inherent part of its usefulness, while the usefulness of the former lies in their capacity for being transformed and transported.

The shoreline is a resource requiring no manufacture or modification of form for many of its recreational uses, although it is capable of being modified, for some purposes.

The aspects of the shoreline in which change is possible are the control and management of the shore, the exploitation and modification of its inherent qualities for the purposes of recreation or other uses, and the modification of the pattern of accessibility to the public that needs or desires the recreational and other values of the shoreline. These are the aspects on which attention needs to be focused to obtain some appraisal of the shoreline recreation resource of the future.

Historically, the shoreline is a resource comparatively neglected by the Nation as a national recreation resource. It has largely been left for acquisition and exploitation by whatever public or private agencies desired to undertake its ownership, control, and management. From time to time in the past the Federal Government has taken certain limited areas under its control for purposes of coastal defense, national parks and recreation areas, or control of entrance to and exit from the country. In relatively recent years all levels of government, in response to increasing pressures and demands from the public, have acquired ownership, control, and management of small portions of the resource for other purposes. Yet today it is estimated that some 90 percent of this limited, highly desirable recreation resource is in private control, about 5 to 7 percent is in public recreation areas, and about 3 percent is in restricted military areas. 1/

This predominance of private control of the shoreline raises some important questions about the availability of the shoreline for recreation use by the public. Should the national shoreline now held by private owners be considered available for acquisition, development, and use by the public? What is the right of the public in this limited resource, and is it superior to that of the private owner who has held domain for scores of years while public agencies ignored the resource? This report is based on the assumption that the total physical shoreline of the Nation can and should be considered available for public development and use. No attempt has been made to evaluate the legal, political, financial, and policy difficulties that would accompany attempts to place more of the national shoreline under public control and management. The report does not imply that it is feasible or desirable to espouse public ownership of the entire shoreline. However, it does recognize the public interest in the shoreline as a national boundary, and the necessity to consider the entire shoreline when policies of shoreline recreation are being formulated.

This chapter discusses the present physical status of the shoreline. Following this is a section which briefly indicates the physical conditions that may reasonably be expected to exist over the next 40 years.

The present and predicted future conditions are evidence of the nature and size of the task ahead of providing adequate shoreline recreation opportunities.

The Present Status of the Recreation Shoreline

A little recognized fact is that the entire shoreline, whatever its nature or type, has some inherent recreational potential and value simply because it is shoreline. The attraction of the shore and the recreational values may vary widely with the type of shore, but even the least attractive shoreline area has some recreational value. The wild and isolated rocky cliff of the Maine shore, the steamy wilderness marsh shore of the Everglades, and the sunny beaches of Florida and southern California have the common element of possessing some features that attract—or can be modified to attract—those seeking recreation.

Recreation shoreline defined

The technical definition of shoreline is precise and nonambiguous. The shoreline is the line of intersection of a stated water surface with the land. There are many such shorelines, each precise and clearly understood; e.g., the mean sea level shoreline, the mean high water shoreline, the tidal shoreline, and the mean lake level shoreline, among others. None of these delineate the recreational pertinence of a shoreline. In fact, the terms are confusing, misleading, and of little value in a study of shorelines as a recreation resource. They offer no clue to the meaning to people of "going to the beach," or of similar terms commonly employed by those speaking of the recreation aspects of the shoreline. In common parlance in the United States "the shore" or "the beach" is as diffuse and varied in meaning as

See footnote at end of chapter.

"the mountains." These terms and what they connote have many expressions to many people, and when used in reference to recrention often have connotations that have little or no relation to the actual physical shoreline.

The question to be resolved is what to consider as the recreation shoreline of the United States. There seems to be little doubt that all of the exposed coast fronting the oceans or the Great Lakes may be thought of as recreation shoreline. There is doubt that all of the shores of Puget Sound, San Francisco Bay, Chesapeake Bay, or the almost totally enclosed Pamlico Sound, or Matagorda Bay, are recreation shoreline. Some criterion, or set of criteria, enabling the definition of a place as being recognized by the public as a recreation shore location is necessary and desirable.

The qualities that make feasible and attractive the recreation activities of boating, fishing, swimming, bathing, amusement, or cottage living unfortunately are not discriminative; they attach to many locations and may be found at the seashore, the lakeshore, the river, the country club, and perhaps the farmer's stock pond.

A feature that does seem to discriminate "the shore" from other areas, in the public mind, is the coupling of expanse of view with proximity to the sea or other large body of water. The broad sweep of water extending to or near the horizon is invariably associated with "the shore" uniquely. Another discriminating quality is the existence of a marine climate and environment, identified by such weather phenomena as the occurrence of wind from off the water, the temperature influence of the water, waves, and other weather features associated with large water masses. Arguments may be found for other features of a more detailed nature. In keeping with the belief that gross terms will serve best the purposes of this study, these will not be introduced.

For purposes of this study the following criteria have been established to discriminate the recreation shoreline and its extent. The shoreline identified herein is considered to meet in some substantial degree all these criteria:

1. The existence of a marine climate and environment.
2. The existence of an expanse of view of at least 5 miles over water to the horizon from somewhere on the shore.
3. Location on some water boundary of the United States (water bodies lying entirely within the U.S. boundaries are not included).

Extent of the recreation shoreline

In determining the extent of recreation shoreline meeting these criteria, it has been necessary to exercise subjective judgment. For example, the lower tip of Manhattan satisfies the criteria, yet there is substantial doubt that all would consider its shore as a recreation shoreline; similarly there are many locations completely devoted to special uses (e.g., ports, harbors, etc.) that are excluded. Conversely, some locations have been included that do not satisfy completely all the criteria, yet are usually considered as recreation locations (e.g., some parts of Casco Bay, Maine, and of Puget Sound).

The value of the figures on extent of recreation shoreline so defined and reported herein rests in the gross rather than the detail. While the precision of any single figure may be relatively low, the comparative orders of magnitude are significant and representative.

Table 4 summarizes the detailed tidal shoreline (as reported by the U.S. Coast and Geodetic Survey or the U.S. Lake Survey), the gross extent of the recreation shoreline and the detailed shoreline now devoted to public recreation or restricted military use for each of the water masses bounding the Nation. 2/

Nature of the shore

Mere knowledge of the extent of shoreline having some degree of recreation possibility is not sufficient to permit adequate assessment of recreation potential. For this purpose additional information is needed on the physical status and nature of the shore, the importance and effects of natural phenomena (e.g., waves, tides, erosion, climate, and weather), the kinds and extent of development, and the suitability of the shore

See footnote at end of chapter.

Table 4. Mileage of detailed shoreline, recreation shoreline, public recreation shoreline, and restricted shoreline, by major coastlines.

Shoreline location	Detailed shoreline (statute miles)	Recreation shoreline 1/ (statute miles)	Public recreation shoreline (statute miles)	Restricted shoreline (statute miles)
Atlantic Ocean	28,377	9,961	336	263
Gulf of Mexico	17,437	4,319	121	134
Pacific Ocean	7,863	3,175	296	127
Great Lakes	5,480	4,269	456	57
U.S. total	59,157	21,724	1,209	581

1/Recreation shoreline is measured by the same methods used by the Coast and Geodetic Survey. The totals in this table and the State totals found elsewhere in the study are the result of including all such measured shoreline that meets the criteria for recreation shoreline as noted above. These figures will undoubtedly be different than data published by many States. While some difference in the totals may be attributed to the inability of this study to identify all public shoreline areas, a major reason for the difference is in the different criteria used by this study and by the various States in their reports.

ior recreation activity. The extent of the shore is categorized as beach, bluff, or marsh shore. These are arbitrary categories defined as follows.

Beach.—A beach indicates a wide expanse of sand or other beach material lying at the waterline and of sufficient extent to permit its development as a recreation facility without important encroachment on the upland.

The beach is the image of the recreation shoreline. "Beach" and "shore" seem to be synonymous in the public's mind. This is unquestionably because the beach is the ultimate marine-land environment, with an ever-changing and uninhibited view, supporting almost every type of recreation activity one can imagine.

Bluff.—A bluff shore indicates the existence of a bank, bluff, or cliff immediately landward of a relatively narrow beach, and varying in height from a minimum of several feet up to mountainous elevations.

The bluff shore provides a marine environment, scenic values of a high order, and frequently the isolation many outdoor recreation seekers prize so highly. The possibilities of management of bluff shores for recreation have hardly been realized; the use of their scenic qualities alone only begins to exploit their recreational value.

Marsh.—A marsh shore indicates the existence of tidal or nontidal marsh as the principal shore feature.

The marsh shore may be both the most ignored and the most promising type of shoreline for future recreation use. The developments at Newport Bay and Mission Bay, in southern California, show how much can be done with marsh shores for recreational purposes. In fact, these developments tempt one to suggest that the marsh shore can be managed easily to provide a recreation complex unmatched by almost any natural shoreline area.

Table 5 indicates the estimated mileage of these three types of shore, and in addition, indicates the amounts in public recreation areas, public restricted areas, private ownership, and development status. These estimates are based on a classification of available data according to the criteria and definitions outlined in this study. The mileage figures for ownership are approximate and represent a probable midpoint of a range within rather narrow limits.

Table 5. Estimated mileage, by State, of the U.S. recreation shoreline, by type, ownership, and development status

State	Total (miles)	Type			Ownership			Development status
					Public		Privately owned (miles)	
		Beach (miles)	Bluff (miles)	Marsh (miles)	Recreation areas (miles)	Restricted areas (miles)		
Alabama	204	115	....	89	3	1	200	Low.
California	1,272	283	883	106	149	100	1,023	Moderate.
Connecticut	162	72	61	29	9	....	153	High.
Delaware	97	41	....	56	9	9	79	Moderate.
Florida	2,655	1,078	406	1,171	161	122	2,372	Low-moderate.
Georgia	385	92	....	293	5	....	380	Moderate.
Illinois	45	13	32	....	24	4	17	High.
Indiana	33	33	....	....	3	....	30	Do.
Louisiana	1,076	257	....	819	2	....	1,074	Low.
Maine	2,612	23	2,520	69	34	....	2,578	Do.
Maryland	1,368	40	912	416	3	113	1,252	Do.
Massachusetts	649	240	288	121	12	6	631	High.
Michigan	2,469	292	1,959	218	357	....	2,112	Low.
Minnesota	264	22	175	67	19	....	245	Do.
Mississippi	203	134	....	69	....	25	178	High.
New Hampshire	25	7	9	9	3	....	22	Very high.
New Jersey	366	101	33	232	18	15	333	Do.
New York	1,071	231	590	250	47	....	1,024	Moderate.
North Carolina	1,326	285	260	781	139	42	1,145	Low.
Ohio	275	20	195	60	9	5	261	High.
Oregon	332	133	181	18	101	....	231	Moderate.
Pennsylvania	57	9	44	4	19	....	38	Do.
Rhode Island	188	39	145	4	8	10	170	High.
South Carolina	522	162	....	360	9	10	503	Moderate.
Texas	1,081	301	421	359	5	18	1,058	Very low.
Virginia	692	160	118	414	2	26	664	Low.
Washington	1,571	121	1,294	156	46	27	1,498	Moderate.
Wisconsin	724	46	634	44	13	1/48	663	Do.
Total	21,724	4,350	11,160	6,214	1,209	581	19,934	.....

1/Includes some Indian lands held in trust.

The supply of recreation shoreline

The U.S. recreation shorelines of the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Great Lakes total 21,724 miles. Some 4,350 miles are beach, 11,160 miles are characterized as bluff shore (of which perhaps half has usable beach), and 6,214 miles are marsh shoreline.

Beaches.—*If one assumes an average beach width* above the water of 50 feet, and applies the criterion of a minimum of 150 square feet space per person, 3/ each mile of beach could accommodate 1,760 persons. On this basis the existing beach extent of 4,350 miles could accommodate 7,656,000 persons. If we assume further that 10 percent of the population will use the beach at a given time, the existing beach shoreline of the United States could accommodate a population of close to 77 million persons.

Bluff Shore.—Adding to this the comparably derived figure applicable to the 11,160 miles of bluff shoreline, half of which has beach areas, an additional 112 million persons could be served, making a total of some 200 million, or more than the entire population of the United States in 1960.

Marsh Shore.—The 6,214 miles of marsh shoreline are an untapped recreation shoreline resource with tremendous potential, as are the roughly 6,000 miles of bluff shoreline without associated beach.

There is no shortage of shoreline for recreation purposes if only gross area is concerned. The problem, however, is one of imbalance between the locations of centers of population and accessibility to adequately developed shoreline open to the use of the general public.

The major recreation targets

The summary of the recreational shoreline of the United States shows only a small part developed as public recreation areas, and most of these areas are beaches easily accessible to large population concentrations.

On the other hand, there are extensive beach areas of excellent quality that until recently have been ignored almost completely by any public recreation agency. Outstanding examples of such areas are the extensive privately owned beaches of the Texas Gulf coast. These beaches are far from the great centers of population and therefore receive little or no use pressure.

Although comparative figures are not available, it is a valid generalization that certain easily accessible beaches are the more popular and well attended, while others less accessible but equally well endowed are less popular. Classic examples are the beaches around Los Angeles (Santa Monica is the most accessible and is also the best attended) and the Long Island beaches (Jones Beach is highly popular, while equally good or better beaches farther from New York on the island's south shore receive much less use).

Although those beaches which are available for public recreation tend to be accessible to population concentrations, the current predominant pattern of shoreline development and use of accessible shoreline is one of private ownership and restrictive usage.

The quality of facilities and the degree of crowding obviously are factors in the desirability of accessible and available beaches. However, some of the beaches reported (e.g., Boston and New York) are attractive to large numbers of inhabitants of the metropolitan centers, even though they are crowded. People will use crowded, inadequate beaches if nothing else is available. But these conditions should not define the desirable *minimum* beach area per person.

It seems clear that the current pattern of predominantly private ownership and restricted usage of beach property near metropolitan areas must be modified to one of greater public use of the accessible beaches, if the current and foreseeable beach recreation needs of metropolitan areas are to be satisfied—even in part.

The Future Status of the Recreation Shoreline

The extent of the American shoreline of 1960 will be almost precisely the extent of the shoreline in the year 2000. Nor will the essential natural qualities of the shoreline be appreciably modified. There will be in the year 2000, as there are now, about 22,000 miles of shoreline, one-fifth of which will be natural beach, another fifth of which will be marsh (unless programs of modification are instigated on a large scale, which is unlikely), and the remaining three-fifths of which will be bluff shore, half of it with beach.

The recreational value of this resource in the year 2000 will be determined in part by the nature and extent of its exploitation. At the present time, this has largely meant providing access to a shoreline area and developing service facilities near it (comfort stations, bathhouses, parking lots, lifeguards). The kind of management which would extend and improve beaches, rehabilitate destroyed beaches, or create new shoreline environments with higher recreation value (for example, developing marsh shorelines) has as yet been instituted only in scattered instances. Where well planned restoration has taken place, it has been highly successful, as at Presque Isle State Park in Erie, Pa. The Mission Bay, Calif., type of marsh shore development can be duplicated at many places on all of the coastlines. It is exactly this kind of management which would do much to modify the statement that the extent and quality of the shoreline will not be greatly changed. For example, the extensive marshland lying immediately behind the New Jersey barrier beach is accessible to what will be an even greater metropolitan complex in the year 2000. If it were developed to its full recreational potential, it could unquestionably do much to meet the shoreline recreation demands that are to be expected. Such development is a complex technical problem and is undoubtedly expensive, but it appears to be technically and economically feasible even now, and this would be even more true in 40 years.

See footnote at end of chapter.

recreation development is already raising a conflict between developers and groups who are interested in conserving such lands for wildlife habitat. This con-

situation points to a need for the coordinated planning and management which is more likely to occur with integrated State departments of natural resources.

1/Since a field inventory of shoreline ownership was not available for this study, precise ownership data could not be obtained for all shoreline areas. The estimates may understate the amount of public shoreline and as a result overestimate the amount of private recreation shoreline. The uncertainty with respect to precise percentages of shoreline in public ownership applies mostly to local, county, and to a lesser extent, State ownership. The estimate in the mileage of public recreation shoreline for a particular State may be as much as 25 percent too low. However, because the estimates for many States were based on nearly complete map identification of public recreation areas, the estimates for the Nation as a whole are probably within 15 percent of the actual amount. The amount of private shoreline is the amount left when public recreational shoreline and public restricted shoreline are subtracted from total recreational shoreline.

2/This study did not include detailed analysis of shoreline of Alaska and Hawaii.

In Alaska, the shoreline is not now and will not in the foreseeable future be subject to the kind of pressures that are discussed in this study. Both distance from centers of population and length of usable season are severely limiting factors in the use of Alaska shorelines for recreation.

The two major recreational uses of Alaska shorelines are for local activities and for sightseeing from boats. The Forest Service currently has a policy of protecting the sightseeing values of its shoreline property where this shoreline is along commercial ship routes.

The Coast and Geodetic Survey figure for the detailed coastline of Alaska is 33,904 miles. Thus, the detailed coastline of Alaska is a little less than three-fifths as long as that of the rest of the continental United States.

The Hawaiian shoreline has a detailed mileage of 1,092. The State is composed of six major and two minor islands. Distance, transportation facilities, and population location are three of the major factors limiting widespread use of Hawaii's shorelines. The beaches of Oahu, especially near Honolulu, are heavily used, both by the local population and by tourists. For the rest of the State, lack of large scale inter island transport and small local populations combine to exert only slight recreation pressures on shoreline.

3/A number of city and county planning commissions have standards which call for between 75 and 150 square feet of beach per person.

CHAPTER THREE

THE PRESENT AND FUTURE STATUS OF FEDERAL, STATE, AND LOCAL INSTITUTIONAL ARRANGEMENTS

The institutional arrangements by which public agencies order their affairs have a distinct bearing on the amount and kind of services that are or can be offered. This is nowhere more true than in the provision of shoreline recreation opportunities. These arrangements, applied to the physical and current use situation previously described, delimit the recreation potential of shoreline.

The structure of government agencies, their statutory powers, the status of shoreline planning, and the adequacy of current public policy are all discussed in this chapter.

State and Local Recreation Organization and Statutory Powers

State organization

On occasion the role of coastal recreation is given explicit recognition within a State administrative department, such as the Division of Beaches and Parks in the California Department of Natural Resources. Since this scarcely amounts to administrative innovation, the comments which follow apply equally to all outdoor recreation.

Two facts stand out in regard to organizational problems. The first is the widespread use of the board or commission form as the administrative head of the agency which houses coastal recreation functions. The second organizational problem noted concerns the fragmentation not only of the recreation function but of those functions related to the utilization of land and water resources.

The Board or Commission Form of Direction.—This is the pattern found in 20 of the 28 States considered (table 6). The argument over plural versus single executives is one which seldom escapes attention in the standard public administration texts, but one from which universally valid prescriptions fail to emerge. Nevertheless, most students of administration will agree with the late Prof. Leonard D. White that:

> ... in general, the burden of proof is on the advocates of a board in preference to an administrator, although in some cases a lay board may give results apparently superior to those attainable by a full-time (but underpaid) executive. Exigent demands for unity of purpose, for energy in execution, for well-defined responsibility, and for easy coordination press strongly in favor of one official rather than for a conjoint authority. 1/

The problem posed by the type of agency head is one which raises issues beyond strictly managerial considerations. In many instances, the board form was adopted and combined with staggered terms of office for the express purpose of insulating the agency from the normal political and administrative controls, particularly those of the Governor. For example, Wisconsin has both a Department of Conservation, headed by a Commission serving 6-year staggered terms, and a Department of Resource Development, headed by a Director appointed by and responsible to the Governor. The latter agency was established in part in order to give greater emphasis to recreation, rather than considering it a byproduct of conservation. The concern over relations with gubernatorial leadership is a practical problem, not a formal one. The day is rapidly approaching when the legitimacy of recreation as a governmental function will become widely accepted and its promotion undertaken without misgiving. Provision of public recreation is becoming a vital part of providing for the general welfare. It very well might be a mistake, then, to continue to argue for independent status for recreational activities. On the contrary, a close relationship with the chief executive might soon be desirable in order that a proper share of funds and land and water be allotted for recreational purposes. When the promotion of recreation is undertaken by political leaders with the understanding that such a program has public appeal, the day of recreation has arrived.

Fragmentation of the Recreation Function.—Only 13 of the coastal States provide for an integrated department of conservation or natural resources to house parks administration, wildlife management, and resource management (table 6). Objections to such a department stem from the fear of recreation enthusiasts that the department would be dominated by conservationists concerned with physical resources rather than with human needs. Meyer and Brightbill, among the leading students of recreation administration, appear suspicious even of parks departments and evidently prefer a recreation commission to administer recreational programs. 2/

Supporters of an integrated department argue that intelligent planning and the development of a unified policy are handicapped by the splintering of activities arising out of the use or management of natural resources. The matter is further complicated where the several agency heads enjoy some degree of independence from gubernatorial controls. Where this is the case, there is no focal point for an active

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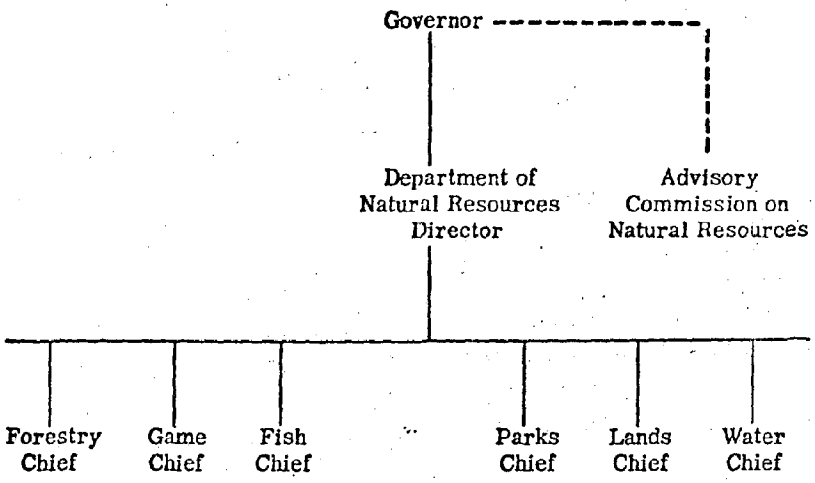
1/ Leonard D. White, "Introduction to the Study of Public Administration," Macmillan Co., New York, 1955, 4th edition, p. 191.

2/ Harold D. Meyer and Charles K. Brightbill, "State Recreation: Organization and Administration," A. S. Barnes, New York, 1950, ch. 5.

leadership. From an organizational point of view a plan suggested by the National Park Service appears highly satisfactory.3/ Functions of this plan are grouped as follows:



Powers of Acquisition.—Statutory powers of park agencies to acquire land are generally adequate. In at least four States, however, the agency does not possess the power of eminent domain, and in two others the power is limited either to acquisition of areas bordering on public parks or to acquisitions of under 200 acres (table 6). In the past, the authority to condemn land for park purposes was perhaps not of critical importance. Today and in the future the acquisition of coastal areas for recreational purposes may not be satisfactorily handled by a dependency on gifts, devises, or voluntary purchases. A coordinated system of recreation cannot be developed if the location of recreational areas depends upon the willingness of public-spirited citizens to contribute or sell suitable sites to the recreation agency. On the contrary, a recreation system must be planned to meet the needs of heavy population concentrations, and, where necessary, the recreation agency must have the authority and be willing to use the power of eminent domain to develop a balanced program.

Powers of Cooperation.—Only slightly more than one-half of the States under consideration specifically authorize the park agency to cooperate with other governmental units in promoting parks and recreational work. Cooperation with the Federal Government, other State governments, and with political subdivisions is authorized with approximately the same amount of frequency. Cooperation with private individuals and corporations is permitted in only four States (table 6). The explicit legislative recognition of the need for cooperation among governmental levels offers encouragement to those who feel that recreation and related problems should not be divided artificially along lines of political jurisdictions. The need for cooperation will likely increase as metropolitan areas continue to sprawl across municipal and State lines.

Public Access to the Foreshore.4/—Those States bordering on waters which ebb and flow with the tide, and which own such tidelands to high watermarks, have interesting possibilities of providing additional shoreline recreation for their citizens. The foreshore, that portion of the tidelands between high and low tides, can be and is used for recreational purposes even where the uplands are in private ownership. For example, in reply to a questionnaire on the subject, the State of Oregon stated that extensive use is made of the foreshore and that the State highway commission can acquire property, by condemnation if necessary, to construct public pedestrian trails and bridle paths to connect streets, roads, and public parks with the Pacific Ocean. Ten other States also indicate extensive or moderate use of the foreshore for bathing, fishing, crabbing, and similar activities (table 7).

Fourteen States own tidelands up to the high watermark (table 7). The rights of upland owners in most of these States would not conflict with public use of the foreshore, although in five States the upland owner may petition the State to acquire tidelands adjoining his property. State governments might well explore the practicality of opening the foreshore to more extensive use even where the uplands are privately owned.

Local organization

Local agencies are more often than not directed by a board or commission serving overlapping terms of office. Although this is subject to the same criticisms directed at the board form at State level, in cities of less than metropolitan complexity there may even be some advantage in a board made up of outstanding civic leaders who can lend the agency the weight of their prestige. However, in metropolitan areas the recreation function is so vitally important

3/"Recreation Today and Tomorrow: A Survey of the Recreation Resources of the Missouri River Basin," National Park Service, U.S. Department of the Interior, in cooperation with the Missouri Basin Interagency Committee, no date, p. 43.

4/The authors of this report are indebted to Col. Herbert C. Gee, whose study, "State Regulation of Coastal Structures," provided the basis of parts A and B of section 5 of each of the State reports in the appendix.

that the protection and encouragement of political leadership are essential. A mayor or other chief executive of a large city needs clear lines of authority over the recreation agency if he is to meet his responsibilities.

Local powers

Almost without exception, the coastal States grant to political subdivisions powers of sufficient breadth to enable them to undertake recreational projects along their coastline. Twenty-six of the 28 States considered specifically authorized municipal corporations or towns to build and establish parks, beaches, or other recreational projects; 19 authorize counties to undertake recreational programs; 10 enable special districts or authorities to be created; and 1 authorizes the creation of regional districts to build and manage recreational facilities. In addition, 10 States authorize 2 or more political subdivisions jointly to establish and manage recreational projects (table 8).

Attendance figures based on replies received from 259 local units of government indicate attendance in excess of 181 million at local beaches, marinas, launching ramps, fishing piers, and parks in 1959.5/ Undoubtedly, the responsibility of local governments for coastline recreation is a considerable one.

Municipal corporations and urban counties are more active than either rural counties or special districts in providing coastline recreation. This is what one might suspect. Rural populations have the advantages of open spaces and the possibility of hunting, fishing, or other recreational activities not so readily available to the city dweller. It is upon the governing unit of dense populations, then, that the responsibility for providing recreation has fallen, and it is here that the major problem is faced. It is well to inquire whether State governments, whose legislatures frequently overrepresent rural population, and the Federal Government, whose major criterion for developing parks is the uniqueness of the area rather than its active use, have met their responsibilities to the urban citizen.

Powers of Acquisition.—Local authority to acquire coastal sites for recreational purposes is also quite similar to the pattern found at the State level. In addition to authority to accept gifts, bequests, and devises of real estate, many local recreational agencies are authorized to purchase lands for park purposes and to institute condemnation proceedings when necessary. Voluntary purchase is the most frequently used method of land acquisition by all types of local governmental agencies and for all types of recreational facilities. Gifts run a strong second in importance, while the use of eminent domain is infrequently resorted to. As indicated earlier, eminent domain, although seldom required, is necessary on occasion for a balanced recreation program.

5/ About one-third of the shoreline counties answered the questionnaire. About one-third of the municipalities queried replied. A number of major cities and surrounding counties are not included in the responses. Many of these local governments are known to provide public shoreline recreation. Thus, the figures far understate the actual amount of activity of local governments.

Methods of Financing.—Although agencies responsible for coastline recreation have broad authority in financing projects, frequently including special tax levies, general fund appropriations are by far the most important source of income. This holds true for both municipal and county recreation agencies and for all types of projects. Perhaps the most interesting pattern which emerges is the frequency of fees or charges involving marinas and launching ramps as compared with other types of recreational activities. Quite possibly park agencies might explore further the use of fees or charges involving recreational activities or sports where the fees charged are only a small portion of the total cost of enjoying the recreational activity.

Associated Shoreline Control Agencies and Programs

Both water pollution control and beach erosion control are public programs which are highly pertinent to shoreline recreation opportunities. If they are coordinated with shoreline recreation planning, these programs can be effective in establishing and maintaining the health, safety, and physical conditions which can support a successful recreation program. At the present time, however, neither State water pollution control nor beach erosion control programs are tied closely enough to shoreline recreation programs to assure this success.

Water pollution control

Federal Programs.—The Public Health Service of the Department of Health, Education, and Welfare is responsible for administering the Federal Water Pollution Control Act of 1956. The act contains the following provisions:

(a) Authorizes the Surgeon General, in cooperation with Federal, State, and local agencies, to prepare a comprehensive program for eliminating the pollution of interstate waters.

(b) Encourages cooperative action by States and gives consent of the Congress to interstate compacts and agreements designed to control or alleviate pollution.

(c) Authorizes the Surgeon General to encourage, cooperate with, lend technical assistance to, and make grants to public and private agencies in studies related to the causes, control and prevention of water pollution.

(d) Authorizes the Surgeon General to make grants to States to assist them in financing the establishment and maintenance of adequate programs for the prevention and control of water pollution, the Federal share equaling from one-third to two-thirds of the costs involved.

(e) Authorizes the Surgeon General to make grants to States and municipalities for the construction of treatment works of up to 30 percent of the cost, or $250,000, whichever is the smaller.

Table 6. Location and selected powers of State agency

State	Agency head[1]		Location			
	Plural	Single	Integrated department[2]	Parks and forestry	Independent parks	Other
Alabama	....	X	X	....	....	....
California	....	X	X	....	....	....
Connecticut	X	....	....	X	....	....
Delaware	X	....	....	....	X	....
Florida	X	....	....	....	X	....
Georgia	[4]/X	X	....	....	X	[4]/X
Illinois	....	X	X	....	....	....
Indiana	[5]/X	....	X	....	....	....
Louisiana	X	....	....	....	X	....
Maine	X	....	....	....	X	....
Maryland	X	....	....	X	....	....
Massachusetts	[8]/X	....	X	....	....	....
Michigan	X	....	X	....	....	....
Minnesota	....	X	X	....	....	....
Mississippi	X	....	....	....	X	....
New Hampshire	X	....	....	X	....	....
New Jersey	[5]/X	....	X	....	....	....
New York	....	X	X	....	....	....
North Carolina	[5]/X	....	X	....	....	....
Ohio	....	X	X	....	....	....
Oregon	X	....	....	....	....	[11]/X
Pennsylvania	X	....	....	....	....	[12]/X
Rhode Island	....	X	....	....	....	[13]/X
South Carolina	X	....	....	X	....	....
Texas	X	....	....	....	X	....
Virginia	....	X	X	....	....	....
Washington	X	....	....	....	X	....
Wisconsin	X	....	X	....	....	....
Total	20	9	13	4	8	4

[1]/Refers to the department having responsibility, not the administrative subdivision.
[2]/An integrated department is one which combines parks and wildlife management and the administration of land and water resources generally.
[3]/Requires legislative approval unless condemned land is contiguous to a park area.
[4]/Jekyll Island State Park Authority.
[5]/Although headed by a commission, the Governor appoints the Director of the Department who serves at his pleasure.
[6]/Limited to acquisitions of 200 acres or less, and land not used for industrial purposes.
[7]/The Governor accepts upon recommendation of the Department.

State Organization.—The most common agency administering water pollution control laws in coastal States is a commission composed partly of ex officio officers and partly of members appointed by the Governor to represent industry, agriculture, recreation, or other interests. The State health officer is ordinarily among the ex officio members of such a special commission, and the State health department is the second most common agency responsible for water pollution control programs. It is apparently the practice at the State level to create a new organization, and an ex officio and part time lay board is simple to create, as new problems appear on the horizon. Such a practice merely fragmentizes the governmental process and creates a problem for gubernatorial control and leadership. The problem is further intensified where representation is given to those industries or governments which are responsible for polluted conditions.

Statutory Powers.—Powers afforded water pollution control agencies vary from State-to-State. Among the most important are authorization of research and investigation to determine practical and economical methods of pollution abatement; authorization to classify the waters of the State in terms of purity standards; power to issue permits for construction or alteration of sewerage and waste disposal systems; and power to issue orders to polluters to cease their operations or take corrective action. The success of water pollution control legislation depends on the funds available to finance the agency responsible for administering the laws, the vigor with which the agency proceeds against violators, and the advancements made in solving pollution problems where corrective action now entails considerable costs.

Impact Upon Recreation.—Based on replies received from 24 of the 28 coastal States, pollution of coastal waters constitutes a serious problem in at

having primary responsibility for coastline recreation, 1960

Powers of acquisition					Powers of cooperation with–			
Voluntary purchase	Gift	Devise	Eminent domain	Lease	Federal Government	Other State agencies	Local agencies	Private persons and agencies
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	....	X	....
X	X	X	X	X	....	X	....	....
X	X	X	X	....	....	....	....	....
X	X	X	[3]/X	....	....	....	X	....
X	....	....	X	....	X	X	X	X
X	X	X	X	....	X	X	....	....
X	X	X	X	....	....	....	....	....
X	X	....	X	X	X	X	X	....
X	X	....	[6]/X	X	X	....	X	....
X	[7]/X	[7]/X	X	X	....	....	....	....
X	....	....	X	....	....	....	....	....
X	X	....	X	....	....	....	....	....
....	X	....	....	....	....	....	....	....
....	X	X	....	....	X	X	....	....
[9]/X	[9]/X	....	[9]/X	....	X	X	X	X
X	X	X	X	....	....	....	....	....
X	X	....	X	X	....	....	....	....
[9]/X	[9]/X	....	[9]/X	....	....	....	....	....
X	....	....	[10]/X	X	X	X	X	....
X	X	....	X	X	....	....	X	....
X	....	....	X	....	....	....	....	....
X	X	X	X	....	....	....	....	....
X	X	....	....	X	....	....	....	....
[14]/X	X	....	....	....	....	....	....	....
X	X	....	X	....	....	....	....	....
X	....	....	X	X	X	X	X	....
X	....	....	X	X	X	X	X	X
26	22	11	24	12	11	10	11	4

[8]/The Department of Highways operates 4 beaches; the Metropolitan District Commission, through its Parks Division, provides beaches in Metropolitan Boston. The Metropolitan District can acquire land by purchase, gift, and eminent domain.
[9]/Subject to approval of the Governor.
[10]/When authorized by the Governor.
[11]/Department of Highways.
[12]/State Park and Harbor Commission of Erie, under the Department of Forests and Waters.
[13]/Department of Public Works.
[14]/May recommend the purchase of land to the legislature.

least some areas of 12 States, and a moderate problem in areas of 10 States (table 9). As one might suspect, the major problems appear near coastal cities and areas around a polluted stream which empties into the ocean.

Coastal and lake shore areas near large urban centers are subjected to intense recreational usage, but require the presence of clean water for maximum utility, especially for swimming. Yet, in a number of instances, improperly or inadequately treated sewage and industrial or ship wastes discharged in the waters near these beach areas have made it necessary, because of the resulting dangers to health, as well as for esthetic reasons, to close the areas to all uses involving human contact with the water. These situations are particularly serious because of the large populations involved, and the consequent need to utilize every possible mile of beach front for recreation to the maximum extent possible, if the people of these areas are to be provided with adequate recreational opportunities under suitable conditions of esthetic acceptability and minimum crowding.

Several situations well illustrate the predicament presented by failure to give adequate attention to the effects of pollution on beach areas. In 1942, the State of California found it necessary to close the extensive beaches of Santa Monica Bay, adjacent to the Los Angeles metropolitan area, to public swimming because of pollution resulting from discharge into the Bay of sewage from the Los Angeles sewerage system. Construction of a modern 12-foot diameter outfall sewer which delivered the treated sewage effluent 1 mile offshore corrected this situation and permitted reopening of the beaches in 1951. Continued growth of the area has been so great, however, that it was deemed necessary to construct expensive additional

State	Upland boundary of State ownership		Extent of use			Rights of upland owner	
	High water	Low water	Extensive	Moderate	Slight or none	Prior claim of purchase	Accretion and reclamation
Alabama	....	X	(1/)	(1/)	....	X	....
California	X	....	....	....	X	....	....
Connecticut	X	....	(1/)	(1/)	....	....	X
Delaware	X	....	X	....	....	....	X
Florida	X	....	X	....	....	....	....
Georgia	....	X	X	....	....	....	....
Louisiana	X	....	....	....	X	....	....
Maine	....	X	....	....	X	....	....
Maryland	....	X	....	....	X	....	....
Massachusetts	....	X	....	X	....	....	....
Mississippi	X	....	(1/)	(1/)	....	....	....
New Hampshire	....	X	X	....	....	....	X
New Jersey	X	....	X	....	....	X	....
New York	X	....	....	....	X	X	....
North Carolina	X	....	....	X	....	....	....
Oregon	X	....	X	....	....	X	....
Rhode Island	X	....	X	....	....	....	....
South Carolina	X	....	....	....	X	....	....
Texas	X	....	X	....	....	....	....
Virginia	....	X	....	....	X	....	....
Washington	X	....	....	X	....	X	....
Total	14	7	8	3	7	5	3

1/Not available.

pipelines to discharge treated sewage 5 miles offshore, and treated sewage sludge 7 miles offshore. These new facilities have been operating satisfactorily since March 1960, but a continuous water-sampling program is nevertheless carried on by both the State and the city to ensure that the waters adjacent to the beach of this splendid Bay are maintained in satisfactory condition for all recreational purposes.

In the Lake Michigan area, a number of beaches near Milwaukee were closed during the summer of 1960 and again in 1961 because of pollution of the adjacent lake, and beaches near Chicago were threatened with closure. A comprehensive study of the water pollution problems of this whole area is now being conducted by the Public Health Service, with the objective of determining the best course to pursue in correcting the water pollution difficulties of the region. Recreation will be given full consideration in this study.

At Cleveland, Ohio, beaches have been closed every summer for several years because of pollution in Lake Erie. Beaches near Detroit were closed in 1961 for the same reason.

In the New York metropolitan area, pollution in the adjacent tidal waters has resulted not only in the recent closing of some beaches, but also in the prohibition of dredging and sale of clams from some parts of the area because of hepatitis contamination in the clams caused by sewage. The situation in this region has reached such a critical stage, and beach front recreation is of such importance, that public hearings under the enforcement section of the Federal Water Pollution Control Act were recently held, and local officials of the area have requested the Public Health Service to undertake a comprehensive survey of the water pollution problems of the whole region.

Another serious source of beach pollution, especially near important harbors, results from oil tank sludges and bilge wastes discharged from ships. Such pollution, carried onto the beaches by the wind, can ruin beaches for long periods of time. Discharging of oil wastes into coastal waters is prohibited by Federal law.

The foregoing situations are illustrative of conditions that can occur adjacent to any urban area, and which can destroy the recreational values of their beaches. Other similar situations exist throughout the country, and still others may occur in the future unless timely measures are taken to prevent them.

Beach erosion control

Federal programs.—The Beach Erosion Board of the Army Corps of Engineers is charged by law to undertake general studies into the causes of shore erosion and the methods by which the shoreline can be protected or restored. These studies are designed to develop technical knowledge or "know how" to combat beach erosion, but do not result in specific plans for a given locality. Such studies are financed entirely by Federal moneys.

A second program undertaken by the Federal Government calls for a cooperative effort with State governments or their political subdivisions and results in specific recommendations to protect a particular beach. The initiative must come from an authorized State agency, although it might be on behalf of local

Table 8. State legislation enabling the establishment of local parks or recreation agencies

State	County	Municipal [1]	Regional districts	Special districts within a political subdivision	Cooperative action among local units
Alabama	X	X	....	....	....
California	X	X	X	X	....
Connecticut	....	X	....	[2] X	X
Delaware	....	....	....	....	....
Florida	X	X	....	....	X
Georgia	X	X	....	....	X
Illinois	....	X	....	X	....
Indiana	X	....	....	....	....
Louisiana	X	X	....	X	....
Maine	....	X	....	....	....
Maryland	....	X	....	....	....
Massachusetts	X	X	....	....	....
Michigan	X	X	....	X	X
Minnesota	....	X	....	....	....
Mississippi	X	X	....	....	....
New Hampshire	X	X	....	....	....
New Jersey	X	X	....	....	X
New York	X	X	....	X	X
North Carolina	X	X	....	....	X
Ohio	X	X	....	X	....
Oregon	X	X	....	X	....
Pennsylvania	X	X	....	....	X
Rhode Island	....	X	....	....	....
South Carolina	....	X	....	....	....
Texas	X	X	....	....	X
Virginia	X	X	....	[3] X	X
Washington	....	X	....	X	....
Wisconsin	X	X	....	....	....
Total	19	26	1	10	10

[1] Includes the New England town government.
[2] Fire districts.
[3] Sanitary districts.

property owners and arise from their demands. The agency will work through the District Engineer in preparing a preliminary analysis of the problem, the project ultimately approved by the Beach Erosion Board. The studies are financed jointly by the Federal Government and the State involved, with the Federal Government contributing no more than one-half of the costs. The costs to the State can be met by a contribution of services or by an actual transfer of funds.

A third program calls for Federal participation in construction (but ordinarily not the maintenance) of works designed to control erosion on properties owned by the States or their political subdivisions. However, where a seawall or structure has been erected to control erosion, and where the structure protects a highway considered by the Chief of Engineers to be sufficiently important to justify protection, the Federal Government will also supply funds for maintenance. In either case of construction or repair, the Federal share cannot exceed one-third of the costs. Before Federal funds can be appropriated, the plan of protection must have been approved by the Beach Erosion Board and authorized by the Congress.

State Organization.—Responsibility for the control of shore erosion at the State level is found most commonly in departments of public works, departments of natural resources or conservation, departments of highways, and special water resources or similar commissions. Since the problem varies considerably among the coastal States, it might be expected that this would be reflected in its organizational status. Where shore erosion is serious, it often calls for a Division of Shore Erosion, such as that of the Ohio Department of Natural Resources, or a Water Resources Commission, such as that in Connecticut. From the standpoint of recreation it would seem preferable to locate erosion control activities in an integrated department of natural resources which included the recreation function.

Statutory Powers.—All of the coastal States but one have designated a shore erosion agency to cooperate with the Beach Erosion Board of the Army Corps of Engineers. The exception is Texas, where erosion control is entirely a local responsibility. However, in only 10 States is the erosion control agency specifically empowered to study erosion problems, and in only 8 States is it specifically empowered to undertake erosion prevention works (table 10). Undoubtedly, other States have such powers which are not spelled out in State codes.

Only seven States provide a statutory formula for financially aiding local governmental units in

Table 9. Pollution control: Organizational characteristics, statutory powers, and impact on shoreline recreation

State	Agency head[1]		Location			Powers				Has at least one area in which the pollution effect is—		
	Plural	Single	Special agency[2]	Health	Other	Research and investigation	Approval of plans[3]	Issuance of orders[4]	Summary powers[4]	Serious	Moderate	Slight
Alabama	X	....	X	....	....	X	X	X	....	....	....	....
California	X	....	X	X	....	X	X	X	X	X	X	X
Connecticut	[5]/X	[6]/X	X	X	....	....	X	X	....	....	....	X
Delaware	X	....	X	....	....	X	X	X	....	X	....	....
Florida	X	....	....	X	....	X	X	X	....	....	X	....
Georgia	X	....	....	X	....	X	X	X	X	....	([7])	....
Illinois	X	....	X	....	....	X	X	X	....	....	X	X
Indiana	X	....	X	....	....	....	X	X	....	....	([7])	....
Louisiana	X	....	X	....	....	X	....	X	X	....	([7])	....
Maine	X	....	X	....	....	X	....	X	....	X	....	....
Maryland	X	....	X	X	....	X	X	X	....	....	([7])	....
Massachusetts	X	....	....	X	....	X	X	X	....	....	([7])	....
Michigan	[8]/X	[9]/X	X	X	....	X	X	X	....	X	X	X
Minnesota	X	....	X	....	....	X	X	X	X	X	X	X
Mississippi	X	....	....	X	[10]/X	....	X	....	....	....	....	....
New Hampshire	X	....	X	X	....	X	X	X	....	....	....	....
New Jersey	[11]/X	....	....	X	....	X	X	X	....	....	....	X
New York	X	....	X	....	....	....	X	X	X	X	....	....
North Carolina	X	....	X	....	....	X	X	X	....	X	X	X
Ohio	X	....	X	....	....	X	X	X	X	X	....	....
Oregon	X	....	X	....	....	X	....	X	....	X	X	....
Pennsylvania	X	....	X	....	....	X	X	X	X	....	....	....
Rhode Island	....	X	....	X	....	....	X	X	....	X	....	....
South Carolina	X	....	X	....	....	X	X	X	....	....	X	....
Texas	X	....	....	X	....	....	....	....	....	....	....	....
Virginia	X	....	X	....	....	X	X	X	....	....	....	X
Washington	X	....	X	X	....	....	X	X	....	X	X	X
Wisconsin	X	....	X	....	....	X	X	X	....	X	X	X
Total	27	3	21	13	1	21	24	26	7	12	10	10

[1]/Refers to department which houses the pollution control functions, not the administrative subdivision.
[2]/An agency established specifically for pollution control or related functions.
[3]/For sewerage systems and refuse disposal plants.
[4]/To control or abate pollution.
[5]/Water Resources Commission.
[6]/Commissioner of Health.
[7]/No information.
[8]/Water Resources Commission.
[9]/Commissioner of Health.
[10]/State Game and Fish Commission.
[11]/The Governor appoints both a Public Health Council and a Commissioner of Health.

protecting shore properties. Typically, where public property is involved, the State's contribution is higher than that for the protection of private property. However, the extent of State aid is greater than one might surmise because of appropriations for specific projects not covered under blanket formulas.

Enabling Legislation.—At least 16 of the coastal States specifically authorize political subdivisions to undertake shore erosion prevention works (table 10). Such authority is undoubtedly included in provisions empowering political subdivisions in other States to undertake general public improvements. Although the enabling legislation varies, local units of government are not infrequently authorized to exercise the power of eminent domain in acquiring land for shore works and to make assessments on property benefited.

Impact Upon Recreation.—The erosion of shoreline is caused by natural forces, commonly in combination, of wind, tides, and currents. The extent of erosion is further influenced by the geologic and physiographic features of the shoreline and by the existence of artificial structures which might impede or accelerate the rate of erosion. Where beach erosion is severe, it has a profound effect upon the economic and social fabric of a community which depends upon recreation as an industry.

Replies from 23 of the 28 coastal States indicate that erosion constitutes a serious problem in some

areas of at least 20 States and a moderate problem in areas of 12 States (table 10).

Status of Shoreline Recreation Planning: Current Programs

Shoreline recreational planning, to be effective from a national point of view, needs to be coordinated for all of the levels of government that are involved in providing shoreline recreation opportunities.

Federal Planning.—The National Park Service has recently completed a series of surveys of our national shoreline and has issued three reports recommending the Federal acquisition of several desirable and available shoreline areas. These reports also identified a large number of sites that should be acquired by State and local agencies. There is not at the present time, however, a regularly budgeted portion of the Park Service program or any other Federal agency program designed to set the pattern for development of shoreline recreation sites.

State Planning.—The plans of State governments vary considerably, ranging from comprehensive planning to budget estimates for recreation facilities.

The short review of State planning agencies and their activities in recreational planning and development has made it possible to group their respective activities into four categories.

Fiscal Year Programs.—Of the 28 States, 8 of them (Alabama, Florida, Georgia, Illinois, Louisiana, Mississippi, South Carolina, and Virginia) are identified with fiscal year programing. Their activities are of short duration and, as such, are more concerned with maintenance of already-existing areas and facilities than with future planning.

Uncoordinated Preliminary Planning.—Nine States (Connecticut, Delaware, Indiana, Michigan, North Carolina, Rhode Island, Texas, Washington, and Wisconsin) constitute the uncoordinated preliminary planning group. Their activities range from fiscal year programing to some long-range activities for individual regions or areas and, as such, have no overall effect on the entire State.

Coordinated Preliminary Planning.—Six States (Maine, Minnesota, New Hampshire, New Jersey, New York, and Pennsylvania) have coordinated preliminary planning. Their activities can best be summed up as the first steps necessary before a statewide master plan can be developed. These steps encompass the preliminary work of all interested State agencies and individuals, in order not only to obtain the necessary information and data needed before any planning takes place, but also to develop a general program for the future acquisition and development of the shoreline. In a sense these steps are dual in character. The first step encompasses general data on the present status of the shoreline, and the coordination of county and community plans so that an overall plan for future acquisition and development can be made.

The second step includes the stages of priorities, financing, and future readjustments.

Statewide Master Plans.—Five States (California, Maryland, Massachusetts, Ohio, and Oregon) are leaders in the field of outdoor recreation planning. These States all have statewide master plans for recreation, in which shoreline recreation has received due consideration. Here the preliminary work has been accomplished; the acquisition and developmental priorities, financing, and possible readjustments have been worked out, a policy and goals have been established, and the plan has begun to be put into effect.

Local Planning.—Planning for development of the shoreline recreation resource has probably been most active and realistic in areas of heavy impact. The New York Metropolitan Regional Council has supported the "Park, Recreation and Open Space Project," and other metropolitan areas have planned in detail for shoreline use and development. Examples are the Detroit Metroplitan Area Regional Planning Commission and the Huron-Clinton Metropolitan Authority.

Adequacy of Current Public Policy

According to criteria formulated by the National Recreation Association in cooperation with the National Park Service, responsibility for the provision of public recreation is distributed among levels of government in the following manner:

> Supplying facilities for the day-to-day recreational needs of the people is primarily a local responsibility, whether met by municipalities... or by county or metroplitan park boards.... Use by outside residents of facilities so supplied and maintained is incidental.
>
> Every State has areas either of such high scenic value or of such high value for active recreation, or both, or possessing such interests from the scientific, archeological, or historical standpoint, that their use tends to be statewide in character. Acquisition of such areas and their development and operation appears to be primarily a function of the State, though this should not preclude joint participation...by the State and such community or communities as might receive a high proportion of the benefits flowing from their establishment.
>
> Taking the Nation as a whole, there are, again, areas of such superlative quality, because of their primeval character or scenic excellence, or historical, archeological or scientific importance or because of some combination of these factors, that they are objects of national significance. It is the responsibility of the Federal Government to acquire and administer these. 6/

Emphasis on criteria of this character can only result in inadequate provisions for coastline recreation. If the community has primary responsibility and if use by outside residents is only incidental, then inland residents will be denied easy access to the shore. Some towns already have found it desirable and necessary to restrict usage of their public beaches to town residents and taxpayers.

Cities

A more fundamental problem is the pressure for shore facilities in urban centers. No localities were

6/ "Report on the Conservation and Development of Outdoor Recreation Resources," Federal Inter-Agency Committee on Recreation, July 1950, p. 78.

Table 10. Erosion control: Organizational characteristics,

State	Agency head[1]		Location				
	Plural	Single	Integrated department[2]	Public works	Highways	Special agency[3]	Other
Alabama	....	X	X	....	....	....	....
California	....	X	....	X	....	....	....
Connecticut	X	....	....	....	....	X	....
Delaware	X	....	....	....	....	X	....
Florida	X	....	....	....	....	X	....
Georgia	....	X	....	....	....	....	[6]/X
Illinois	....	X	....	X	....	....	....
Indiana	[7]/X	....	X	....	....	....	....
Louisiana	....	X	....	X	....	....	....
Maine	X	....	....	....	X	....	....
Maryland	X	....	....	....	....	....	[9]/X
Massachusetts	X	....	....	X	....	....	....
Michigan	X	....	....	....	....	X	....
Minnesota	....	X	X	....	....	....	....
Mississippi	X	....	....	....	X	....	....
New Hampshire	X	....	....	....	....	....	[10]/X
New Jersey	[12]/X	[13]/X	[13]/X	....	....	[13]/X	....
New York	....	X	....	X	....	....	....
North Carolina	X	....	....	....	....	X	....
Ohio	....	X	X	....	....	....	....
Oregon	X	....	....	....	[14]/X	....	[15]/X
Pennsylvania	X	....	....	....	....	....	[16]/X
Rhode Island	....	X	....	X	....	....	....
South Carolina	X	....	....	....	X	....	[18]/X
Texas	Responsibility for erosion control at local governmental						
Virginia	....	X	X	....	....	....	....
Washington	....	X	....	....	....	....	[19]/X
Wisconsin	X	....	....	....	....	....	[20]/X
Total	16	12	6	6	4	6	8

[1]/Refers to department which houses the erosion control function (as listed by the Army Corps of Engineers), not the administrative subdivision.
[2]/An integrated department is one which combines parks and wildlife management and the administration of land and water resources generally.
[3]/An agency established specifically for erosion control or related functions.
[4]/To empower political subdivisions to undertake erosion preventive works.
[5]/On a formula basis to political subdivisions.
[6]/Department of Mines, Mining, and Geology.
[7]/Although headed by a Commission, the Governor appoints a Director of the Department who serves at his pleasure.
[8]/Only as a result of severe storms.
[9]/Department of Geology, Mines, and Water.
[10]/Forestry and Recreation Commission.

found in this study where the extent of shoreline within the political boundaries of a shore municipality was adequate to meet the needs of the municipal population alone, even if the shoreline were fully developed. Obviously, the needs of the whole metropolitan area population cannot be served by these same shores.

Urban counties whose jurisdiction is likely to take in a larger portion of the metropolitan area than do municipal governments have met the problem partially by undertaking responsibility for providing shoreline facilities. Enabling legislation in many States has authorized municipalities to acquire properties outside municipal limits and has equipped the parks agency with condemnation powers for this purpose.

State and Federal provision of beach areas has been, in totality, lesser in magnitude and generally not directed so immediately to the satisfaction of the needs and pressures of urban areas. The authors conclude that the policies at the State and Federal level are directed toward providing areas of high scenic quality and moderate or low intensity recreation use rather than high intensity use. This has contributed to the inadequacy of metropolitan area shoreline recreation facilities.

Trends in planning

The general trend of State planning revealed in this study points to the conclusion that less than half of the 28 States have arrived at the stage where they are in a position to determine the overall recreational needs and to do something about them. The

statutory powers, and impact upon shoreline recreation

Powers of erosion control agency			Statutory provision of—		Has at least one area in which the erosion effect is—		
Research	Construction	No specific powers	Enabling legislation [4]	Grants-in-aid [5]	Serious	Moderate	Slight
....	....	X	....	....	....	X	.....
X	X	....	X	X	X	X	X
X	....	....	X	X	X	....	....
X	X	....	....	....	X	X	....
X	....	....	X	....	X	X	X
....	....	X	....	....	X	....	....
....	....	X	....	....	....	X	....
....	....	X	X	....	[6]/X	....	....
....	....	X	....	....		n.a.	
....	....	X	X	X		n.a.	
X	....	....	X	....		n.a.	
....	X	....	X	....		n.a.	
....	....	X	X	....	[8]/X	....	....
....	....	X	....	....	[8]/X	....	....
....	....	X	....	....	[8]/X	....	X
X	[11]/X	....	....	....	X	X	X
[12]/X	[13]/X	....	X	....	X	X	....
....	X	....	....	X	X	....	....
X	X	....	....	....	X	X	....
X	X	....	....	X	X	X	....
....	....	X	X	....	....	X	X
....	....	X	....	....	X	....	....
X	....	....	X	[17]/X	X	X	X
....	....	X	X	....		n.a.	
level			X	....	X	....	X
....	....	X	X	....	X	....	X
....	X	....	X	X	X	....	X
....	....	X	X	....	X	X	X
10	9	14	16	7	20	12	10

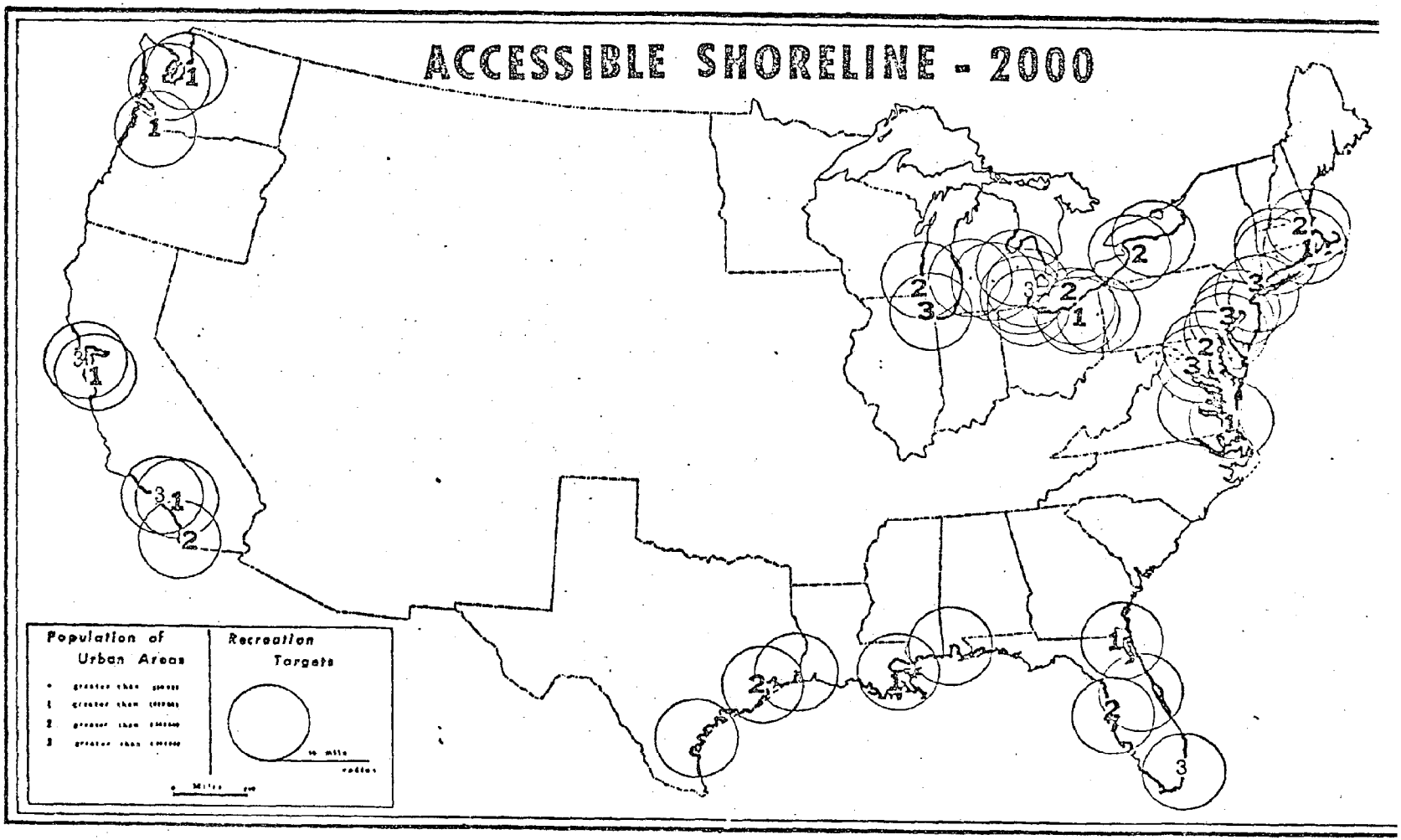
[11]/The Department of Public Works and Highways will undertake the construction of preventive works.
[12]/Beach Erosion Commission.
[13]/Department of Conservation.
[14]/Department of Highways.
[15]/Soil Conservation Committee.
[16]/State Park and Harbor Commission of Erie.
[17]/Only for the acquisition of land for shore erosion works.
[18]/State Forestry Commission.
[19]/Department of Conservation and Development, not listed under "Integrated Department" because of separate Parks and Recreation Commission.
[20]/Public Service Commission.

n.a. Not available.

other half of the States are still in the stage of fiscal year operation and some preliminary and uncoordinated planning activities, mainly because of the abundant supply of shoreline areas, on the one hand, and the small demand for them, on the other, because of low density of population. But even these States are experiencing the ever-increasing pressure of the growing demand for recreation.

All too frequently there is inadequate recognition of the fact that plans for shoreline use and development must be made to "fit" the natural state and behavior of this dynamic environment. There are too many beach parks that no longer have beaches, too many beach areas that require constant and costly replenishment, and—worst of all—planned areas which by the nature of their development have caused untold damage to adjacent shorelines.

Shoreline Domains.—Although the shore is constantly changing, there is a good deal of dynamic consistency within its various "domains." Cape Cod, Cape Hatteras, the Florida coasts, the great Texas beaches, and most other areas remain consistently beach, bluff, or marsh unless man interferes with their normal regime. The "normal regime" can be identified with considerable reliability within various shoreline domains: that is to say, the regime of littoral currents. Within the domain whatever is done to the shore at one location affects to a greater


ACCESSIBLE SHORELINE - 2000
Population of Urban Areas
Recreation Targets

or lesser extent all other locations in the dynamic interchange of the forces which have produced that domain. There are many examples in which the major accomplishment of shoreline planning has been to increase damage to the natural shore.

Another critical problem in planning for shoreline recreational development is the lack of cooperation among governments in solving problems which do not conform to existing jurisdictional lines. For example, only 10 States specifically authorize their recreation agencies to cooperate with other States (although interstate planning contacts are undoubtedly made despite this). Only 11 States specifically authorize cooperation between State and local parks agencies. Only 10 States provide enabling legislation authorizing cooperation among local governments in recreation matters (table 8).

The Future Status of Institutional Arrangements

Public ownership and regulation of shoreline

The demands by recreation users now put a heavy burden on the available shoreline of all types in public ownership. Increased recreation demands by the year 2000 will require substantial increase in the amount of public unrestricted shoreline, or much more efficient use of currently available shorelines, or both. The authors believe that much of the Nation's accessible shoreline will be needed to meet the recreational demands of the American people in the year 2000 (figure 2). They do not believe that the public will have acquired anything like this amount of the shoreline by that time. Therefore, under present policies it is highly unlikely that recreational demands will be satisfied.

As now, accessible beaches near metropolitan centers will receive the greatest pressure for recreation use. To meet this growing need most of this shoreline should be in public ownership, and it will have to be managed much more efficiently than it is today. For not only will recreation demands be intense—other demands for the shoreline, preeminently those for transportational and industrial uses, will also be large in these areas. Since metropolitan areas are facing these problems now, it is probable that such recreational shorelines will either be in public ownership or under some form of governmental regulation.

State and local recreation organization and statutory powers

It seems likely that the present fragmentation of administering agencies will gradually give way to integrated departments in more States. Organizations then will house recreation functions together with other activities competing for land and water resources generally, and they will probably be further integrated under executive leadership. Departments of Natural Resources, or of Conservation, have been established in 13 coastal States at present, a form of organization the authors recommend, because it links in a single agency the principal claimants for natural resources and recognizes organizationally the claims of recreation (table 6).

Although it cannot be considered an important aspect of the program for meeting recreational demands by the year 2000, there may well be a wider use of the foreshore where the uplands continue to be held in private ownership. Few legal obstacles restrict public use of the foreshore. However, the problem of public access to such areas will need to be solved to make more of this type of resource available for recreation. Use of these areas may be further impaired because in the near future property owners can be expected to protest such use vigorously.

Status of shoreline recreation planning

Under the leadership and encouragement—not to say urging—of the Federal Government, it is highly likely that coordinated master plans for shoreline recreation development and management will have been drawn up and partially put into effect by the year 2000. Plans in metropolitan areas, where even now the attitude toward the problems of outdoor recreation is one of panic, can be expected to be highly sophisticated and to an important extent implemented. The extent to which Federal and State plans will have been implemented is problematic. The past record in this respect is not an impressive one.

Adequacy of public policy

The demand for outdoor recreation facilities is increasingly accepted as legitimate, and the provision of such facilities by public agencies will be a standard feature of providing for the public welfare. The Federal Government can be expected to provide both encouragement and leadership in this general trend. Urban governments will receive more assistance from higher government levels, with the Federal Government more likely to respond to the needs of cities—both because of the impact of the urban vote in presidential elections and negatively, because of the present pattern of under-representation of metropolitan areas in State legislatures. The Federal Government is likely to enlist the aid of State governments by means of grants-in-aid programs. But Government programs will probably lag behind demand.

CHAPTER FOUR

WHAT POLICIES AND PROGRAMS WILL ENSURE THAT PRESENT AND FUTURE RECREATION NEEDS ARE ADEQUATELY AND EFFICIENTLY MET?

Basic to any policies and programs recommended for wise and efficient use of the shoreline recreational resource is an understanding of the extremely significant role this resource-activity relationship plays in American life. Outdoor recreation should be recognized as a necessity in American life. It should be widely encouraged for all American citizens, without regard to economic or social levels. In other words, it should be a public responsibility to recognize, to encourage, and where necessary, to provide the means for, outdoor recreation. Outdoor recreation should become a more important part of the pattern of the lives of all Americans.

A National Policy for the Shoreline

The shoreline is a unique resource in many ways. For the most part, it forms a national boundary. For a single resource, a shoreline has unusually high recreational qualities. It is limited in extent. Improper use, pollution, or erosion can decrease its extent and value. All of these factors can be controlled to preserve recreational values if proper steps are taken. Shoreline is a dynamic resource physically, a system of related checks and balances which do not recognize political boundaries. It is, in other words, a national resource.

As a national resource, shoreline merits a national policy. That policy should serve three purposes: (1) it should state the public purpose in the recognition and encouragement of, as well as the provision of the means for, outdoor recreation; (2) it should define the roles of the various levels of government by which this purpose is realized; and (3) it should relate recreation use of the shoreline to other valid uses.

The public purpose

Public agencies should recognize the present and future significance of outdoor recreation in American life; they should encourage broad participation; and they should help provide the facilities for participation.

Recognition of Significance.—All levels of government should have adequate statutory powers and administrative organizations to assess outdoor recreation wants and needs and to develop and implement coordinated programs which will effectively meet those needs.

Encouragement of Outdoor Recreation.—All levels of government should encourage an increased public awareness of the advantages and benefits of participation in outdoor recreation as an essential activity.

Provision of Means.—All levels of government should, when necessary to meet recreation needs, use public funds to provide outdoor recreation facilities that are in no sense restricted to the use of local residents.

The roles of the various levels of government

In achieving these purposes, the various levels of government have different responsibilities; they share the necessity, however, of the fullest cooperation in effectively planned utilization of a national resource.

Federal Responsibilities.—The Federal Government should be responsible for the following program.

1. Acquiring, developing, and operating shorelines of national significance for recreation, scenic beauty, wildlife habitat, or biotic communities.
2. Optimizing shoreline recreation possibilities on Federal lands including defense lands.
3. Assisting State and local governments where other financial and technical resources are not adequate to meet State and local shoreline recreation needs, especially in areas of high recreation impact by:
   (a) providing financial assistance for planning, acquisition, and development of shoreline recreation areas.
   (b) providing technical assistance for planning, acquisition, and development of shoreline recreation areas.
   (c) specifying program standards as a condition of Federal assistance, including review and coordination of State and plans.

State Responsibilities.—The State governments should be responsible for the following program.

1. Acquisition, development, and operation of shoreline areas as part of State outdoor recreation plans, including:
   (a) shorelines of more than local and less than national significance.
   (b) shorelines serving more than local areas.
2. Maximization of shoreline recreation opportunities on existing State land.
3. Designing a shoreline plan and arranging development and operation of shoreline recreation areas, including:
   (a) cooperation with local governments and coordination of local plans.
   (b) cooperation with Federal planning and assistance programs.
   (c) cooperation with other States in regional programs.

4. Assistance to local governments to meet local shoreline recreation needs by:
   (a) financial aid.
   (b) technical help.
   (c) specification of standards, including review and coordination in State plan.

Local Responsibilities.—The local governments should be responsible for the following program.

1. Planning, acquisition, development, and operation of locally important shoreline recreation areas as part of a comprehensive local recreation plan.
2. Cooperation with State and Federal programs of financial and technical assistance.
3. Coordination of shoreline plans with State plans.

Local governments particularly must recognize the need for systems of regulation and control of competing shoreline uses which fully recognize recreation as a legal claimant to its appropriate portion of the shoreline.

Recreation Use Vis-a-vis Other Uses of the Shoreline

In terms of total mileage, the chief forms of land use on most of the American shoreline are probably recreation and agriculture, with the third largest use perhaps being defense, i.e., shoreline areas held by the Federal Government in the interests of the national defense in some sense. Transportation and industry use a negligible proportion of the total shoreline: these are concentrated uses which cannot be expected to occupy very large shoreline areas even in the year 2000 if present trends continue.

The recreational land is largely in private ownership—for summer homes, to an important extent. Agriculture exists where there is no real competition for use of the shoreline, because agriculture simply could not compete with most of the other uses.

For the most part, the shoreline is better suited for outdoor recreation than it is for the most other uses. It should be recognized, then, that the shoreline constitutes a primary outdoor recreation resource of this Nation, and that the greater part of it will eventually be needed for recreation; its present use should either be for recreation or for some use which either complements certain kinds of recreation (wildlife preserves, plant or animal community preservation) or does not destroy its recreational qualities. It is undoubtedly the case that in the long run the major competition for the greater part of the American shoreline will not be among differing forms of use but between private versus public ownership for recreation. In the final analysis public agencies will have to face the problem of providing more and more recreational shoreline, thereby changing the balance of ownership from private to public, because private use is restrictive.

Metropolitan areas

Large urban concentrations present unusual and "special" cases of shoreline use. In these areas considerable proportions of the shoreline may be devoted to transportation and industry and even to residential use. Here also there are problems of water pollution and general destruction of natural recreation values because of unsightly and hazardous structures, smoke, noise, and the like. Since metropolitan areas are also the areas in which the demands for shoreline recreation are greatest, special policies need to be applied, rather than the general ones described in the foregoing paragraphs. The uses which may dominate metropolitan areas may not only be destructive of recreational values, but they are highly competitive. Once industrial and transportational shoreline sites have been established it is in any practical sense impossible to displace them for recreational use except with overwhelming popular support and exceptional funding. A reasonable attitude is that these uses are so essential to the people who live in these great population concentrations that they cannot and should not be excluded. On the other hand, they should not be permitted to destroy the recreational value of adjacent shoreline: the nuisance they tend to generate should be subject to public control. At the same time, metropolitan recreational demand is so great and so fundamentally important that new private residential building projects ought not to be permitted to compete successfully with public provision of recreational shoreline. Where recreational demands for the shore are great, as is the case in most metropolitan areas, the public policy should be to provide as much recreational shoreline as possible without putting impossible restrictions on vital competing uses.

Programs Recommended to Implement Suggested Policies

It would be possible to recommend an entire galaxy of public programs designed to meet the needs of 1960 immediately and to establish a timetable of acquisition and development for the projected needs of the year 2000. However, such a statement would be more idealistic than pragmatic. Some very basic preliminary programs are needed now to make possible intelligent planning for the future.

Shoreline use and inventory data

One of the greatest stumbling blocks in evaluating recreational use of the American shoreline is a lack of precise information; data on both users and the resource are badly needed. How many people use the shoreline now, and for what purposes? How much do they spend on various kinds of recreation? How far do they travel? How often do they visit specific areas of the shore? What are the specific qualities and traits, mile-by-mile, of the total shoreline, and what potentials for recreational use do these represent? It is not possible to plan the intelligent and balanced use of this precious and limited resource without knowing a great deal more about the nature of both demand and supply.

Delineation of basic natural planning units

It has been pointed out that the shoreline environment is a dynamic one that does not respect political boundaries. Useful planning for recreational and other uses of this resource requires knowledge of the extent

to which development in one area will affect some other area. What are the basic components of this system? What areas constitute "domains" within which planning must take place? Classifying the shoreline in these terms will be one of the first applications of the information gained through a detailed shoreline inventory.

Experiments in recreation use

The recreational potential of bluff and marsh shores has hardly been recognized in the overwhelming preference shown for beach shoreline. It is necessary to know the recreational potential of all types of shoreline if imaginative and creative development of this potential is to result in optimum use. One of the best possible ways to develop an understanding of the shoreline-recreation complex is the operational approach—to experiment in shoreline recreation development, to use new ideas and designs, to create new programs and to see how well these work out. The Newport Bay and Mission Bay developments in southern California are examples of the possibilities of this approach.

An analysis of administrative arrangements and intergovernmental relationships

Most existing administrative organizations are not capable of planning for or managing the future recreational shoreline. There is need for administrative innovation if Nation, State, and community are to be jointly responsible for the wise use of the shore. Realistic planning must take into account the dynamic "domains" of the shoreline which cut across and encompass many governmental jurisdictions. The possibilities of cooperative arrangements, interstate compacts, Federal-State commissions, and regional authorities are many and diverse. It is essential that studies be undertaken to determine how to establish effective programs without arousing the jealousies and animosities that can be associated with intergovernmental problems.

A study of management of the recreation shoreline in target areas

Metropolitan, high-impact beaches represent one of the knottiest problems of shoreline recreation. Where public beach can be extended, it cannot be extended indefinitely; there is a limit to both the resource and the radius of accessibility. This does not mean that the problem cannot be solved. It may be necessary to introduce totally new concepts into the use of recreational shoreline in high impact areas. Perhaps the beach area per person ratio can be changed by permitting only alternate day use in some fashion, or by staggering working hours or days in the beach season. Perhaps some of the shoreline demand can be diverted by the development of lake beaches or by increasing the number of swimming pools. Perhaps beaches can be made where they do not now exist. The present system of managing public city beaches needs to be investigated with the objective of increasing the number of people who can be served without destroying the natural qualities which people seek at beaches. Optimum effective management will be necessary long before the year 2000.

Conclusions

There is a crisis in shoreline outdoor recreation. The shoreline is vanishing in the sense that private ownership is inhibiting public use. There is a need for action now, if the public is to develop a real understanding of its shoreline outdoor recreation needs and how these can best be met. But there is need for coordinated, planned action—based on adequate information and upon clear statements of public policy—so that the action is continuing, not sporadic. The public must:

- Know the importance and value of outdoor recreation.
- Know what this Nation's outdoor recreation resources are.
- Understand that policy formulation must precede planning.
- Know that planning can only be implemented by coordination.
- Understand that coordination depends in large part upon administrative structures.

APPENDIX A

GLOSSARY

Words or terms or phrases that may be susceptible to a variety of definitions or interpretations are here defined by the authors as they intended them to be used. It would be well to refer to this glossary as one reads the paper. These definitions, in this precise form, are not necessarily repeated in the body of the report.

Physical Characteristics of Shoreline

1. Shoreline Resource—The shorelines of the United States, in this study defined to include those of the two oceans, the Gulf of Mexico, and the Great Lakes, constitute a unique, definable feature—where land and reasonably large bodies of water meet. These coastal areas constitute a resource in the same way that mountains constitute a resource. Because they represent a special combination of physical features that are definable as being different from other combinations of physical features, there are certain uses of mankind for which they are suited under present social and economic conditions, and there are other uses for which they are not suited.

2. Recreation Shoreline—Recreation shoreline is defined as all of the shoreline meeting in substantial part the following criteria:

(a) The existence of a marine climate and environment. In part, this is identified by such weather phenomena as the occurrence of wind from off the water, and the temperature influence of the water and waves. On the shore it may be identified by seashells, driftwood, and other materials deposited by the water and it may be identified by the physiographic phenomena of dunes, cliffs, spits, bars, marshes, etc. In the water it may be identified by the occurrence of rollers, breakers, tide, and surf in conjunction with various weather and land conditions.

(b) The existence of an expanse of view of at least 5 miles over water to the horizon from somewhere on the shore.

(c) Location on some water boundary of the United States (water bodies lying entirely within the U.S. boundaries are not included).

3. Beach Shoreline—A wide expanse of sand or other beach material lying at the waterline and of sufficient extent to permit its development as a facility without important encroachment on the upland.

4. Bluff Shoreline—A bank, bluff, or cliff, immediately landward of a relatively narrow beach (if any) and varying in height from several feet up to mountainous elevations. Bluffs may be composed of either loose or solid material—from sand to granite.

5. Marsh Shoreline—Tidal or nontidal marsh.

6. Shoreline Domain—A length of shoreline which is dominated by a littoral current. The length of these currents is usually determined by natural physiographic features such as reefs, bars, river mouths, etc. A manmade structure can influence a current if it is of sufficient size, such as long piers or jetties.

7. Shorelines of National Significance—A shoreline of such superlative qualities (because of scenic or recreational excellence, or historical, scientific, or archeological interests) that it is a national attraction and should be owned and managed by the Federal Government.

8. Shorelines of State Significance—A shoreline which possesses such unusual qualities (because of scenic or recreational excellence, or historical, scientific, or archeological interests) that it is a State attraction and should be owned and managed by the State government.

9. Foreshore—The foreshore, so far as its recreational significance is concerned, is that section of the shore below whatever high tide line is recognized by a particular State as being the limit of ownership of private property; it extends as far as the low tide line, whatever that is on a particular day.

Development Characteristics of Shoreline

10. Accessibility—Any recreation site within 2-hours' driving time by automobile (approximately 60 to 90 miles, depending upon the highway system) of a metropolitan area with a population of 500,000 or more is highly accessible. It is therefore subject to heavy recreational use. Sites between 90 and 125 miles from metropolitan areas (the distance people will drive for overnight or weekend trips) are moderately accessible. They can be expected to be subject to heavy use during peak periods, such as Labor Day weekend. Sites more than 125 miles from any metropolitan area will be successively less accessible the more distant they are. Accessibility is a factor of people, time, and distance; illustrations in this study are based on metropolitan areas only because 1960 census data were not available. However, the significantly accessible areas are in regions of cities of metropolitan size and complexity.

11. Availability—Any recreation site the use of which is not restricted in any sense, but can be used by anyone who wants to use it, is considered to be available. Availability depends upon those who control the site. A privately owned beach may not be available since only members of the immediate family can use it. On the other hand, an excellent beach in public control may be made unavailable to anyone because its primary use is for some sort of activity (firing range, for example) that would endanger the lives of those using it for recreation.

12. Public Shoreline—Public shoreline is defined as shoreline with associated upland, owned and operated by a Federal, State, or local government and open to all visitors without restriction. The term includes parks, beaches, forests, and seashores that include the shoreline as the chief feature of the area.

13. Restricted Shoreline—A restricted shoreline is shoreline to which access is denied to the public by governmental authority; it is chiefly reserved for military use; it does not include shoreline held in private ownership.

14. Development Status—The categories low, medium, and high development status relate the status of occupation of the shoreline by manmade structures and the extent of the recreational use of the shoreline. The categorizations are comparative rather than absolute. They represent a State agency's judgment of status rather than an actual measure. For example, the Atlantic City, N.J. and Santa Monica, Calif. shorelines are judged to have high development status because all of the shorelines are occupied by structures and intensively used for recreation; whereas the Padre Island, Tex., shoreline is judged to have low development status because there are very few structures and there is very little recreational use of the shoreline.

15. Adequately Developed Shoreline—An adequately developed shoreline area is provided with sanitation, police, parking, and similar facilities required to make the shoreline usable for recreation with sufficient control to maintain the area in condition attractive to mass use.

16. Resource Based Recreation Area (Clawson)—A site, the recreation values of which are basically determined by its natural qualities, for example, a national seashore area.

17. User-Oriented Recreation Area (Clawson)—A site, the recreation values of which are basically determined by high degrees of accessibility and availability and by the facilities developed on it. For example, city playgrounds and parks, swimming pools, etc.

18. Intermediate Recreation Area (Clawson)—A site, the recreation values of which are basically determined by the natural quality potentials within 2-hours' driving time of the user; in other words, the best natural qualities available for day use, for example, a county park.

Miscellaneous Terms

19. Shoreline Recreational Demand—A measure of the numbers of people who use the shoreline daily or seasonally, preferably translated into some such figure as persons per square or linear foot of beach, number of cars per parkway, number of park visitors, number of boats serviced per marina, and the like. There is no general information of this sort available except locally.

20. Shoreline Recreation Pressure—(See Shoreline Recreational Demand.)

21. Impact of Erosion on Recreation—The magnitude of impact of erosion on recreation is the evaluation of State officials as to whether the problem in their State is a serious one in any area, a moderate one in any area, or is of little significance. The information was gathered by questionnaire attempting to elicit a self-evaluation and did not provide criteria to distinguish the three categories of effect.

22. Impact of Pollution on Recreation—The magnitude of impact of pollution on recreation is the evaluation of State officials as to whether the problem in their State is a serious one in any area, a moderate one in any area, or is of little significance. The information was gathered by questionnaire attempting to elicit a self-evaluation and did not provide criteria to distinguish the three categories of effect.

23. Metropolitan Center—Metropolitan areas are generally thought of as multiple cities, the core city of which has a population of more than 50,000. Pickard defines a metropolitan area as an urban area including one or more adjacent or nearby cities, having a total area population of 100,000 or more. For the purposes of this study only those metropolitan areas with a population of 500,000 or more were mapped, simply because the ratio of urban population to beach users is not known, nor has there been practical experience on beach use adjacent to metropolitan areas of a smaller order—for example, the South Carolina coast adjacent to Charleston, or the Georgia coast adjacent to Savannah.

12. Public Shoreline—Public shoreline is defined as shoreline with associated upland, owned and operated by a Federal, State, or local government and open to all visitors without restriction. The term includes parks, beaches, forests, and seashores that include the shoreline as the chief feature of the area.

13. Restricted Shoreline—A restricted shoreline is shoreline to which access is denied to the public by governmental authority; it is chiefly reserved for military use; it does not include shoreline held in private ownership.

14. Development Status—The categories low, medium, and high development status relate the status of occupation of the shoreline by manmade structures and the extent of the recreational use of the shoreline. The categorizations are comparative rather than absolute. They represent a State agency's judgment of status rather than an actual measure. For example, the Atlantic City, N.J. and Santa Monica, Calif. shorelines are judged to have high development status because all of the shorelines are occupied by structures and intensively used for recreation; whereas the Padre Island, Tex., shoreline is judged to have low development status because there are very few structures and there is very little recreational use of the shoreline.

15. Adequately Developed Shoreline—An adequately developed shoreline area is provided with sanitation, police, parking, and similar facilities required to make the shoreline usable for recreation with sufficient control to maintain the area in condition attractive to mass use.

16. Resource Based Recreation Area (Clawson)—A site, the recreation values of which are basically determined by its natural qualities, for example, a national seashore area.

17. User-Oriented Recreation Area (Clawson)—A site, the recreation values of which are basically determined by high degrees of accessibility and availability and by the facilities developed on it. For example, city playgrounds and parks, swimming pools, etc.

18. Intermediate Recreation Area (Clawson)—A site, the recreation values of which are basically determined by the natural quality potentials within 2-hours' driving time of the user; in other words, the best natural qualities available for day use, for example, a county park.

Miscellaneous Terms

19. Shoreline Recreational Demand—A measure of the numbers of people who use the shoreline daily or seasonally, preferably translated into some such figure as persons per square or linear foot of beach, number of cars per parkway, number of park visitors, number of boats serviced per marina, and the like. There is no general information of this sort available except locally.

20. Shoreline Recreation Pressure—(See Shoreline Recreational Demand.)

21. Impact of Erosion on Recreation—The magnitude of impact of erosion on recreation is the evaluation of State officials as to whether the problem in their State is a serious one in any area, a moderate one in any area, or is of little significance. The information was gathered by questionnaire attempting to elicit a self-evaluation and did not provide criteria to distinguish the three categories of effect.

22. Impact of Pollution on Recreation—The magnitude of impact of pollution on recreation is the evaluation of State officials as to whether the problem in their State is a serious one in any area, a moderate one in any area, or is of little significance. The information was gathered by questionnaire attempting to elicit a self-evaluation and did not provide criteria to distinguish the three categories of effect.

23. Metropolitan Center—Metropolitan areas are generally thought of as multiple cities, the core city of which has a population of more than 50,000. Pickard defines a metropolitan area as an urban area including one or more adjacent or nearby cities, having a total area population of 100,000 or more. For the purposes of this study only those metropolitan areas with a population of 500,000 or more were mapped, simply because the ratio of urban population to beach users is not known, nor has there been practical experience on beach use adjacent to metropolitan areas of a smaller order—for example, the South Carolina coast adjacent to Charleston, or the Georgia coast adjacent to Savannah.