CALIFORNIA COASTLINE

PRESERVATION AND RECREATION PLAN

CALIFORNIA COASTLINE PRESERVATION AND RECREATION PLAN

AUGUST 1971

Reprinted November, 1972

RONALD REAGAN
Governor of
California

NORMAN B. LIVERMORE, JR.
Secretary for
Resources

WILLIAM PENN MOTT, JR.
Director
Department of Parks
and Recreation

STATE OF CALIFORNIA THE RESOURCES AGENCY

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390 SACRAMENTO 95811

STATE OF CALIFORNIA—RESOURCES AGENCY RONALD REAGAN, *Governor*

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390
SACRAMENTO 95811

August 6, 1971

Honorable Ronald Reagan
Governor of California
State Capitol
Sacramento, California 95814

Dear Governor Reagan:

On behalf of the State Department of Parks and Recreation, I am transmitting the Department's California Coastline Plan dated June, 1971. The purpose of this plan is to assist the Department of Parks and Recreation and other agencies in determining future preservation and recreation needs along the coast of California.

In developing this plan the Department was acutely aware of its plan's relationship to the Department of Navigation and Ocean Development's Comprehensive Ocean Area Plan, referred to as COAP. Although the Department of Parks and Recreation's coastal planning preceded that of the Department of Navigation and Ocean Development, considerable coordination has been achieved and the Parks and Recreation Department's plan will serve as its input into the broader planning efforts of COAP. The Department of Parks and Recreation is fully aware of the specialized perspective represented in its plan and realizes, through COAP's analysis of a broader range of plans, that a truly comprehensive ocean area plan will evolve.

The recommendations in this report also represent the Department's views on the coastal activities and developments undertaken by most public and private agencies that will in some way enhance or detract from the natural beauty, ecological stability, and recreation potential of this magnificent natural resource. Recommendations to acquire specific properties within the coastal zone will fulfill the State's responsibility for setting aside for all time the best representative examples of the coastal natural and historic features, in addition to meeting recreation needs through 1980. Some of the acquisition proposals found in this report do not include actual ocean frontage but, nevertheless, are significant features of the landscape province.

The coastal landscape province, as it is referred to in the plan, is somewhat different than that of COAP's coastal zone. We recognize that the coastal province, as we have described it, may not meet the needs of COAP in its broader responsibilities and that their zone of influence may be quite different than ours. However, the coastal province, as we have described it, serves my Department's planning needs adequately. Although the coastal province overlaps other landscape provinces, such as the redwood province, the information contained in this report will not be duplicated in other province studies.

We assume that the Department of Navigation and Ocean Development will, in its presentation of the total plan for the coast, develop the necessary criteria to determine the wisest and best use for this extremely valuable and limited resource, and it may find it necessary to modify elements of the Department of Parks and Recreation's plan because of higher priority needs.

Sincerely,

William Penn Mott, Jr.
Director

APPROVED:

N. B. Livermore Jr.

Norman B. Livermore, Jr.
Secretary for Resources

PREFACE

An immeasurable amount of data, information and statistics for the Department of Parks and Recreation's Coastal Plan were gathered from many federal, state, city, and county agencies, and from private individuals. Without their assistance, this plan could not have been completed.

The preparation of this plan was financed in part through a planning grant from the U. S. Bureau of Outdoor Recreation, Department of the Interior, under provisions of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578).

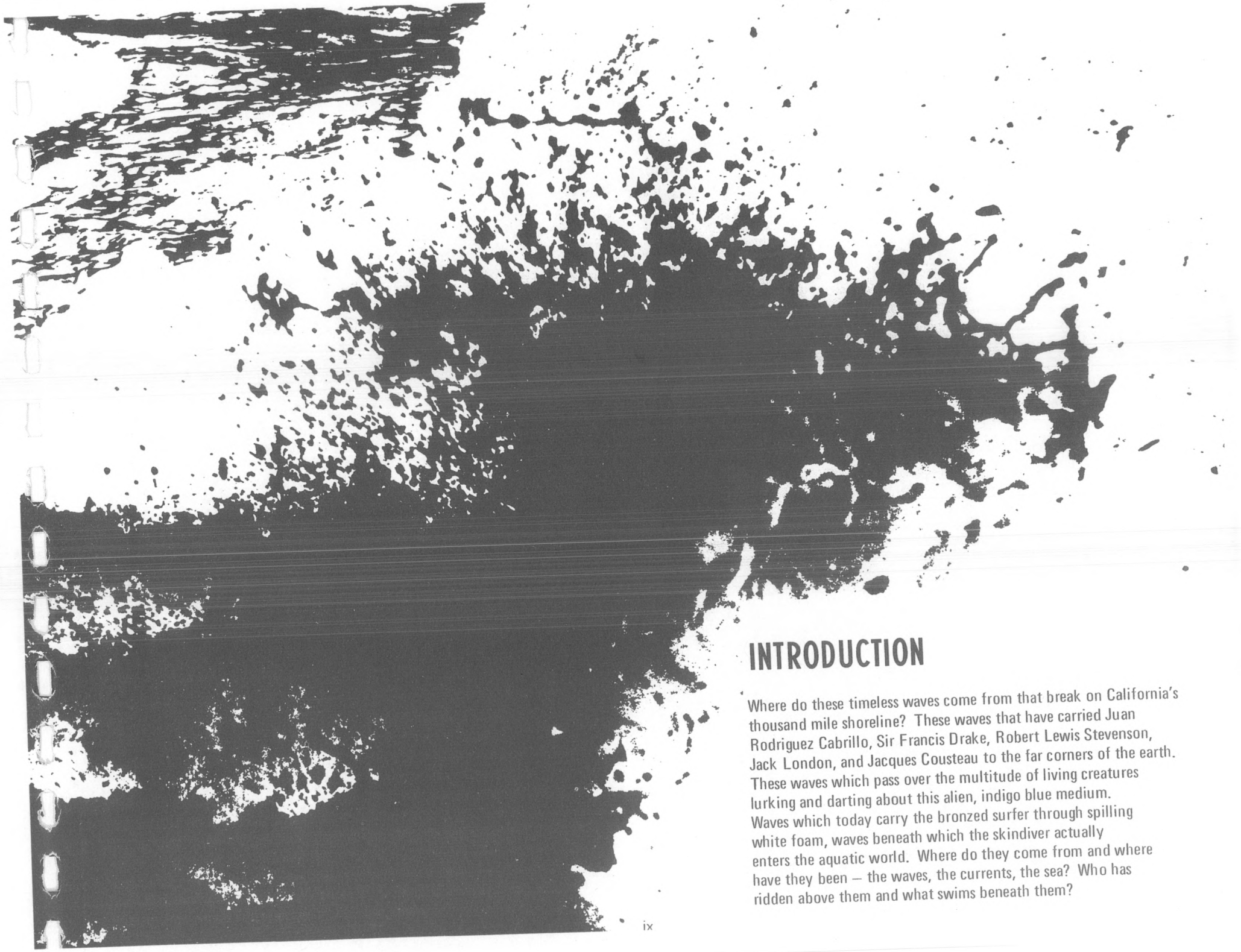
CONTENTS

Contents (Continued)

LIST OF FIGURES, TABLES, AND PLATES

LIST OF FIGURES

LIST OF TABLES



INTRODUCTION

Where do these timeless waves come from that break on California's thousand mile shoreline? These waves that have carried Juan Rodriguez Cabrillo, Sir Francis Drake, Robert Lewis Stevenson, Jack London, and Jacques Cousteau to the far corners of the earth. These waves which pass over the multitude of living creatures lurking and darting about this alien, indigo blue medium. Waves which today carry the bronzed surfer through spilling white foam, waves beneath which the skindiver actually enters the aquatic world. Where do they come from and where have they been – the waves, the currents, the sea? Who has ridden above them and what swims beneath them?

The mysteries of the ocean have inspired men to penetrate its depths, to live by it, watching its many moods, and to try to know and understand it so that they might truly manage and protect this magnificent resource.

Each passing day we are made more aware of the significance of Thoreau's statement, "Why does progress look so much like destruction?" Seldom do man's efforts enhance the beauty of the coast's natural environment. For example, to meet the ever expanding needs of the boat owners in Southern California, many of the lagoons and estuaries are dredged, thus destroying salt marsh habitat, the home and resting place of hundreds of species of water fowl. Man continually exhibits his insensitivity by destroying that in nature which he seeks to enjoy.

Time has come for this insensitivity to cease. Californian's, as trustees of an extremely important national resource, must act to protect and thereby provide the opportunity for future generations to stand at the edge of the continental United States, look out to the horizon and feel the ocean's spell consume them as it did the first explorers, early California residents, and some of the present visitors fortunate enough to find unspoiled segments of the coast. Ultimately each citizen should have access, both physically and visually, to all publicly owned coastline.

The resources of the Pacific Coast are so rich and so exciting that men from all over the world have come to claim their fortunes. The English and French came for new lands and pelts. The Spanish in search of gold and jewels. The Russians for furs.

The Pacific Coast's aboriginal inhabitants lived near the sea where there was an abundance of food the year around and the climate was temperate. California's coast was so delightfully livable that our forefathers told foreigners that even oranges would grow there. Today, the Pacific shoreline is California's most valuable natural resource, making a major contribution to the quality of the environment and satisfying many recreation demands of the state's 20 million inhabitants.

In 1970, more than 127 million recreation days[1] were spent at the shore. Visitors came to camp, picnic, swim, skin dive, surf fish, beachcomb, wade, photograph, paint, boat, water ski, or to just relax and enjoy the spectacular scenery where the ocean meets the land.

Although within the last decade much has been learned about the sea, there remains a great deal more to be understood before California can truly treat its marine resources with intelligence and understanding.

Historically, the state's interest in the ocean has been fragmented and infrequent. Special interest departments within state government have viewed this all-important resource with an extremely limited perspective. They have acquired and developed beaches, leased and granted tidelands, regulated the production of oil, protected fish and wildlife, and regulated commercial fisheries with little or no coordination and without a comprehensive plan or framework by which wise and broad-based decisions could be made. At present, no clear statutory statement of responsibility for the development and use of the coast's finite resources exists. The use of the shoreline is presently proceeding in a random, often uncontrolled fashion, not always in the interest of all people.

Increasing and conflicting demands for commercial and industrial development, transportation, housing, recreation, and other uses result in: loss of wildlife and nutrient-rich areas, permanent adverse ecological changes, decreasing open space for public use, and shoreline erosion and pollution. Generally, this is all done to meet the needs of an ever-increasing population, which is expected to increase by as much as ten million in the next twenty years. The major question is, can the majestic coast's characteristics be retained and still meet *all* of the future needs of all the people, if we proceed in the present manner? The answer is no.

Purpose and Scope of the Coastal Strip Plan

This, then, is the dilemma facing the Department of Parks and Recreation. In 1968, the department published the State Park System Plan, outlining its general objectives to meet the needs of the people in fair proportion to the demand. All three of the stated objectives apply directly to California's shoreline.

1. Preserve significant evidences of the state's history
2. Preserve significant examples of the natural and scenic landscape
3. Provide recreation opportunities

In order to rationally plan for these three objectives along the coast, the California Coastline Plan was initiated. It provides basic information for use in the State Park

[1] A statistical unit of recreation use, consisting of a visit by one person for all or a portion of one 24-hour period. One recreation day may consist of one or several activity days by the same person. A recreation day would merely reflect the attendance at a given area. The "recreation day" in conjunction with an "activity day" can be defined as the demand, in terms of total numbers of people and types of activity they participate in.

System Plan, the Department's California Outdoor Recreation Resources Plan, and the Governor's Comprehensive Ocean Area Plan. Originally this report was intended as one of nine landscape province plans now in progress which will outline what must be done to preserve significant examples of the State's natural landscape heritage. But because of the intense interest in the coastline, the scope of the report has been broadened to incorporate the Department's interest in historic preservation and providing recreation along the coastal landscape province which extends from the Oregon border south to Mexico, where air, land and water meet in constant interaction. The seaward limit stretches three miles seaward from mean high tide. The landward boundary coincides generally with the physiographic boundary of the coastal mountains where sea breezes and sea fogs are still active, but never less than one-half mile inland. This coastal province has been further divided, using more subtle, physiographic distinctions, into three subprovinces – north coast, central coast, and south coast.

What and where are the coast's unique and characteristic flora, fauna and geologic types in each subprovince? Are they protected and should they be? What of our historic past? What has been protected and what needs to be? How many miles of coastline are there in the state and what is its physical composition and recreational potential? Who owns it and how is it used? How much of the coastline is sandy beach and adjacent to warm water suitable for swimming? How many people use the coast now and in the future, and in what way? What actions must be taken by this department to preserve, for understanding and enjoyment by both present and future generations, significant examples of the coast's natural and historic features and recreation resources? These are typical questions to be answered before competent decisions can be made . . . decisions which are the final product of this plan.

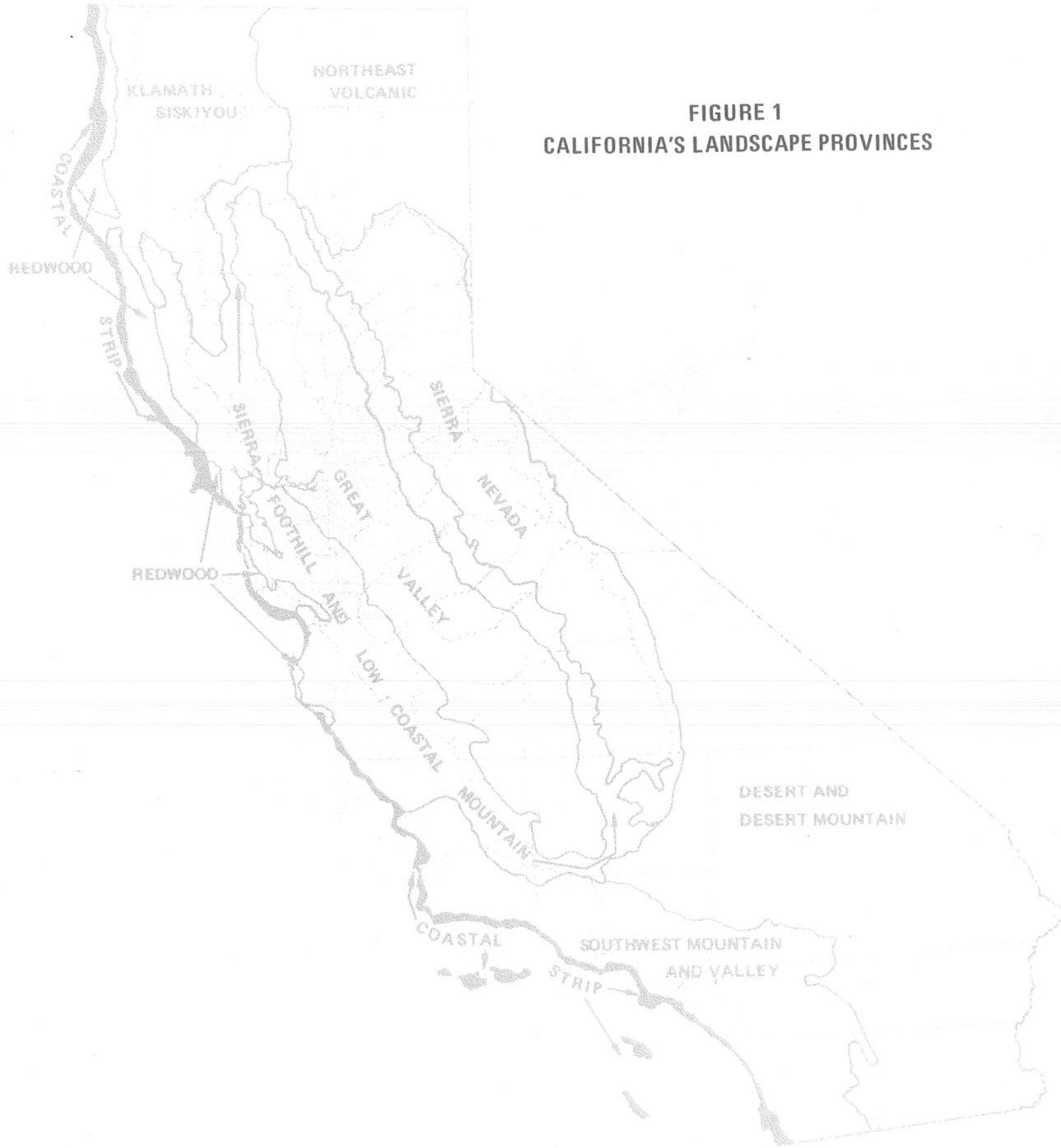
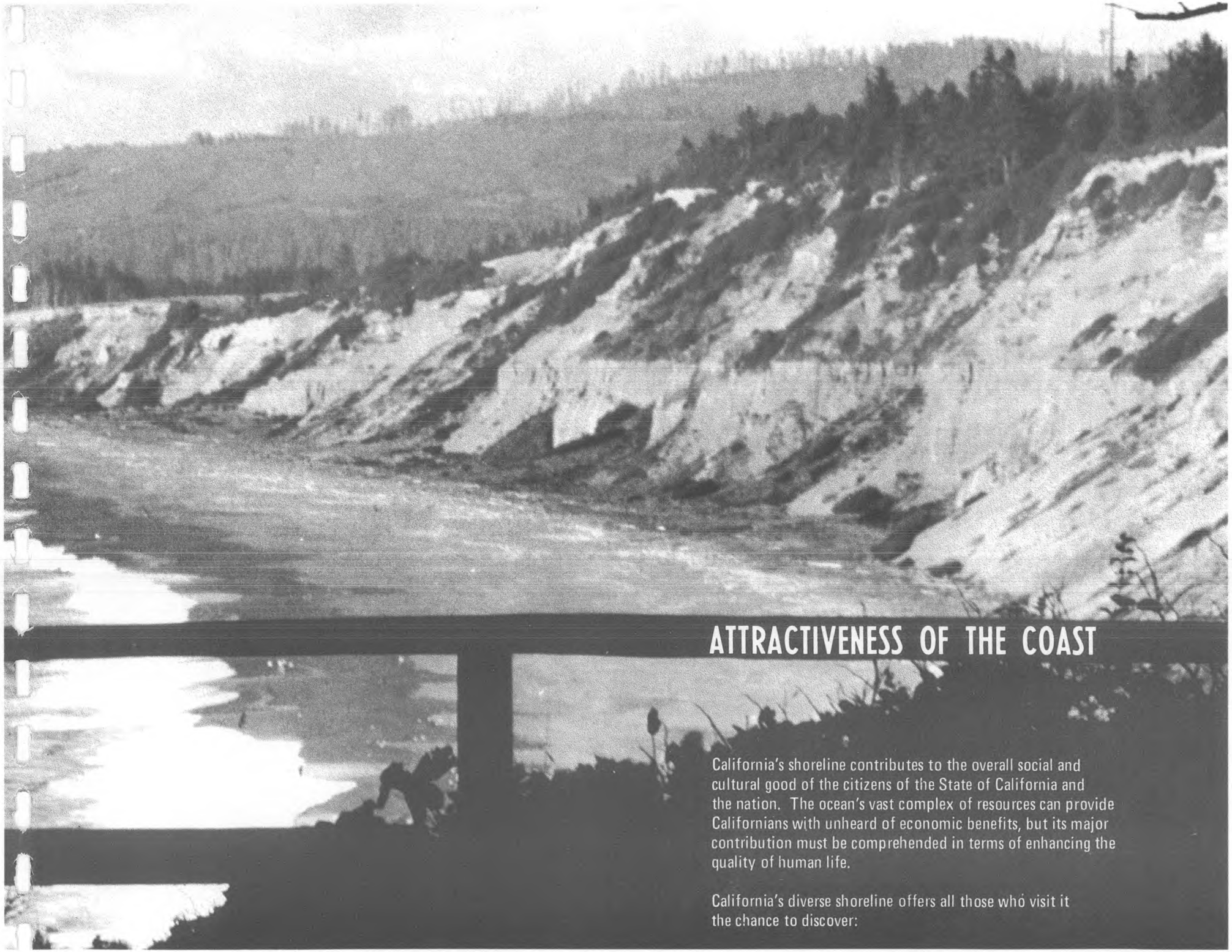


FIGURE 1
CALIFORNIA'S LANDSCAPE PROVINCES

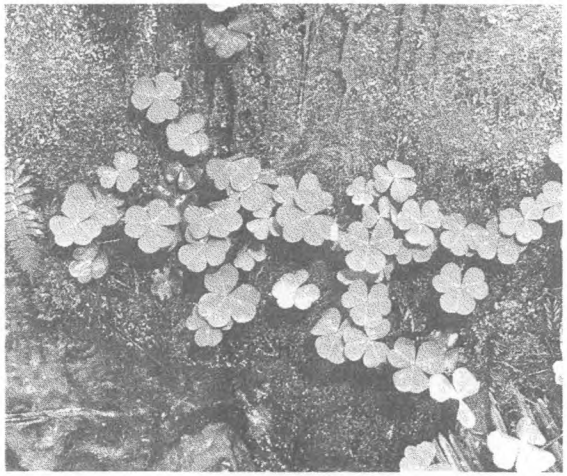
CHAPTER 1
OVERVIEW

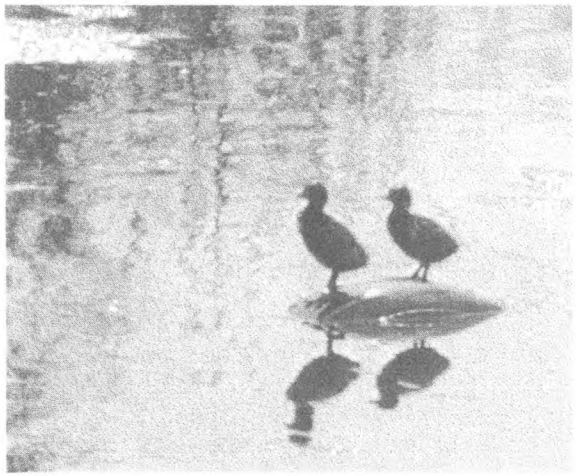


ATTRACTIVENESS OF THE COAST

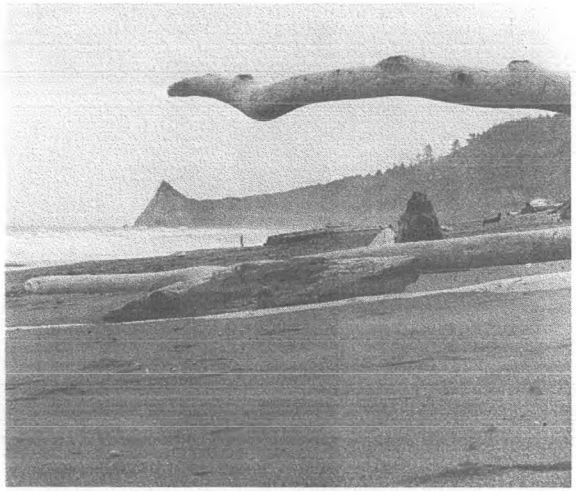
California's shoreline contributes to the overall social and cultural good of the citizens of the State of California and the nation. The ocean's vast complex of resources can provide Californians with unheard of economic benefits, but its major contribution must be comprehended in terms of enhancing the quality of human life.

California's diverse shoreline offers all those who visit it the chance to discover:





THE NATURAL FEATURES



TOP ROW

Redwood Sorrel

Snow in Redwoods

Water Birds – Buena Vista Lagoon

CENTER ROW

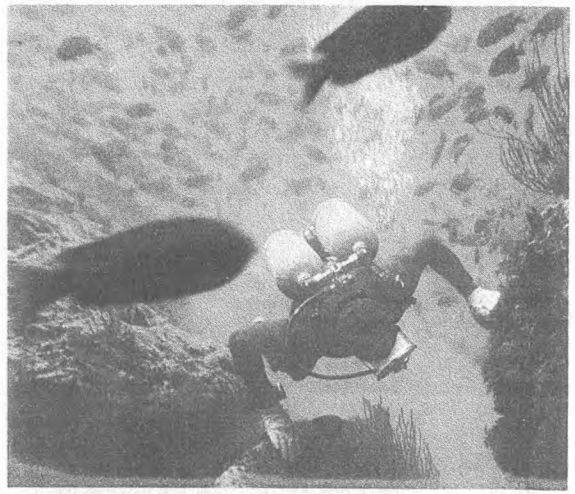
Moonstone Beach

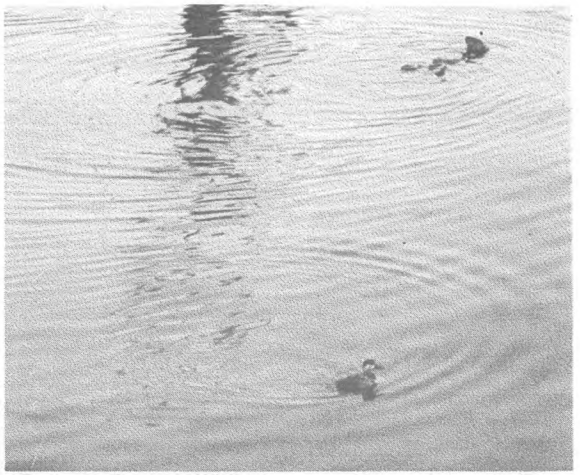
Freshwater Marsh South of Crescent City

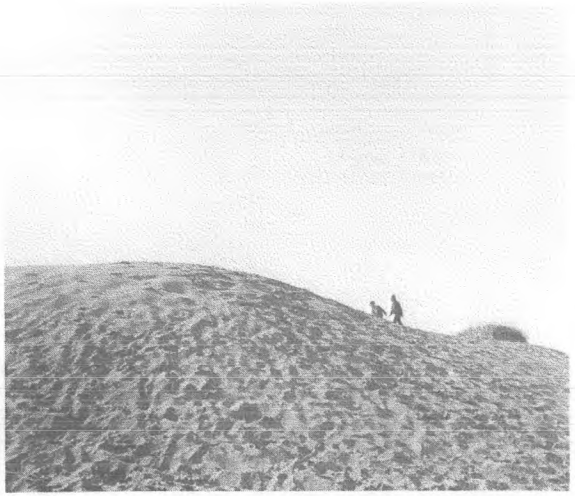
BOTTOM ROW

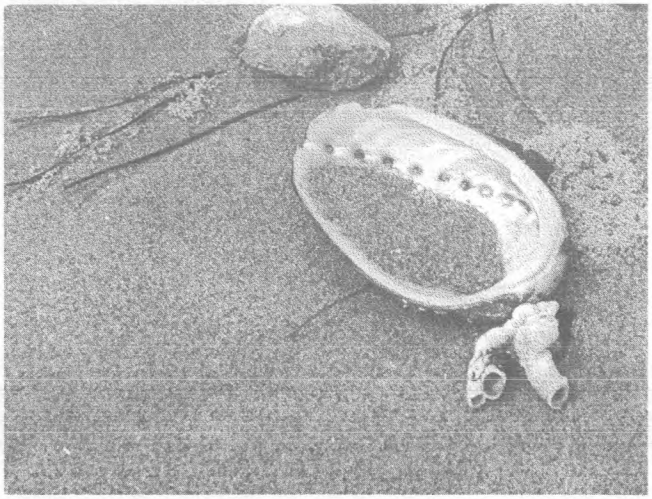
Coastline Scene

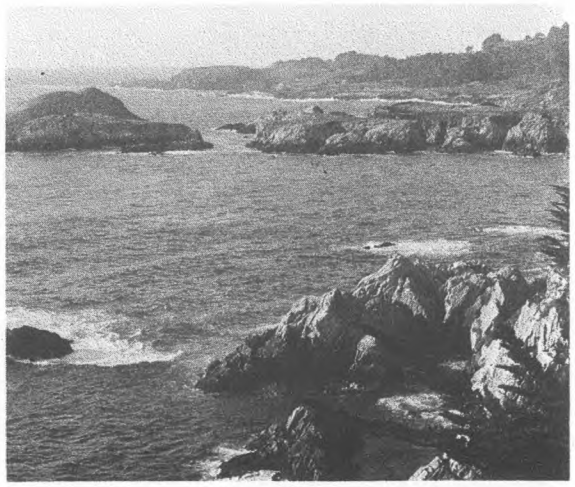
Skin Diving

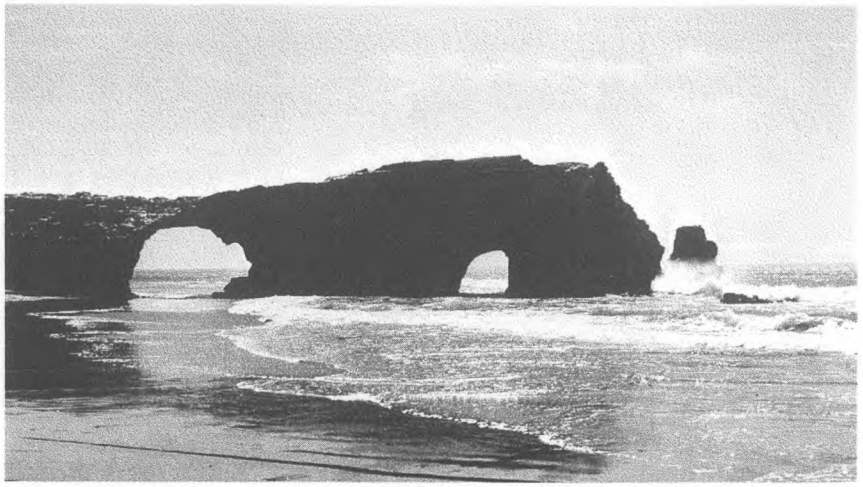








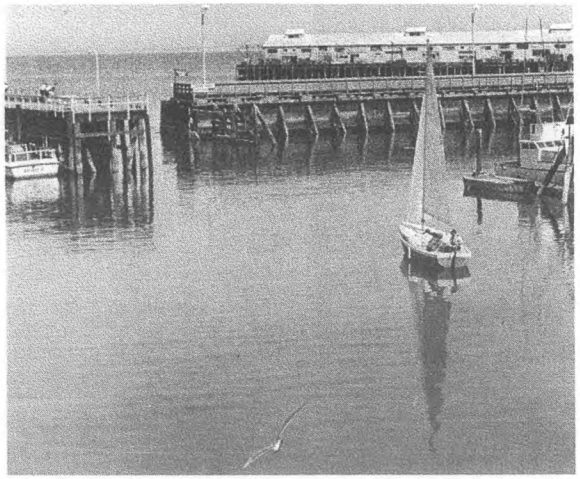


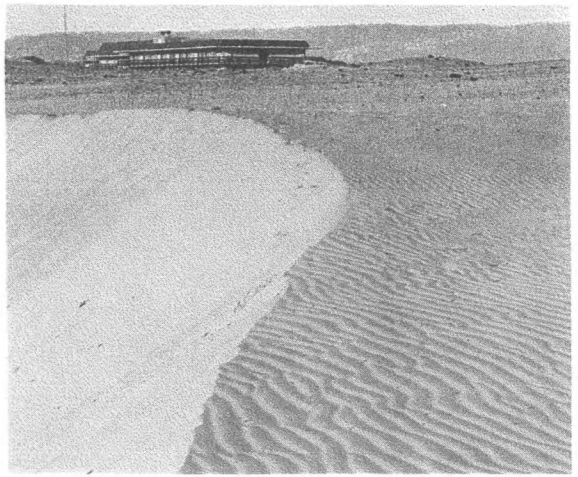


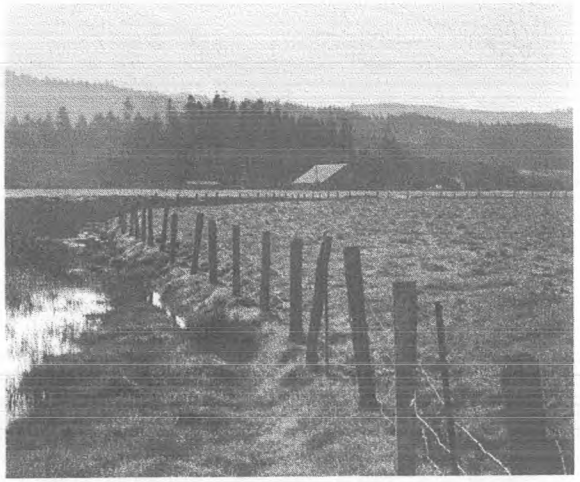
TOP ROW
Pt. Lobos
Water Birds

CENTER ROW
San Mateo Coast Dunes
Huckleberry
Abalone Shell

BOTTOM ROW
Rocky Coast Near Pt. Lob
Natural Bridges





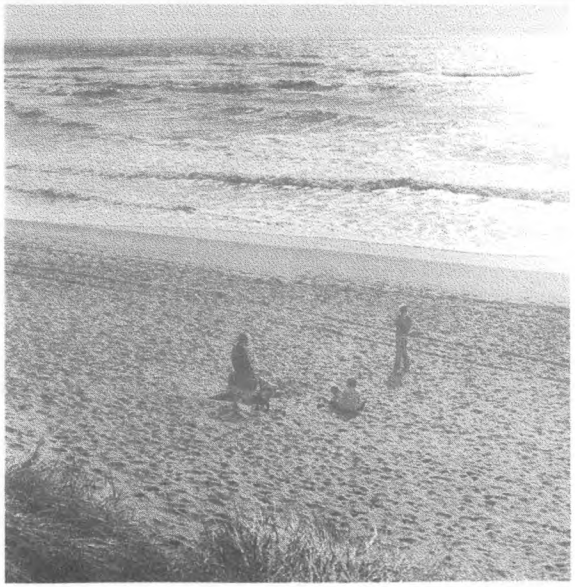


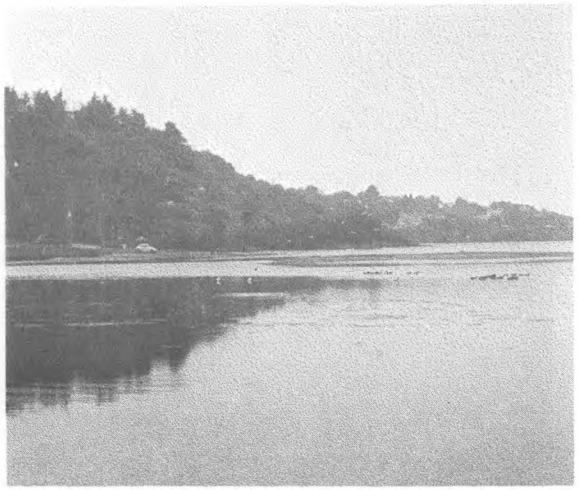
THE GENERAL ENVIRONMENT

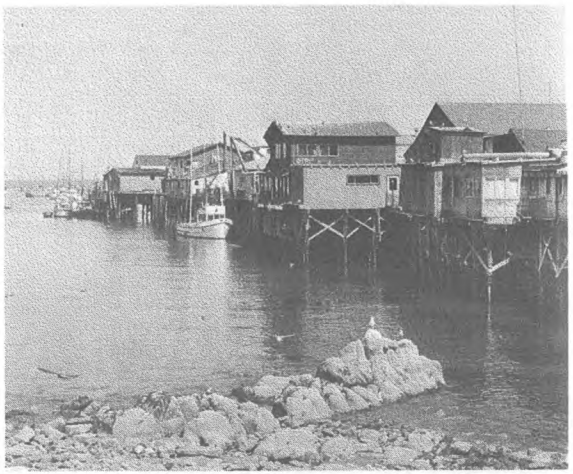
TOP ROW
San Francisco Fishing Fleet
Monterey Bay
Monterey Dunes

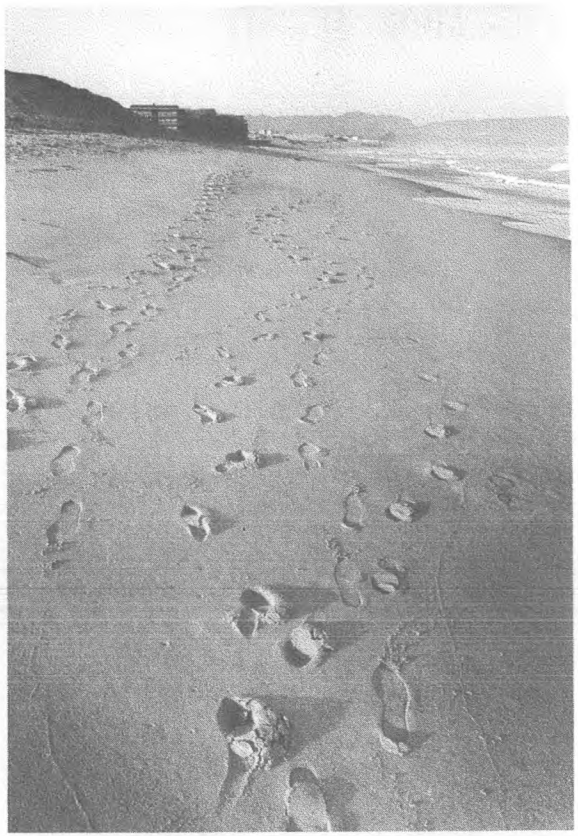
CENTER ROW
North Coast Ranch in Redwoods

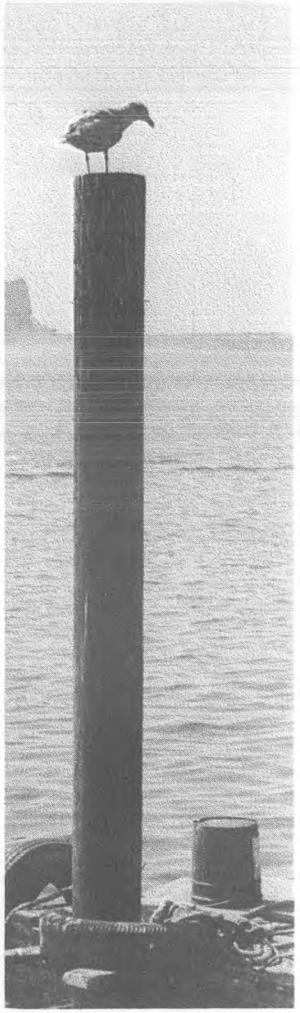
BOTTOM ROW
San Mateo Coast State Beach
Buena Vista Lagoon
San Francisco Bay and the Golden Gate Bridge

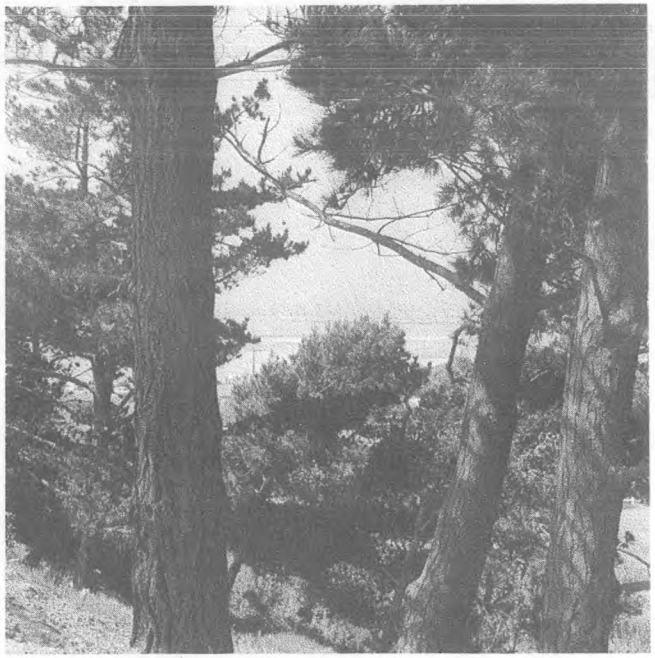












TOP ROW
Fisherman's Wharf Monterey Bay
Pt. Cabrillo Light House
Monterey Beach

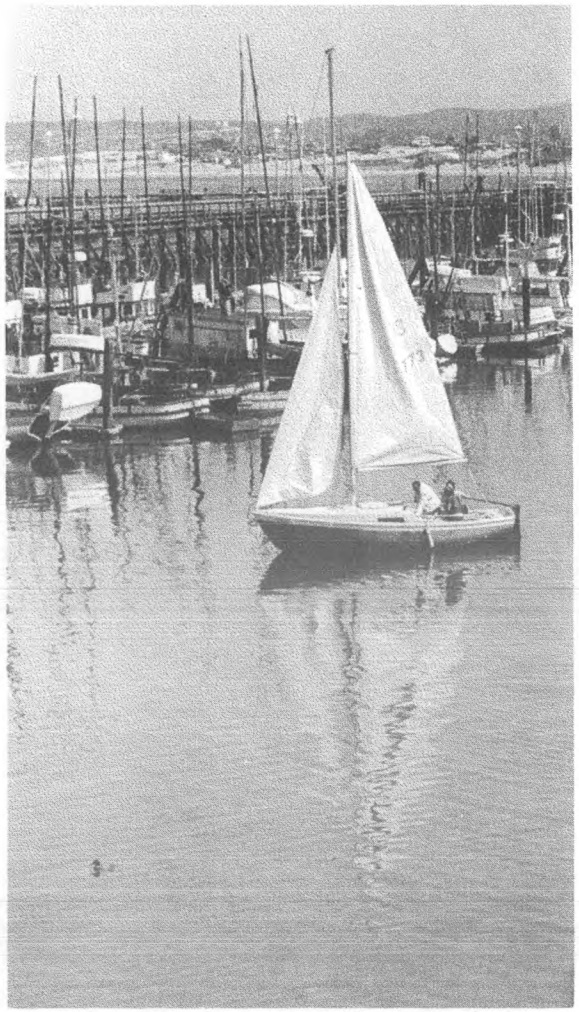
BOTTOM ROW
Cypress
Sea Gull at Morro Bay
Doheny

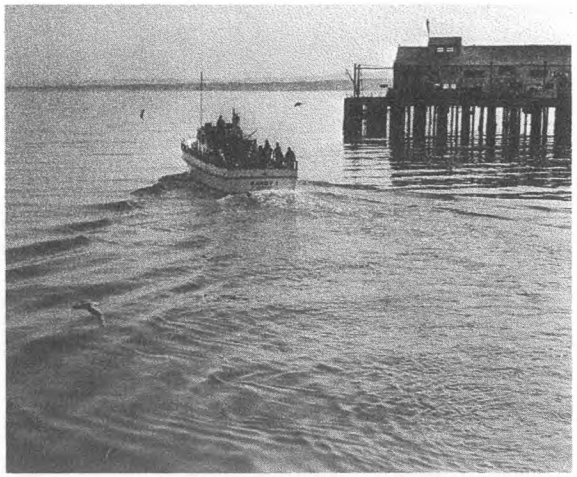
RECREATION ACTIVITY

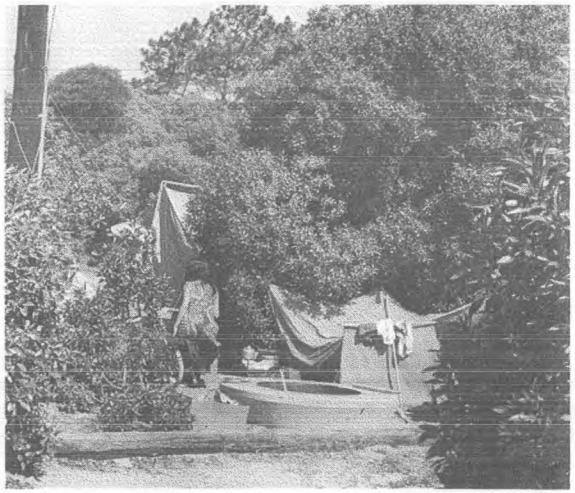
TOP ROW
Sailing Monterey Bay
Sports Fishing Boat Monterey Bay

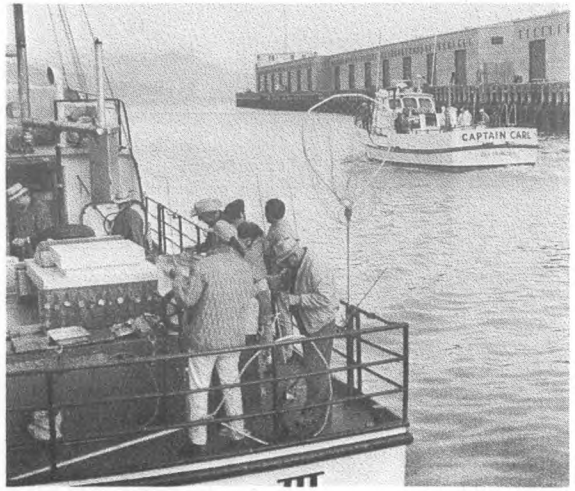
CENTER ROW
Surfers – Huntington State Beach
Camping – Doheny State Beach

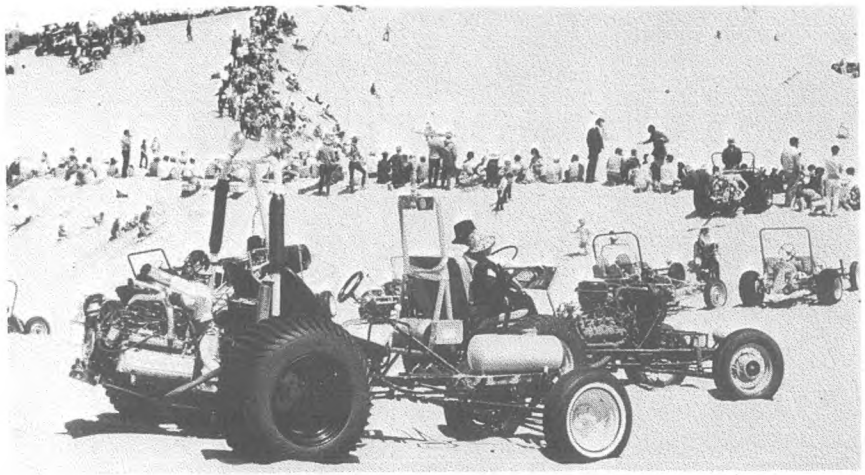
BOTTOM ROW
Sunbathers - San Buena Ventura State Beach
Clam Digging Pismo State Beach
Sports Fishing – San Francisco

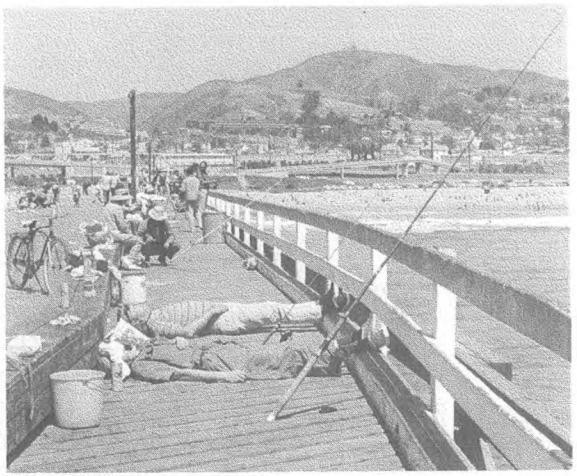








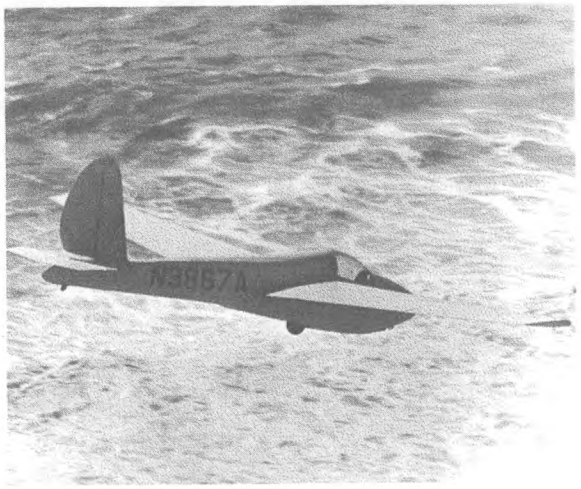




TOP ROW
Dune Buggies Pismo Beach
Pier Fishing San Buena Ventura State Beach

CENTER ROW
Surfing – Seal Beach
Skin & Scuba Diving Leo Carrillo State Beach

BOTTOM ROW
Glider – Torrey Pines State Reserve
Horseback Riding Pismo Beach
Motorcycling Pismo Beach

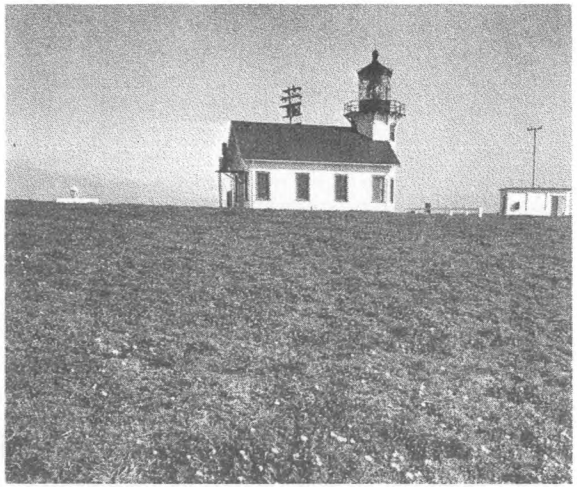


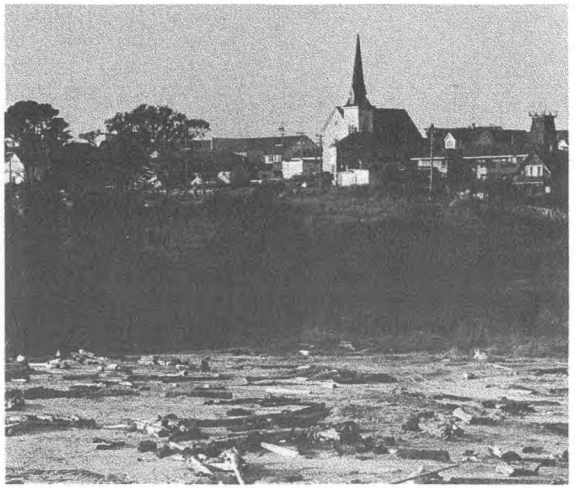
HISTORY

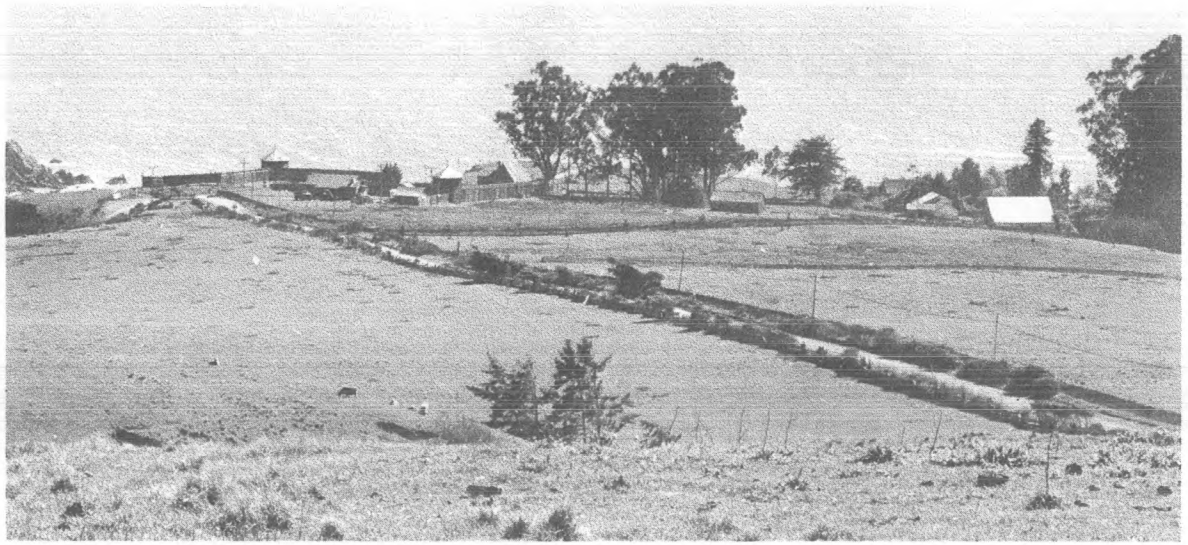
TOP ROW
Point Cabrillo Light
Big River Beach – Mendocino

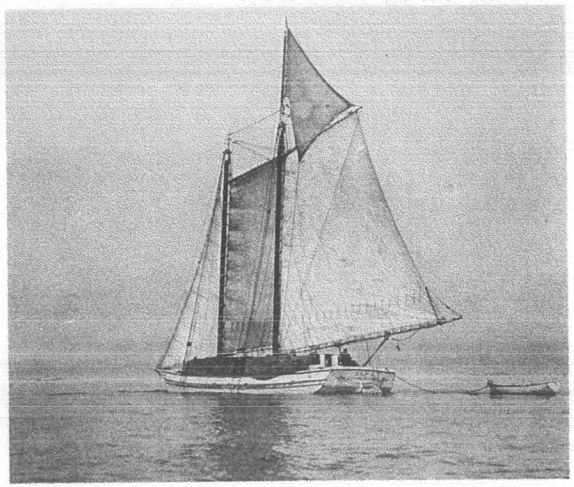
CENTER ROW
Grassland around Fort Ross

BOTTOM ROW
San Francisco
Larkin House, Monterey









TOP ROW
San Francisco de Asis (Dolores)
Custom House — Monterey

CENTER ROW
Scow-Schooner "Alma"

BOTTOM ROW
Russian Chapel at Ft. Ross

PROBLEMS

The problem of maintaining the environmental quality of California was described in the first annual (1969) report to Governor Reagan and the Legislature from the California Advisory Commission on Marine and Coastal Resources:

From the numerous comments we have had from the public, the prime interest the general public has in the coastline as private citizens is aesthetic and recreational. They wish to enjoy the scenic qualities, natural odors, tangy feel, and spaciousness of it unencumbered by commercial taint or the cruel scars of civilization, and preferably with few or none of their fellow citizens or traces of their presence, in sight. They wish to drive by the ocean to enjoy it, but they do not wish highways by which this can be done marring the calm beauty of nature. They wish to live by the sea to enjoy it, but they do not want any habitations to mar the view of the coastline. They wish to turn the whole coastline into an underwater park to seaward of the waterline and the shore into an enjoyable terrestrial park to an indeterminately wide distance landward of the waterline.

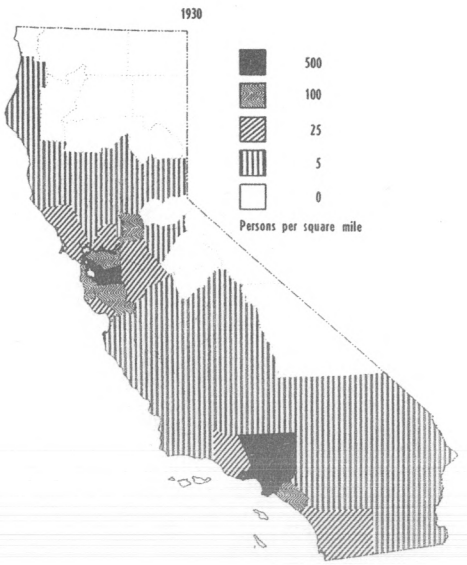
This is a very deeply held desire of substantially the entire citizenry. How they would make a living so they could enjoy this Elysium is not clear, but that is what is wanted.

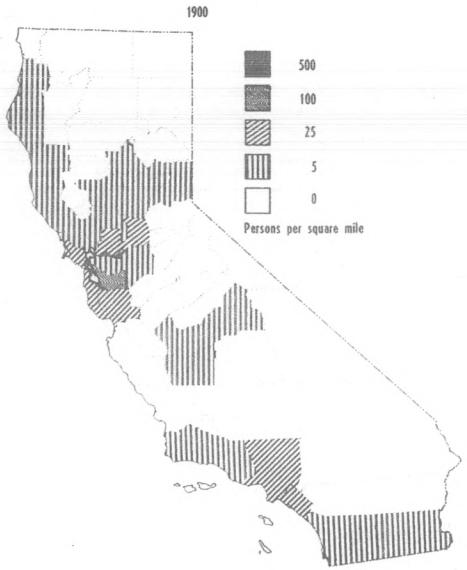
Nevertheless, the human population of California crowds tighter and tighter against the high tide line for habitation and work, and the near shore area is crowded fuller and fuller with people playing, swimming, scuba-diving, fishing, in pleasure boats, on water skis, and on

surf boards. Only severe zoning restrictions, which do exist in many places, hold back high-rise apartments on the beachline. The floating tourist population, attracted by extensive and expensive advertising and promotion, jams the beaches, marinas, and fishing spots, and clogs the freeway and highway approaches to the coastline. The ever-swelling resident population does all of these things besides wanting a home as close to the beach as it can afford, and a launching ramp for the family speed-boat convenient to home.

In the meantime, most of the resident population works for a living, and the industry in which it is employed crowds ever closer to the beach because that is where the labor force lives. Much of this industry needs space on the coastline to survive competitively. There is not only the marine transportation and trade, which forms a backbone to the California economy, but the fishing industry which needs a place to land its catches and process them. The land transport terminals must have warehouses and other space required to take away to the hinterland what has been brought by sea and vice versa. Power plants (both nuclear and fossil fuel) must have the cool water from the sea. The shipyards, marinas, chandleries, pleasure and work-boats must also have access to the sea as must the restaurants where one can enjoy the view of the sunset and the springing sea with the food.

Everything and everybody crowds to the coastline in California and wants all other activities there suppressed so that there can be full enjoyment of it. Bills to set aside this or that part of the coastline as particular reserves for this or that special purpose come to the Legislature, which feels hard put to respond. Certain of these bills have been referred for advice to the California Advisory Commission on Marine and Coastal Resources, and it has been able to make only limited response because of lack of information upon which to base reasoned judgment, and lack of funds to accumulate the required information. In the meantime, the natural beauties of the California coastline are gnawed away into the insatiable maw of civilization and commerce. Because many of the changes, if not most, are irreversible, permanent damage is done which cannot be repaired.





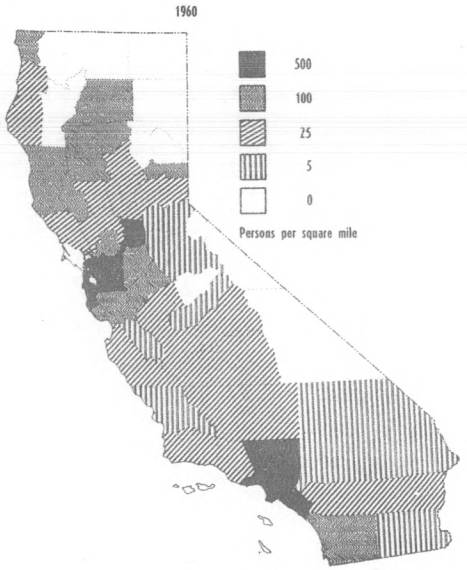
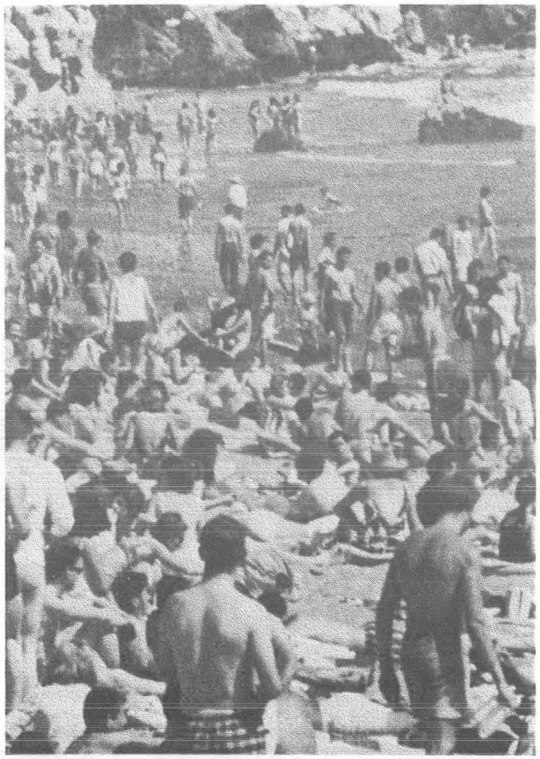


FIGURE 2
CHANGING POPULATION DENSITY

It is evident that there are more people and consequently more demands being placed on the coast's resources than the shoreline can possibly support. The resulting problems can be categorized as follows:



1. INSUFFICIENT RECREATION OPPORTUNITIES

Last year, hundreds of thousands of people were turned away from state campgrounds along the coastline because there were not enough facilities to go around. And on many segments of the coast there is insufficient public recreation land available to develop more campgrounds, picnic areas, or parking lots.

2. PUBLIC ACCESS, VISUAL AND PHYSICAL

Structures are being developed at the ocean's edge at the expense of both visual and physical access. Views of the ocean along whole segments of the coast are now obliterated by residences, industrial developments, parking lots, campgrounds, commercial establishments, and billboards. Hundreds of miles of the publicly-owned tidelands have been walled off from people by freeways, private clubs, residential and industrial developments, and military ownership. All of these uses severely restrict the shoreline visitor's access to, and use of, the state-owned sovereign lands.

3. POLLUTION

Trash, sewage, and industrial and agricultural wastes dumped into the ocean in many cases result in an imbalance of a delicate ecosystem, and may threaten human life or the extinction of plant and animal species.

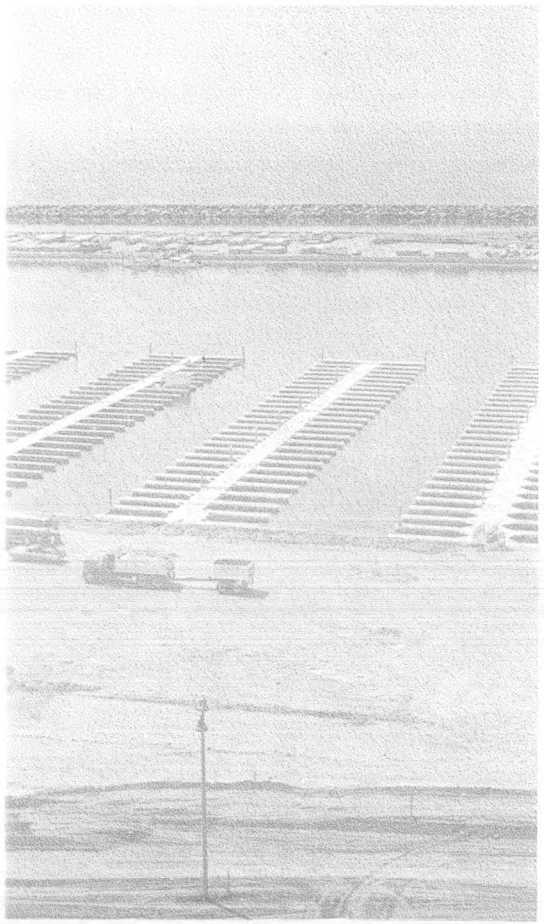
A portion of the coast around Monterey Bay was posted as "unsafe for human use" during 1970 as a result of unsatisfactory sewage treament; oil spills at sea have left some southern California beaches unusable; and the brown pelican may be threatened with extinction due to the side effects of pesticide residues.

4. IRREVERSIBLE MODIFICATION

Increasing urban growth has destroyed much of the state's natural environment. Dredging and filling of lagoons and estuaries for boat marinas has resulted in the loss of many of the state's saltwater marshes. These natural environments provide homes and resting places for hundreds of species of waterfowl, and other species of plant and animal life so characteristic of the California coastline. Some natural environments are irreplaceable once they are modified, others may take thousands of years to recover if given the chance.

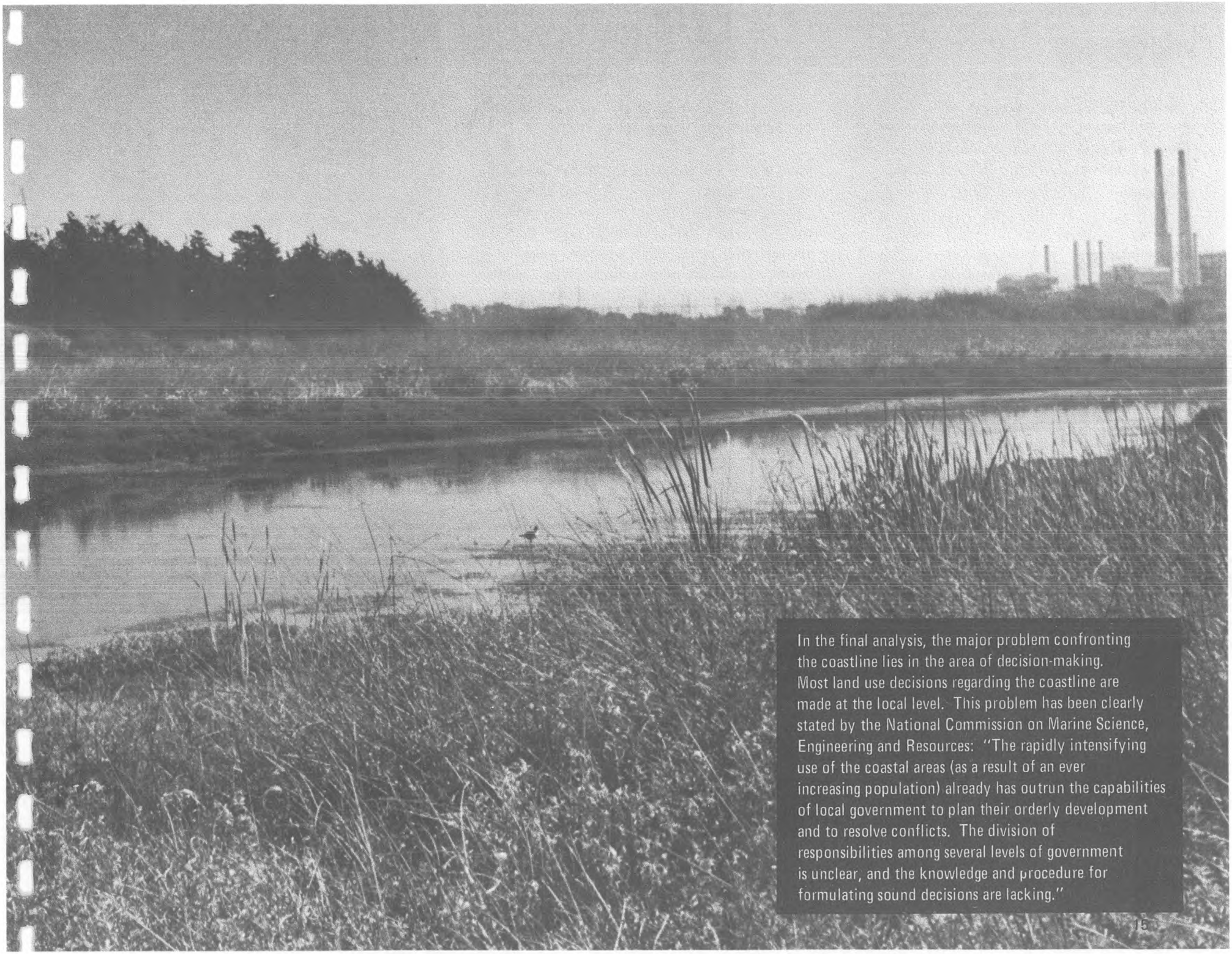
5. SHORE EROSION

Much valuable recreation shoreline, and particularly sandy beaches, has been lost to erosion. While the dynamics of sand movement are not fully understood, it is known that by damming California's rivers the natural movement of sand to the coast has been restricted. Remedial action to prevent further erosion, such as rock groins or revetments, is only an attempt to solve the symptoms – sand loss at a specific location. Even these attempts in many cases have proved to be visually intrusive to an otherwise naturally scenic area.



6. DESTRUCTION OF THE STATE'S HISTORIC AND CULTURAL HERITAGE

In man's attempt to meet the needs of an ever increasing population by building highways, residences, boat harbors and numerous other contemporary developments along the coast, he has destroyed valuable archeological sites and historic and cultural remains.



In the final analysis, the major problem confronting the coastline lies in the area of decision-making. Most land use decisions regarding the coastline are made at the local level. This problem has been clearly stated by the National Commission on Marine Science, Engineering and Resources: "The rapidly intensifying use of the coastal areas (as a result of an ever increasing population) already has outrun the capabilities of local government to plan their orderly development and to resolve conflicts. The division of responsibilities among several levels of government is unclear, and the knowledge and procedure for formulating sound decisions are lacking."

OWNERSHIP

There are 1072[1] miles of wave-washed shore divided among the 15 coastal counties, ranging from 121 miles in Humboldt County to eight miles in San Francisco County. This does not include approximately 300 miles of the Channel Islands Shoreline.

State and Local

Of the total coastline landward of mean high tide, only 200 miles are state-owned, 34 miles are county-owned, and 29 miles are city-owned. This 263 miles, or 25% of the entire coast, constitutes most of the legal public access to the publicly-owned tidelands which extends the full length of California's coast between mean tide and three miles at sea and includes many lagoons and estuaries. These state-owned sovereign lands are administered by the State Lands Commission.

Federal

The federal government owns 145 miles of the coast (13%), including almost 100 miles in military installations, Coast Guard bases and lighthouses. With the exception of Point Reyes National Seashore, the Redwood National Park, and a portion of Camp Pendleton, with a combined total shoreline of 47 miles, the federal lands are closed to the public for security reasons.

Private

The remaining 659 miles (61%) are in private ownership, and the owners may or may not allow access across their property to the public beach. Generally access is prohibited as evidenced by the numerous "private beach – keep out" signs which are exhibited up and down the coast.

Much of California's shoreline is closely paralleled by public highways. Between these highways and the publicly-owned tideland is a narrow strip, often only a few yards wide, frequently no more than one-quarter of a mile, that is privately-owned, fenced, and posted. In many areas along the shore, one can catch only a fleeting glimpse of the blue water behind homes and multi-storied apartments, stores, oil wells, smoke stacks, sewer treatment facilities, power plants, utility poles, and freeway railings.

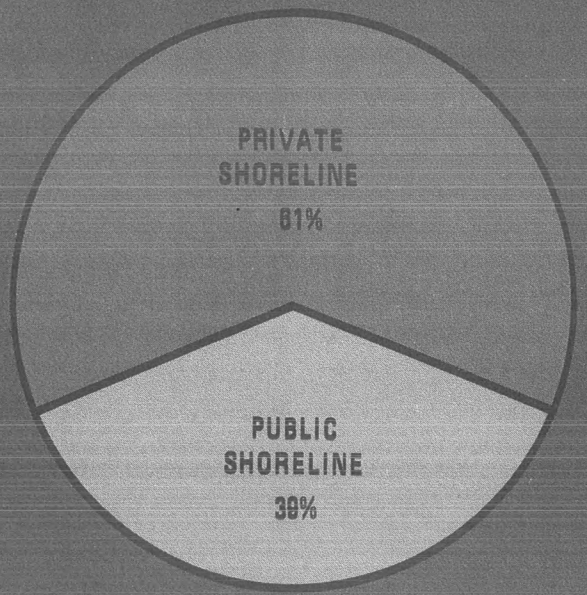
Tide and Submerged Lands

Under the jurisdiction of the State Lands Commission, the state's sovereign land along the shoreline belongs to the people of California. These lands extend from mean high tide on the beach to three miles at sea where the state lands meet the federal lands In a few instances, the Legislature has granted portions of the coast to local government and private individuals. The justification was that the uses must be in the public interest.

It should be recognized that the public is paying taxes to support the protection of the entire shoreline, both public and private. The State Department of Fish and Game is responsible for protecting, conserving and propagating fish, mammals, mollusks, crustaceans and many birds, amphibians and reptiles. It also is responsible for regulating the use of kelp and other marine plants. The U.S. Corps of Engineers, responsible for the physical protection of the navigable waters of the public's shoreline, is also tax-supported.

FIGURE 3

WHO OWNS CALIFORNIA'S SHORELINES?



PRIVATE 659 MILES

PUBLIC 408 MILES

[1] See Appendix A.

FIGURE 4

WHO MANAGES THE PUBLIC SHORELINE?

Public Ownership Total

408 MILES

Public Ownership by Agency

FEDERAL	STATE OF CALIFORNIA	CO.	MUN.
145 MILES	200 MILES	34 MI	29 MI

Public Ownership by Subprovince

NORTHERN	CENTRAL	SOUTHERN
137 MILES	108 MILES	163 MILES

GOVERNMENTAL OBJECTIVES

All Men are by nature free and independent, and have certain inalienable rights, among which are those of enjoying life and pursuing and obtaining happiness. SECTION I, ARTICLE I – CONSTITUTION OF CALIFORNIA.

Each citizen is entitled to seek and enjoy experiences and activities which provide physical and mental growth and broaden his perspective relative to his place in the environment. Government exists to serve the people, and it must recognize the variety of needs of all the people it serves. In the process of providing for these needs, government must also recognize that the private sector meet some needs of the recreating public.

It is therefore the objective of the State Department of Parks and Recreation to fulfill a portion of this role, as outlined in Section 541 of the Public Resources Code, by enhancing environmental quality, developing recreation resources, and preserving our heritage of natural and scenic landscape, and cultural, historical, and archeological values.

ENVIRONMENTAL PROTECTION

The general scenic quality of California's coastline is a major environmental asset of the nation, the state, and the counties and cities adjacent to the Pacific Ocean. Each level of government has a responsibility to maintain that quality. This can best be accomplished only if all those responsible – as a first step – recognize the environmental significance of the resources within their own jurisdictions.

The protection of natural features of national significance, such as the Grand Canyon, Yellowstone, or the Channel Islands, is the responsibility of the federal government, regardless of the origin of use.

Certain resources are of State significance but not necessarily of National significance. These resources are of concern to people who reside outside of the region in which the resources are situated.

Coastal resources of regional, county, or local interest are those that can be considered important to residents of the region, county, or city encompassing the resource.

All levels of government must thoroughly analyze all proposed actions and activities under their jurisdiction to avoid possible damage to the coastal environment.

These actions must also be compatible with the interests and plans of the higher levels of government.

Goals

a. All facets of the coastal environment which enrich the lives of people in California, in the nation, and in coastal communities, should be protected and enhanced.

b. Citizens of all ages should have a basic understanding of ocean resources. The ultimate fate of these extremely valuable resources rests in the hands of the public, and an informed public will increase the possibilities of protecting those resources.

PRESERVING NATURAL FEATURES

Man in his quest for well being and happiness needs to experience beauties of unspoiled nature in an atmosphere of peace and solitude. Generations to come will also want to view, examine, and study examples of California's natural beauty as it was before man modified it. Preserving unique, outstanding, and representative examples will guarantee that opportunity to this and to all future generations. Just as those 100 years from now will view a superlative redwood grove, so should they have an opportunity to view a fresh - or saltwater marsh, a prehistoric marine terrace, or an offshore reef with its indigenous plants and animals. Such areas have a high value for:

. Primitive and personal types of recreation
. Field training in natural science
. Scientific research

Goals

a. Selected ecosystems characteristic of the coastal province should be set aside and protected for present and future generations for their esthetic and scientific interest. These areas should preserve extraordinarily scenic or unique natural and near natural phenomena as well as representative examples of distinctive plant and animal communities and geologic features.

b. All government agencies involved in preservation and protection of natural features should act in a coordinated manner to prevent possibilities of duplicated efforts,

PROVIDING RECREATION OPPORTUNITIES

Recreation includes all activities participated in, either individually or in a group, for fun, enjoyment, inspiration, education, relaxation, cultural growth, refreshment of spirit, or for a general feeling of well being. California's coastal resources offer an unequaled opportunity to satisfy many of these recreational needs.

The average citizen today has more leisure time, mobility, and uncommitted income to spend on his recreational pursuits. This trend is expected to continue to grow. All levels of government have a responsibility to recognize and help meet these recreation needs.

Goals

a. Recreational resources significant to the citizens of the nation, state, region, county, or city should be developed to meet the recreation demands that are generated from within those jurisdictions.

b. The cost of acquiring and developing recreational resources to meet national, state, and local demand should be shared by those jurisdictions in proportion to the benefits derived by their respective citizens.

c. All governmental agencies involved in providing recreation should act in a coordinated manner to prevent possibilities of duplicated efforts or gaps.

PRESERVING HISTORY

Contemporary man, with more leisure time, needs to reflect on his past to retain his perspective. Where did his ancestors come from? What did they look like? What was their architecture like? How did they make a living, and what were their religious practices?

Very early, the citizens of California recognized the value of their heritage, and decided that in order to preserve history for appreciation and recognition by present and future generations, it was necessary to acquire, develop, protect, and interpret the sites and artifacts of California's aboriginal inhabitants, colonists, pioneers, and other early residents.

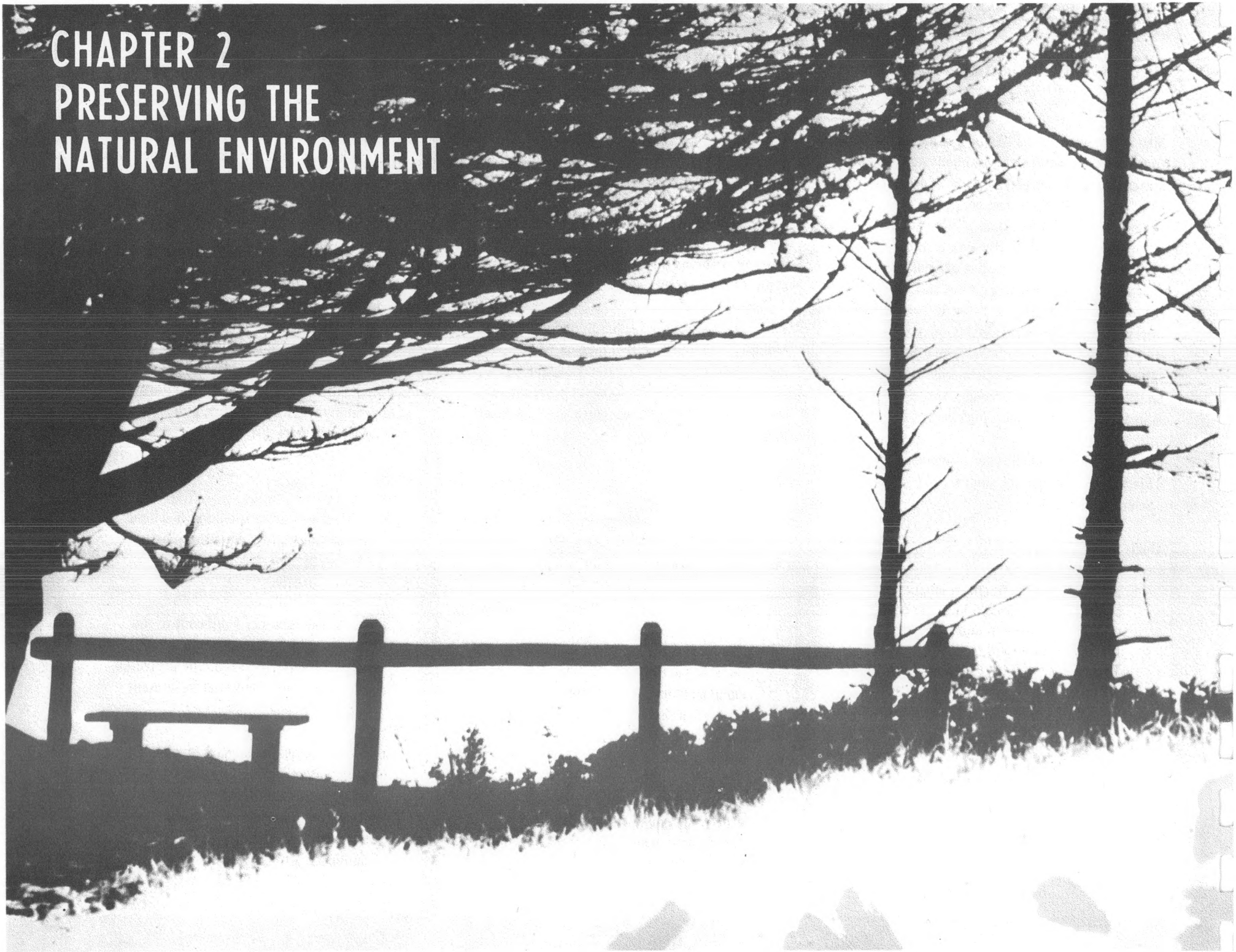
Goals

a. Citizens of all ages should have a basic understanding of their cultural heritage relating to their nation, state, region, county, or city.

b. Historical resources significant to the citizens of the nation, state, regions, counties, and cities should be protected, preserved, and interpreted for present and future generations.

c. All governmental agencies involved in preservation, protection, and interpretation of the state's historic resources should act in a coordinated manner to prevent possibilities of duplicated efforts or gaps.

CHAPTER 2
PRESERVING THE NATURAL ENVIRONMENT

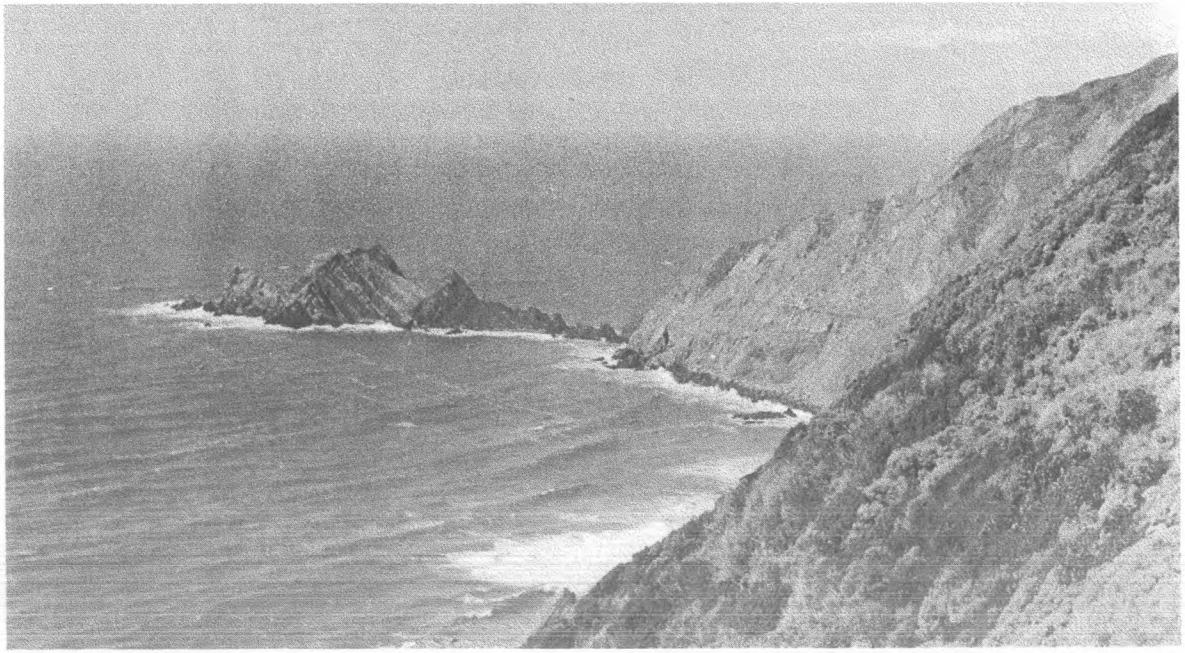


California's physical environment is unique. With one of the longest ocean shorelines of any state in the nation, stretching for more than a thousand miles, California's coast assumes outstanding scenic and recreational significance.

The interaction between land, water, and air forces produces a great intensity of natural processes which have resulted in creating approximately 354 miles of steep, rocky shoreline that is very picturesque but practically inaccessible because of the difficult terrain; 602 miles of sandy beach; and 110 miles of rocky beach.[1]

The coastal province can best be described by dividing it into three subprovinces – the North Coast Subprovince noted for its cold ocean water, heavy rainfall, and resulting characteristic vegetation; the South Coast Subprovince with its temperate climate, warm ocean water, low precipitation, and sparse vegetation; and the Central Subprovince which is characterized by more moderate examples of the other two subprovince extremes.

[1] Five miles are in harbor development.



← *Franciscan Formation South of San Francisco*

LANDFORMS

The coast of California can be classified into two general geological types. The area from Oregon to Point Reyes consists primarily of Mesozoic and Cenozoic sediments and volcanics. Much of this area is composed of rugged cliffs, interspersed by small narrow beaches. The area south of San Francisco to the Mexican border is mainly Cenozoic marine and non-marine sediments. Many faults acutely intersect this coastline, resulting in considerable land movement which speeds up erosion to produce sediment responsible for the creation of many beaches.

MOUNTAIN RANGES

Within the coastal province are three mountain range systems. The Coast Ranges of the north and the Peninsular Ranges of the south are essentially longitudinal ranges paralleling the shoreline. The third mountain range system, the Transverse Ranges, is distinguished by a dominant east-west trend, and intersects and divides the Coast and Peninsular Ranges in the Ventura area.

Coast Ranges

The composition of the Coast Ranges includes a series of north-northwest-trending mountains and intermontane valleys that include rises in elevation from sea level to 200-4000 feet, with maximum heights of 6000-8000 feet.

Geology of the province is extremely complex although the province is geologically young. During Precambrian, Paleozoic, and most of Mesozoic time the present Coast Ranges area was part of the deep sea floor. The altered remnants of this deep sea crust may crop out locally as serpentine near the coastline in Marin, San Francisco, San Mateo, Monterey, and San Luis Obispo Counties. During late Jurassic and early and middle Cretaceous times, this deep sea surface was covered by poorly sorted, sandy deposits of a great deep sea fan, similar to those found in the ocean depths off California today. Later massive structural movements of the Coast Ranges crust during Cretaceous and early Tertiary time brecciated, uplifted and folded these rocks in accordian fashion. The indurated, eroded surface of these rocks today represent outcrops of the Coast Ranges Franciscan Formation.

The last major mountain formation activity which developed the present Coast Ranges occurred during mid-Pleistocene time.

The most significant changes and deformation of the Coast Ranges occurred as a result of crustal disturbances during the Tertiary age, and as a result of ice age undulations in sea level during Quaternary time (the past 3 million years). The deformation elevated the landscape to form mountains. The sea level undulations caused extensive multiple terrace levels to be carved in them adjacent to the sea.

Two great northwest-trending fault zones dominate the structural pattern of the Coast Ranges: The Nacimiento-Sur fault, running generally along the Santa Lucia Mountains between Monterey and Santa Barbara; and the great San Andreas fault, striking obliquely across the Coast Ranges and Coast Ranges structures from the coast at Point Reyes to the Tehachapi Mountains 400 miles southeast, and extending northward offshore probably at least as far as the Mendocino escarpment. These two fault zones divide the coastline into three bedrock provinces: predominantly late Mesozoic sandstone from the Oregon border to Bodega Head; predominantly late Mesozoic

granite and pre-granite Metamorphic rock from Bodega Head to Point Sur; and predominantly late Mesozoic sandstone from Point Sur south to the Transverse Ranges.

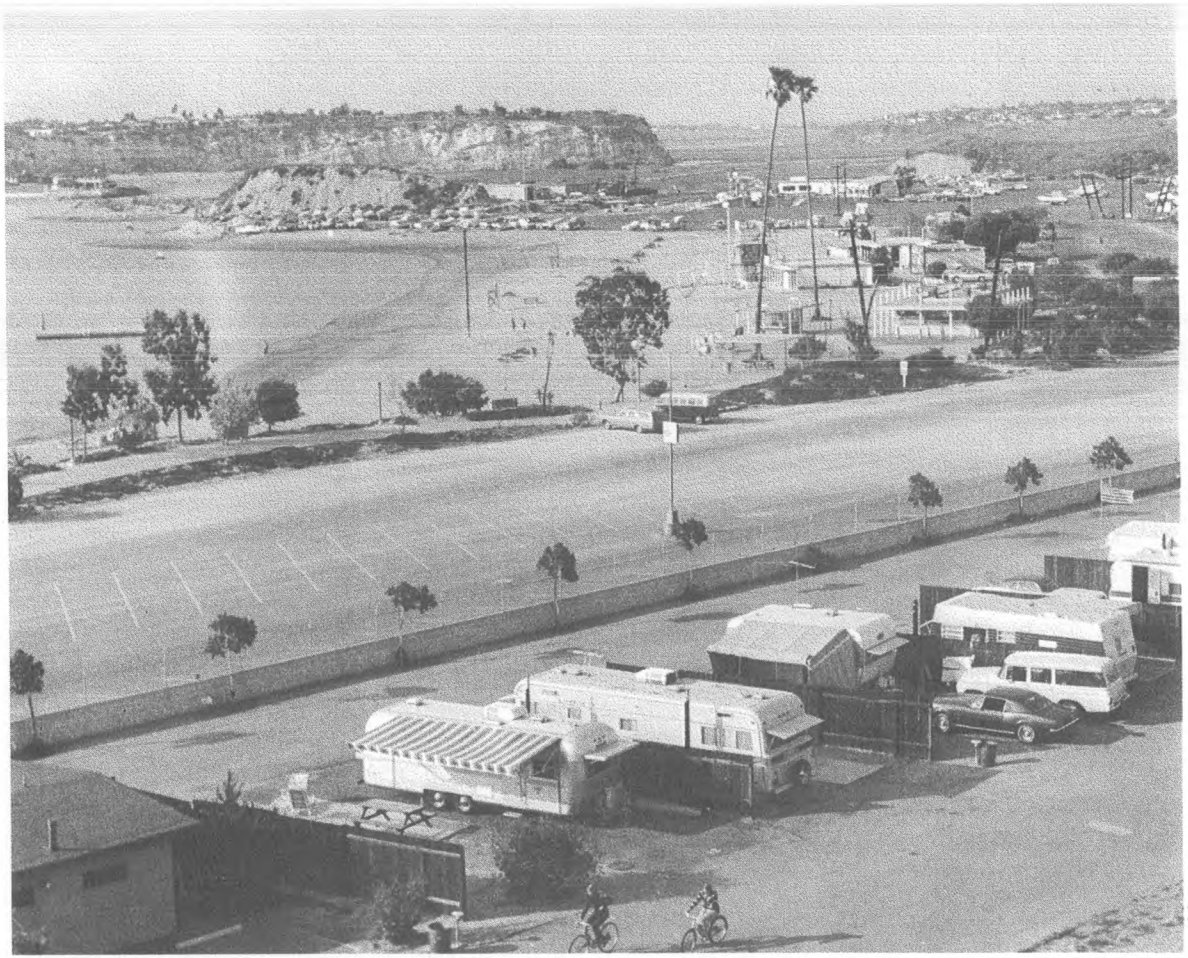
Peninsular Ranges

At the southern end of the coastal province is a series of mountains called the Peninsular Ranges. These ranges extend from the Los Angeles Basin for 300 miles south into Mexico. Part of this range, the Santa Ana Mountains, roughly paralleling the southern California coast, is a fault block of rather complex structure which has been elevated on the northeastern side and tilted southwestward toward the ocean.

The Palos Verdes Hills, once a California island, is an isolated peninsula projecting into the ocean along the western side of the south coastal plain west of the City of Long Beach.

San Clemente Island, typical of the southern-most California islands, lies about 50 miles south of the Palos Verdes Hills, the nearest point on the mainland. It is about 21 miles long, 4 miles in maximum width, narrowing to about 1 mile at its northwestern end with the greatest elevation 1964 feet. San Clemente is a simple tilted fault block not greatly modified by erosion. The significant features of the landscape, developed largely on the southern side, are marine terraces which are described as outstanding for their size, continuity, and distinctness. As high as 1,320 feet above sea level, the terraces are so well preserved that they can be traced for miles. More than 20 terraces have been recognized. It is evident that the deformation which caused the elevation of San Clemente to its present height was interrupted by times of relative quiescence during which the terraces and seacliffs behind them were evolved. The bold northern face is broken here and there by deep gorges.

Much of the southern California shoreline is composed of remnants of old marine terraces which include erosion terraces together with beach deposits. Along the southwest side of the Palos Verdes Hills are especially well-developed, well-defined old shorelines. This southwest section of the province, extending from the Pacific Ocean on the Peninsular Ranges to the east can be divided into two sections: The coastal mesas, which are part of the coastal plain, are largely underlaid by poorly to moderately indurated Tertiary marine sediments; and the rugged mountain, rising abruptly on the eastern boundary of the mesas and underlaid by crystalline granitic and metamorphic rock. The mesa section extends for many miles north and south of the City of San Diego. On the north it extends to the Los Angeles Basin and on the south it continues well into Mexico. These mesas meet the coast where they are either cut off by cliffs being eroded away by the present shoreline or descend by a series of terraces which are separated by bays or a coastal plain from the shoreline.



West of the Beverly-Newport uplift, streams have cut into the coastal plain to depths of 25 to 100 feet. Between the valleys are broad, flat mesas- or terraces- remnants of a marine surface uplifted about 10 million years ago.

Transverse Ranges

The Transverse Ranges consist of the Santa Ynez, Santa Monica and other mountain groups and intervening valleys. Separated structurally, but a part of the Transverse system, are the Santa Barbara Channel Islands. Within about 30 miles of the coast, these ranges consist of poorly to well consolidated shale, sandstone, and conglomerate. Farther east, hard igneous and metamorphic rocks predominate. At the base of the modern seacliffs along the coast in the Transverse Ranges are two marine terraces. The first is just south of the City of Santa Barbara and the second is in the Ventura area. The most prominent and best developed is on Rincon Mountain.

Marine Terraces at Camp Pendleton *Photo by Dick Thompson*

The evolution of the present shoreline has been determined by the direction of the prevailing winds and currents and by the inequality in the resistance of rocks under attack by the waves. The unsymmetrical major headlands have a long north side and are separated by short, northeast-trending embankments. Between Rincon Point and the Ventura River the beach is a thin veneer of sand with bedrock cropping out for a considerable distance. The widest beach is at Ventura. This beach is now growing outward and sand has been imported to assure its continuance.

The Santa Monica Mountains are about 45 miles long and rise from 1000 feet to 3000 feet above sea level. The western 30 miles front on the Pacific Ocean where strong wave erosion has developed prominent seacliffs 175 to 200 feet high.

A coastal plain extends along the ocean south of the Santa Monica Mountains for about 50 miles. The plain has a relatively even surface broken here and there by low hills and mesas. The dynamic process of the sea rising and subsiding and the earth deforming have left certain parts of the plain well above the present level of deposition. While other sections have been submerged, the uplifted areas stand as the hills, terraces, or mesas usually red or brown in color. The areas that have settled have accumulated alluvial debris and the surface is covered by relatively unweathered sandy or silty soil.

An alluvial plain, lying north of the City of Santa Monica and extending east and west along the base of the mountains, was formed by streams flowing southward from the mountains, depositing their loads before reaching the ocean. About the middle of the Santa Monica Mountains is Point Dume, a promontory of basaltic rock projecting a mile into the ocean. Preserved along this magnificent stretch of seacliffs are two marine terraces, one about 100 feet and the other about 200 feet above present sea level. A third terrace level is forming at the base of the cliffs along the coast.

The Santa Barbara Channel Islands, Anacapa, Santa Cruz, Santa Rosa, and San Miguel – while structurally part of the Santa Monica Mountains – have been isolated by coastal movements. The islands are separated by deep submarine troughs, probably the result of faulting about 10 million years ago.

GEOLOGIC TYPES

The shoreline of any body of water, and particularly an ocean, is in a constant state of change. This dynamic process is a result of the tectonic forces, the ocean's waves, tides and currents, precipitation, temperatures, winds, and more recently, man's own efforts to change his environment. These changes may occur overnight with the loss of a sandspit resulting from heavy waves from a mid-Pacific storm, or imperceptibily over a thousand years.

The geologic composition of the coast is a major factor in the resulting physiography. Each geologic type manifests itself in its own visually distinctive way. The erosion of some of the coastal rocks provides beach material for many state beaches. Many marine terraces provide essential ingredients for some of the state's most outstanding tide pool areas.

The coast of California is of nine different, general, geologic types. Each contributes and enhances the scenic and recreational experiences of the visitor in some way, whether he be a camper, tide pooler, fisherman, skin diver, or surfer.

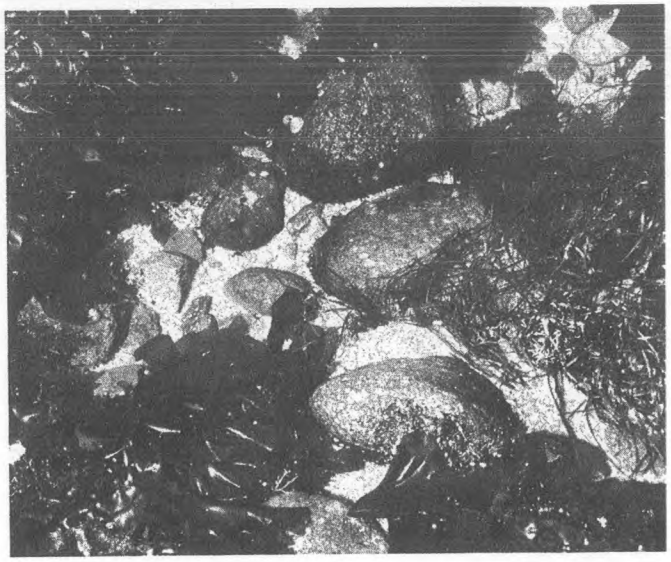
Sand Deposits

The quartz particles and other minerals deposited on the shore by wind and sea are responsible for the majestic beaches and dunes which contribute so much to recreation opportunities along the coast.

Alluvium

Alluvium is the principle material of California's coastal plain. Rivers and streams have moved these sands, clays, and gravels to the edge of the sea where the waves continually erode them into a variety of landform patterns.

Dunes at Pismo Beach



Tidepool

Sand deposits and alluvium are by far the most fragile and easily erodible. Owing to this characteristic, sections of the coast where these types exist are subject to extensive erosion. This erosion can visually enhance a coastline as in the case of the Santa Maria Dunes – when the wind blows, sand creates a majestic dune complex, or it can cause problems when a beach is lost to the ocean waves and currents.

Franciscan Formation

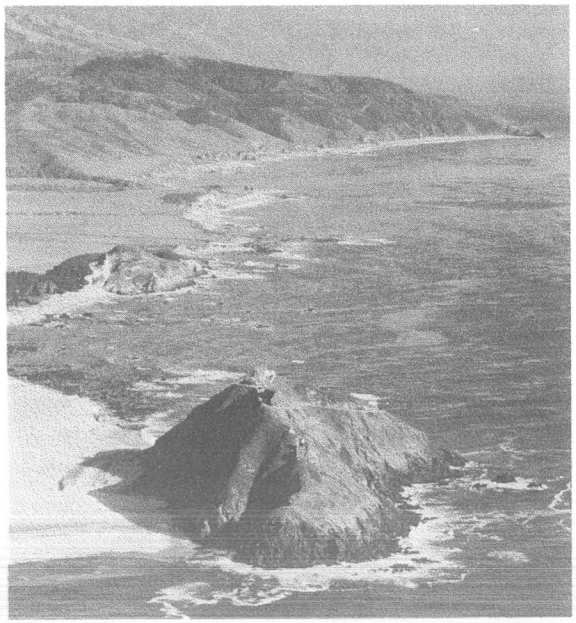
The Franciscan Formation is a great marine deposit that occurs on much of the coastline from the Oregon Border to San Luis Obispo County. This material is composed predominantly of sandstone, with lesser amounts of shale, volcanic rock, and chert, and is generally well cemented and resistant to erosion, but subject to landslides where structurally brecciated by faulting or when undermined by waves. This material is gray to greenish gray in fresh surfaces, and buff or brown when weathered. The chert is a colorful rock composed of quartz, and crops out prominently because of its resistance to weathering. The unaltered chert normally contains abundant fossil remains of microscopic marine invertebrates. Sea stacks, erosional remnants of the formerly extended land mass, are common in Franciscan rocks, especially along the north coast.

The volcanic rock found in the Franciscan sediment was implaced largely as submarine lava flows, which have been partially altered to chlorite. The chlorite imparts a dull green color to the rocks. Another distinctive characteristic rock quality found along the north coast is serpentine. In many areas, these deep-seated igneous rocks intrude throughout the Franciscan sediments. Most visitors are familiar with serpentine's pale green color.

Among the most interesting and anomalous rock types within the Franciscan Formation are the predominately blue metamorphic rocks called glaucophane schist. The distinctive mineral glaucophane give the rocks a striking color of indigo blue to blue-black.

Marine Sediment

This category includes older terrace deposits and marine sedimentary rocks. The marine deposits, which primarily occur in the northern end of the Coast Range, are composed of poorly consolidated sand and clay, generally more compacted than alluvial deposits but still easily erodible when exposed. Natural bridges may be eroded in these sediments, as at Santa Cruz.



← *Sea Stack – Pt. Sur Light House*
Photo by Aero Photographers

Ancient Marine Terrace – Eastward Along the Summertime Crescent of New Years Beach to Waddell Bluffs, near Franklin Point →

The La Jolla Mesa consists of dissected marine and marine terrace deposits. The scenically unique quality of La Jolla's coves is the result of the more erosion-resistant qualities of the marine terrace deposits. The relatively soft marine deposits erode more easily and the resulting coastline is straighter.

Non-Marine Sedimentary Rock

These are rare near the coast. Inland they tend to be coarse grained, with pebble or boulder conglomerates common. Through erosion, they may contribute numerous attractive chert and jasper pebbles to the beach deposits.

Non-Marine Metamorphic Rock

These consist of gneisses, schist, and marble formed by the metamorphism of sedimentary and volcanic formations of undetermined age. These rocks tend to be hard, massive, and resistant to erosion and, along with granite, constitute the bedrock of the more rugged Coast Range Mountains which rise abruptly from the ocean, as in the Sur area.

Intrusive Igneous Rock

Crops out locally at and near Cape San Martin and elsewhere along the South Coast Range with a colorful display of greens on sometimes interestingly eroded seacliffs, and some associated jade minerals, especially near contacts.

Granitic Rock

Forms the base of major mountain ranges north and south of Monterey Bay and is prominent locally elsewhere, as at Bodega Head and Point Reyes. The rock is massive, erosion-resistant, and tends to result in steep coastlines and small or non-existent beaches.

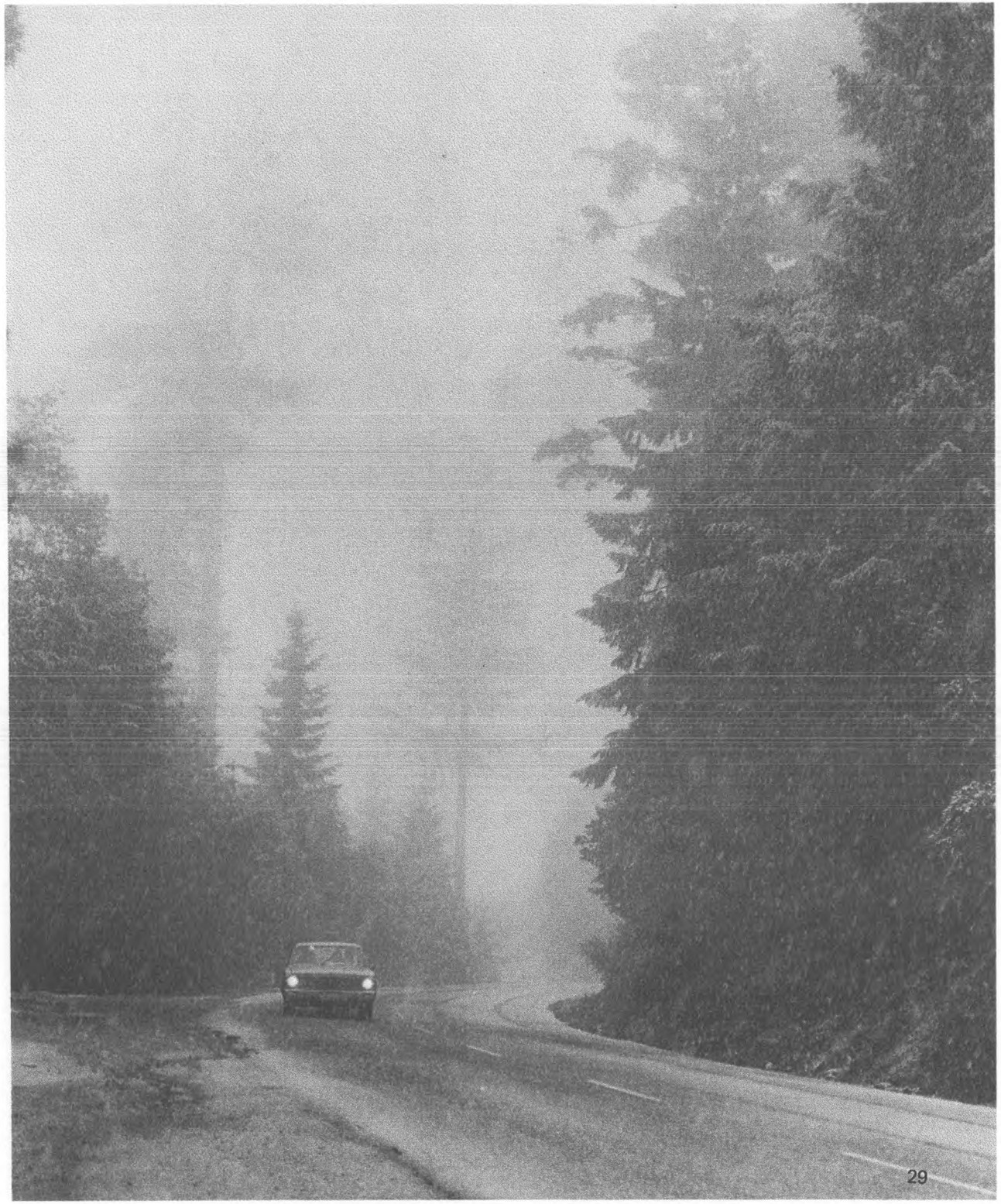
Volcanic Rock

These rock types tend to be massive and erosion-resistant and are probably best exposed along the California coastline on the Channel Islands where coastlines are steep with small or non-existent beaches. Major terrace surfaces tend to be well-preserved on moderately to gently dipping slopes, but are largely or completely destroyed on steep surfaces, such as the fault scarp bounding San Clemente Island on the east.

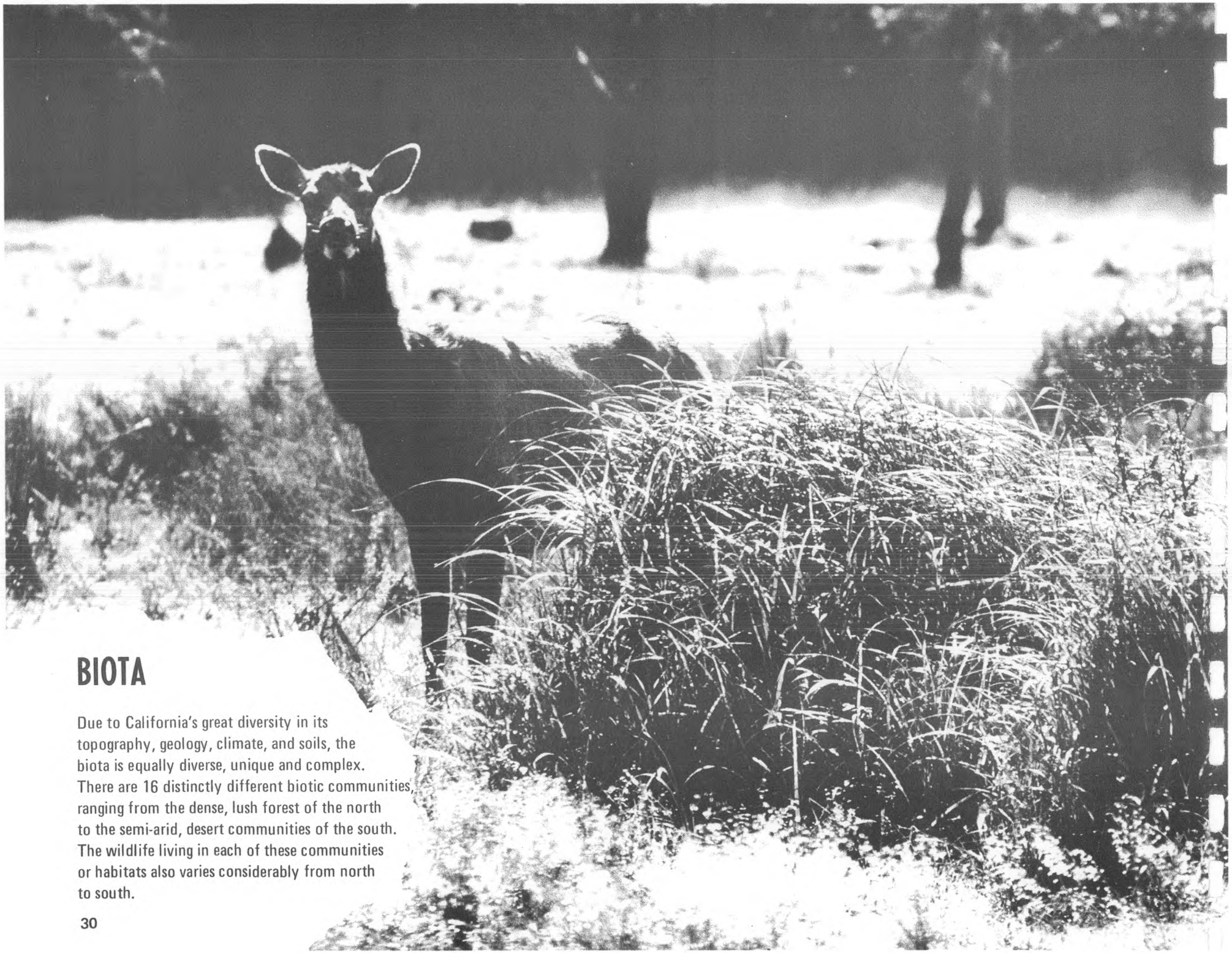
CLIMATE

Along the coast the climate is primarily controlled by the moisture laden winds sweeping on shore from the Pacific Ocean. The temperature variations between day and night are normally small, summers are cool, winters are moderately warm, and there is considerable fog. From south to north in the coastal province, temperature variations increase and there is a greater contrast between summer and winter. Fog is more frequent and lasts longer in the north. Heavy rainfall is also an outstanding characteristic of the north coast and exceeds that of any other part of the state — approaching 109 inches. The wet and rainy season normally begins by mid-fall with the greatest precipitation in December and January. The dry season starts about June. Snowfall is uncommon within the coastal province, except in the northern counties where it does occur occasionally.

The water temperature also varies from north to south. From Point Conception south the sea is warm enough during the summer months to allow extensive water contact activities such as swimming and surfing. With the exception of the Santa Cruz area, where water temperatures approach 70°F and one can comfortably participate in water contact activities, the north coast is generally too cold for the average swimmer.



Snow in the Redwoods →



BIOTA

Due to California's great diversity in its topography, geology, climate, and soils, the biota is equally diverse, unique and complex. There are 16 distinctly different biotic communities, ranging from the dense, lush forest of the north to the semi-arid, desert communities of the south. The wildlife living in each of these communities or habitats also varies considerably from north to south.

NORTH COAST

The biotic communities of the North Coast Subprovince from Oregon to Golden Gate are characterized by dense, coniferous, forests, interspersed with open, grassy, and scrub covered slopes.

Biotic communities found in the North Coast Subprovince are:

1. Redwood Forest
2. North Coast Coniferous Forest
3. Maritime Pine Forest
4. Mixed Evergreen Forest
5. North Coast Scrub
6. Chaparral
7. North Coast Grasslands
8. Coastal Strand
9. Freshwater Marsh
10. Coastal Salt Marsh
11. Sandy Intertidal Zone
12. Rocky Intertidal Zone
13. Nearshore Zone

← *Elk at Prairie Creek*
Photo by Tom Myers

Northern Coast Redwood Forests

CENTRAL COAST

The Central Coast Subprovince from Golden Gate to Point Conception is typified by moderate examples of the north coast's lush forests and the south coast's more arid and open, grassy, and sagebrush covered slopes.

Biotic communities of the Central Coast Subprovince are:

1. Redwood Forest
2. Maritime Pine Forest
3. Oak Woodland
4. Mixed Evergreen Forest
5. North Coast Scrub
6. Coast Sagebrush
7. Chaparral
8. North Coast Grasslands
9. South Coast Grasslands
10. Coastal Strand
11. Freshwater Marsh
12. Coastal Salt Marsh
13. Sandy Intertidal Zone
14. Rocky Intertidal Zone
15. Nearshore Zone

Central Coast Grasslands

SOUTH COAST

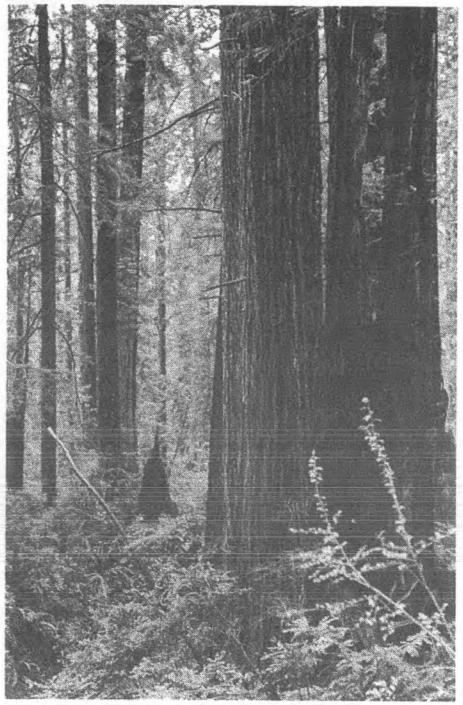
The South Coast Subprovince continues south from Point Conception to Mexico. Within this subprovince is one of the most highly urbanized areas in the United States – the Los Angeles megalopolis, which extends south along the coast to San Diego. Needless to say, very little natural vegetation exists in these urbanized spaces. Fortunately there are still undeveloped natural areas at the northern extreme of the subprovince, and in the large military ownerships in San Diego County.

Biotic communities of the South Coast Subprovince are:

1. Maritime Pine Forest
2. Oak Woodland
3. Coast Sagebrush
4. Chaparral
5. South Coast Grasslands
6. Coastal Strand
7. Freshwater Marsh
8. Coastal Salt Marsh
9. Sandy Intertidal Zone
10. Rocky Intertidal Zone
11. Nearshore Zone

South Coast Beach at San Onofre

Redwood Forest



DESCRIPTION

The magnificent coast redwoods with their damp understory of ferns, mosses and shrubs are one of the state's most scenically attractive resources. Although the vegetation is high in esthetic value, its habitat value to wildlife is quite low. This is due primarily to the inadequate forage – fruiting trees, shrubs, and grasses.

LOCATION AND EXAMPLES

The coast redwood range extends from southern Oregon to Monterey County, California. This massive tree reaches its greatest development in Humboldt County where the largest known tree (367 feet) is found. Other occurrences are in Big Basin State Park, Muir Woods in Marin County, and the southern examples are seen at Pfeiffer Big Sur State Park.

CHARACTERISTIC PLANTS

Trees – Coast Redwood *(Sequoia sempervirens)*, Douglas Fir *(Pseudostuga menziesii)*, Tanoak *(Lithocarpus densiflora)*.

Shrubs – Poison Oak *(Rhus diversiloba)*,California Huckleberry *(Vaccinium ovatum)*, Salal *(Gaultheria shallon)*, California Wax Myrtle *(Myrica californica)*, Pacific Rhododendron *(Rhododendron macrophyllum)*.

Herbs, Ferns and Allied – Redwood Sorrel *(Oxalis oregona)*, Sword Fern *(Polystichum munitum)*, Inside Out Flower *(Vancouveria parviflora)*, Saxifrages *(Saxifraga spp.)*, Vanilla Grass *(Torresia macrophylla)*, Slinkpod *(Scoliopus bigelovii)*, Clintonia *(Clintonia andrewsiana)*, Oregon Coltsfoot *(Maianthemum bifolium var. camtschaticum)*, Coast Trillium *(Trillium ovatum)*, Wild Ginger *(Asarum caudatum)*, Deerfoot *(Achlys triphylla)*, Wood Violet *(Viola sarmentosa)*, Western Heart's Ease *(Viola ocellata)*.

CHARACTERISTIC ANIMALS

Mammals – Roosevelt Elk *(Cervus canadensis roosevelti)*, Mule Deer *(Odocoileus hemionus)*, Black Bear *(Ursus americanus)*, Mountain Lion *(Felis concolor californica)*, Coyote *(Canus latrans)*, Badger *(Taxidea taxus)*, Pine Marten *(Martes americana)*, Bobcat *(Lynx rufus)*, Long Tailed Weasel *(Mustela frenata)*, Striped Skunk *(Mephitis mephitis)*, Spotted Skunk *(Spilogale putorius)*, Mountain Beaver *(Aplodontia rufa)*, Western Gray Squirrel *(Sciurus griseus)*, Beechey Ground Squirrel *(Citellus beecheyi)*, Douglas Squirrel *(Tamiascurus douglasii)*, Northern Flying Squirrel *(Glaucomys sabrinus)*, Townsend and Sonoma Chipmunks *(Eutamias townsendi, E. sonomae)*, Botta Pocket Gopher *(Thomomys bottae)*, Rats and Mice, Moles and Shrews, Bats.

Birds – Winter Wren *(Troglodytes troglodytes)*, Mountain Quail *(Oreortyx picta)*, Ruffed Grouse *(Bonasa umbellus)*, Pileated Woodpecker *(Ceophloeus pileatus picinus)*, Water Ouzel *(Cinclus mexicanus unicolor)*, Pygmy Owl *(Glaucidium gnoma)*, Spotted Owl *(Strix occidentalis)*.

Fish – Steelhead *(Salmo gairdnerii gairdnerii)*, King Salmon *(Oncorhynchus tshawytscha)*, Silver Salmon *(O. kisutch)*, Shad *(Alosa sapidissima)*, Cutthroat Trout *(Salmo clarkii clarkii)*.

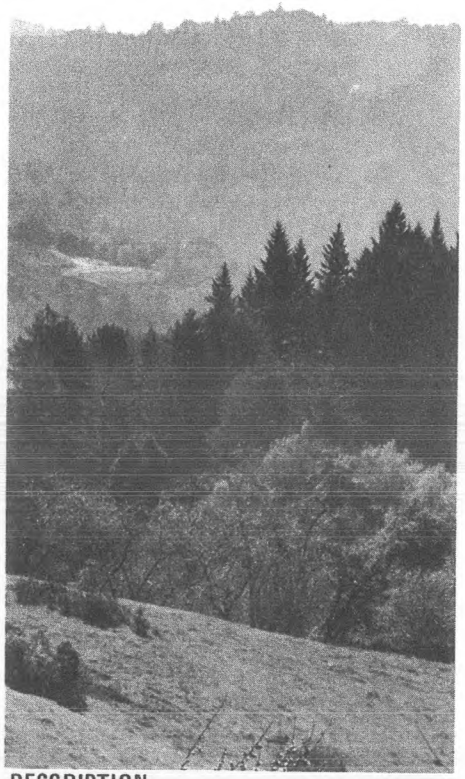
Reptiles – Gopher Snake *(Pituophis melanoleucus)*, Garter Snake *(Thamnophis elegans)*.

Amphibians – Pacific Giant Salamander *(Dicamptodon ensatus)*, Del Norte Salamander *(Plethodon elongatus)*, Ensatina *(Ensatina eschscholtzi)*.

Invertebrates – Banana Slug *(Ariolimax columbians)*.

Young Elk

North Coast Coniferous Forest



DESCRIPTION

The nature of this forest varies with the region – dependent largely upon the amount of precipitation. Near the coast the Sitka Spruce and Lowland Fir are dominant. Trees grow 150 to 200 feet tall or more; the forest is dense and continuous, and often with much undergrowth.

LOCATION AND EXAMPLES

Outer North Coast Range, Mendocino County northward, from near sea level up to 1000 feet or more. Some restricted patches as far south as Sonoma. Patrick's Point State Park

CHARACTERISTIC PLANTS

Trees – Giant Cedar *(Thuja plicata)*, Western Hemlock *(Tsuga heterophylla)*, Sitka Spruce *(Picea sitchensis)*, Douglas Fir *(Pseudostuga menziesii)*, Lowland Fir *(Abies grandis)*.

Shrubs – Western Azalea *(Rhododendron occidentale)*, California rhododendron *(R. macrophyllum)*, Cascara *(Rhamnus purshiana)*, Deer Brush *(Ceanothus integerrimus)*, Squaw Mat *(C. prostratus)*, Snow Bush *(C. velutinus)*, Hairy Manzanita *(Arctostaphylos columbiana)*.

Herbs – Redwood Sorrel *(Oxalis oregana)*, Fairybell *(Disporum smithii)* Trillium *(Trillium ovatum)*, Oregon Lily *(Lilium columbianum)*, Washington Lily *(L. washingtonianum)*.

CHARACTERISTIC ANIMALS

Mammals – Roosevelt Elk *(Cervus canadensis)*, Mule Deer *(Odocoileus hemionus)*, Black Bear *(Ursus americanus)*, Bobcat *(Lynx rufus)*, Ring-Tailed Cat *(Bassariscus astutus)*, Marten *(Martes americana)*, Fisher *(M. pennanti)*, Long-Tailed Weasel *(Mustela frenata)*,Short-Tailed Weasel *(M. erminea)*, Spotted Skunk *(Spilogale putorius)*, Striped Skunk *(Mephitis mephitis)*, Snowshoe Hare *(Lepus americanus)*, Douglas Squirrel *(Tamiascurus douglasii)*, Northern Flying Squirrel *(Glaucomys sabrinus)*, Townsend Chipmunk *(Eutamias townsendi)*, Mountain Beaver *(Aplodontia rufa)*, Wood Rats *(Neotoma cinerea and N. fuscipes)*, White-Footed Mouse *(Peromyscus maniculatus)*, Red Tree Mouse *(Phenacomys longicaudus)*, California Red-Backed Vole *(Clethrionomys californicus)*, Townsend Mole *(Scapanus townsendi)*, Shrew-Mole *(Neurotrichus gibbsi)*, Pacific Water Shrew *(Sorex bendirei)*, Trowbridge Shrew *(S. trowbridgei)*, Pacific Shrew *(S. pacificus)* Dusky Shrew *(S. obscurus)*, Little Brown Bat *(Myotis lucifugus)*, Big Brown Bat *(Eptesicus fuscus)*, Silver-Haired Bat *(Lasionycteris noctivagans)*, Hoary Bat *(Lasiurus cinereus)*, Western Big-Eared Bat *(Corynorhinus rafinesque)*, Pallid Bat *(Antrozous pallidus)*.

Birds – Sharp-Shinned Hawk *(Accipiter striatus)*, Blue Grouse *(Dendragapus obscurus)*, Horned Owl *(Bubo virginianus)*, Screech Owl *(Otus asio)*, Spotted Owl *(Strix occidentalis)*, Pacific Nighthawk *(Chordeiles minor)*, Vaux Swift *(Chaetura vauxi)*, Allen Hummingbird *(Selasphorus alleni)*, Yellow-Bellied Sapsucker *(Sphyrapicus varius)*, Red-Shafted Flicker *(Colaptes cafer)*, Pileated Woodpecker *(Dryocopus* (poleatus), Hairy Woodpecker *(Dendrocopus villosus)*, Downy Woodpecker *(D. pubescens)*, Olive-Sided Flycatcher *(Nuttallornis borealis)*, Western Wood Peewee *(Contropus richardsonii)*, Western Flycatcher *(Empidonax difficilis)*, Violet Green Swallow *(Tachycineta thalassina)*, Tree Swallow *(Iridoprocne bicolor)*, Purple Martin *(Progne subis)*, Canada Jay *(Perisoreus canadensis)*, Steller Jay *(Cyanocitta stelleri)*, American Crow *(Corvus brachyrhynchos)*, Chestnut-Backed Chickadee *(Parus rufescens)*, Red-Breasted Nuthatch *(Sitta canadensis)*, Pygmy Nuthatch *(S. pygmaea)*, Brown Creeper *(Certhia familiaris)*, Robin *(Turdus migratorius)*, Varied Thrush *(Ixoreus naevius)*, Russet-Backed Thrush *(Hylocichla ustulata)*, Hermit Thrush *(H. guttata)*, Mexican Bluebird *(Sialia mexicana)*, Winter Wren *(Troglodytes troglodytes)*, House Wren *(T. aedon)*, Golden-Crowned Kinglet *(Regulus satrapa)*, Ruby-Crowned Kinglet *(R. calendula)*, Cedar Waxwing *(Bombycilla cedrorum)*, Hutton Vireo *(Vireo huttoni)*, Townsend Warbler *(Dendroica townsendi)*, Orange-Crowned Warbler *(Vermivora celata)*, Audubon Warbler *(Dendroica auduboni)*, Black-Throated Gray Warbler *(D. nigrescens)*, Pileolated Warbler *(Wilsonia pusilla)*, Myrtle Warbler *(Dendroica coronata)*, Western Tanager *(Piranga ludoviciana)*, Black-Headed Grosbeak *(Pheucticus melanocephalus)*, Evening Grosbeak *(Hesperiphona vespertina)*, Purple Finch *(Carpodacus purpureus)*, Pine Siskin *(Spinus spinus)*, Red Crossbill *(Loxia curvirostra)*, Rufous-Sided Towhee *(Pipilo maculatus)*, Oregon Junco *(Junco oreganus)*, Fox Sparrow *(Passerella iliaca)*, Chipping Sparrow *(Spizella passerina)*.

Reptiles – Western Fence Lizard *(Sceloporus occidentalis)*, Western Skink *(Eumeces skiltonianus)*, Northern Alligator Lizard *(Gerrhonotus coeruleus)*, Rubber Boa *(Charina bottae)*, Western Ring-Necked Snake *(Diadophis punetatus)*, Sharp-Tailed Snake *(Contia tenuis)*, Gopher Snake *(Pituophis catenifer)*, Northwestern Garter Snake *(Thamnophis ordinoides)*, Western Garter Snake *(T. elegans)*, Common Garter Snake *(T. sirtalis)*.

Amphibians – Olympic Salamander*(Rhyacotriton olympicus)*, Pacific Giant Salamander *(Dicamptodon ensatus)*, Northwestern Salamander *(Ambystoma gracile)*, Long-Toed Salamander *(A. macrodactylum)*, Rough-Skinned Newt *(Tarchia granulosa)*, Western Red-Bellied Newt *(T. rivularis)*, Dunn's Salamander *(Plethodon dunni)*, Del Norte Salamander *(P. elongatus)*, Western Red-Backed Salamander *(P. vehiculum)*, Van Dyke's Salamander *(P. vandykei)*, Ensatina *(Ensatina eschscholtzi)*, California Slender Salamander *(Batrachoseps attenuatus)*, Clouded Salamander *(Aneides fereus)*, Black Salamander *(A. flavipunctatus)*, Western Toad *(Bufo boreas)*, Tailed Frog *(Ascaphus truei)*, Pacific Tree Frog *(Hyla regilla)*, Yellow-Legged Frog *(Rana boylei)*, Red-Legged Frog *(R. aurora)*.

Maritime Pine Forest

DESCRIPTION

Rather dense interrupted forest from Mendocino plains southward, near the immediate coast. Low to medium tall needleleaf evergreen trees. Found on the seaward side of the redwoods in barren soil.

LOCATION AND EXAMPLES

No. 8 Vegetation Map. Point Lobos State Reserve, Pygmy Forest in Mendocino County, Point Reyes National Seashore, Cambria.

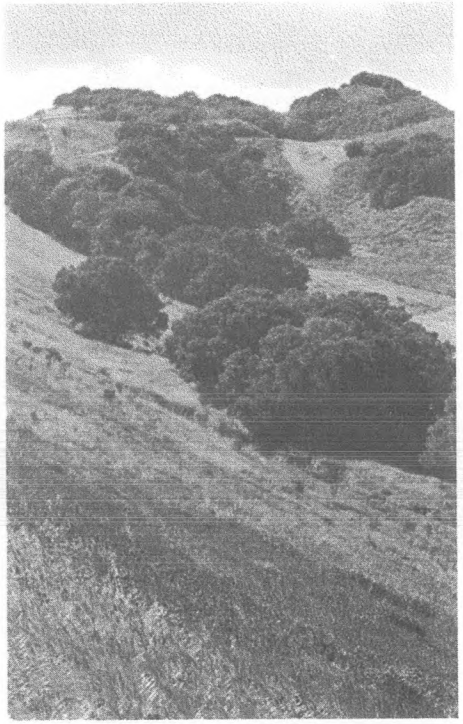
Trees – Bishop Pine *(Pinus muricata)*, Shore Pine *(Pinus contorta)*, Gowen Cypress *(Cupressus goveniana)*, Monterey Pine *(Pinus radiata)*, Monterey Cypress *(Cupressus macrocarpa)*.

Shrubs – Dwarf Manzanitas *(Arctostaphylos spp.)*, Labrador Tea *(Ledum glandulosum)*, Elk Grass *(Xerophyllum tenax)*.

Birds – Pygmy Nuthatch *(Sitta pygmaea)*.

Invertebrates – Western Pine Engraver *(Ips plastographus)*, Monterey Pine Aphid *(Essigella californica)*, Monterey Pine Midge *(Thecodiplosis pini-radiatae)*.

Oak Woodland



DESCRIPTION

Medium tall or low broadleaf evergreen or semi-deciduous forest occurring on the foothills and valley borders of the south coast range as far south as northwestern Los Angeles County. This community varies from dense to open forest, with trees ranging 15 - 75 feet high.

LOCATION AND EXAMPLES

Gaviota State Beach

CHARACTERISTIC PLANTS

Trees – Coulter Pine *(Pinus coulteri)*, Digger Pine *(Pinus sabiniana)*, Coast Live Oak *(Quercus agrifolia)*, Canyon Live Oak *(Q. chrysolepis)*, Blue Oak *(Q. douglasii)*, Valley Oak *(Q. lobata)*.

Shrubs – Gooseberry *(Ribes menziesii)*, Sugarbush *(Rhus ovata)*, Lemonadeberry *(R. integrifolia)*, Squaw Bush *(R. trilobata)*, Bigberry manzanita *(Arctostaphylos glauca)*.

Other – Wild Oats *(Avena fatula)*, Wild Mountain Sunflower *(Helianthus gracilentus)*.

CHARACTERISTIC ANIMALS

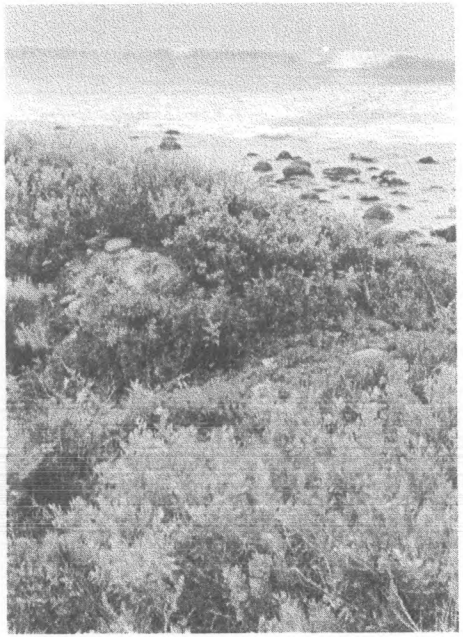
Mammals – Mule Deer *(Odocoileus hemionus)*, Raccoon *(Procyon lotor)*, Gray Fox *(Urocyon cinereoargenteus)*, Western Gray Squirrel *(Sciurus griseus)*, Dusky-Footed Woodrat *(Neotoma fuscipes)*, California Mouse *(Peromyscus californicus)*, Brush Mouse *(P. boylii)*,

Birds – California Quail *(Lophortyx californica)*, Acorn Woodpecker *(Melanerpes formicivorus)*, Scrub Jay *(Aphelocoma coerulescens)*, Plain Tit-Mouse *(Parus inornatus)*, Common Bushtit *(Psaltriparus minimus)*, Black-Headed Grosbeak *(Pheucticus melanocephalus)*.

Reptiles – Western Fence Lizard *(Sceloporus occidentalis)*, Skinks *(Eumeces skiltonianus, E. gilberti)*, California Mountain Kingsnake *(Lampropeltis zonata)*, Red Rattlesnake *(Crotalus ruber)* (San Gorgonio Pass southward).

Invertebrates – Sister *(Limenitis brewdowi)*, Callippe Silverspot *(Speyeria callippe)*, Ringlet *(Coenonympha tullia)*, Sylvan Satyr *(Cercyonis silvestris)*, California Hairstreak *(Strymon californica)*, California Oak Moth *(Phryganidia californica)*, Brown Ctenucha *(Cienucha brunnea)*, Snowy Tree Cricket *(Occanthus niveus)*, California Timema *(Timema californica)*.

Coast Sagebrush



DESCRIPTION

Usually dry rocky, gradual slopes, on the Transverse Peninsula and southern coastal ranges from San Luis Obispo County to Baja California. Mostly below 3000 feet, between the sea and the rather abruptly rising mountainous, chaparral covered slopes. Shrubs 1 - 5 feet tall, forming a more open community than chaparral.

LOCATION AND EXAMPLES

Point Mugu State Recreation Area, Leo Carrillo State Beach, Refugio State Beach, Camp Pendleton.

CHARACTERISTIC PLANTS

Shrubs – California Sagebrush *(Artemisia californica)*, White Sage *(Salvia apiana)*, Black Sage *(S. mellifera)*, California Buckwheat *(Eriogonum fasciculatum)*, Lemonadeberry *(Rhus integrifolia)*, Encelia *(Encelia farnosa)*, Eriophyllum *(Eriophyllum confertiflorum)*.

Other – Prickly Pear *(Opuntia spp.)*, Our Lord's Candle *(Yucca whipplei)*.

CHARACTERISTIC ANIMALS

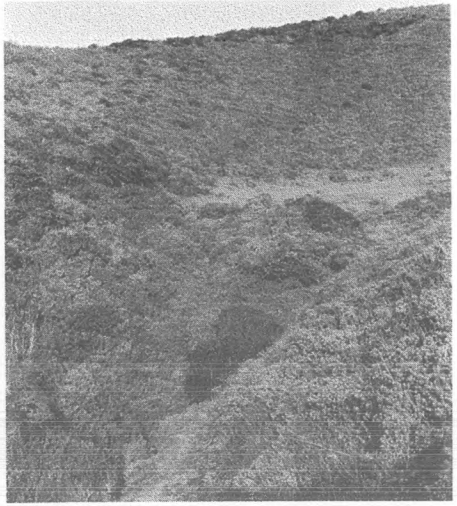
Mammals – California Ground Squirrel *(Citellus beecheyi)*, Pacific Kangaroo Rat *(Dipodomys agillis)*, Desert Rat *(Neotoma lipida)*, California Mouse *(Peromyscus californicus)*, California Pocket Mouse *(Perognathus californicus)*.

Birds – Costa's Hummingbird *(Calypte costae)*, Cactus Wren *(Campylorhynchus brunneicapillum)*, Lazuli Bunting *(Passerina amoena)*, Wrentit *(Chamaea fasciata)*, Brown Towhee *(Pipilo fuscus)*, Sage Sparrow *(Amphispiza belli)*, Rufous-Crowned Sparrow *(Aimophila ruficeps)*.

Reptiles – Western Fence Lizard *(Sceloporus occidentalis)*, Striped Racer *(Mastiophis lateralis)*, Western Rattlesnake *(Crotalus viridis)*.

Invertebrates – Ringlet *(Coenonympha tullia)*, Common Checkspot *(Euphydryas chalcedona)*, Leanira Checkerspot *(Melitaea leanira)*, Bramble Hairstreak *(Callophrys dumetorum)*, Mormon Metalmark *(Apodemia mormo)*.

Chaparral



DESCRIPTION

Dense cover of shrubs up to 15 feet high and ranging from southern California to Mexico. The chaparral plant community contains many evergreen shrubs, often with thick leathery leaves; many shrubs have fire-resistant seeds, and sprout quickly from the roots after fires. The best examples are found on the coastal side of the dry slopes and ridges in southern Monterey, San Luis Obispo and Santa Barbara Counties.

LOCATION AND EXAMPLES

Gaviota State Beach, Julia Pfeiffer Burns State Park, Pfeiffer Big Sur State Park.

CHARACTERISTIC PLANTS

Characteristic plants – Chamise *(Adenostoma fasciculatum)*, Scrub Oak *(Quercus dumosa)*, Foothill Ash *(Fraxinus dipetala)*, Mountain Mahogany *(Cercocarpus betuloides)*, Wild Lilacs *(Ceanothus cordulatus, C. greggii, C. leucodermis, C. megacarpus, C. crassifolius, etc.)*, Holly-Leafed Cherry *(Prunus ilicifolia)*, Bear Brush *(Garrya fremontii)*, Quinine Bush *(G. flavescens)*, Manzanitas *(Arctostaphylos pungens, A. pringlei, A. glauca, A. glandulosa, etc.)*, Toyon *(Heteromeles arbutifolia)*, Sugarbush *(Rhus ovata)*.

CHARACTERISTIC ANIMALS

Mammals – Mule Deer *(Odocoileus hemionus)*, Coyote *(Canis latrans)*, Gray Fox *(Urocyon cinereoargenteus)*, Bobcat *(Lynx rufus)*, Brush Rabbit *(Sylvilagus bachmanni)*, Dusky-Footed Wood Rat *(Neotoma fuscipes)*, Pacific Kangaroo Rat *(Dipodomys agilis)*, California Pocket Mouse *(Perognathus californicus)*, California Mouse *(Peromyscus californicus)*.

Birds – Mountain Quail *(Oreortyx pictus)*, Scrub Jay *(Aphelocoma coerulescens)*, Wrentit *(Chamaea fasciata)*, Poor-Will *(Phalaenoptilus nuttallii)*, Bewick's Wren *(Thryomanes bewickii)*, California Thrasher *(Toxostoma redivivum)*, Rufous-Sided Towhee *(Pipilo erythrophthalmus)*, Orange-Crowned Warbler *(Vermivora celata)*.

Reptiles – Western Fence Lizard *(Sceloporus occidentalis)*, Southern Alligator Lizard *(Gerrhonotus multicarinatus)*, Coast Horned Lizard *(Phrynosoma coronatum)*, Striped Racer *(Masticophis lateralis)*, Western Rattlesnake *(Crotalus viridis)*, Side-Blotched Lizard *(Uta stansburiana)*.

Invertebrates – Ceanothus Silk Moth *(Platysamis euryalus)*, another silk moth *(Saturnia walterorum)*, Gray Hairstreak *(Strymon adenostomatis)*, Hedge-Row Hairstreak *(S. saepium)*, Arota Copper *(Lycaena arota)*, Callippe fritillary *(Speyeria callippe)*, a flat headed borer or buprestid *(Acmaeodera mariposa)*, California Timema *(Timema californica)*.

North Coast Grasslands

DESCRIPTION

Dense, medium tall, meadow-like grasslands, occurring on the western slopes of the northern coastal subprovince, generally below 4,000 feet. At one time this community was composed of bunch grass with flowering herbs but now includes some European grasses.

LOCATION AND EXAMPLES

Fort Ross State Historic Park, Salt Point State Reserve, Point Reyes National Seashore.

CHARACTERISTIC PLANTS

Characteristic plants – Sedge *(Carex tumulicola)*, Oatgrass *(Danthonia californica)*, Hairgrass (Deschampsia bolciformis), Idaho Fescue *(Festuca idahoensis)*, *(Argostis hallii)* Ookow *(Brodiaea congesta)*, Reedgrass *(Calamagrostis nutkaensis)*, Yellow Mariposa *(Calochortus luteus)*, *(Chrysopsis bolanderi)*, Gumplants *(Grindelia Hirsutula)*, Mountain Iris *(Iris douglasiana)*, Lupine *(Lupinus spp.)*, Bracken *(Pteridium aquilinum)* California Buttercup *(Ranunculus californicus)*, Footsteps of Spring *(Sanicula arctopoides)*, Blue-Eyed Grass *(Sisyrinchium bellum)*, *(Stipa Lepida)*.

CHARACTERISTIC ANIMALS

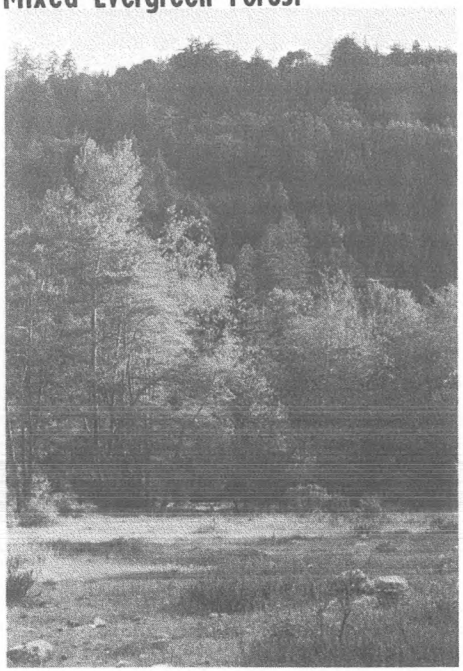
Mammals – California Ground Squirrel *(Citellus beecheyi)*, Black-Tailed Jack Rabbit *(Lepus californicus)*, California Vole *(Microtus californicus)*.

Birds – Western Meadowlark *(Sturnella neglecta)*, Horned Lark *(Eremophila alpestris)*.

Reptiles – Pacific Gopher Snake *(Pituophis melanoleuces)*.

Invertebrates – Field Cricket *(Acheta assimilis)*.

Mixed Evergreen Forest



Shrubs – Manzanita *(Arctostaphylos spp.)*, California Lilac *(Ceanothus parryi and C. thyrsiflous)*, Pacific Dogwood *(Cornus natalliii)*, California Buckeye *(Aesculus californica)*.

Mammals – Roosevelt Elk *(Cervus canadensis roosevelti)*, Mule Deer *(Odocoileus hemionus)*, Black Bear *(Ursus americanus)*, Mountain Lion *(Felis concolor californica)*, Dusty Footed Woodrat *(Neotoma fuscipes)*, Western Gray Squirrel *(Sciurus griseus)*.

Birds – Brown Creeper *(Certhia familiaris)*, Golden-Crowned Kinglet *(Regulus satrapa)*.

Reptiles – Northern Alligator Lizard *(Gerrhonotus coeruleus)*, Rubber Boa *(Charina bottae)*, California Mountain King Snake *(Lampropeltis zonata)*.

Amphibians – Pacific Giant Salamander *(Dicamptodon ensatus)*, Rough Skinned Newt *(Taricha granulosa)*.

DESCRIPTION

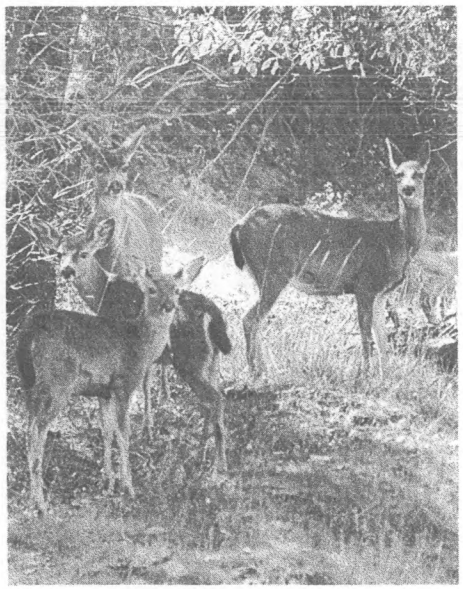
Mixed tall broadleaf and needleleaf evergreen forest scattered in patches through Sonoma, Marin, San Mateo, and Santa Cruz Counties.

LOCATION AND EXAMPLES

No. 3 Vegetation map. Inverness Ridge, Del Norte Coast Redwoods State Park, and Prairie Creek Redwoods State Park.

CHARACTERISTIC PLANTS

Trees – Douglas Fir *(Pseudostuga menziesii)*, Madrone *(Arbutus menziesii)*, Golden Chinquapin *(Castanopis chrysophylla)*, Tanbark-Oak *(Lithocarpus densiflora)*, Canyon Live Oak *(Quercus chrysolepis)*, Interior Live Oak *(Q. wislizenii)*, California Laurel *(Umbellularia californica)*.



North Coast Scrub

Shrubs – Coyote Bush *(Baccharis pilularis)*, California Sagebrush *(Artemisia californica)*, Black Sage *(Salvia mellifera)*, Bush Monkey Flower *(Diplacus aurantiacus)*, California Blackberry *(Rubus vitifolius)*.

Herbs – Douglas Iris *(Iris douglasiana)*, Indian Paint Brush *(Castilleja affinis)*, Sea Pink *(Statice arctica californica)*.

CHARACTERISTIC ANIMALS

Mammals – Mule Deer *(Odocoileus hemionus)*, Raccoon *(Procyon lotor)*, Bush Rabbit *(Sylvilagus bachmani)*, Mountain Lion *(Felis concolor californica)*, Gray Fox *(Urocyon cinereoargenteus)*, Ring-Tailed Cat *(Bassariscus astutus)*, Long-Tailed Weasel *(Mustela frenata)*, Spotted Skunk *(Spilogale putorius)*, Striped Skunk *(Mephitis mephitis)*, Townsend Chipmunk *(Eutamias townsendi)*, Pocket Gopher *(Thomomys bottae)*, Wood Rat *(Neotoma cinerea)*.

Birds – Quail *(Lophortyx californica)*, Rufous Hummingbird *(Selasphorus rufus)*, Common Bushtit *(Psaltriparus minimus)*, Wrentit *(Chamaea fasciata)*, Winter Wren *(Troglodytes troglodytes)*, Scrub Jay *(Alphelocoma coerulescens)*, American Goldfinch *(Spinus tristis)*, Fox Sparrow *(Passerella iliaca)*.

Reptiles – Gopher Snake *(Pituophis catenifer)*, Western Garter Snake *(Thamnophis elegans)*, Northern Alligator Lizard *(Gerrhonotus cornuleus)*, Western Fence Lizard *(Sceloporus occidentalis)*.

Amphibians – California Slender Salamander *(Batrachoseps attenuatus)*, Ensatina *(Ensatina eschscholtzi)*.

DESCRIPTION

This plant community is primarily found between the Coastal Strand and the Redwood Coast, at elevations mostly below 500 feet, and below the chaparral. The plant species in this community are rather low, rarely over 6 feet high, sometimes dense but often with extensive grass areas.

LOCATION AND EXAMPLES

1st level wave cut terrace north of Russian Gulch. Little Sur Area, steep slopes along Highway 1 in Marin County; Big Sur.

South Coast Grasslands

DESCRIPTION

This plant community has substantially changed as a result of over-grazing and has been replaced by annual species. This community ranges from Monterey County south, ascending to about 4000 feet. Subtropical type of open treeless grassland with winter rains and hot dry summers, and rich displays of flowers in wet spring.

LOCATION AND EXAMPLES

Julia Pfeiffer Burns State Park, Andrew Molera State Park, Gaviota State Park.

CHARACTERISTIC PLANTS

Characteristic plants – Spear Grass *(Stipa pulchra)*, Needle Grass *(S. cernua) (Aristida divaricata), (Elymus glaucus)*, Beardless Wildrye *(E. triticoides)*, California Poppy *(Eschscholtzia californica)*.

CHARACTERISTIC ANIMALS

Mammals – Mule Deer *(Odocoileus hemionus)*, California Mule Deer *(O. h. californicus)*, Ground Squirrels *(Citellus spp.)*, Pocket Mice *(Perognathus spp.)*, Meadow Mice *(Microtus spp.)*.

Birds – California Quail (Lophortyx californica), Mourning Dove *(Zenaidura macroura)*.

Coastal Strand

DESCRIPTION

Vegetation low or prostrate, often succulent woody perennials; on sand and dunes scattered along the entire coast. The composition of this community varies considerably from north to south. Some species reach their southern limit at Cape Mendocino, some at Monterey Peninsula, and some at Point Conception. A number of other species, however, exemplify the continuity of the community by extending the entire length of the province.

LOCATION AND EXAMPLES

Santa Maria Dunes – San Luis Obispo County, Imperial Beach – San Diego County, Manchester Beach – Mendocino County, Monterey Dunes – Monterey and Santa Cruz Counties, Humboldt Bay Dunes – Humboldt County.

CHARACTERISTIC PLANTS

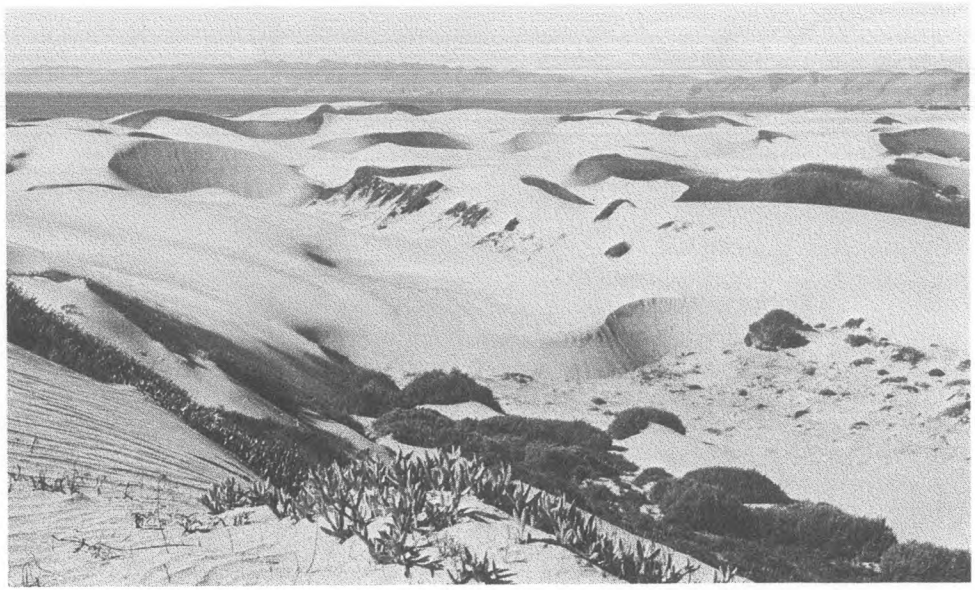
Shrubs – White-Leafed Saltbush *(Atriplex leucophylla)*, Lupine *(Lupinus chamissonis)*.

Ground Cover – Ice Plants *(Mesembryanthemum crystallinum, M. chilenese M. nodiflorum)*, Shore Sandbur *(Franseria chamissonis bipinnatisecta)*.

CHARACTERISTIC ANIMALS

Birds – Western Gull *(Larus occidentalis)*, California Gull *(L. californica)*, Sanderling *(Crocethia alba)*, Snowy Plover *(Charadrius alexandrinus)*.

Invertebrates – Sand crab *(Emerita analoga)*, Rove Beetle *(Thinopinus pictus)*, Beach Fleas *(Orchestia traskiana)*, Square-Spotted Blue Butterfly *(Philotes battiodes)*.



Santa Maria Dunes

Freshwater Marsh

DESCRIPTION

These marsh areas, found scattered along the entire coast, generally are back of the sandy areas, below an elevation of 500 feet. These marshes may be fed by springs or slow flowing rivers.

LOCATION AND EXAMPLES

McGrath State Beach, Zmudowski State Beach, Lake Earl and Lake Talawa, and Lake Cleone at MacKerricher State Park.

CHARACTERISTIC PLANTS

Characteristic plants – Common Tule *(Scripus actus)*, California Bulrush *(S. californicus)*, Cat-Tails *(Typha latifolia, T. angustifolia)*, Spike Rushes *(Eleocharis spp.)*, Pondweeds, *(Potamogeton spp.)*, Sedges *(Carex spp.)*.

CHARACTERISTIC ANIMALS

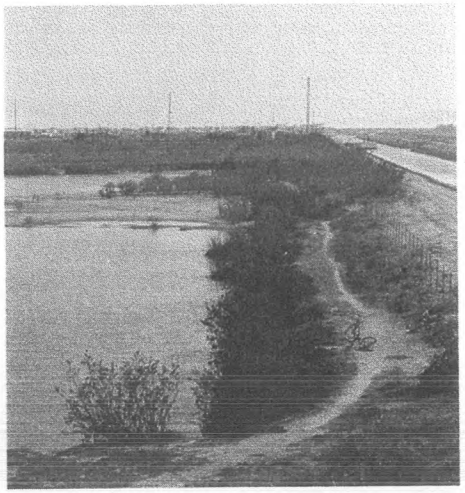
Birds – Common Gallinule *(Gallinula chlorpus)*, American Coot *(Fulica americana)*, Long-Billed Marsh Wren *(Telmatodytes palustris)*, Redwinged Blackbird *(Agelaius phoeniceus)*, Yellow-Throat *(Geothlypis trichas)*.

Reptiles and Amphibians – Garter Snake *(Thamnophis spp.)*, Western Pond Turtle *(Clemmys marmorata)*, Pacific Treefrog *(Hyla regilla)*.

Invertebrates – Great variety of aquatic or semi-aquatic insects, including predaceous diving beetles *(Dytiscus spp.)*, Giant Water Bug *(Lethocerus americanus)*, Toadbug *(Gelastocoris variegatus)*.

Lake Celone

Coastal Salt Marsh



Upper Newport Bay

COASTAL SALT MARSH

DESCRIPTION

A narrow strip of tidal lagoons and salt marshes, including intertidal mudflats, with low herbs or shrubs, often succulent, and a few perennial grasses. The main environmental factor that distinguishes the salt marsh biota from the open sea biota is the absence of the pounding surf.

LOCATION AND EXAMPLES

Humboldt Bay, Big Lagoon, San Francisco Bay, Elkhorn Slough, Morro Bay, Upper Newport Bay, Bolsa Chica, Tijuana Slough.

CHARACTERISTIC PLANTS

Shrubs – Inkweed *(Sueda californica)*, Pickleweeds *(Salicornia spp.)*, Sea Heath *(Frankenia grandifolia)*.

Grasses – Salt Grass *(Distichlis spicata)*, Cord Grass *(Spartina foliosa)*, Eel-Grass *(Zostera marina)*.

CHARACTERISTIC ANIMALS

Mammals – California Vole *(Microtus californicus)*, Norway Rat *(Rattus norvegicus)*, House Mouse *(Mus musculus)*.

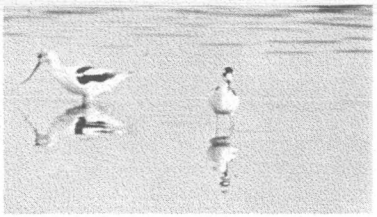
Birds – Clapper Rail *(Rallus longirostris)*, Common Egret *(Casmerodius albus)*, Snowy Egret *(Leucophoyx thula)*, Marsh Hawk *(Circus cyaneus)*, Savannah Sparrow *(Passerculus sandwichensis)*, American Avocet *(Recurvirostra americana)*, Willet *(Catoptrophorus semipalmatus)*, Western Sandpiper *(Ereunetes mauri)*, and many other shorebirds, sometimes numbering up to 300 species in a single estuary.

Fish – Spotted Sand Bass *(Paralabrax maculatofasciatus)*, California Halibut *(Paralichthys californicus)*, California Barracuda *(Sphyraena argentea)*, Deepbody Anchovy *(Anchoa compressa)*, Topsmelt *(Atherinops affinis)*, Round Stingray *(Urolophus halleri)*.

Invertebrates – Wandering Skipper *(Panoquina L. C. panoquinoides errans)*.

Willets

Sandy Intertidal Zone



Avocets

splash zone

The upper limits of the beach, reached only by very high tides.

high tide zone

This zone is generally exposed to the air but frequent high tides cover it.

middle tide zone

This zone is generally covered by water but is exposed by most low tides.

low tide zone

The lowest intertidal zone, usually covered by water and reached only at very low tides.

CHARACTERISTIC ANIMALS

Beach Louse, Beach Hopper *(Orchestoidea californica)*, Sand Flea *(Orchestia traskiana)*, Bay Shore Crab *(Hemigrapsus oregonensis)*, Grunion *(Leurestes tenuis)*.

Bent Nosed Clam *(Macoma nasuta)*.

Spiny Sand Crab *(Belpharipoda occidentalis)*, Red Beachworm *(Thoracophelia mucronata)*, Basket Cockle *(Clinocardium nuttalli)*, Ghost Shrimp *(Callianassa californiensis)*, Moon Snail *(Polinices lewisi)*.

Pismo Clam *(Tivela stultorum)*, Sand Dollar *(Drendraster excentricus)*, Shrimp *(Crago)*, Nudibranch.

Shore birds characteristic of the Sandy & Muddy Shore of California: Long-billed Curlew *(Humenius americanus)*, Hudsonian Curlew *(Phaeopus hudsonicus)*, Marbled Godwit *(Umosa fedoa)*, Western Willet *(Cataptiophorus semipalmatus)*, Avocet *(Recurvirostra americana)*, Black Bellied Plover *(Squatarola squatarola)*.

Rocky Intertidal Zone

splash zone

This community is the rocky shoreline above high tide where there is only the splash of the waves. The plant life in this zone is not conspicuous. Those growing here are green felt-like plants in the deep crevices.

LOCATION AND EXAMPLES

Point Lobos State Reserve, Pacific Grove, La Jolla, Salt Point, Duxbury Reef.

CHARACTERISTIC PLANTS

Characteristic plants – Sea Felt *(Enteromorpha)*. Sea Lettuce *(Ulva)*.

CHARACTERISTIC ANIMALS

Characteristic Animals – Rock louse *(Ligia occidentalis)*, Gray Littorine *(L. planaxis)*, Checkered Littorine *(L. scutulata)*. Found only in southern California are the Acorn Barnacle *(Balanus glandula)*, Small Acorn Barnacle *(Chtalamus fissus)*, Rough Limpet *(Acmaea scabra)*, Finger Limpet *(A. digitalis)*, File Limpet *(A. limatula)*

high tide zone

This zone lies between the mid-tide level and the area usually covered by every high tide. This second zone is most often referred to as the rockweed zone.

LOCATION AND EXAMPLES

Point Lobos State Reserve, Pacific Grove, La Jolla, Salt Point, Duxbury Reef.

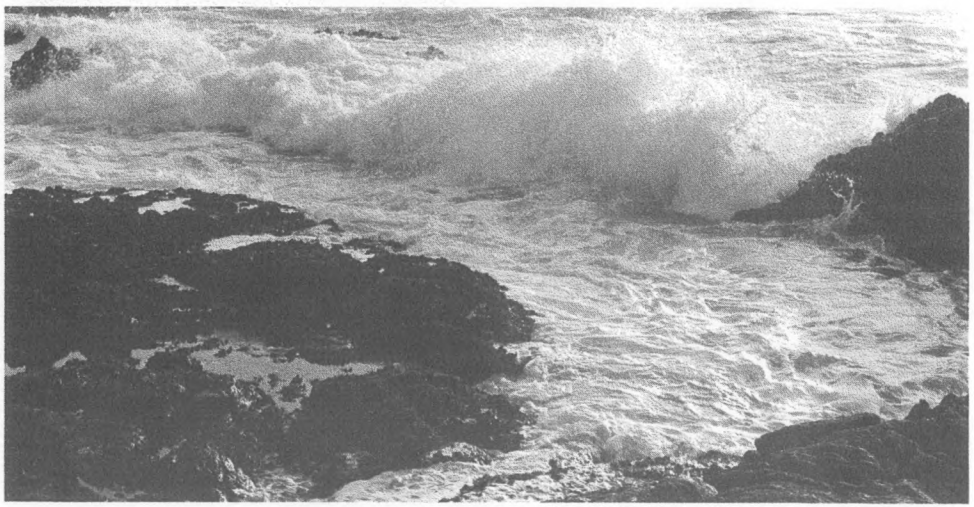
CHARACTERISTIC PLANTS

Characteristic plants – Common Rockweed *(Pelvetia fastigiata)*, Spongeweed *(Codium fragile)*.

CHARACTERISTIC ANIMALS

Mulluscs and Crustaceans – Black Turban *(Tegula funebralis)*, Checkered Littorine *(Littorina scutulata)*, Speckled Limpet *(Acmaea persona)*, Owl Limpet *(Lottia gigaetea)*, Shore Crab *(Pachygrapsus crassipes)*, Blue-Clawed Hermit Crab *(Pagurus samuelis)*.

Fish – Tidepool Sculpins *(Clicottus analis)*, Young Opaleyes *(Girella nigricans)*.



middle tide zone

The middle tide zone occurs between mean sea level and mean lower low water. This zone is covered by water 75% of the time. Within this zone exists a wealth of plant and animal life.

LOCATION AND EXAMPLES

Point Lobos State Reserve, La Jolla, Pacific Grove Marine Reserve, Salt Point.

CHARACTERISTIC PLANTS

Characteristic plants – California Lithothamnium *(Lithothamnium californicum)*, Circular Pink Algae *(Melobesia spp.)*, Agar Weed *(Gelidium cartilagineum)*, Feather Boa Kelp *(Egregia menziesi)*, Southern Sea Palm *(Eisenia arborea)*

CHARACTERISTIC ANIMALS

Characteristic animals – Aggregate Sea Anemone *(Anthopleura elegantissima)*, Giant Green Anemone *(A. xanthogrammica)*, Pink Barnacle *(Balanus tintinnabulum)*, Thatched Barnacle *(Tetraclita squamosa)*, Porcelain Crab *(Petrolisthes cintipes)*, Ringed Serpent Star *(Ophiohereis annulata)*, Fuzzy Brittle Star *(Ophiothrix apiculata)*, Southern Pistol Shrimp *(Cragon dentipes)*, Angular Unicorn *(Acanthina spirata)*, Sea Hare *(Tethys californica)*, Green Abalone *(Haliotis fungens)*, Black Abalone *(H. refescens)*, California Spiny Lobster *(Panilurus interruptus)*, Two Spotted Octopus *(Octopus bimaculoides)*.

low tide zone

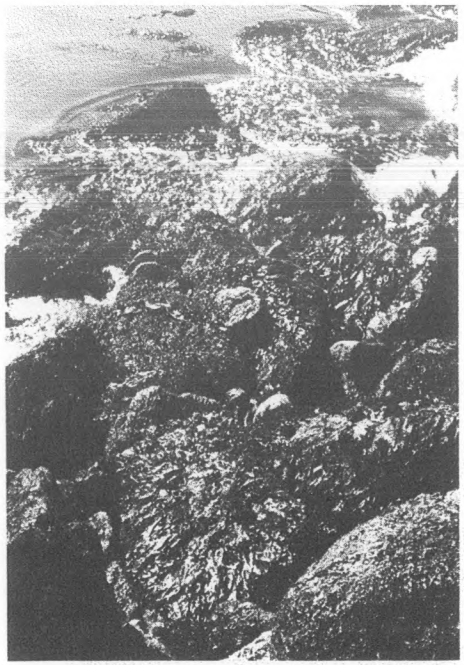
This zone is reached only at the lowest tides of the year, and is characterized by the growth of green surf grass.

CHARACTERISTIC PLANTS

Characteristic plants – Green Surf Grass *(Phyllospadix torreyi)*, Sea Palm *(Postelsia palmaeformis)*, Laminarians *(Laminaris spp.)*.

CHARACTERISTIC ANIMALS

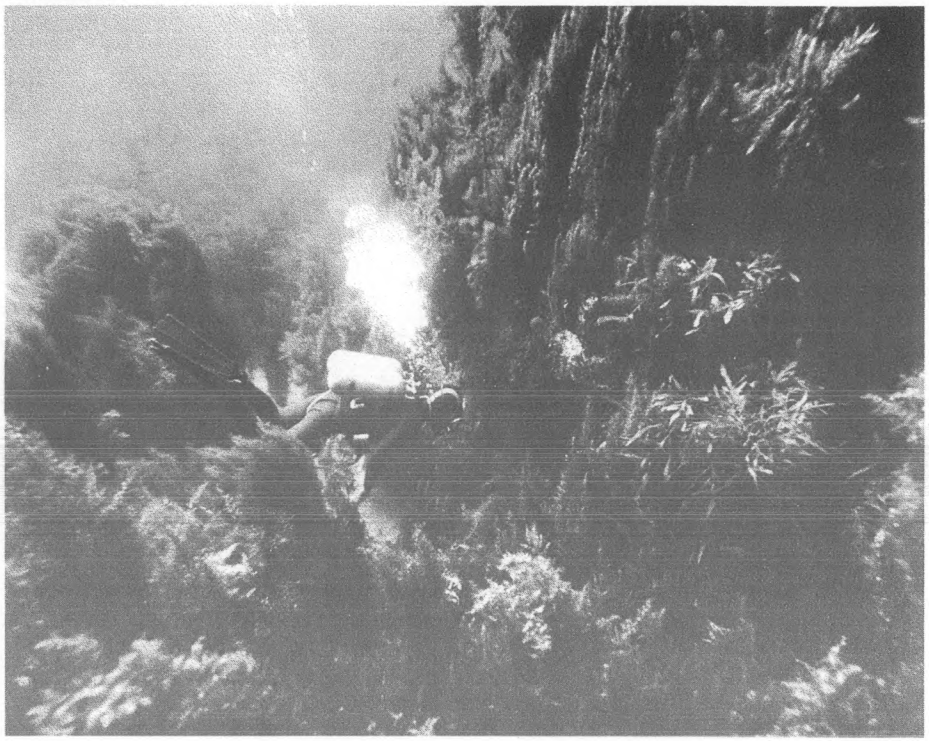
Characteristic animals – Red Velvety Encrusting Sponges *(Ophlitaspongia spp.)*, California Moray *(Gymnothorax mordax)*, Giant Keyhole Limpet *(Megathura crenulata)*, Smooth Turban *(Norrisia norrisi)*, Red Sea Urchin *(Strongylocentrotus franciscanus)*, Purple Urchin *(S. purpuratus)*.



Marine Gardens

Nearshore Zone

Photo Courtesy U.S. Navy



DESCRIPTION

This area extends from the seaward limit of the intertidal zone to ½ mile at sea.

CHARACTERISTIC PLANTS

Characteristic plants – Giant Bladder Kelp *(Macrocystis pyrifera and M. augustifolia)*, Bull Kelp *(Nereocystis leuticeana)*, Elk Kelp *(Pelagophycus porra)*

Fish – Shovelnose Guitarfish *(Rhinobatos productus)*, Round Stingray *(Urolophus halleri)*, Bat Ray *(Myliobatis californicus)*, Whitebait *(Hypomesus pretiosus)*, Diamond Turbot *(Hypsopsetta guttulata)*, Starry Flounder *(Platichthys stellatus)*, Striped Bass *(Roccus saxatilis)*, California Grunion *(Leuresthes tenuis)*, Jacksmelt *(Atherinopsis californiensis)*, California Sargo *(Anisotremus davidsoni)*, California Corbina *(Menticirrhus undulatus)*, White Croaker *(Genyonemus lineatus)*, Spotfin Croaker *(Ronacor stearnsi)*, Barred Surfperch *(Amphistichus argenteus)*, Walleye Surfperch *(Hyperprosopon argenteum)*, Black Perch *(Embiotoca jacksoni)*, Shiner Perch *(Cymatogaster aggregata)*, Opaleye *(Girella nigricans)*, Halfmoon *(Medialuna californiensis)*, Kelp Rockfish *(Sebastodes atrovierns)*, Grass Rockfish *(S. rastelliger)*, Greenling Seatrout *(Hexagrammos decagrammus)*, Cabezon *(Scorpaenicthys marmoratus)*, Monkeyface-Eel *(Cebidicthys violaceus)*, Common Thresher *(Alopias vulpinus)*, Blue Shark *(Prionace glauca)*, King Salmon *(Oncorhynchus tshawytscha)*, Silver Salmon

Nearshore Zone (Continued)

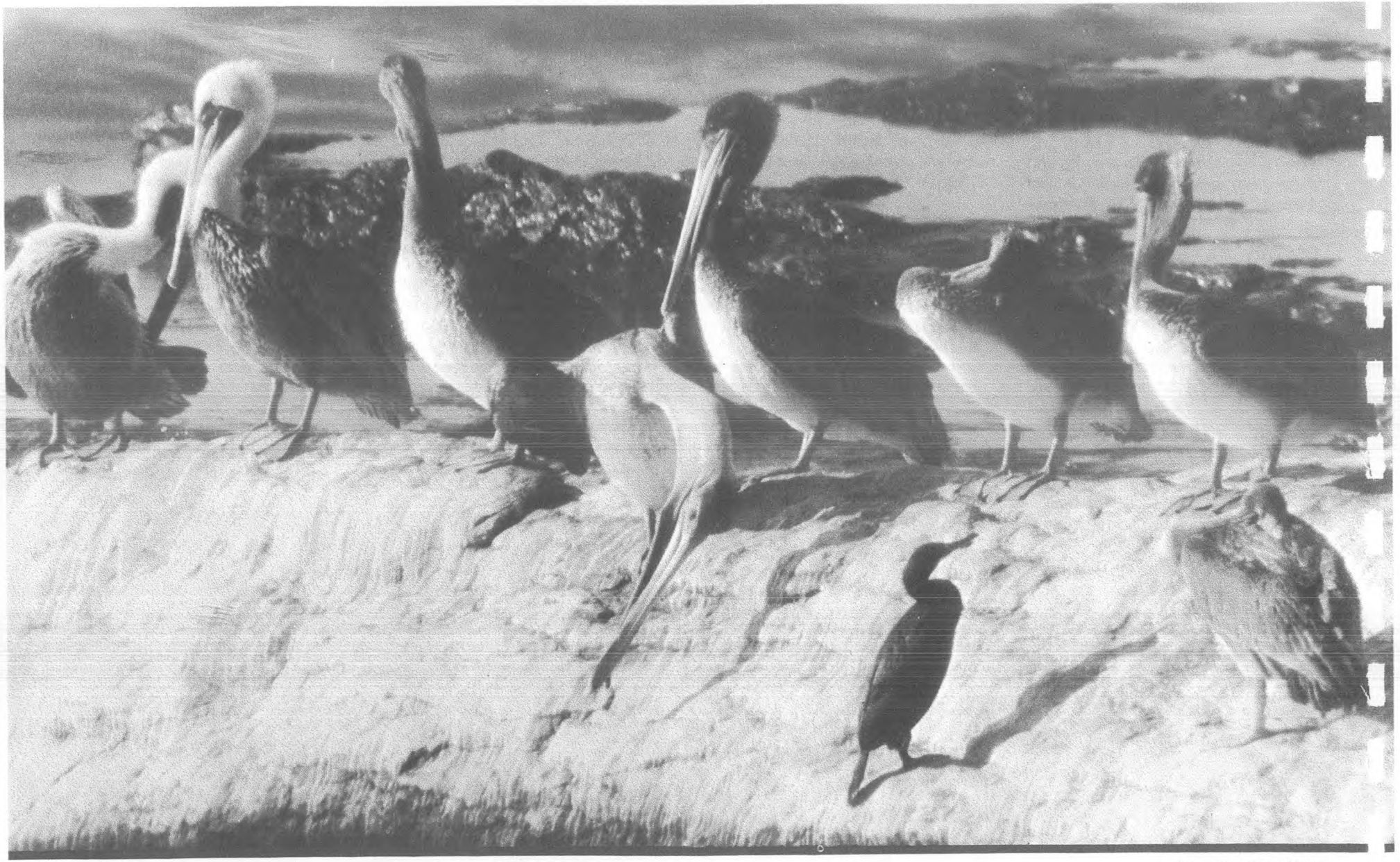
(O. kisutch), Pacific Sanddab *(Citharichthys sordidus)*, Longfin Sanddab *(C. xanthostigma)*, California Halibut *(Paralichthys californicus)*, Giant Sea Bass *(Stereolepis gigas)*, Kelp Bass (*Paralabrax clathratus)*, California Barracuda *(Sphraena argentea)*, California Yellowtail *(Seriola dorsalis)*, Pacific Jack Mackerel *(Trachurus symmetricus)*, Pacific Mackerel *(Scomber japonicus)*, California Bonito *(Sarda chiliensis)*, Bluefin Tuna *(Thunnus thynnus)*, Albacore *(T. alalunga)*, Striped Marlin *(Makaira audax)*, White Seabass *(Cynoscion nobilis)*. White Croaker *(Genyonemus lineatus)*, Ocean Whitefish *(Caulolatilus princeps)*, Sheep-head *(Pimelometopon pulchrum)*, Bocaccio *(Sebastodes paucispinis)*, Olive Rockfish *(Sebastodes serranoides)*, Blue Rockfish *(S. mystinus)*, Vermilion Rockfish *(S. miniatus)*, Sculpin *(Scorpaena guttata)*, Sablefish *(Anoplopoma fimbria)*, Lingcod *(Ophiodon elogatus)*.

Birds – Fork-tailed Petrel *(Oceanodroma furcata)*, Beal's Petrel *(O. leucorhoa)*, Brandt's Cormorant *(Phalacrocorax pencillatus)*, Double-Crested Cormorant *(P. auritus)*, Baird's Cormorant *(P. pleagicus)*, Black Oystercatcher *(Haematopus bachmani)*, Western Gull *(Larus occidentalis)*, California Murre *(Uria aalge)*, Pigeon Guillemot *(Cepphus columba)*, Tufted Puffin *(Lunda cirrhata)*, Cassin's Auklet *(Ptychoramphus aleuticus)*, Rhinoceros Auklet *(Cerorhinca monocerata)*.

CHARACTERISTIC ANIMALS

Mammals – Pacific Right Whale *(Balaena glacialis japonica)*, Little Piked Whale *(Balaenoptera acutorostrata)*, Sei Whale *(B. borealis)*, Blue Whale *(B. musculus)*, Finback Whale *(B. physalus)*, Humpback Whale *(Megaptera novaeangliae)*, California Gray Whale *(Eschrichtius gibbosus)*, Common Dolphin *(Delphinus delphis bairdi)*, Pacific Pilot Whale *(Globicephala scammoni)*, Risso's Dolphin *(Grampus griseus)*, Pacific Striped Dolphin *(Lagenorhynshus obliquidens)*, Northern Right Whale Dolphin *(Lissodelphis borealis)*, Killer Whale *(Orcinus orca)*, Harbor Porpoise *(Phocoena phocoena)*, Dall Porpoise *(Phocoenoides dalli)*, False Killer Whale *(Pseudorca crassidens)*, Long-beaked dolphin *(Stenella euphrosyne)*, Pacific Spotted Dolphin *(S. graffmani)*, Rough-Toothed Dolphin *(Steno bredanensis)*, Pacific Bottlenose Dolphin *(Tursiops truncatus gilli)*, Sperm Whale *(Physeter catodon)*, Pygmy Sperm Whale *(Kogia breviceps)*, Baird's Beaked Whale *(Berardius bairdi)*, Hubbs's Beaked Whale *(Mesoplodon carlhubbsi)*, Cuvier's Beaked Whale *(Ziphius cavirostris)*, Guadalupe Fur Seal *(Arctocephalus philippii townsendi)*, Northern Fur Seal *(Callorhinus ursinus)*, Steller Sea Lion *(Eumetopias jubata)*, California Sea Lion *(Zalophus californianus)*, Ribbon Seal *(Historiophoca fasciata)*, Northern Elephant Seal *(Mirounga augustirostris)*, Harbor Seal *(Phoca vitulina)*, Sea Otter *(Enhydra lutris)*.

Sea Otter



Brown Pelicans *Photo by Tom Myers*

ENDANGERED ANIMALS

Man's appetite for land has reduced and destroyed vital habitat for several animal species in California. These animals are now tiny remnants of their former populations.

Man's chemicals have intruded themselves into the food chains and reproduction cycle of species, which has also reduced animal numbers in our coastal waters and lands.

The rare and endangered animals are belatedly receiving attention and consideration. Table 1 lists the coastal species that are endangered.

TABLE 1
ENDANGERED AND RARE ANIMAL SPECIES FOUND IN THE COASTAL PROVINCE

Endangered or Rare Species	Probable Cause			Present Status			Sub Provinces of Coast*											
							NORTH				CENTRAL				SOUTH			
	Habitat Reduction	Reproductive Failure	Over-Harvesting	Increasing	Static	Decreasing	R	M	SV	WV	R	M	SV	WV	R	M	SV	WV
Endangered Mammals																		
Morro Bay Kangaroo Rat	●					●					●							
Blue Whale			●			●		●				●				●		
Humpback Whale			●			●		●				●				●		
Pacific Right Whale			●			●		●				●				●		
Rare Mammals																		
Southern Sea Otter			●	●							●							
Guadalupe Fur Seal			●	●							●				●			
Gray Whale			●	●				●				●				●		
Endangered Birds																		
Southern Bald Eagle		●				●	●				●				●			
American Peregrine Falcon		●				●	●				●				●			
California Least Tern	●					●							●				●	
Light-footed Clapper Rail	●					●									●			
California Clapper Rail	●					●	●				●				●			
Brown Pelican		●				●		●					●				●	
Rare Birds																		
California Black Rail	●					●					●				●			
Endangered Amphibians																		
Santa Cruz Long-toed Salamander	●					●					●							
Endangered Reptiles																		
San Francisco Garter Snake	●					●					●							

*R-Resident; M-Migrant; SV-Summer Visitor; WV-Winter Visitor

Source: Dept. of Fish & Game endangered and rare species and subspecies list as per California Species Preservation Act, Section 900-903.

EXISTING LANDSCAPE PROTECTION PROGRAMS

Methods for Maintaining the Scenic Quality

Land use controls for the State of California are administered primarily by local government. Early in the State's history responsibility for deciding the present and future scenic composition of the privately-owned portions of the state was delegated by the state legislature to local government. Local government, through zoning ordinances, can preserve, maintain, and enhance the coastal scenic quality of their jurisdiction and, in some cases, have done just that. Unfortunately, economic and political pressures are brought to bear on local governing bodies to amend the zoning of a natural area in favor of development. The arguments generally presented are that preservation imposes financial hardships on the private owner, or that development will provide desperately needed dollars to the local tax base. In the process of protecting the private owner or increasing the tax base the public's natural resources are bargained away. Natural resources that may be of state and national significance are often lost forever as a result of this process.

There are exceptions – a few picturesque communities like Carmel, Laguna Beach, and Mendocino City recognize the long range benefits of protecting their natural environment. Several of these communities have made major monetary sacrifices in order to preserve the unique quality of their environment. But pressures are increasing and environmental degradation continues.

In 1968 the Williamson Act was passed by the legislature to encourage more natural open space by providing a tax relief to private owners who would agree to leave their property undeveloped for a contracted

Pt. Lobos

TABLE 2

AREAS RECEIVING PARTIAL PROTECTION

	Agency	Units	Acreage Water	Acreage Land
North Coast Subprovince	National Park Service	1		9,200
	Bureau of Land Management (King Range)	1		7,700
	California Department of Parks and Recreation	15		32,000
	University of California (Pygmy Forest Reserve) (NLWRS)	2		326
	Nature Conservancy	1		19
Central Coast Subprovince	National Park Service	1		32,000
	California Department of Parks and Recreation	15	750	19,700
	Division of Highways (Salamander Preserve)	1		
	Los Padres National Forest	1		140,000
South Coast Subprovince	National Park Service (Anacapa & Santa Barbara Island)	1		18,200
	California Department of Parks and Recreation	7		12,100
	University of California (Mission Bay Marsh Preserve) (Scripps Shoreline – Underwater Reserve)	2	254	271
	Totals	**48**	**1,004**	**271,516**

period of time. This incentive has not proved successful, for as urbanization spreads the economic pressure to develop open space is too great to withstand.

Many areas presently in public ownership are providing partial protection of the coast's natural environment. The specific details and methods of protection vary with each operating agency but the intent is similar – protecting the environment in as natural a condition as possible and still meeting the needs of a recreating public.

The adjacent list identifies the natural areas along California's coast that are presently receiving at least partial protection.

LANDSCAPE PRESERVATION NEEDS

The most effective and perhaps the only permanent way of preserving significant coastal natural resources is to place them in public ownership under the designation of a preserve.

The State Department of Parks and Recreation, in order to accomplish its goal of preserving significant examples of the natural and scenic landscape, will identify and seek to preserve at least 3 examples of each characteristic natural feature indigenous to each coastal subprovince.[1] These three examples will be selected on the basis of comparing all characteristic natural features in the same category against one another; for example – which is the best redwood forest or the best salt marsh.

[1] Policy No. 4, Policy, Rules & Regulations & Orders, California State Park and Recreation Commission and the Department of Parks and Recreation, September, 1969.

Natural Feature Criteria

The best examples of each characteristic natural feature were selected from the high quality occurrence meeting the following criteria: (See Chapter Five for final selection).

1. The most natural and unmodified.
2. Greatest possibility of self-sustaining ecosystem.
3. Well related to other coastal characteristic natural features.
4. As free as possible from contemporary intrusion in order that man, the visitor, can experience as natural an environment as possible.

The Department of Parks and Recreation will set aside areas where the earth and its community of life are unspoiled by man; where man is a visitor who does not remain.[1] These areas will be referred to as Natural Preserves. Torrey Pines State Reserve and Morro Bay State Park are the only coastal units which have natural preserves within them. Torrey Pines has two pine forests and the marsh preserved, and Morro Rock is preserved at Morro Bay State Park.

Table 3 identifies those characteristic natural features worthy of natural preserve status that are presently in state park ownership and which should be classified and managed as Natural Preserves. The tables also show those natural features that qualify for Natural Preserve status but are not publicly-owned.

[1] North Coast – Oregon to Golden Gate. Central Coast – Golden Gate to Pt. Conception. South Coast – Pt. Conception to Mexico.

TABLE 3

NORTH COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Feature Preservation Deficiency	ACTION REQUIRED		HIGH QUALITY OCCURRENCE	
	Acquisition	Natural Preserve Designation	Public ownership	Private ownership
GEOLOGY:				
1. Alluvium	X	X	Dry Lagoon SB	Lake Earl Humboldt Lagoons So. Humboldt Bay
2. Sand Deposits	X	X	Manchester SB Little River SB Sonoma Coast SB Dry Lagoon SB Prairie Creek RSP Kings Range Coast (Big Flat Area) Pt. Reyes NS Redwood NP Ten Mile Dunes	Lake Earl Ten Mile Dunes Kings Range Coast
3. Franciscan Formation	X	X	Sonoma Coast SB Trinidad SB Del Norte Coast RSP Kings Range Coast (Big Flat Area) Redwood NP Marin Headlands Area	Kings Range Coast
4. Marine Sediment	X	X	Salt Point SP Fort Ross SHP Kruse Rhododendron SR Pt. Arena	Mendocino Coast (Russian Gulch SP – Van Damme SP) Sonoma Coast (Stewart's Pt. – Ft. Ross) Pt. Arena
5. Non-marine Sedimentary Rock	X	X	Prairie Creek RSP Dry Lagoon SB Patrick's Pt. SP	Patrick's Pt. (Agate Bch Bluffs) Humboldt Lagoons
6. Granitic Rock		X	Tomales Bay SP Pt. Reyes NS	
7. Volcanic Rock	X		Marin Headlands SP	

TABLE 3

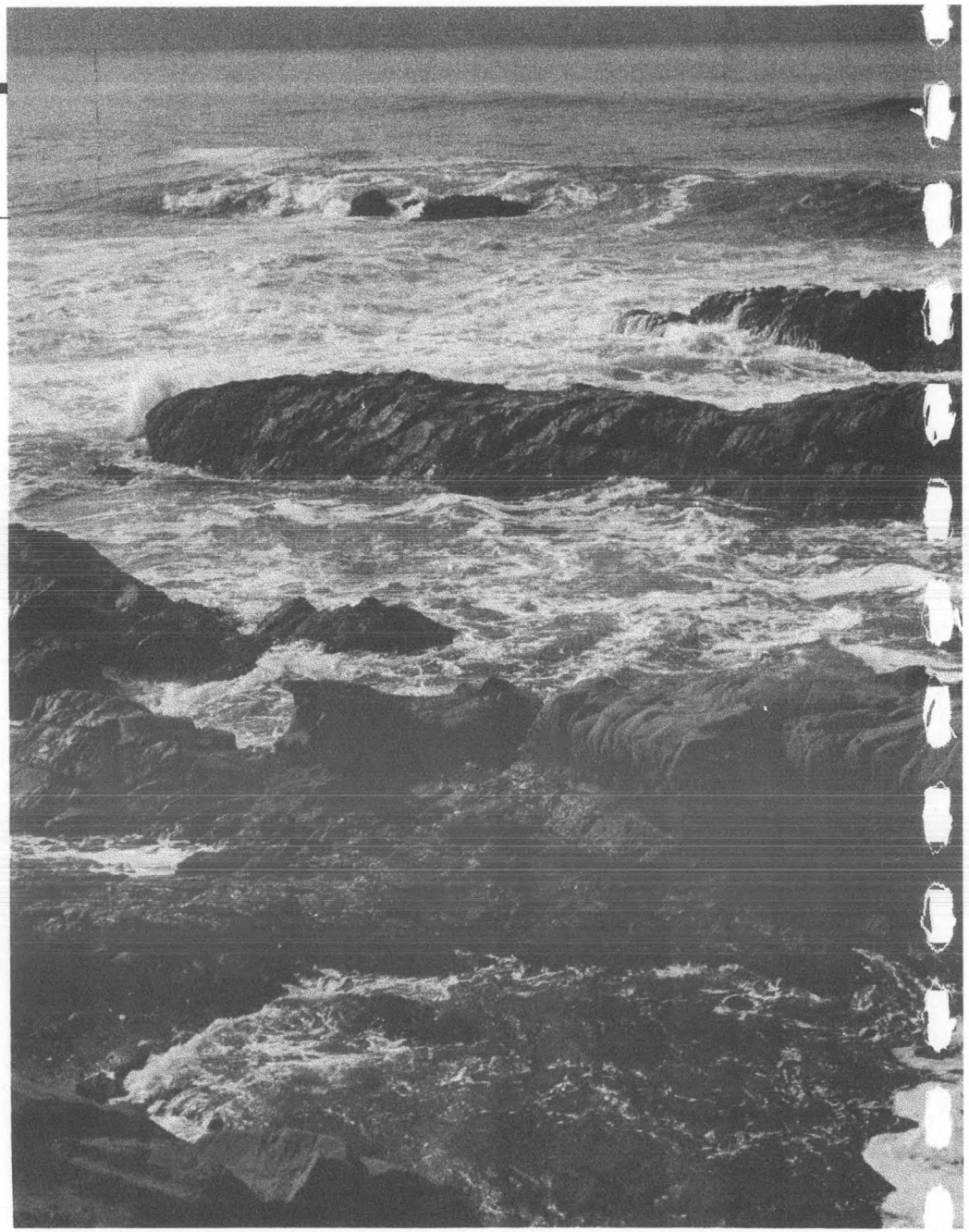
NORTH COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Preservation Deficiency	ACTION REQUIRED: Acquisition	ACTION REQUIRED: Natural Preserve Designation	HIGH QUALITY OCCURRENCE: Public Ownership	HIGH QUALITY OCCURRENCE: Private Ownership
BIOTIC COMMUNITY				
1. Redwood Forest		X	Prairie Creek RSP Del Norte Coast RSP Russian Gulch SP Van Damme SP Redwood NP	
2. North Coast Coniferous Forest	X	X	Patrick's Point SP Prairie Creek RSP Del Norte Coast RSP Trinidad SB Azalea SR Redwood NP	Humboldt Lagoons Patrick's Pt. (Agate Bch Bluffs)
3. Maritime Pine Forest	X	X	Salt Point SP Tomales Bay SP Kruse Rhododendron SR Pygmy Forest Preserve Pt. Reyes NS	Sonoma Coast (Stewart's Pt. – Ft. Ross)
4. Mixed Evergreen Forest		X	Salt Point SP Tomales Bay SP Pt. Reyes NS	Bolinas Lagoon Area
5. North Coast Scrub	X	X	Sonoma Coast SB Prairie Creek RSP Del Norte Coast RSP Fort Ross SHP Redwood NP Pt. Reyes NS	Mendocino Coast (Russian Gulch SP – Van Damme SP) Humboldt Lagoons Sonoma Coast (Stewart's Pt. – Ft. Ross)
6. Chaparral		X	Pt. Reyes NS Kings Range Coast (Big Flat Area)	Kings Range Coast
7. North Coast Grasslands		X	Pt. Reyes NS Kings Range Coast (Big Flat Area)	Kings Range Coast Bolinas Lagoon Area
8. Coastal Strand	X	X	Sonoma Coast SB Manchester SB Little River SB Prairie Creek RSP	Ten Mile Dunes Sonoma Coast (Jenner-Bodega Hd.) Humboldt Lagoons
			Dry Lagoon SB Redwood NP Pt. Reyes NS Ten Mile Dunes	
9. Freshwater Marsh	X	X	MacKerricher SB	Humboldt Lagoons Lake Earl
10. Coastal Saltmarsh	X	X	Pt. Reyes NS Bolinas Lagoon	So. Humboldt Bay Mendocino Coast (Big River) Humboldt Lagoons Sonoma Coast (Russian River) Bolinas Lagoon Area
11. Sandy Intertidal zone		X	Salt Point SP Fort Ross SHP Manchester SB Trinidad SB Russian Gulch SP Prairie Creek RSP Redwood NP Pt. Reyes NS	
12. Rocky Intertidal zone	X	X	Salt Point SP Fort Ross SHP Del Norte Coast RSP Prairie Creek RSP Trinidad SB Russian Gulch SP Redwood NP Pt. Reyes NS Bolinas Bay (Duxbury Reef)	Mendocino Coast (Russian Gulch SP - Van Damme SP) Sonoma Coast (Stewart's Pt. – Ft. Ross) Pt. Arena
13. Nearshore Zone	X	X	Fort Ross SHP Salt Point SP Del Norte Coast RSP Trinidad SB Prairie Creek RSP Redwood NP Pt. Reyes NS Bolinas Bay (Duxbury Reef)	Humboldt Lagoons Mendocino Coast (Russian Gulch SP - Van Damme SP) Sonoma Coast (Stewart's Pt. – Ft. Ross) Patrick's Pt. (Agate Beach Area)

TABLE 3

CENTRAL COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Feature Preservation Deficiency	ACTION REQUIRED		HIGH QUALITY OCCURRENCE	
	Acquisition	Natural Preserve Designation	Public Ownership	Private Ownership
GEOLOGY:				
1. Alluvium	X	X		Monterey Bay Area Santa Maria Dunes Pt. Sal Area
2. Sand Deposits	X	X	Morro Bay SP (Morro Spit) Pt. Reyes NS Ft. Ord Beach Ano Nuevo SR	Ano Nuevo - Big Basin S.P.'s Area Monterey Bay Area Santa Maria Dunes Pt. Sal Area
3. Franciscan Formation		X	Andrew Molera SP Los Padres NF (Big Sur Area)	Big Sur Area
4. Marine Sediment	X	X	Natural Bridges SB Ano Nuevo SR No. Waddell Canyon (Hwy R/W) Pt. Lobos SR	Davenport Coast Pt. Sal Area Ano Nuevo - Big Basin S.P.'s Area
5. Non-marine Sedimentary Rock	X	X	Pt. Sal SB Vandenberg AFB	Big Sur Area Pt. Sal Area
6. Non-marine Metamorphosed Rock		X	Pfeiffer Big Sur SP Bixby Beach (Hwy R/W)	Big Sur Area
7. Intrusive Rock	X	X	Morro Bay SP Vandenberg AFB	Big Sur Area
8. Granitic Rock		X	Asilomar SB Pt. Lobos SR Pacific Grove City Coastline Pt. Reyes NS Hopkins Marine Station	
9. Volcanic Rock	X	X	Pt. Sal SB Pt. Sur Lighthouse Vandenberg AFB	Big Sur Area Pt. Sal area



Reefs at Franklin Point

CENTRAL COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Feature Preservation Deficiency	ACTION REQUIRED: Acquisition	ACTION REQUIRED: Natural Preserve Designation	HIGH QUALITY OCCURRENCE: Public Ownership	HIGH QUALITY OCCURRENCE: Private Ownership
BIOTIC COMMUNITY:				
1. Redwood Forest		X	Pfeiffer Big Sur SP Julia Pfeiffer Burns SP	Big Sur Area
2. Maritime Pine Forest	X	X	Asilomar SB Pt. Lobos SR Cambria AFB Pt. Reyes NS	Ano Nuevo - Big Basin S.P.'s Area Coon Creek (Montana de Oro Area)
3. Oak Woodland		X	Pfeiffer Big Sur SP Los Padres NF (Big Sur Area)	Big Sur Area
4. Mixed Evergreen Forest	X	X	Pt. Reyes NS	Ano Nuevo - Big Basin S.P.'s Area Big Sur Area
5. North Coast Scrub		X	Andrew Molera SP Los Padres NF (Big Sur Area) Pt. Lobos SR Pt. Reyes NS	Big Sur Area San Mateo Coast (Tunitas Cr. - Bolsa Pt.)
6. Coast Sagebrush	X	X	Andrew Molera SP Montana de Oro SP	Big Sur Area Coon Creek (Montana de Oro Area)
7. Chaparral		X	Pfeiffer Big Sur SP Andrew Molera SP Montana de Oro SP Julia Pfeiffer Burns SP Pt. Reyes NS	Coon Creek (Montana de Oro Area) Big Sur Area Ano Nuevo - Big Basin S.P.'s Area
8. North Coast Grasslands	X	X		Ano Nuevo - Big Basin S.P.'s Area San Mateo Coast (Tunitas Cr. - Bolsa Pt.)
9. South Coast Grasslands	X	X	Andrew Molera SP Pfeiffer Big Sur SP Julia Pfeiffer Burns SP Los Padres NF (Big Sur Area)	Big Sur Area
10. Coastal Strand	X	X	Morro Bay SP (Morro Spit) Pt. Reyes NS Ano Nuevo SR	Pt. Sal Area Santa Maria Dunes Monterey Bay Area Ano Nuevo - Big Basin S.P.'s area
11. Freshwater Marsh	X	X	San Gregorio SB Andrew Molera SP Pt. Reyes NS Salamander Preserve (Div. of Hwys)	Big Sur Area Santa Maria Dunes
12. Coastal Saltmarsh	X	X	Morro Bay SP Pescadero SB Carmel River SB Pt. Reyes NS	Morro Bay Monterey Bay Area (Salinas R.)
13. Sandy Intertidal Zone	X	X	Asilomar SB Ano Nuevo SR Montana de Oro SP Pt. Lobos SP Andrew Molera SP Pt. Sal SB Morro Bay SP Pt. Reyes NS	Santa Maria Dunes Big Sur Area Pt. Sal area Ano Nuevo - Big Basin S.P.'s Area
14. Rocky Intertidal Zone	X	X	Asilomar SB Ano Nuevo SR Montana de Oro SP Pt. Lobos SR Morro Bay SP Pt. Sal SB Andrew Molera SP Julia Pfeiffer Burns SP Pacific Grove City Coastline Hopkins Marine Station Pt. Reyes NS	Big Sur Area Ano Nuevo-Big Basin S.P.'s area Pt. Sal Area
15. Nearshore Zone	X	X	Asilomar SB Ano Nuevo SR Andrew Molera SP Montana de Oro SP Pt. Lobos SR Julia Pfeiffer Burns SP Morro Bay SP Pt. Sal SB Pt. Reyes NS	Big Sur Area Ano Nuevo-Big Basin S.P.'s Area Pt. Sal Area

TABLE 3

SOUTH COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Feature Preservation Deficiency	ACTION REQUIRED		HIGH QUALITY OCCURRENCE	
	Acquisition	Natural Preserve Designation	Public Ownership	Private Ownership
GEOLOGY:				
1. Alluvium	X	X	Torrey Pines SR Pt. Mugu SP	Tijuana River Area
2. Sand Deposits	X	X	McGrath SB Border Field (Fed.) Tijuana River) San Miguel Island (Fed.-Navy) Santa Barbara Island (Fed.-NPS)	Santa Rosa Island Santa Cruz Island
3. Marine Sediment	X	X	Leo Carrillo SP Gaviota SB Refugio SB Torrey Pines SR La Jolla Pt.(City) San Miguel Island (Fed.-Navy)	Santa Rosa Island Santa Cruz Island Upper Newport Bay Gaviota Area Central Orange County Coast Tijuana River Area
4. Non-marine Sedimentary Rock	X	X	Anacapa Island (Fed.—NPS)	Santa Rosa Island
5. Non-marine Metamorphosed Rock	X	X		Santa Cruz Island
6. Intrusive Rock	X	X	Pt. Mugu SP	Santa Rosa Island
7. Granitic Rock	X	X		Santa Cruz Island
8. Volcanic Rock	X	X	San Miguel Island (Fed.-Navy) Ship Rock (Fed.— Catalina Ch.) Anacapa Island (Fed.-NPS) Santa Barbara Island (Fed.-NPS)	

Marine Terraces Near San Onofre *Photo by Dick Thompson*

TABLE 3

SOUTH COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

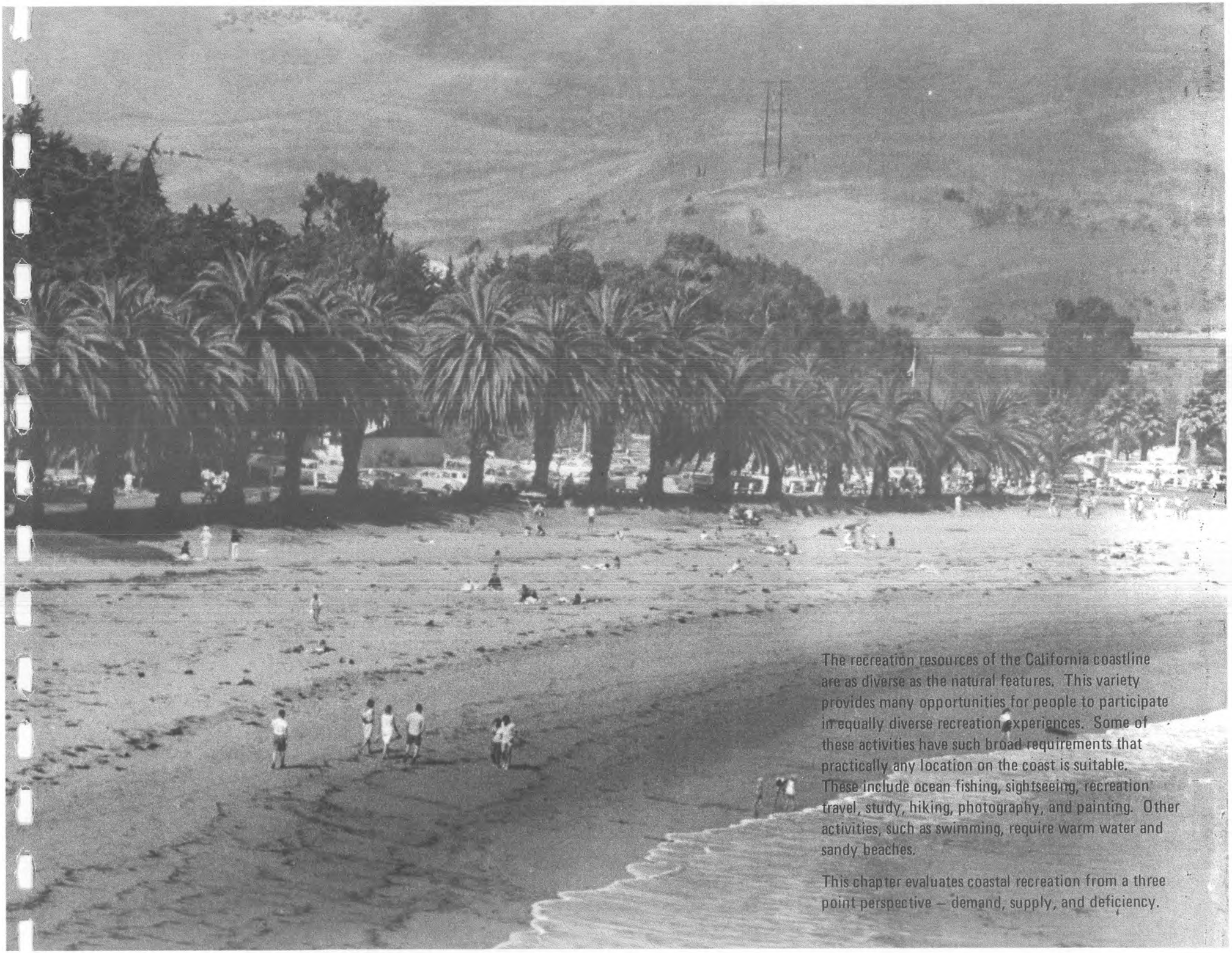
Natural Feature Preservation Deficiency	ACTION REQUIRED		HIGH QUALITY OCCURRENCE	
	Acquisition	Natural Preserve Designation	Public Ownership	Private Ownership
BIOTIC COMMUNITY:				
1. Maritime Pine Forest	X	X	Torrey Pines SR	Santa Rosa Island Santa Cruz Island
2. Oak Woodland	X	X	Leo Carrillo SP Gaviota SB Pt. Mugu SP El Capitan SB	Gaviota Area Santa Cruz Island
3. Coast Sagebrush	X	X	Anacapa Island (Fed.-NPS) Santa Barbara (Fed.-NPS) Pt. Mugu SP	Santa Rosa Island Santa Cruz Island Gaviota Area Tijuana River Area

TABLE 3

SOUTH COAST SUBPROVINCE NATURAL FEATURES PRESERVATION DEFICIENCIES

Natural Feature Preservation Deficiency	ACTION REQUIRED: Acquisition	ACTION REQUIRED: Natural Preserve Designation	HIGH QUALITY OCCURRENCE: Public Ownership	HIGH QUALITY OCCURRENCE: Private Ownership
			Leo Carrillo SP Camp Pendleton (Fed.-USMC) Pt. Mugu (Fed.-Navy) San Miguel Island (Fed.-Navy) Torrey Pines SR	
4. Chaparral	X	X	Pt. Mugu SP Leo Carrillo SP Camp Pendleton (Fed.-USMC)	Santa Cruz Island Gaviota Area
5. South Coast Grasslands	X	X	Pt. Mugu SP Gaviota SB San Miguel Island (Fed.-Navy) Anacapa Island (Fed.-NPS) Santa Barbara Island (Fed.-NPS)	Santa Rosa Island Santa Cruz Island Gaviota Area Central Orange County Coast
6. Coastal Strand	X	X	San Miguel Island (Fed.-Navy)	Tijuana River Area Santa Rosa Island Santa Cruz Island
7. Freshwater Marsh	X	X	McGrath SB U.C.-Santa Barbara	McGrath Lake
8. Coastal Saltmarsh	X	X	Pt. Mugu (Fed.-Navy) Anaheim Bay (Fed.-Navy) Upper Newport Bay (County) Border Field (Fed.-Tijuana River) Malibu Lagoon SB Torrey Pines SR	Gaviota Area Santa Rosa Island Upper Newport Bay Tijuana River Carpinteria Marsh
9. Sandy Intertidal Zone	X	X	Torrey Pines SR Leo Carrillo SB Gaviota SB Refugio SB El Capitan SB Carpinteria SB	Gaviota Area Tijuana River Carpinteria Marsh Central Orange County Coast Santa Rosa Island Santa Cruz Island Santa Catalina Island
10. Rocky Intertidal Zone	X	X	Torrey Pines SR Emma Wood SB Leo Carrillo SB Gaviota SB Refugio SB El Capitan SB Carpinteria SB Parks No. 3 & 4 (Ventura Co.) La Jolla City Beach La Jolla Pt. (City) Pt. Loma (Fed.-USCG) San Miguel Island (Fed-Navy) Anacapa Island (Fed.-NPS) Santa Barbara Island (Fed.-NPS) San Nicolas Island (Fed.—Navy) San Clemente Island (Fed.-Navy) Ship Rock (Fed.-Catalina Ch.) Farnsworth Bank (Fed.-Catalina Ch.)	Gaviota Area Central Orange County Coast Santa Rosa Island Santa Cruz Island Santa Catalina Islan
11. Nearshore Zone	X	X	Torrey Pines SR Leo Carrillo SB Gaviota SB Refugio SB El Capitan SB Carpinteria SB Camp Pendleton (Fed.—USMC) San Miguel Island (Fed.-Navy) Anacapa Island (Fed.-NPS) Santa Barbara Island (Fed.-NPS) San Nicolas Island (Fed.-Navy) San Clemente Island (Fed.-Navy) Ship Rock (Fed.-Catalina Ch.) Farnsworth Bank (Fed.-Catalina Ch.)	Gaviota Area Carpinteria Marsh Central Orange County Coast Tijuana River Santa Rosa Island Santa Cruz Island Santa Catalina Islan

CHAPTER 3
RECREATION



The recreation resources of the California coastline are as diverse as the natural features. This variety provides many opportunities for people to participate in equally diverse recreation experiences. Some of these activities have such broad requirements that practically any location on the coast is suitable. These include ocean fishing, sightseeing, recreation travel, study, hiking, photography, and painting. Other activities, such as swimming, require warm water and sandy beaches.

This chapter evaluates coastal recreation from a three point perspective – demand, supply, and deficiency.

DEMAND

In 1970, more than 127 million recreation days[1] were *spent at the California seashore (see Appendix B). By 1980, it is anticipated that the demand for shoreline recreation will increase to 177 million recreation days. The activities which people engage in at the seashore are as varied as the character of the shoreline itself. To more adequately evaluate the recreation activities relationship to natural resources, the activities have been grouped into five "activity patterns".*

Lake Celone →

RECREATION ACTIVITY PATTERNS

1

Ocean Swimming Pattern

Swimming, wading, surfing, general beach use[2], picnicking.

2

Sport Fishing Pattern

Pier, surf and rockfishing, clamming, beach netting, and taking shellfish.

3

Sightseeing and Study Pattern

Beach combing, walking for pleasure, nature study, painting/photography, skindiving, viewing and attending interpretive programs, dunebuggying, hiking, bicycle riding, auto sightseeing.

4

Skin and Scuba Diving Pattern

Spearfishing, underwater photography, observation of marine life, exploring.

5

Camping Pattern

Tent and trailer camping, cooking and general household activities within walking distance of the shore.

---

[1] The term "recreation days" merely expresses the number of people visiting, and reflects somewhat the popularity of an area; "activity day", on the other hand, gives some idea of the popularity of an activity and enables us to predict the type and quantity of a natural resource needed to meet the demand for that particular activity.

Activity day and participant day, as used in the California Recreation and Parks Study, 1965, are synonymous in this report.

[2] Use of the beach may range from sleep to football.

The demand for each activity varies with the inherent characteristic of the landscape, the sea conditions, and the climate. Therefore, the relative popularity of the activities changes from place to place. Furthermore, level of demand decreases as the distance from population centers increases. About 90% of the demands are generated within the two-hour travel time zone from the major metropolitan complexes, with the average travel time being much less than two hours.

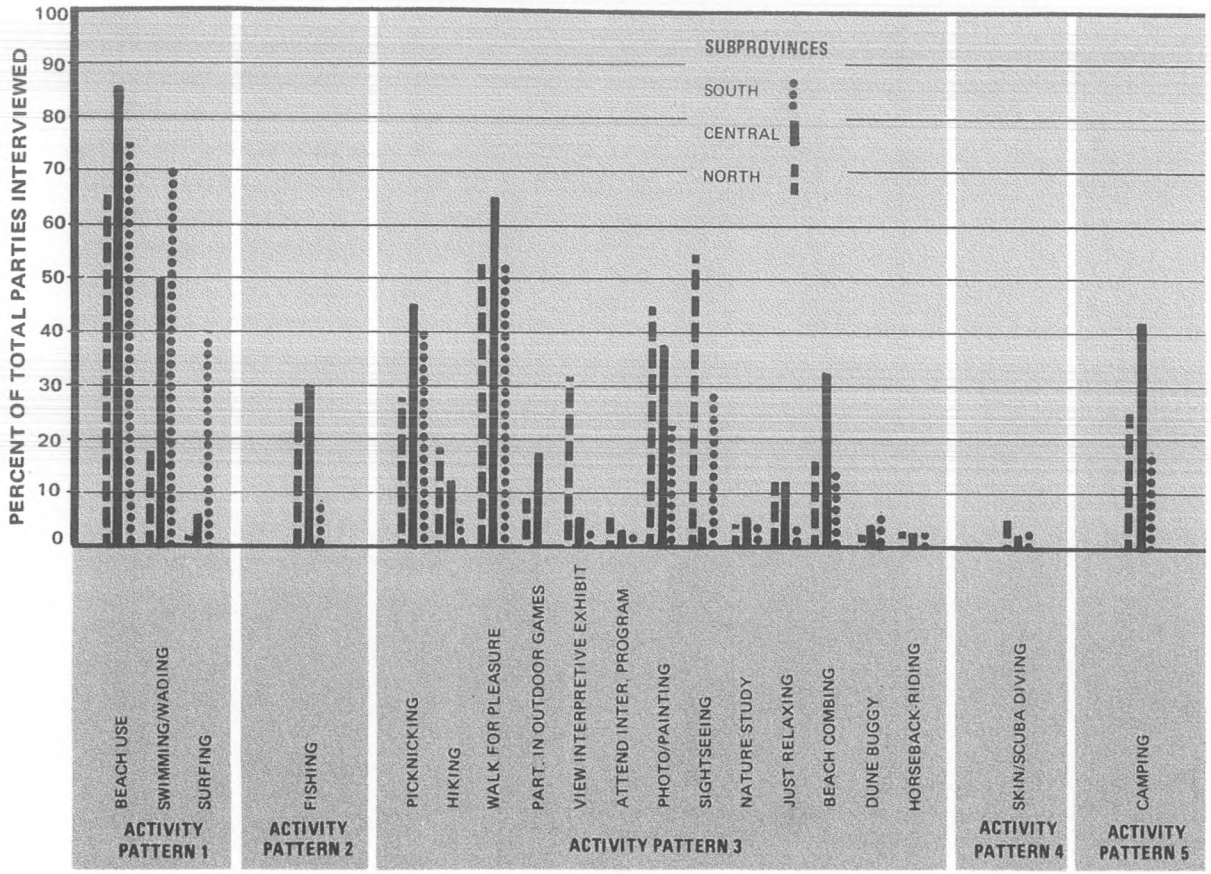
Extraordinary recreation resources will, of course, attract people from a long distance, particularly on long weekends and during vacations, and where there are overnight facilities available.

Figure 5 shows the percentage of shoreline visitors interviewed at state parks in 1969 that engaged in the various activity patterns and individual activities.

FIGURE 5

ACTIVITY PARTICIPATION

Percent of Total Parties Interviewed - Selected State Parks by Geographical Area



North Coast *(Oregon to Golden Gate)*

Only 4.3% of the state's total shoreline recreation use takes place on the north coast because of the cooler climate and relative remoteness of this region from population centers.

In 1970, about 5.3 million recreation days were spent on the north coast. Figure 6 shows the percentage of shoreline visitors that engage in the various activities. By 1980, eight million recreation days are expected, with a proportionate increase in each activity.

The greatest percentage of visitors participated in "general beach use" – this category includes activities ranging from sunbathing to volleyball; beachcombing (searching for objects of interest along the coast); sightseeing (passive viewing of the natural scene); walking for pleasure (any walk of less than two miles); relaxing – just sitting around "doing nothing"; nature study such as identification of plants or wildlife as to species or any geological investigation or scientific study; and overnight camping.

Due to the cold weather and even colder water, water oriented sports, like swimming, are participated in by a smaller percentage of the visitors than in southern California. Swimming, for example, ranked 8th (see Figure 6).

Central Coast *(Golden Gate to Point Conception)*

The total recreation days spent on the central coast in 1970 was approximately 25 million or 19.7% of the total coastal use. This figure is expected to increase to 36 million by 1980.

The largest percentage of users participated in "general beach use": walking for pleasure, picnicking, fishing, photography, beachcombing, surfing, and camping overnight. Skindiving is very popular on the Monterey Peninsula, and attracts divers from throughout the state and nation. The Santa Cruz area, due to the greater protection and slightly warmer waters, satisfies a tremendous swimming demand in this section of the coastline (see Figure 7).

South Coast *(Pt. Conception to Mexico)*

The total recreation days spent on the south coast in 1970 was about 97 million or 76%. The recreation days are expected to increase to 132 million by 1980.

The largest percentage of visitors participated in "general beach use": walking for pleasure, picnicking, camping, and sightseeing. Water oriented sports, such as swimming, surfing, and wading are major activities here where water temperatures range up to 75° during the summer months (see Figure 8).

FIGURE 6

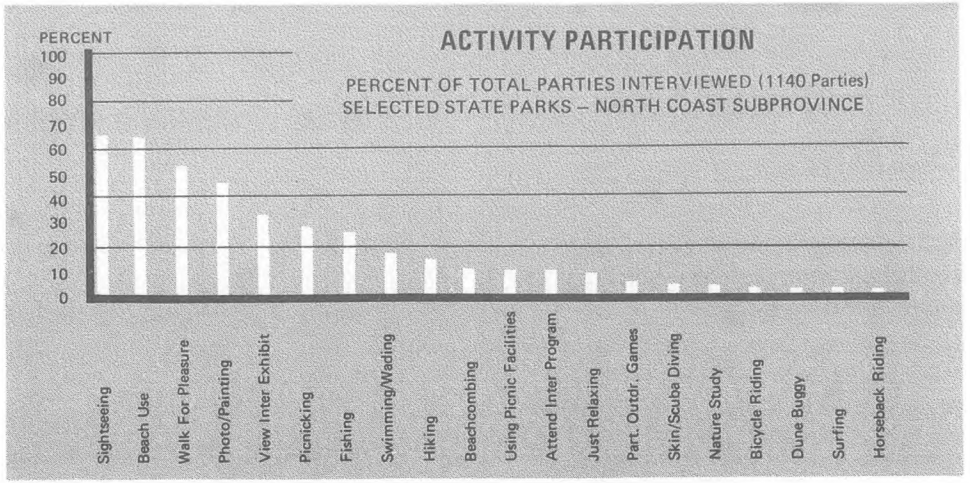


FIGURE 7

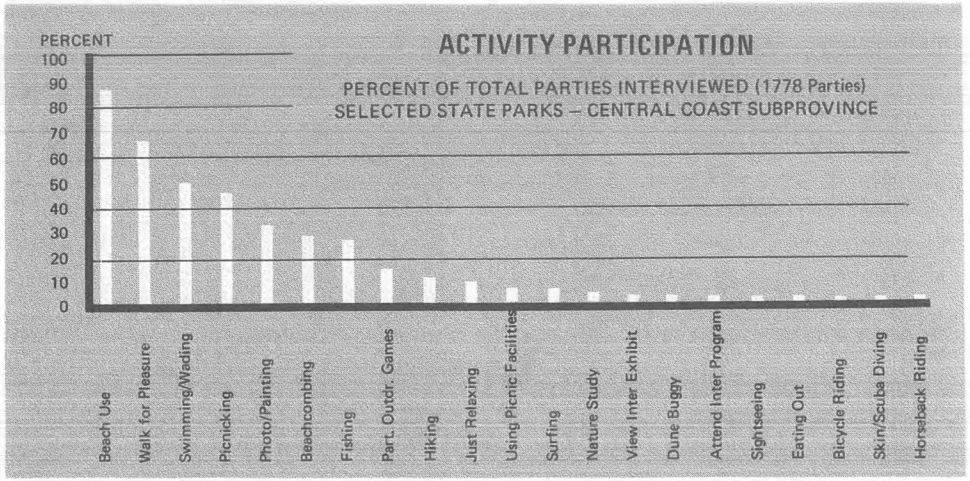
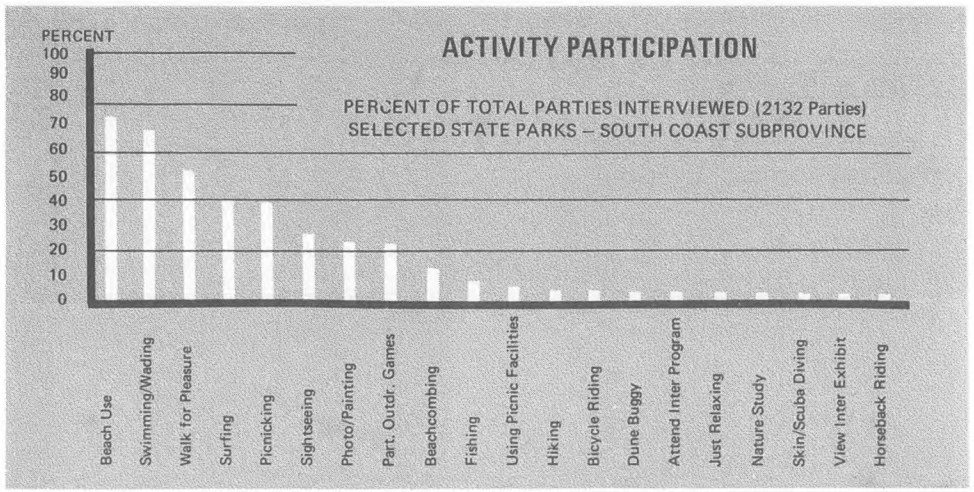


FIGURE 8



DISTRIBUTION OF RECREATION ACTIVITY PATTERNS

Just as the climate and shoreline types exhibit north-south distributions, so do the shoreline recreation activity patterns.

The ocean swimming pattern is found almost exclusively in southern California because of climate and water temperature. Point Conception is the coastal landmark associated with the change in water temperature levels.

The sport fishing pattern occurs along the entire coast, as does the sightseeing and study pattern. The species sought and the methods used vary with habitat.

Skin and scuba diving is most popular off the southern and central coast. In southern California most diving takes place off-shore from charter or private boats. On the central coast diving takes place directly from the shoreline.

Other recreation activities for which there is a high degree of demand on the shoreline are camping and picnicking. Both are popular along the entire coast, especially in close association with the shoreline.

ACTIVITY REQUIREMENTS

Each recreation activity pattern has specific requirements.

1. Ocean Swimming Requirements

Wide sandy beaches suitable for safe swimming.

Warm water temperature (usually 70° or above).

Temperate climate.

Accessibility and ample upland for parking.

Favorable offshore conditions for surfing.

El Capitan State Beach

2. Sport Fishing Requirements

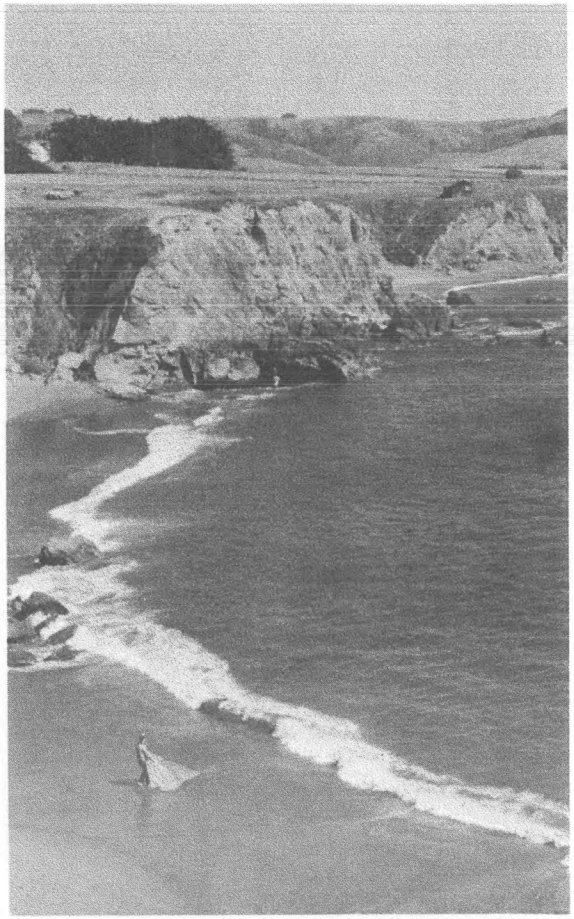
Sandy beaches for surf fishing.

Rocky shore for rock fishing.

Boat landings and piers.

Access and upland.

Sonoma Coast



3. Sightseeing and Study Requirements

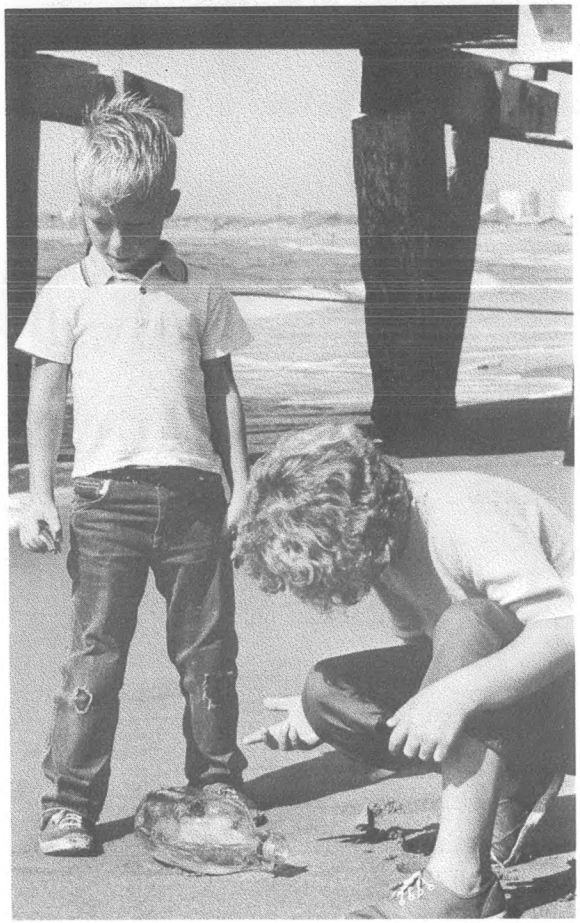
Scenic environment for bicycling, hiking, and auto driving.

Natural areas of all shoreline types.

Marine reserves for observation and scientific study of marine life.

Sand hills or dunes for dunebuggying.

Beaches for horseback riding.



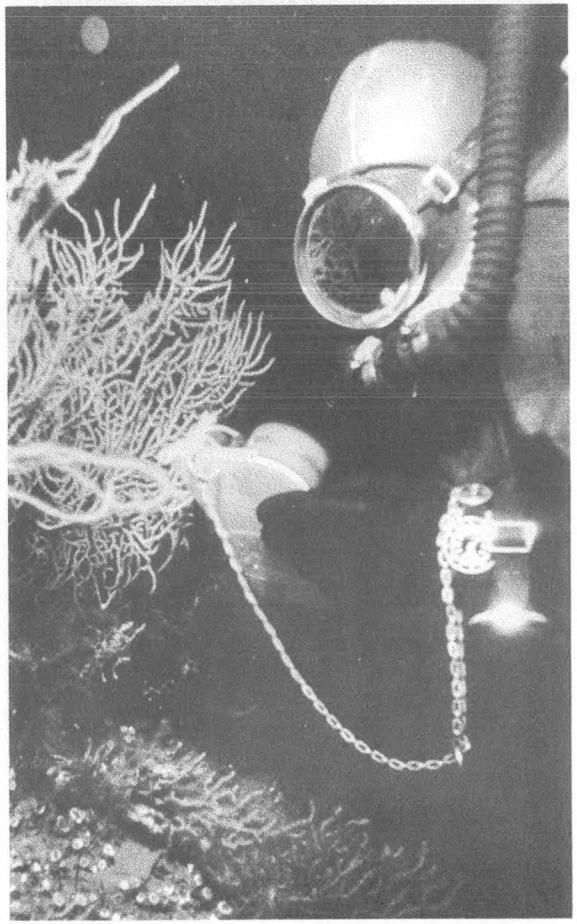
4. Skin and Scuba Diving Requirements

Rocky shore and intertidal zone.

Clear water.

Moderate or warm water temperatures.

Accessibility and upland parking.



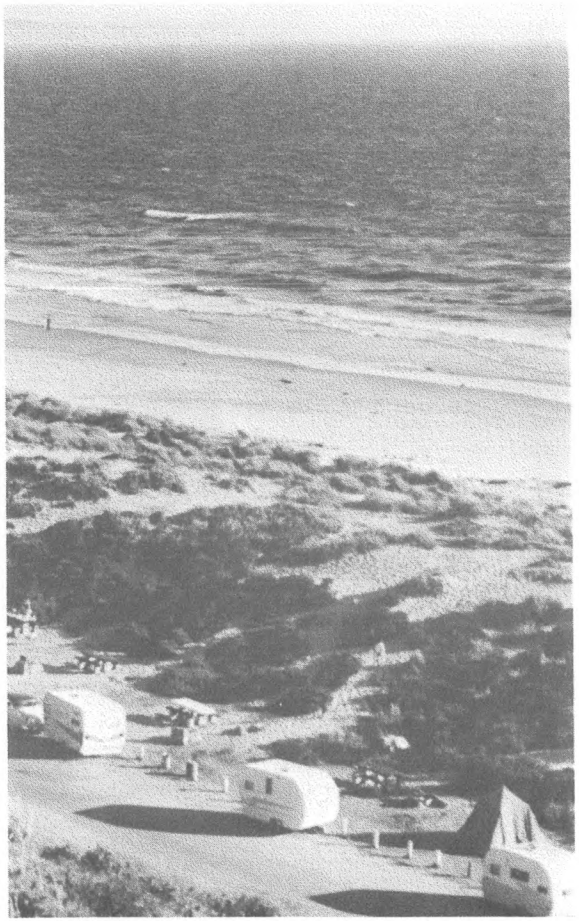
5. Camping Requirements

Developable upland for campsites.

Accessibility.

Sandy and rocky shore.

La Costa State Beach



SUPPLY

The natural features that extend along California's coast for 1072 miles provide the basic resource to meet many of the recreation needs or demands of the people. This resource is quantified, using a classification system which allows the statewide recreation demands to be measured against the resource supply.

THE FOUR SHORELINE TYPES

1. Sandy beach – swimming
2. Sandy beach – non-swimming
3. Rocky beach
4. Steep rocky headlands

These shore types are defined in the chart on page 61.

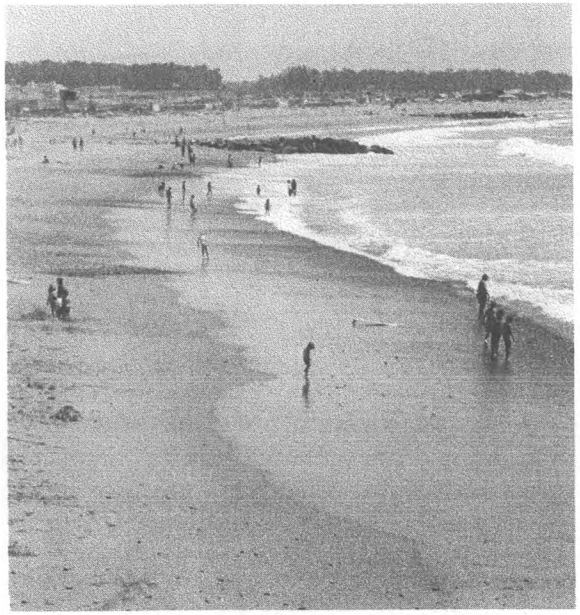
DISTRIBUTION OF SHORELINE TYPES

The general distribution of these shoreline types has a strong north-south relationship. Southern California possesses a predominately sandy beach shoreline. All but 10 miles of the state's Type 1 – Sandy Beach is found in southern California. This is due to the difference in water temperatures north and south of Point Conception, Santa Barbara County.

Rocky shores predominate in northern and central California, and are noted for their stretches of scenic coastline. There are also substantial amounts of Type 2 – Sandy Beaches, but only a small portion can be classified as suitable for swimming.

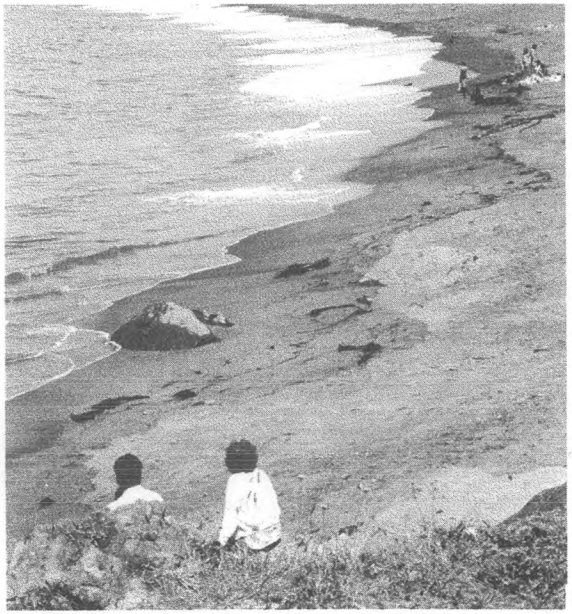
Lagoons, estuaries, and bay shores are distributed throughout the state, and are usually associated with the sandy beach shoreline.

1. Sandy Beach - Swimming



San Buenaventura State Beach

2. Sandy Beach - Non-swimming



MacKerricher State Park

Pt. Vicente

3. Rocky Beach

Dana Point

4. Steep Rocky Headlands

TABLE 4

SHORELINE TYPES

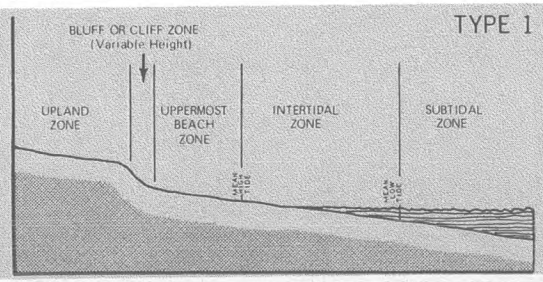
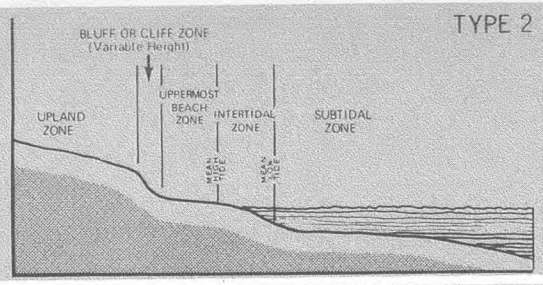
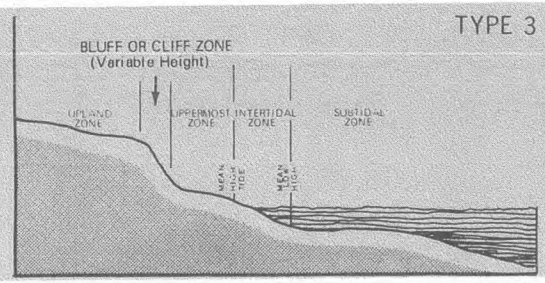
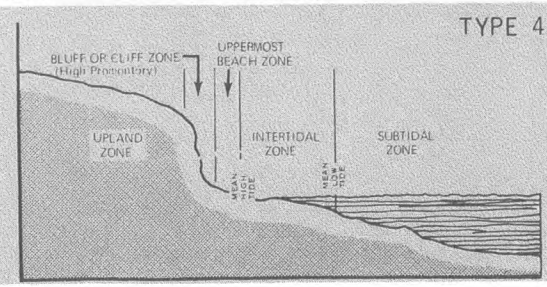
Shore Type	Definition	Characteristics
1 	**SANDY BEACH – SWIMMING** The distinguishing characteristics of this shoretype are a sandy, gently sloping, warm water beach which has a minimum of 25 foot width at mean high tide. (Classification may have seasonal variation. Classify as per April-Sept.). This beach type is found primarily in southern California south of Point Conception. Exceptions are the Santa Cruz Beaches.	**AREA:** From mean high tide to the edge of sand, minimum 25' wide, or to the toe of the bluff. **MATERIAL:** Sand with 50% or less rock, gravel or mud. **SLOPE:** Up to 10%. **WATER:** Temperature: 60° min. from June-Sept. (Gen. swimming temp.) **USE:** Swimming, wading, nature study, beachcombing, picnicking, sunbathing, fishing, surfing.
2 	**SANDY BEACH – NON-SWIMMING** The distinguishing characteristics of this shoretype are steep sandy beach with cold water.	**AREA:** From mean high tide to edge of sand or to toe of bluff. **MATERIAL:** Sand with 50% or less cobbles. **SLOPE:** Over 10% **WATER:** Low 50° **EROSION:** Litteral drift has caused sand erosion. **USE:** Nature study, walking, picnicking, sunbathing, fishing, wading.
3 	**ROCKY BEACH** The distinguishing characteristics of this shoretype are a rocky beach varying in slope and composed of cobbles or rock outcropping with less than 25% sand.	**AREA:** From mean low tide to 100' or to toe of bluff. **MATERIAL:** Rock outcropping and/or cobbles with 75% or less sand. **SLOPE:** Varies – shallow to steep. **WATER:** Temp. low 70° through 40°. **EROSION:** Limited. **USE:** Beach camping, nature study, sightseeing, picnicking, sunbathing, fishing.
4 	**STEEP ROCKY HEADLANDS** The distinguishing characteristics of this shoretype are very steep rocky readlands with no beach at high tides. Examples of this type are found at La Jolla and Big Sur Coast.	**AREA:** From mean low tide to toe of bluff. **MATERIAL:** Rocky Headlands **SLOPE:** Over 35% **WATER:** Temp. low 70° through 40°. **USE:** sightseeing, skindiving.

TABLE 5

OWNERSHIP IN MILES BY SHORELINE TYPES *

LEGEND: Federal, County, State, Municipal

	OWNERSHIP	NORTHERN SUB-PROVINCE					CENTRAL SUB-PROVINCE					SOUTHERN SUB-PROVINCE					TOTAL	TOTAL PUBLIC	MILES OF BEACH (0 – 100 – 200)
		DEL NORTE	HUMBOLDT	MEND.	SONOMA	MARIN	S.F.	S. MATEO	S. CRUZ	MONT.	S.L.O.	S. BARB.	VENTURA	L.A.	ORANGE	S.D.			
TYPE 1 Sandy Beach – Swimming	FEDERAL								-0-		.1	13.9	4.8	-0-	.2	23.2	42.2	152.4	
	STATE								8.6		.7	7.8	11.7	17.9	9.8	16.7	73.2		
	COUNTY								.2		2.6	4.8	8.7	2.9	1.2	.2	20.6		
	MUNICIPAL								.5		-0-	4.1	2.3	-0-	8.9	.6	16.4		
	PRIVATE								5.7		.9	52.9	10.6	29.9	14.0	24.0	138.0		
	TOTAL TYPE 1								15.0		4.3	83.5	38.1	50.7	34.1	64.7	290.4		TOTAL MILES – TYPE 1
TYPE 2 Sandy Beach – Nonswimming	FEDERAL	4.3	9.7	-0-	-0-	15.4	1.0	-0-	-0-	10.8	-0-						41.2	120.7	
	STATE	1.1	20.8	6.9	6.0	1.0	.2	9.5	-0-	6.3	12.9						64.7		
	COUNTY	1.5	2.8	-0-	2.3	.1	-0-	.8	-0-	.1	-0-						7.6		
	MUNICIPAL	-0-	1.5	-0-	-0-	-0-	4.2	.6	-0-	.9	-0-						7.2		
	PRIVATE	18.6	63.3	29.3	6.0	19.5	.5	19.6	6.3	6.0	22.2						191.3		
	TOTAL TYPE 2	25.5	98.1	36.2	14.3	36.0	5.9	30.5	6.3	24.1	35.1						312.0		TOTAL MILES – TYPE 2
TYPE 3 Rocky Beach	FEDERAL	9.3	1.0	-0-	-0-	-0-	.2	-0-	-0-	3.4	.5	.1	-0-	1.2	-0-	-0-	15.7	34.4	
	STATE	7.4	4.9	.5	.6	-0-	.2	-0-	-0-	.3	.4	.6	1.2	.4	-0-	-0-	16.5		
	COUNTY	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	.3	-0-	1.2	.6	-0-	2.1		
	MUNICIPAL														.1		.1		
	PRIVATE	3.3	16.3	11.2	.4	-0-	-0-	1.8	-0-	20.0	12.7	5.6	2.2	1.4	1.2	-0-	76.1		
	TOTAL TYPE 3	20.0	22.2	11.7	1.0	-0-	.4	1.8	-0-	23.7	13.6	6.6	3.4	4.2	1.9	-0-	110.5		TOTAL MILES – TYPE 3
TYPE 4 Rocky Headlands	FEDERAL	-0-	1.0	1.7	-0-	13.4	.2	.9	.4	12.5	-0-	9.6	-0-	1.2	-0-	4.9	45.8	100.8	
	STATE	-0-	-0-	3.5	9.8	5.3	.3	5.6	4.1	10.8	3.1	1.8	.6	1.2	-0-	-0-	46.1		
	COUNTY	-0-	-0-	-0-	1.8	-0-	-0-	.6	-0-	-0-	.4	-0-	-0-	1.0	.2	-0-	4.0		
	MUNICIPAL	-0-	-0-	-0-	-0-	-0-	1.0	-0-	.2	3.1	-0-	-0-	-0-	-0-	.3	.3	4.9		
	PRIVATE	-0-	-0-	67.2	35.1	15.5	.2	16.5	15.8	37.1	36.6	7.4	-0-	11.2	4.8	6.1	253.5		
	TOTAL TYPE 4	-0-	1.0	72.4	46.7	34.2	1.7	23.6	20.5	63.5	40.1	18.8	.6	14.6	5.3	11.3	354.3		TOTAL MILES – TYPE 4
	TOTALS	45.5	121.3	120.3	62.0	70.2	8.0	55.9	41.8	111.3	93.1	108.9	42.1	69.5	41.3	76.0	1067.2**	408.1	0 – 100 – 200 – 300 – 400

* Channel Islands are not included.

** Approximately five miles of the California shoreline is in harbor development and does not qualify in any of the above four categories.

DEFICIENCY

In order to determine the present and future adequacy of recreation opportunities, these four general shoreline types must be measured.

How many miles of each type are there?

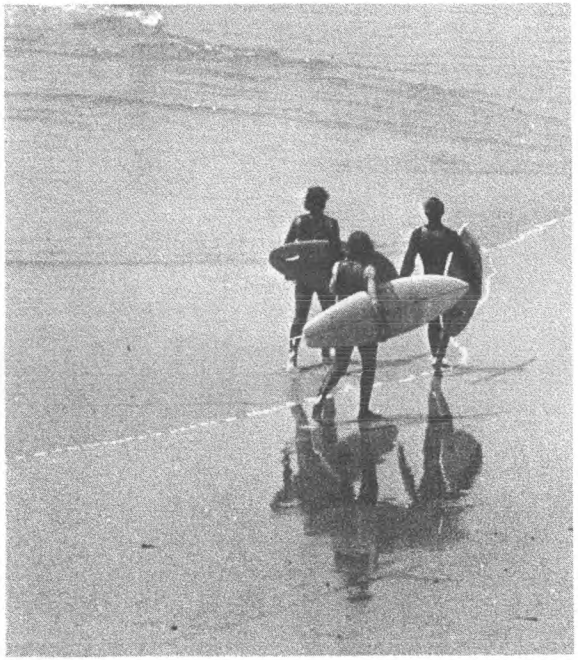
In the final analysis, the question that must be answered is – are there adequate opportunities for each person to participate in his chosen recreational activities through the year 1980? This determination is made by counting the numbers of people participating in a particular activity and comparing this to the available required natural resources or facilities.

The result of this comparison will indicate that either there is, there will be, or there is not nor will be an adequate opportunity for one to pursue any particular activity.

OCEAN SWIMMING

Activity Pattern Number One

Demand



San Elijo

Swimming, wading, and sunbathing on or near the shoreline are the leading recreational activities in the State of California, where approximately 90% of the population lives within one hour's drive of the coast.

Visitors swim primarily during the summer when the water is warm and the weather is good. Most of the swimming beaches are south of Point Conception, where there are 90 miles of shoreline available to the public. Due to the colder water temperatures north of Point Conception, most of the swimming occurs in the Santa Cruz area, where summer water temperatures reach the 60's.

(All demand figures, present and projected, are based on the State Park System's Coastal Survey, Summer 1969.)

Activities	Percentage of Participants	1970 Activity Days[1]	Projected 1980 Activity Days
NORTH COAST SUBPROVINCE			
Swimming/Wading	18	954,000	1,440,000
General Beach Use	66	3,498,000	5,300,000
Surfing	1	53,000	80,000
TOTALS		4,505,000	6,820,000
CENTRAL COAST SUBPROVINCE			
Swimming/Wading	51	12,648,000	18,600,000
General Beach Use	87	21,576,000	31,700,000
Surfing	6	1,488,000	2,200,000
TOTALS		35,712,000	52,500,000
SOUTH COAST SUBPROVINCE			
Swimming/Wading	71	69,000,000	100,000,000
General Beach Use	76	73,000,000	93,000,000
Surfing	39	37,000,000	51,000,000
TOTALS		179,000,000	244,000,000

[1] The "activity day" unit as used in these tables is very different from the "recreation day" used elsewhere in the demand charts. An activity day is defined as the participation by one person in one activity on one day. Under this definition, the visitor might therefore be counted one, two, or three, or possibly even four times (though his participation in an activity had to be one of his major purposes for the visit in order to be tabulated). A visitor might surf, swim, and play volleyball in the course of his one day at the area. He would then be counted as three "activity days" because he used all of these activities.

The term "recreation days" merely expresses the number of people visiting, and reflects somewhat the popularity of an area; "activity day", on the other hand, gives some idea of the popularity of an activity and enables us to predict the type and quantity of a natural resource needed to meet the demand for that particular activity.

Supply

	North Coast	Central Coast	South Coast
Sandy *Type 1* swimming beach in public ownership – available for recreation	0 mi.	13 mi.	98 mi.
Sandy *Type 1* swimming beach in private ownership	0 mi.	7 mi.	131 mi.
Sandy *Type 1* swimming beach in public ownership – but not open to the general public for recreation	0 mi.	0 mi.	41 mi.

Deficiencies

Based on seasonal and daily distribution of use, daily turnover rate, and size of visitor party at existing parks, the present supply of effective public swimming beach[1] is adequate to meet the demand for swimming, wading, surfing, or just relaxing on the beach through 1980, if sufficient parking is developed.

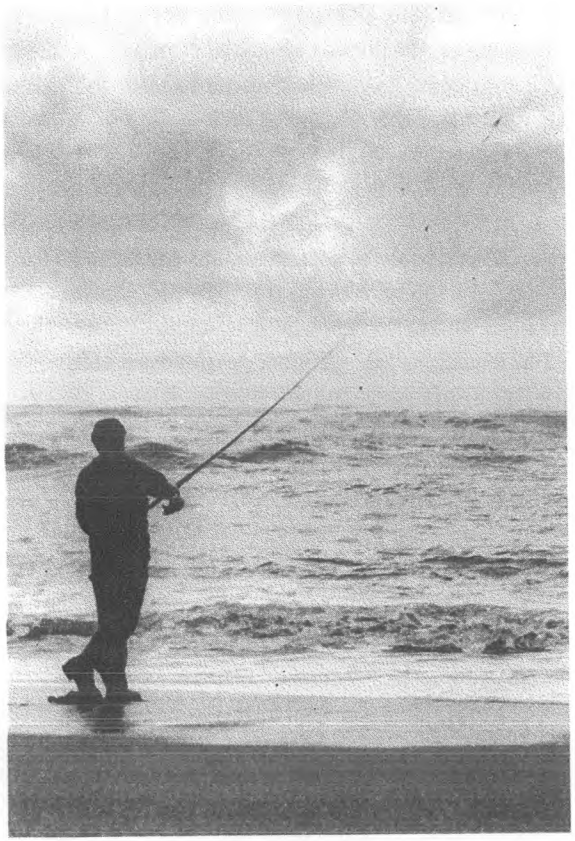
During peak periods in some locations there is a shortage of parking, and this situation will worsen. In many of these locations there is ample publicly-owned land to develop access and parking; in others only minor additions of upland are needed. The greatest deficiencies in supporting upland are at the Santa Cruz Beaches, in southern Orange County, and in northern San Diego County.

[1] "Effective swimming beach" denotes a class 1 swimming beach with sufficient upland or back-beach to provide adequate parking. A *minimum* of 75 square feet of beach and 75 square feet of supporting land is required; e.g., a beach park 300 feet deep, half beach and half upland, would be an effective beach with a maximum instantaneous capacity of two persons per foot of ocean frontage. A narrow beach with no supporting land has little or no effective capacity and will serve only neighborhood "walk-in" demands.

As many as 400,000 hale and hardy men and women participate in this graceful, demanding sport in California, but the bottom condition as well as the wind and ocean swells must be right to create a ridable breaker. Parking, sanitary facilities, and access to the shoreline are also necessary ingredients to meet the needs of this activity group. Surfing is generally considered a southern California sport, originating there in the 1920's. But you may find surfers in Santa Cruz, Carmel or Crescent City when the "surf's up".

SPORT FISHING

Activity Pattern Number Two



Ocean fishing and related activities are large and growing recreational pursuits for many people. Methods may vary – boats in protected or open waters, surf and pier fishing – but to the 16.5 million salt-water fishermen in California last year, it is all the same – an enjoyable way to spend leisure time.

The distribution of the natural resources – sandy or rocky shoreline with access – associated with this recreational activity pattern are found along the entire length of the coast of California, whereas the demand for this activity is primarily related to the major metropolitan areas.

Demand

In the north coast, approximately 27% of the activity days are spent fishing. Of this activity, 80% is associated with shoreline fishing and the remaining activity days are boat-oriented.

	1970 Activity Days	1980 Activity Days
Fishing	1,400,000	2,158,000

In the central coast, approximately 30% of the activity days are spent fishing, with approximately equal distribution between shoreline and boat fishing.

	1970 Activity Days	1980 Activity Days
Fishing	7,440,000	10,300,000

In the south coast, approximately 8% of the activity days are spent fishing. 45% of the fishermen fished from the shoreline with the remaining fishermen using boats.

	1970 Activity Days	1980 Activity Days
Fishing	7,760,000	10,570,000

Supply

Almost the entire coast of California can accommodate fisherman. On the north coast, 229 miles are suitable for sports fishing, but access to 148 miles is restricted by private ownership of the land.

On the central coast, approximately 195 miles are suitable for sports fishing, but access to 115 miles is restricted due to private and military ownership.

On the south coast, approximately 200 miles of Types 1 and 3 shoreline are suitable for shoreline fishing, but access to approximately 160 miles of this publicly-owned tideland is restricted due to limited access across private and military lands.

Deficiencies

Between now and 1980, any fisherman willing to travel about two hours will find a state park facility to fish. However, in some areas there is insufficient shoreline access to meet local fishing demands. The fisherman with only limited periods of free time or restricted by the lack of transportation may find this access difficult in all three sections of the coast, particularly:

North Coast – Northern Del Norte County, Humboldt County around Humboldt Bay, in the Cape mendocino area, northern and central Mendocino County, southern Mendocino and northern Sonoma Counties from Point Arena to Salt Point.

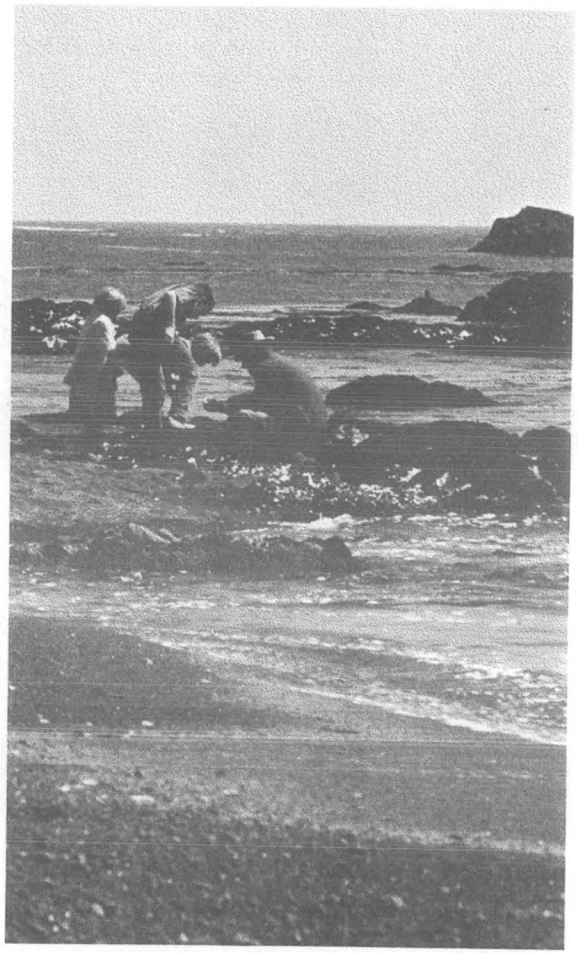
Central Coast – San Mateo County, northern Santa Cruz County, San Luis Obispo County.

South Coast – Northern Santa Barbara County, southern Orange County, and northern San Diego County.

SIGHTSEEING AND STUDY

Activity Pattern Number Three

Photo by Tom Myers



Observing the delicate ecological balance of tide pools is an exciting recreational experience. Unfortunately, thoughtless collectors have depleted a large number of easily accessible tide pools.

California's diverse shoreline should offer all those who visit it the chance to view, paint or photograph a spectacular ocean scene, discover a rare sea treasure washed up on the shore, examine unusual sea creatures, or just relax in the temperate climate.

Demand

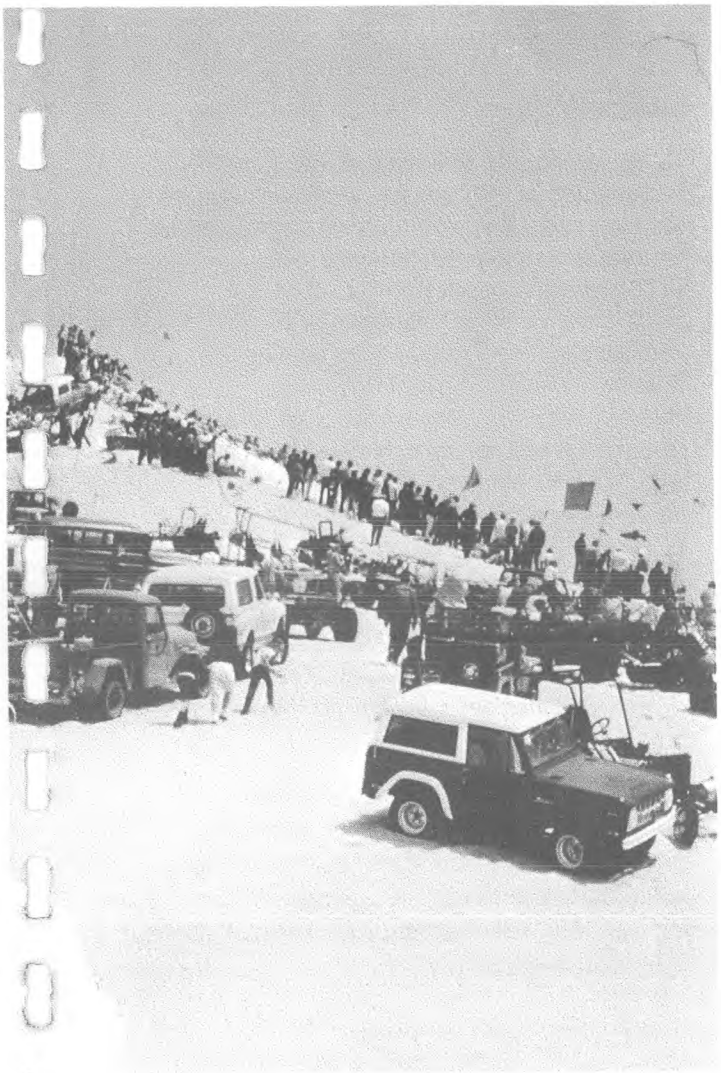
Next to general beach use, Activity Pattern Three, and particularly sightseeing, ranks very high. On the north coast 66% of the visitors engaged in sightseeing. The resource most closely associated with this activity pattern is visual and physical access to the ocean.

NORTH COAST

Individual Activity	Percentage of Participants	1970 Activity Days	1980 Activity Days
Beachcombing	16 %	848,000	1,280,000
Nature Study	3	159,000	240,000
Dunebuggying	1	53,000	80,000
Just Relaxing	11	583,000	900,000
Sightseeing	66	3,498,000	5,300,000
Photography/Painting	44	2,350,000	3,700,000
Viewing Interpretive Exhibits	32	1,696,000	2,500,000
Attend. Interpretive Programs	11	583,000	900,000
Outdoor Games	9	477,000	700,000
Walking For Pleasure	53	2,800,000	4,240,000
Hiking	18	954,000	1,440,000
Bicycle Riding	1	53,000	80,000
Picnicking	28	1,484,000	2,240,000
TOTALS		17,870,000	27,160,000

CENTRAL COAST

Individual Activity	Percentage of Participants	1970 Activity Days	1980 Activity Days
Beachcombing	31%	7,688,000	11,300,000
Nature Study	5	1,240,000	1,800,000
Dunebuggying	3	744,000	1,100,000
Just Relaxing	11	2,728,000	4,000,000
Sightseeing	2	496,000	700,000
Photography/Painting	35	8,680,000	12,700,000
Viewing Inter. Exhibits	3	744,000	1,000,000
Attend. Inter. Programs	2	496,000	730,000
Outdoor Games	17	4,216,000	6,200,000
Walking For Pleasure	65	16,120,000	23,700,000
Hiking	12	2,976,000	4,400,000
Bicycle Riding	2	496,000	700,000
Picnicking	46	11,400,000	16,800,000
TOTALS		58,024,000	85,130,000



On one special weekend during July, 1970, more than 30 thousand people set up 8,000 campsites and proceeded to drive their recreation vehicles, dune buggies and 4-wheel drives frantically over every available inch of the Santa Maria Dunes, the largest dune complex on the coast of California. These enthusiasts, from as far away as Phoenix, Arizona, poured into the small seaside community of Pismo Beach to spend three days drag racing and generally enjoying the sights of California's most scenic sand dune complex which extends for 17 miles between Point Sal and Pismo Beach State Park.

SOUTH COAST

Individual Activity	Percentage of Participants	1970 Activity Days	1980 Activity Days
Beachcombing	14 %	13,680,000	18,500,000
Nature Study	2	1,940,000	2,600,000
Dunebuggying	4	3,880,000	5,300,000
Just Relaxing	3	2,910,000	3,400,000
Sightseeing	27	26,190,000	35,700,000
Photography/Painting	22	21,340,000	29,100,000
Viewing Inter. Exhibits	2	1,940,000	2,600,000
Attend. Inter. Programs	3	2,910,000	3,900,000
Outdoor Games	22	21,340,000	29,100,000
Walking For Pleasure	53	51,410,000	70,000,000
Hiking	5	4,850,000	6,600,000
Bicycle Riding	4	3,880,000	5,300,000
Picnicking	38	36,860,000	50,200,000
TOTALS		193,130,000	262,300,000

Supply

The general distribution of natural resources associated with Activity Pattern Three varies to some degree with each individual activity, but these sandy and rocky beaches with access to state-owned tidelands are primarily found in southern Del Norte, northern Humboldt County, Marin County, San Mateo County, Monterey Bay, southern Santa Barbara County, Ventura County, southern Los Angeles County, northern Orange and southern San Diego Counties.

North Coast Counties

Sandy and rocky beaches in public ownership – available for recreation	97.1 miles
Sandy and rocky beaches in private ownership	167.9 miles
Sandy and rocky beaches in public ownership – not available to the general public for recreation	0.0 miles
Sandy and rocky *tidelands* between mean high tide and mean low tide – in the public ownership and available for recreation but with limited or no access or parking	167.9 miles

Central Coast Counties

Sandy and rocky beaches in public ownership – available for recreation	52.3 miles
Sandy and rocky beaches in private ownership	54.6 miles
Sandy and rocky beaches in public ownership – not available to the general public for recreation	4.5 miles
Sandy and rocky *tidelands* (between mean high and mean low tide) – in public ownership and available for recreation but with limited or no access or parking	54.6 miles

South Coast Counties

Sandy and rocky beaches in public ownership – available for recreation	102.5 miles
Sandy and rocky beaches in private ownership	145.4 miles
Sandy and rocky beaches in public ownership – not available to the general public for recreation	51.3 miles
Sandy and rocky *tidelands* (between mean high and mean low tide) – in public ownership and available for recreation but with limited or no access or parking	145.4 miles

Deficiencies

There is presently a deficiency of public land to satisfy this activity pattern. Although there are adequate opportunities for outdoor games, walking for pleasure or picnicking at a state park facility for those people willing to travel 2 hours, there is a critical shortage of the resource that satisfies the nature study, dune buggying[1], hiking, bicycle riding[2], and sightseeing demands. Many of the coast's scenically attractive natural resources are being lost daily to the rapid development of the shoreline. The natural area protection section in Chapter Five identifies natural preserves that will meet this deficiency. Citizens with only limited time to travel, or children not of driving age, will find access difficult along all sections of the coast, particularly in the following areas: These are regional demands, and should be met on a regional basis.

North Coast Access Deficiencies: Northern Del Norte County, Humboldt County around Humboldt Bay and in the Cape Mendocino area, north and central Mendocino County, southern Mendocino and northern Sonoma Counties from Point Arena to Salt Point.

Central Coast Access Deficienies: San Mateo County, northern Santa Cruz County, and San Luis Obispo County.

South Coast Access Deficiency: Northern Santa Barbara County, southern Orange County and northern San Diego County.

[1] Dune buggies require large sand dune areas which occur only infrequently along California's shoreline. Presently there are no publicly-owned sand dune areas of sufficient size to accommodate this activity on a statewide basis in any of the three coastal subprovinces.

[2] Bicycling and hiking trails along the coast of California are essentially nonexistent. With the growing interest in both of these sports, and in conjunction with the absence of trails, this deficiency can only increase.

SKIN AND SCUBA DIVING

Activity Pattern Number Four

Spear fishing, underwater photography, observation of marine life, and underwater exploring are the basic elements of this activity pattern.

The ability to function underwater, in a semi-alien world unrestricted by heavy equipment and hoses and with some degree of safety, is what skin diving is all about. The self contained underwater breathing apparatus (SCUBA as it is commonly called) allows the diver to spearfish, hunt old wrecks or treasures, photograph plant and animal life, collect shells, study nature, explore caves, compete with other divers in special events, or just socialize with others who have a common interest. At present there are approximately one million skin divers on the west coast, and this number is bound to increase as leisure time, income, and the public's interest in marine science and the ocean increases.

Demand

Skindiving	Percentage of Participants	1970 Activity Days	Projected 1980 Activity Days
North Coast	5	265,000	400,000
Central Coast	1	248,000	360,000
South Coast	2	1,940,000	2,640,000

Supply

As is the case with fishermen, the skin diver basically needs access to the ocean. Other than parking, their only need is a safe means of carrying heavy and sometimes awkward equipment to the state-owned tidelands.

Deficiencies

Again, as with fishing, any skin diver willing to travel can find numerous places to skin dive. The true deficiency is in the quality of the diving area rather than in the quantity. Areas of high scenic quality that have not been picked bare by previous divers are an exception. Therefore, the deficiency is in areas where divers can enjoy the natural underwater environment in a preserved condition.

←*Scuba Diver at Van Damme Scuba Diving* *Photos by Tom Myers*

CAMPING

Activity Pattern Number Five

For some people camping near the throbbing beat of ocean waves is almost a religious experience. For others, it is more an inexpensive living accommodation while on vacation or enjoying coastline recreation activities. Whatever the motivation, camping at the beach is extremely popular.

Camp on the Sonoma Coast

TABLE 6

DAYS FILLED TO CAPACITY — STATE PARK CAMPGROUNDS
June through August, 1969

	NORTH COAST		CENTRAL COAST		SOUTH COAST	
Days to Capacity	State Parks	Total Camp-Sites	State Parks	Total Camp-sites	State Parks	Total Camp-sites
80–92	0	0	1	26	1	115
70–79	2	65	1	100	3	366
60–69	2	171	4	628	1	171
50–59	0	0	0	0	1	226
40–49	2	229	1	104	0	0
30–39	1	100	1	69	2	159
20–29	2	192	1	50	1	174
10–19	0	0	0	0	1	200
9–0	0	0	0	0	2	240
TOTALS	9	757	9	977	12	1651

Demand

In 1970, an estimated 29 million activity days were spent camping at coastal parks and beaches. This is expected to increase to over 41 million activity days in 1980. Geographically, these demands (in millions of activity days) break down as follows:

	1970	1980
North Coast	1.29	1.94
Central Coast	10.60	15.50
South Coast	17.40	23.70

Based on experience at State Park System units, analysis of seasonal and daily use patterns, and sizes of camping parties, it is estimated that the following total numbers of camp units are required to meet a reasonable portion of the camping demand.

	1970	1980
North Coast	1120	1680
Central Coast	2240	3250
South Coast	3240	4450
Total	6600	9380

These estimated requirements assume that it is not economically feasible to meet all of the demands on the peak twenty days of the summer season. As a general goal, campgrounds should be sized so as to

← *Table 6 indicates days filled to capacity at state park campgrounds in summer of 1969.*

be filled to capacity about twenty days per summer. At this level of development about 5% of the campers who would potentially use a campground in the summer season must be turned away. To completely satisfy the demand of these peak days, picnic sites and other adaptable areas will be used to accommodate the overflow camping.

On the south coast, campers prefer to have their campsites on the beach, or as close to it as possible. There are areas along the coast, and particularly in northern California, where campers would prefer to have campgrounds located in sheltered locations away from the beach.

The seasonal distribution of the demand varies from north to south. On the north coast the season is very short, primarily limited to July and August. In this region the climate is not conducive to outdoor living much of the year; however, the increasing popularity of camping vehicles should increase the length of the camping season somewhat. Also, many of the northern areas require long travel times from population centers.

The coastal campgrounds serve the needs of recreationists from throughout California and the nation, particularly the Western States. Table 7 shows the origin of campers at selected State Park System areas in 1969.

TABLE 7

ORIGIN OF CAMPERS AT SELECTED COASTAL AREAS

1969 Sample

Area	Northern California	Southern California	Out-of-State
NORTH COAST			
Prairie Creek Rwd. SP	50.0%	45.0%	6.0%
Patrick's Point SP	64.0	27.0	7.0
MacKerricher SP	83.0	10.0	7.0
Russian Gulch SP	84.0	8.0	8.0
Van Damme SP	85.0	9.0	6.0
Salt Point SP	86.0	7.0	7.0
Sonoma Coast SB	97.0	3.0	0.0
CENTRAL COAST			
New Brighton SB	84.0	12.0	4.0
Sunset SB	97.1	2.7	0.1
San Simeon SB	29.0	62.0	9.0
Morro Bay SB	32.9	67.1	0.0
Pismo SB	28.2	67.8	4.0
SOUTH COAST			
El Capitan SB	3.8	94.2	1.9
Carpinteria SB	3.3	94.2	2.3
Leo Carrillo SB	0.0	98.1	1.9
Carlsbad SB	0.9	96.6	2.6

Supply

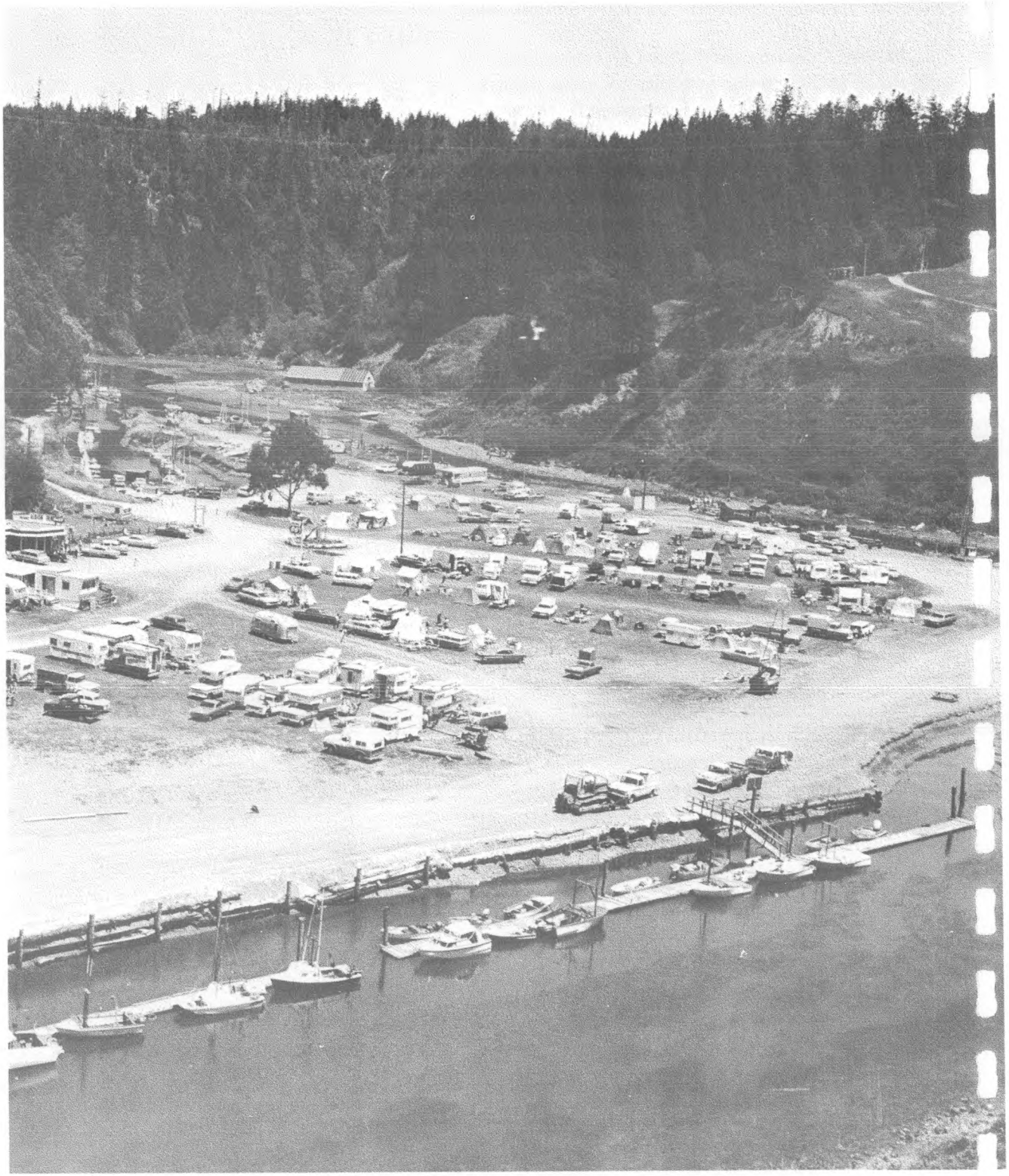
Thirty coastal units of the State Park System contain about 3400 camp units. These are the primary supply, but a few of the counties, the U. S. Forest Service, and private operators provide additional units in certain localities. The geographical distribution of the state operated campgrounds is:

North Coast	757 camp units at 9 park system units
Central Coast	977 camp units at 9 park system units
South Coast	1651 camp units at 12 park system units

There are group camps at six coastal state parks and beaches. Only half of these are within two hours travel time from major metropolitan areas.

North Coast	2 group units
Central Coast	2 group units
South Coast	2 group units

Some of the coastal campgrounds have been in service several decades and will require rehabilitation and modernization. In some areas the sewage treatment facilities are minimal and must be upgraded to prevent water pollution.



Albion
Photo Courtesy U.S. Bureau of Reclamation

Deficiencies

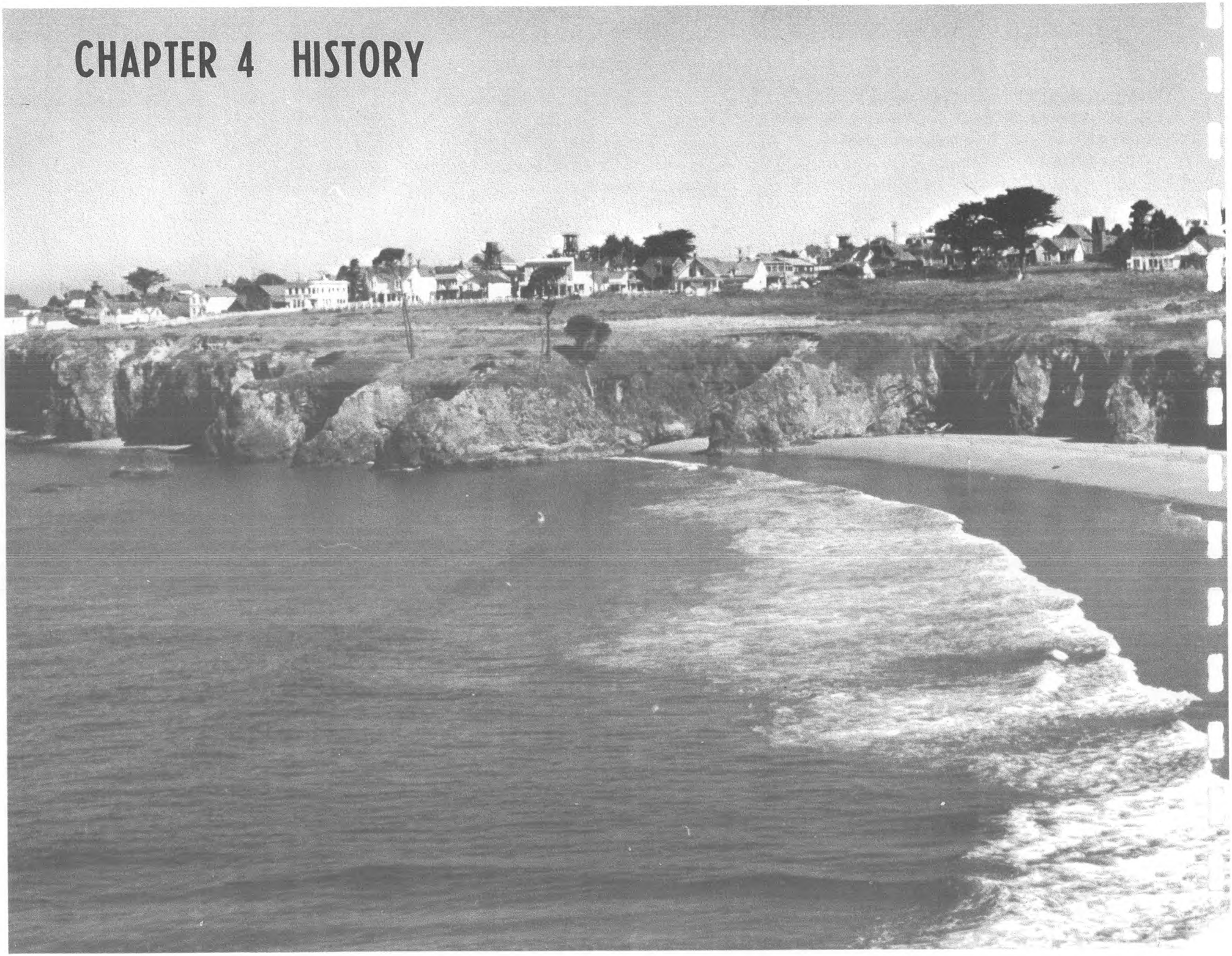
An additional 3200 camp units were needed in 1970. By 1980, more than 6000 units over and above the present supply will be needed. The geographic distribution of these deficiencies is:

	1970	1980
North Coast	360	920
Central Coast	1260	2270
South Coast	1580	2890
Totals	3200	6080

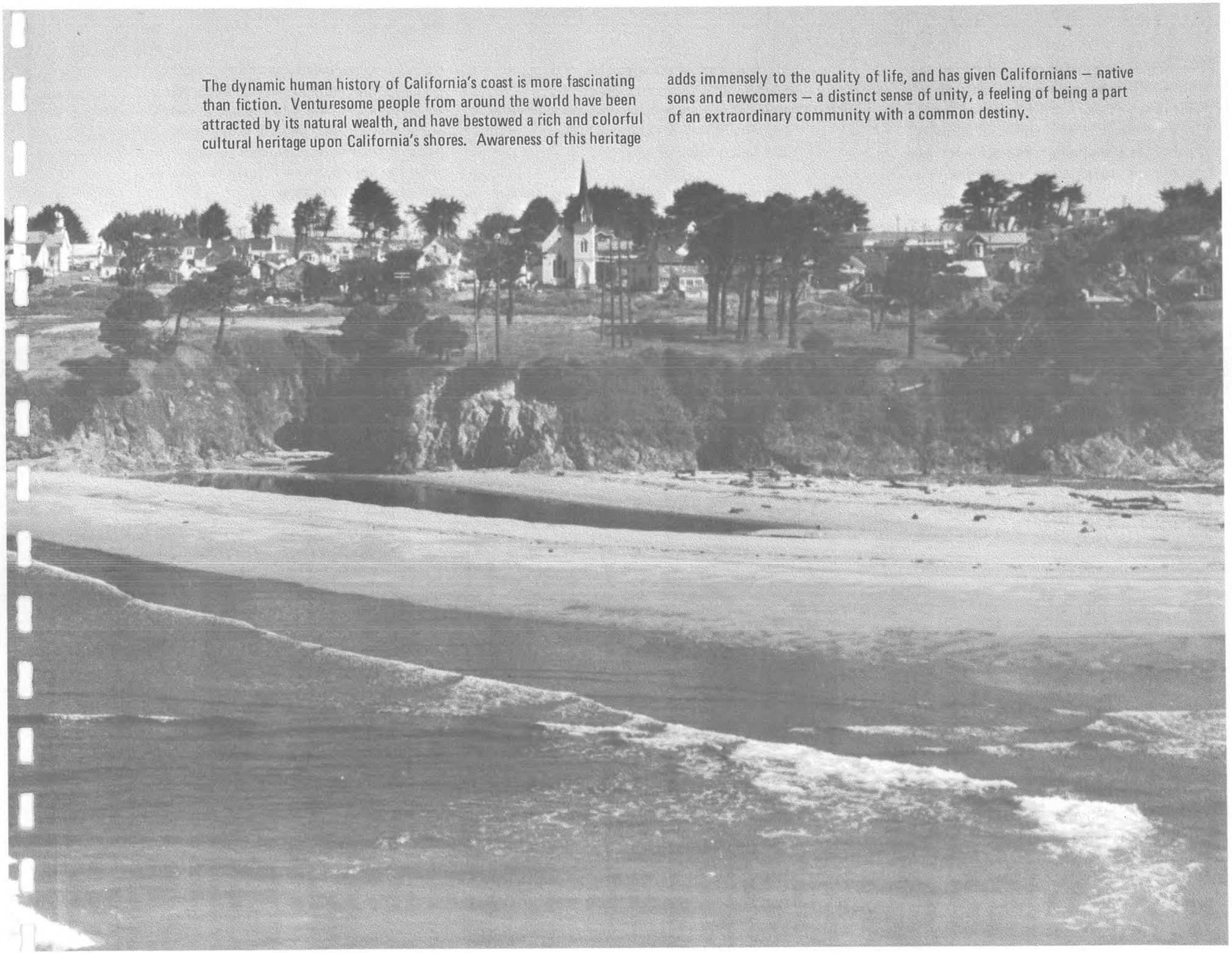
Additonal group camping facilities are also needed to meet the needs of youth organizations along the south coast and in the vicinity of San Francisco Bay. Table 6 shows the extent to which existing campgrounds were filled to capacity during the summer of 1969. Only eleven campgrounds were filled to capacity less than 40 days of the season.

The present and 1980 deficiencies can be met on existing State Park System lands. To do this will involve conversion of some day-use areas to campgrounds, especially along major segments of the south coast. To meet camping needs beyond 1980 will require acquisition of additional lands.

CHAPTER 4 HISTORY



The dynamic human history of California's coast is more fascinating than fiction. Venturesome people from around the world have been attracted by its natural wealth, and have bestowed a rich and colorful cultural heritage upon California's shores. Awareness of this heritage adds immensely to the quality of life, and has given Californians — native sons and newcomers — a distinct sense of unity, a feeling of being a part of an extraordinary community with a common destiny.



Ironically, rapid development of the coastal zone is eradicating the tangible reminders of the early cultures – their people's triumphs and disillusionments. Ambivalent attitudes have already allowed the destruction of many important structures and archeological sites. Our state is not so rich in antiquities that it can afford to forget or neglect the relatively few remaining significant historic relics or sites.

The Department of Parks and Recreation in cooperation with the National Park Service and local governments is conducting a statewide inventory of historic places, and will prepare a Comprehensive California History Plan.[1], This statewide history plan will:

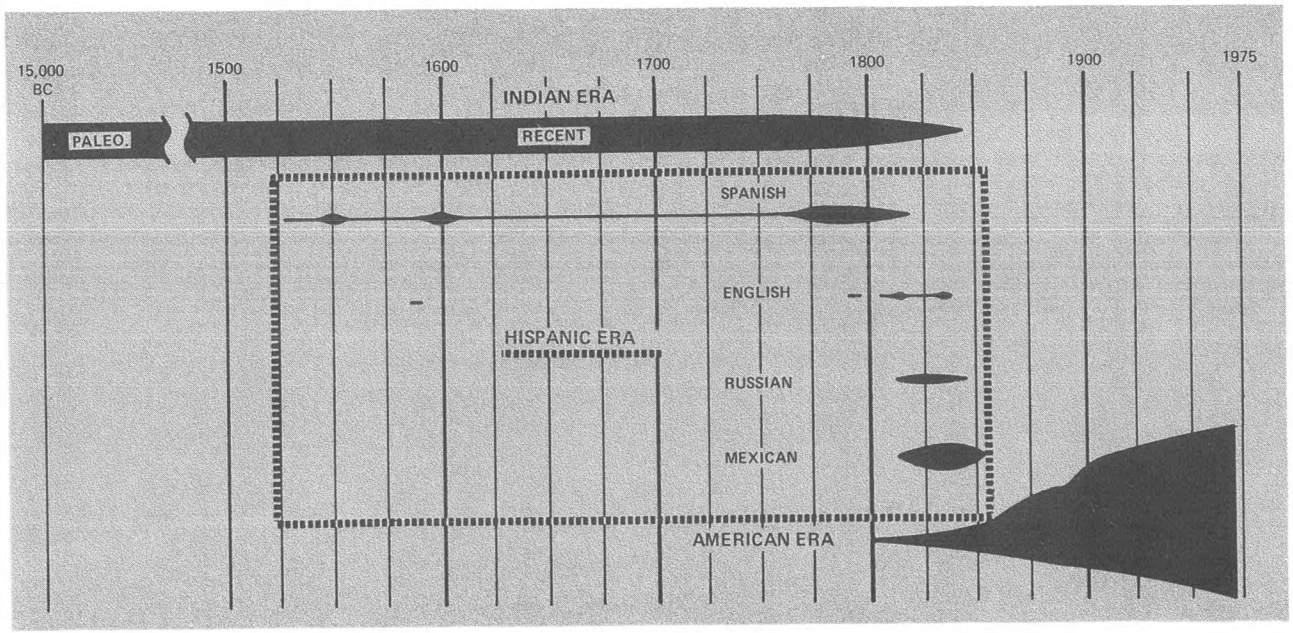
- Classify remaining cultural evidences by their place in the major eras of California history:
  - Indian
  - Hispanic
  - American
- Examine the contribution of each of these evidences to the cultural aspects of its era:
  - Architecture
  - Exploration
  - Economic and industrial
  - Military
  - Government
  - Recreation and leisure
  - Social and educational
  - Religion

[1] See Preliminary California History Plan, September, 1970.

- Identify which of the remaining examples of each era should be preserved to portray adequately the complete history of California without unnecessary duplication.
- Compare what is preserved with what should be preserved, thus identifying deficiencies.
- Assign priorities and responsibilities for meeting deficiencies.

The statewide history plan should eliminate some of the emotional pressures that have traditionally been used to save historic sites and replace them with a more objective framework for decision-making. There will never be enough money to preserve all quaint old buildings. Every effort must be exerted to assure that the scarce dollars available for preserving history are devoted to only the most important areas.

The present coastline park and recreation plan cannot preempt the recommendations of the statewide comprehensive history plan. However, the following discussion identifies the cultural resources that are presently considered to be of state significance and what must be done to assure their protection.



ERAS IN CALIFORNIA HISTORY
FIGURE 9

INDIAN ERA

The prehistory of the state extends back in time for some 10-15,000 years, and it is theorized that the population was derived from migrants arriving from Asia in Pleistocene times. Estimates of the 1776 A.D. population are in the order of 150-175,000.

California's Indians have been divided into four cultural areas based on environment, language, and socio-political structures. Three cultural areas are found along the coastal province (see Plate E).
Because of the primitive nature of life in prehistoric times it is not practical to analyze each culture as part of the Indian Era separately.

The Northwestern Cultural Area is the most distinctive. Tribal social ranking was based upon the accumulation of wealth. Slavery was practiced based on debt. Houses were generally substantial and made of split redwood planks built over excavations some 2-5 feet in depth. Basketry was characteristically twined; coiled work was unknown. Basket hoppers or slab mortars were typically used. Other frequent utensils included elk antler spoons and purses. Bowls of steatite along with various effigies were made, as were wooden boxes and canoes. Armor of wooden rods or elk hide was used. Primary foods included salmon, acorn, various bulbs, deer and elk.
The only cultivated crop was tobacco.
Salmon and other fresh and salt water fish were essential ingredients of the economy.

Wealth items of greatest magnitude included Dentalia shells beads, white deerskin, and large obsidian blades. The desire for the accumulation of wealth among the Yurok was extreme. The constant desire for wealth was clearly the most typical attribute of the Northwestern Cultural Area tribes.

Known archeological sites are found adjacent to river mouths and lagoons. Sites available for interpretation are found in several state parks. The coastal plane north of Crescent City, a Tolowa area, requires urgent investigation.

The Central California Cultural Area is the largest, extending from Fort Bragg to Cayucos. Political organization, for the most part, was on a bloodline-village basis. A tribal chief or headman was recognized, but in the main had little actual power over the group. Chieftainship was based on heredity, and such positions must have been rather informal. Among the Pomo there are hints of matrilineal descent. For specialized activities, such as hunting or war, outstanding individuals became the leaders.

Central Californians were not oriented to the coastal area, but rather were adapted to an inland environment. The coastal groups did exploit resources afforded by the ocean and rivers. Major food sources included shellfish, fish, all of the large mammals (deer, elk, antelope), and almost all of the smaller mammals. The main food source for all Central Californians was the acorn. While it was used in all coastal areas, it clearly typifies the Central Cultural Area. Other vegetable foods such as roots, bulbs, and grasses made up a sizeable portion of the diet at certain times of the year. Snakes, lizards, and various insects or grubs were also important items among certain groups.

Houses in most of Central California consisted of a variety of forms. Most typical were the large semi-subterranean earth lodges which were an integral aspect of the semi-religious Kuksu cult. The latter was the men's secret organization and served in part to distinguish the central area from the north and south. Villages of 30 to 50 houses were not uncommon, but usually villages housed from 50 to 150 people.

Other articles specific to the central area were tule boats and outstanding examples of coiled basketry. Typical, also, were shaped stone mortars and mortar holes in bedrock outcrops, and pestles. Shell work included a variety of abalone shell ornaments, beads of clam shells, and other sea shells. The clam shell disc beads also served as money for many groups.

Probably the bulk of the known archelogical sites date to within the last 3-4,000 years. Numerous sites exist in state parks along the coast, with many available for interpretation. Several of these parks have sites requiring further preservation, study, and interpretation.

The Southern California Cultural Area centered on the Chumash, Luiseno, and Gabrielino groups. The political system was based on wealth as well as heredity. The chief seems to have been highly regarded, possibly more so than among other groups, and a rudimentary, royalty system was noted by the

Spanish colonists. That social ranking was correlated with material wealth is supported to a degree by archeological data.

Craft specialization is a recurrent theme in this area. For example, boat makers were held in esteem and some villages were centers for the manufacture of certain articles. Tribal or group boundaries were recognized, although, as in other areas of California, these may have been based upon a feeling of ownership of certain specific resources within an area and not a feeling of political control with established boundaries.

The religious aspect of life in Southern California deserves special mention. While the Kuksu cult was mentioned for Central California, it is clear that the Southern Jimson-Weed cult built around a specific diet (Chingichnich) was far more elaborate .

The economy of the Southern Cultural Area relied on maritime products and the means for utilizing these products. At least for the Chumash, ocean fishing from plank canoes was the major subsistence pattern. Nets, shell fish hooks, fish spears, and bone barbs were used by the fishermen. Use of plants, seeds, acorns and other plant foods were of a seasonal nature, but did contribute significantly to the diet of the coastal groups. Mammals, birds, and invertebrates were also hunted or collected. Deer seem to have been the most sought after large animal.

The material aspects of life among the southern groups were probably the most elaborate in California. The Chumash and their neighbors were the most skilled craftsmen in California. Houses were large, semi-subterranean, and earth covered. Individual structures were sometimes 40 to 50 feet in diameter. Most villages were rather small, with three to five houses, but these usually housed extended or several families as we know them. The living houses were usually grass covered. A typical village also had a sweat house, a gaming area, a ceremonial enclosure, and one or more fenced cemeteries. Unique to California was the existence of sleeping platforms in the houses. Some houses were partitioned by mats to delimit various use areas.

Wooden objects used by the Chumash included split plank canoes, bowls, some inlaid with beads, bows and arrows, and trays or plates. Basketry, typically coiled in a distinctive form, was a well developed skill. Stonework was both varied and elaborate. Chipped stone knives and projectile points are frequently found. Steatite bowls and effigies of distinctive and elaborate forms were made. Large stone vessels, some with shell bead decorations, are not infrequently found, along with finely made pestles.

Shell was utilized in a variety of ways. Beads and ornaments were used frequently, and were sometimes surprisingly elaborate. The culture dates to about 10,000 B.C.

Several sites are available for interpretation, however locations in Los Angeles, Orange, and San Diego Counties are rapidly disappearing. Acquisition and preservation are required to save these remnants of Indian culture in the Southern Cultural Area.

DEFICIENCIES

The following areas or locations are deficient in respect to our knowledge of sites either for interpretation or preservation. Since the two aims are not exclusive of one another, they are here considered one and the same.

Area 1: Del Norte County. The Tolowa area within this county is relatively unknown. Representative sites for this group should be preserved. Probably these should center on the Smith River or near Crescent City.

Area 2: Yurok Tribal Area. Additional sites are known and should be acquired to permit a fuller knowledge of this important group.

Area 3: Bear River, Humboldt County. This area is within the tribal boundaries of the little-known Mattole. Due to our basic lack of knowledge of this group, measures should be taken to insure proper preservation of representative sites.

Area 4: Shelter Cove Area, Southern Humboldt and northern Mendocino Counties. Lack of recorded sites in this critical zone between the Northwestern and Central Cultural Areas hampers any projected research for northern California. It is vital to set aside some sites for future research in this general region.

Area 5: Navarro River, Mendocino County. This region is important to fill in our

knowledge of the Yuki and the southernmost Northwest Coast California groups. Knowledge of the Yuki is so deficient archeologically that specific data are almost entirely lacking.

Area 6: Northern Pomo, Mendocino County. Many sites are known for this area, but adequate preservation of some should be insured. Like the Yuki, they are almost unknown archeologically.

Area 7: Point Reyes, Tomales Bay Region, Marin County. A critical need for site preservation exists in this area. Though much work has centered on Point Reyes, there is a need to preserve sites not protected by the National Park acquisition.

Area 8: San Mateo and Santa Cruz Counties. Few sites are now included in state parks in this area. Research has also lagged here. Representative areas or sites should be preserved, especially in northern Santa Cruz County.

Area 9: Lucia area, Southern Monterey County. Preservation of representative sites in the Salinas area is vital. Not only has little work been carried out in this area, but the Salinans border the Chumash, making a knowledge of them vital to California Pre-history.

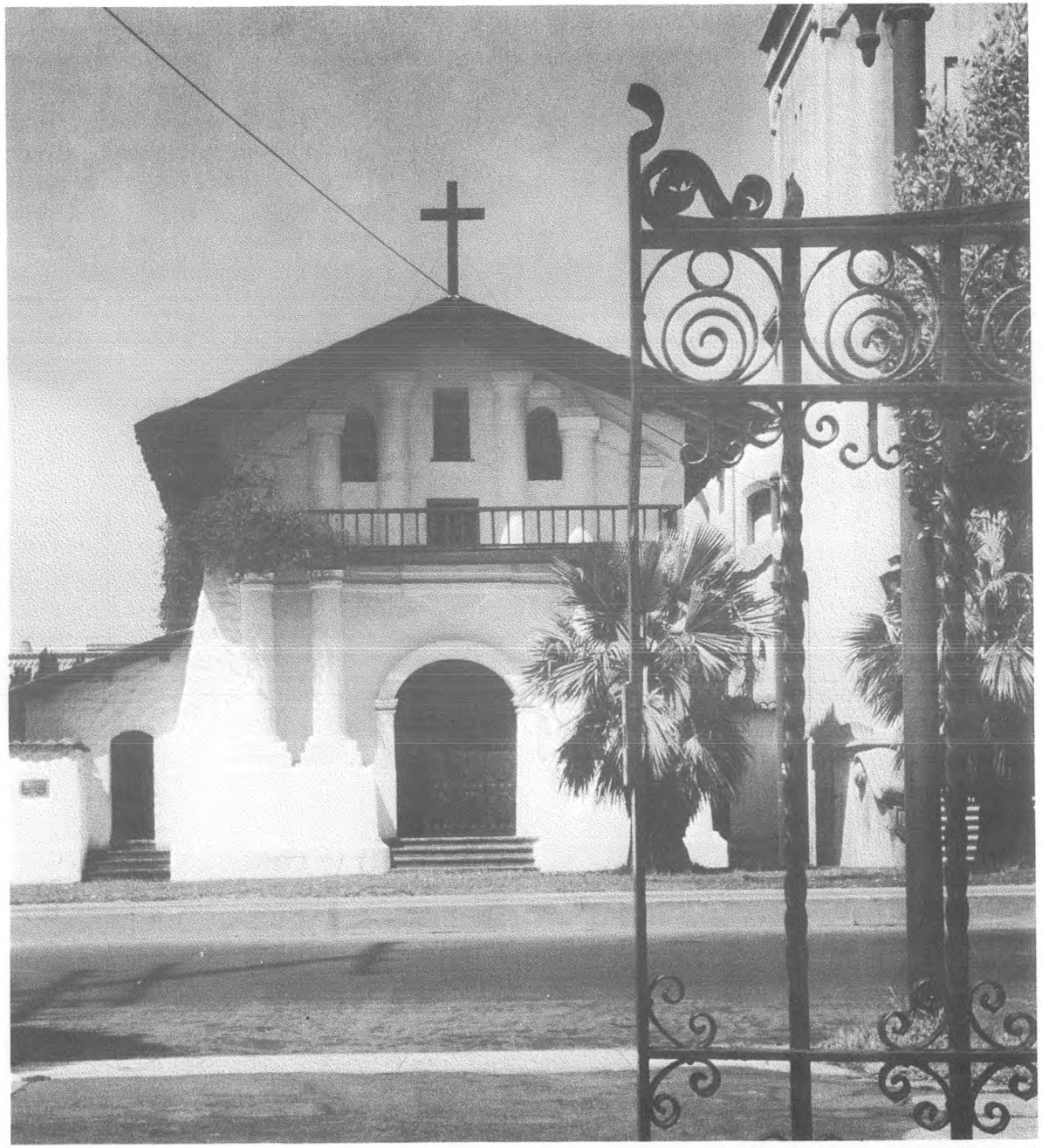
Area 10: Point Conception, Santa Barbara County. This region, within the Chumash tribal area, is still almost unknown. Surveys on Vandenberg Air Force Base are underway, but some preservation of sites should clearly be undertaken in the light of the values interpreted. This sub-group of the Chumash is still poorly known, adding to the need in this region.

Area 11: Additional Chumash sites should be acquired in the Santa Barbara-Goleta region.

Area 12: Orange County. Few Sites have been preserved along coastal Orange County. Because of the urban development this gap in the archeological record will intensify in the future. A serious need for identification and preservation of remaining sites clearly exists.

Area 13: San Diego County. Much the same situation as noted for Orange County exists in San Diego County. A few sites are preserved in state parks. Coastal development endangers those that remain. It is urgent to protect a number of representative sites.

HISPANIC ERA



San Francisco de Asis (Dolores)

The name *California* may have been taken from a 15th century Spanish novel, *Las Sergas de Explandian*. According to the book California was a mythical island rich in gold and inhabited by Amazon-like women, wild griffins, and other exotic creatures.

Credit for the discovery of Alta California belongs to Juan Rodriguez Cabrillo, who first arrived on September 28, 1542. Soon to follow were Sir Francis Drake (1579), who claimed Northern California for the English Crown; Pedro Unamuno, who entered Morro Bay in 1587; and Rodriguez Cermeno, who made a miraculous return to Mexico via a small boat from Drake's Bay where he had wrecked his ship the *San Augustine* (1595).

A renewed thrust to extend the Spanish frontiers was due to a political and economic revival in Spain during Carlos III's reign as King. This thrust came in 1769 when the Portola-Serra expedition to Alta California got underway. Motives for the expedition were three-fold: political, economical, and religious.

Generally speaking, except for brief maritime forays along the coast, most of the area visited during the Hispanic Era was that below San Francisco. Settling along a narrow coastal belt, the population was thin spread, with minor concentrations at San Diego, Los Angeles, Santa Barbara, Monterey, San Jose, and San Francisco. Even as late as 1846 the population of California, exclusive of Indians, was only 10,000, about 2,000 of whom were foreigners.

In 1812, a small colony of Russians built Fort Ross but, with the disappearance of the sea otter and fur seals, in 1839 they were ordered to sell out and return to Alaska.

After sporadic expeditions made in the late 1820's by American fur trappers news of California began to spread east, resulting in the first party of American settlers arriving in California in 1841. Soon the increase of Americans inspired new impetus to California's development. Originally this immigration was to the northern part of the State where grist mills were built to take the place of the Spanish metate and sawmills were built to provide lumber for new homes.

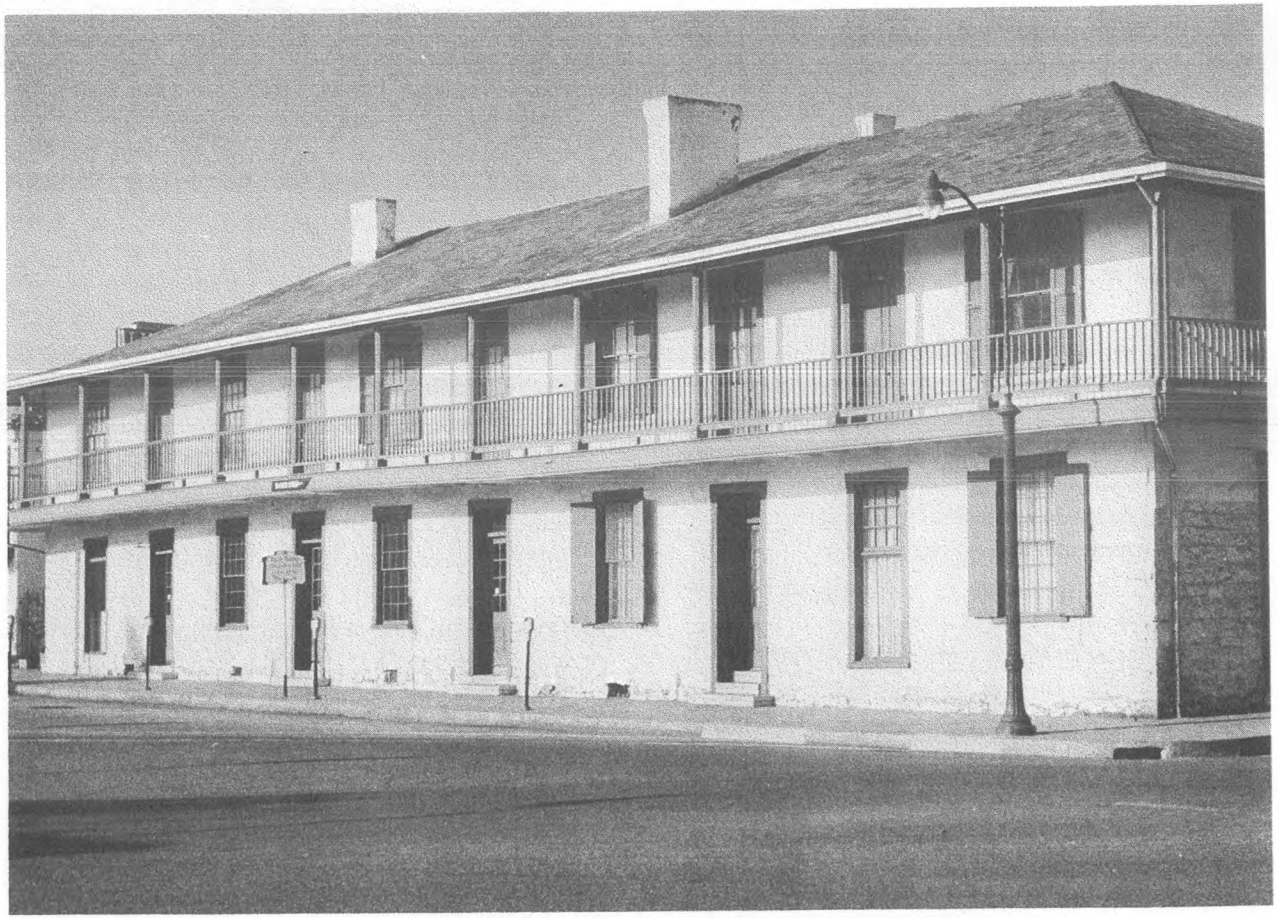
United States policy, from the beginning of the Polk Administration, seemed fixed on the annexation of California. American settlers, distrustful of Mexican rule, were quick to follow suit and encouraged by the presence of American forces commanded by John C. Fremont, seized Sonoma on June 14, 1846, proclaiming California a Republic.

Architecture: Hispanic Era architecture, as exemplified by California's Spanish missions, usually embraced the use of adobe, hand hewn timbers, and fired red clay tile. These missions, placed approximately a day's walk apart, are the symbol of early Spanish Colonialism just as are those in Mexico and elsewhere in the southwest. Depending upon the material and manual labor at hand, these buildings show various degrees of building proficiency. Most have vaulted stone ceilings, shaped and curved archways and window openings, decorative sculptured details, and a central or offset belfry.

Later, with the arrival of foreign settlers, the mode of Spanish design began to vary. One, among structures built by foreigners, is the Larkin House (1833-34), which served as the prototype for buildings combining Spanish and American architectural techniques. Others diagnostic of that period were the Petaluma Adobe, Sonoma Barracks, the Pacific Building in Monterey, and numerous other structures built throughout the state as rancho homes and city dwellings. Few of these buildings are found north of San Francisco; their major impact was confined to a narrow coastal belt, extending from San Francisco south to San Diego.

Somewhat unique to the era were wooden buildings constructed at Fort Ross by Russian colonists and fur trappers. Another structure is El Castillo, located on a point of land adjacent to Monterey's historic roadstead. This structure is the only one of its kind in this state and represents an attempt made by the military to set up a peripheral defense position as protection for what might be considered its most important colonial possession in California.

Pacific Building, Monterey

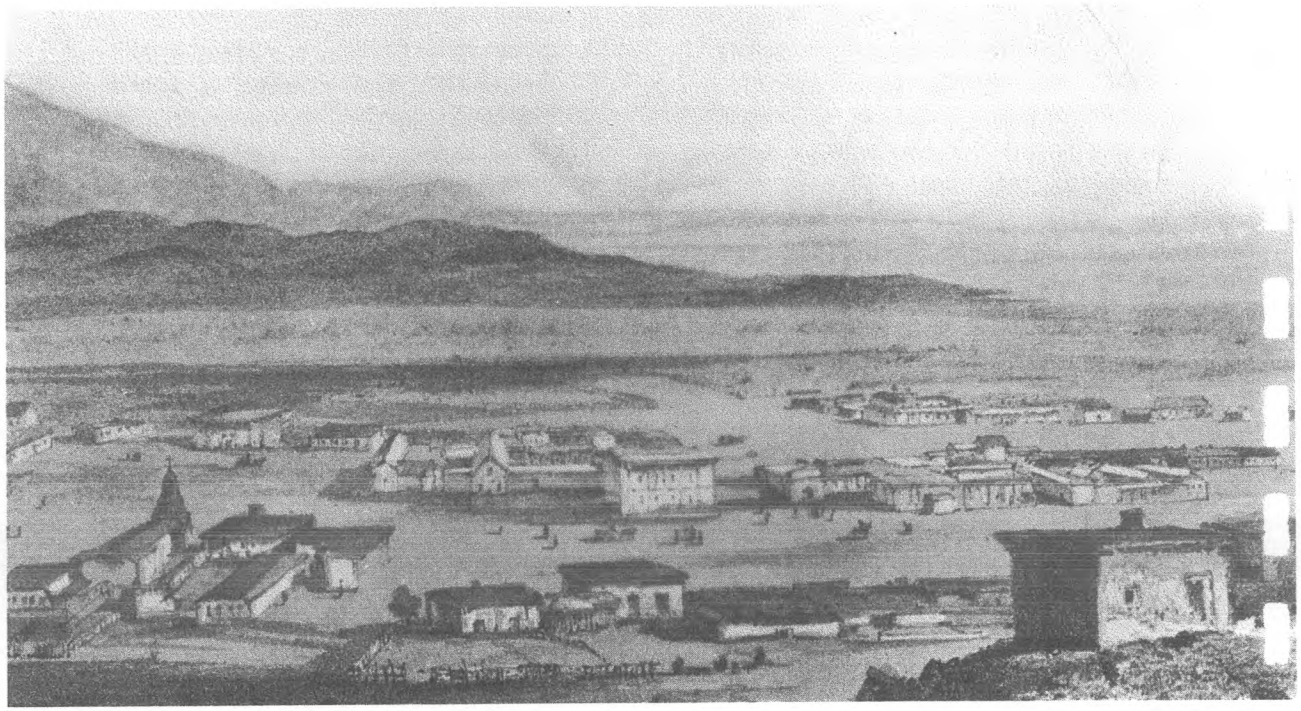


Education: Education during Spanish-Mexican times in California was principally associated with military training, training in mission arts and crafts, and in domestic and culinary arts. Diagnostic examples of education's impact on California may be found in most of the California Missions. Mission San Carlos Borromeo in Carmel possesses an outstanding collection of books and retablos.

Exploration and Settlement: Exploration during the Hispanic Era, by reason of its temporal nature, is best expressed in documentary reports. Among those who explored California's coastal area during this era were Spaniards: Cabrillo, 1595; Unamuno, 1587; Cermeno, 1595; Vizcaino, 1602; Portola, 1769; Crespi, 1769; Fages, 1772; Ayala, 1775; Bodega, 1775; De Anza, 1776; and Font, 1776. English explorers were: Drake, 1579; and Vancouver, 1792-94. Russian explorers were: Rezanof, 1806; and Kuscof, 1808. During this era Americans began to arrive in increasing numbers.

The most tangible evidences of the presence of these explorers are the Missions, the Cabrillo National Monument, "Drake's Plate" (now displayed at Bancroft Library), Fremont's Flag (now on display at the Southwest Museum), reliquaries stored in Mission San Carlos Borromeo and at Fort Ross.

The settlement of Hispanic California centered on the coast. From 1769-1822, through the establishment of 20 missions, three major pueblos, and four presidios, Spain maintained a tenuous hold in California. Nothing, save distance and preoccupation with other interests, prevented other powers from wresting California from



Pueblo de Los Angeles from a copy of an old painting

the Spanish Crown. This weakness, despite increased population, continued into and throughout the period of Mexican influence (1822-46) as testified to by the ease with which political revolutionaries achieved local control, the "Bear Flaggers" won their independence, and the United States took practically the whole of the southwest.

Diagnostic of this era along the coast are remnants of Spanish presidios in San Diego, Santa Barbara and San Francisco, several missions, numerous rancho structures, El Castillo, historic buildings in Old Town San Diego, San Juan Capistrano, Sonoma, Monterey, Santa Barbara, San Gabriel, Los Angeles, the Commander's House, and redoubts at Fort Ross.

Government: Civil government in the Hispanic Era resolved first on Spain, then on Mexico liberally interspersed with brief periods of local political revolution. In 1822 the last governor of Spanish California, Pablo Vicente de Sola, replaced the flag of Spain with that of the Mexican Empire.

During most of this period the church enjoyed virtually its own form of ecclesiastical freedom, electing its own presidente-padres, and exercising control over vast numbers of people. This was to end, however, with secularization of the missions in 1833-34.

During this era Russian colonial government was in force at Fort Ross; Monterey became the main port of entry for California, and foreign

contact began to wield influence upon California citizens. During the Polk Administration, American penetration of California was accelerated under the cloak of scientific exploration and a flotilla of American warships made frequent stops at California ports.

Evidences of government in this era are the Custom House, the French Consulate, the American Consulate in Monterey, and Fort Ross; all well preserved, with three of the four in state ownership.

Industry and Commerce: Agriculture, especially cattle was the dominant industry during Hispanic times. Hide and tallow were the primary export commodities. The missions and ranchos were virtually self supporting, each raised its own food and manufactured its own implements. Vitaculture and lumbering were initiated.

Wild animals were heavily exploited. Sea otter and beaver provided pelts for foreign trade. Whalers coursed our shores, figuratively in the wake of Manila galleons.

Evidence of Hispanic agriculture along the coast has all but disappeared under the pavement of urban development. At least one comprehensive example of Hispanic agricultural life along the coast in the years 1770 to 1846 should be displayed to the public. The Estancia at Costa Mesa, the Ortega Rancho near Santa Barbara, La Purisima Mission, and the Los Cerritos Rancho offer opportunities for doing this.

Other aspects of Hispanic Era commerce can be exhibited at the Monterey Custom House and at Fort Ross.

Religion: The major religious impact was made by the Catholic priests through their development of the missions and subordinate installations known as Assistencias and the parish churches. The chapel at Fort Ross was the outpost for the Russian Orthodox Church in California.

Coastal installations representative of this era are the missions, including two owned by the state (La Purisima and San Francisco Solano), and the Santa Margarita Assistencia now in partial disrepair near the town of Santa Margarita, San Luis Obispo County.

Military: Military fortifications built during the Hispanic Era are rare. While remains of these installations are found at all four of the former Presidio sites: San Diego, San Francisco, Santa Barbara, and Monterey, the major resource is that recently disclosed by excavation of El Castillo.

In 1818 Bouchard made an abortive attack upon California as a representative of Argentina, which was then at war with Spain.

Also representative of California's Hispanic Era are sites where important military events took place: Ballast Point, La Mesa Battlefield, Fort Stockton, Monterey, Fort Moore Hill, and Portsmouth Square. Each of these is marked by an officially registered landmark plaque.

DEFICIENCIES

The following are the recognized deficiencies in the preservation of Hispanic Era evidences of state significance. In addition, there are other historic sites along the coast which local jurisdications might well protect as important features of their community's heritage.

Architecture:

1. Acquisition of entire visual setting of Fort Ross.
2. Acquisition and repair of a rammed earth adobe.
3. Construction of buildings needed to balance program at Old San Diego.
4. Repair of the Avila Adobe, Los Angeles.
5. Repair to adobe structures requiring restoration in Monterey.

Government:

1. Acquisition of the old French Consulate Building in Monterey.

Agriculture:

1. Acquisition of typical rancho complex in southern California.

Religion:

1. Acquisition and restoration of Santa Margarita Assistencia, San Luis Obispo County.

Military:

1. Acquisition – restoration of El Castillo.
2. Acquisition – restoration of the entire Spanish Presidio at San Francisco or Santa Barbara.

Socio-Political influences:

1. Acquisition of objects, artifacts, reliquaries symbolic of early Spanish-Mexican times.

AMERICAN ERA

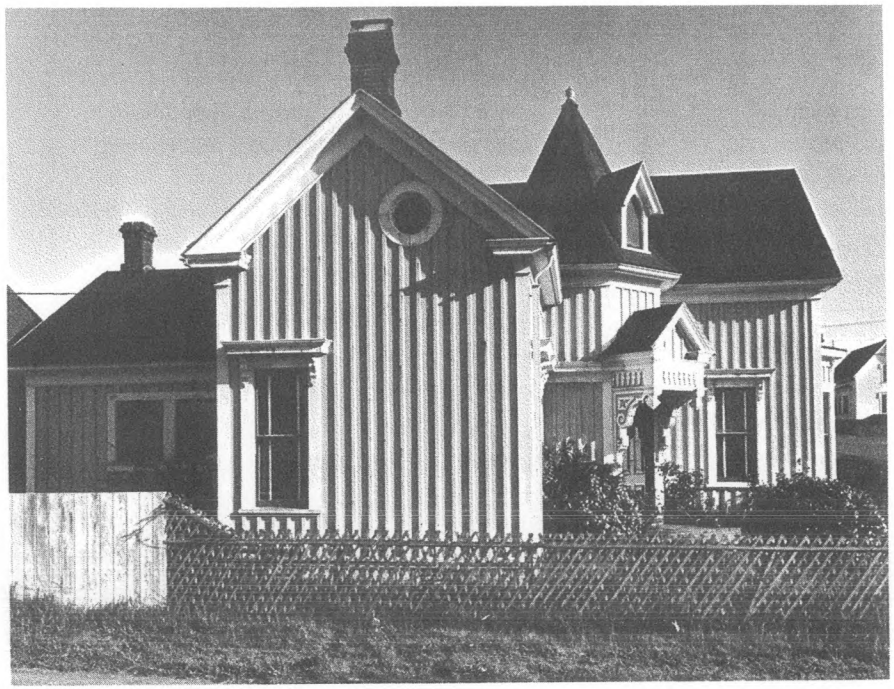
The Treaty of Guadalupe-Hidalgo, signed on February 2, 1848, ushered in the American Era. Only ten days before, gold had been discovered by James Marshall at Coloma. From all along the coast, a vast surge of humanity headed for "the diggins". San Francisco, as the major port of entry, grew from less than 1,000 inhabitants in 1848, to 56,000 in 1860.

Soon a multiplicity of changes began to appear. With the exhaustion of the main gold veins, many miners began to return to their former pursuit in farming. Manufacturing was accelerated, and a transcontinental railroad reduced passage time from east to west to days, rather than weeks and months.

The 1870's brought severe political, economic, and social dislocation to the state. Violent reaction to land monopolies and Chinese labor racked the country. In 1879, a second State Constitution was ratified by the voters of California.

Rapid growth followed with increased migration and expanded agricultural and industrial development. The state is now the most popular and predominant force in the national scene.

Architecture: The taking of California by Americans in 1846-48, prompted progress in the development of architecture and building techniques. For a time, Mexican colonial design continued to be popular, due to availability of adobe and the scarcity and high cost of imported building supplies. This was to change, however, when it was discovered that ships' ballast could be used as building material and that quantities of lumber could be obtained nearby. Local soils were found, in many cases, to make excellent brick, the popularity of which was increased when fire swept cities and homes. With the passage of years, the increase in cosmopolitan populations, and the development of new materials and techniques, California's architecture began to take on greater variety reflecting need, taste, and beauty commensurate with peoples, purposes, and times. The New Englander built houses reflecting those he had known "back home". The classicist built structures emphasizing Greek, Romanesque and Gothic design. Also, Victorian structures with their wood framed, multi-gabled roofs, turrets and jig-saw shaped decorations, and profusely flowered gardens and walks, became the popular expression of their day. From 1900 to the present time, transition has brought us other designs interspersed, of course, with those which tradition continues to inspire and illustrate the individuality of the builder. Among other well known building innovations found along the coast are Pioneer Industrial, California Western, California Rustic, Mission Revival, California Eclectic, and those structures exemplary of the works of master craftsmen.



Victorian home — Mendocino City

Photo by Bill Foote

At this time, examples of architecture considered diagnostic of the American Era are found throughout the State Park System. It will be necessary, however, in order to insure protection of environmental and historical integrity to acquire property and restore or reconstruct buildings which are needed to augment and/or balance a complex already in process of development by the state.

Needed to project an adequate illustration are new complexes essential to a balanced historical program; i.e., a lumber town, a military base, and supplemental period architecture appropriate to complexes already in hand.

Education: Characteristic of this are public schools, colleges and universities, together with leaders in the fields of academics, arts, and sciences. Perhaps because of the inspirational appeal of coastal areas, early prominence was given to cultural development there of art and music. Attracted, too, to the coastal communities were writers, many of whom became famous. Diagnostic of prominent writers is the home of Robinson Jeffers in Carmel, the boyhood home of John Steinbeck in Salinas, and that lived in by Robert Louis Stevenson during his stay in Monterey.

To this list may be added the scientists, doctors, academicians, and engineers whose work is reflected by advancements made in the study of nuclear physics, health, education, environmental resources, etc.

Exploration: Exploration during the American Era is primarily related to flight and space. Diasgnostic of exploration in flight are sites at Otay Mesa in San Diego County where John J. Montgomery experimented in aerodynamics and flight, the U. S. Naval Air Station in San Diego, site of the first military air school, and Dominguez Hills in Los Angeles County where the worlds first air meet was held.

Associated as well with the southern California coastal area were Glenn L. Martin and Charles E. Lindberg. In central coastal California, the huge dirigible *Macon* crashed into the sea off Big Sur, ending exploration by the Navy in the use and development of lighter-than-air craft as a part of naval air power. Near Aptos, on Monterey Bay, experiments in glider flight resulted in important advances in airplane design; and at several places along the coast experiments with rockets and guided missiles have pointed the way toward successful exploration of space.

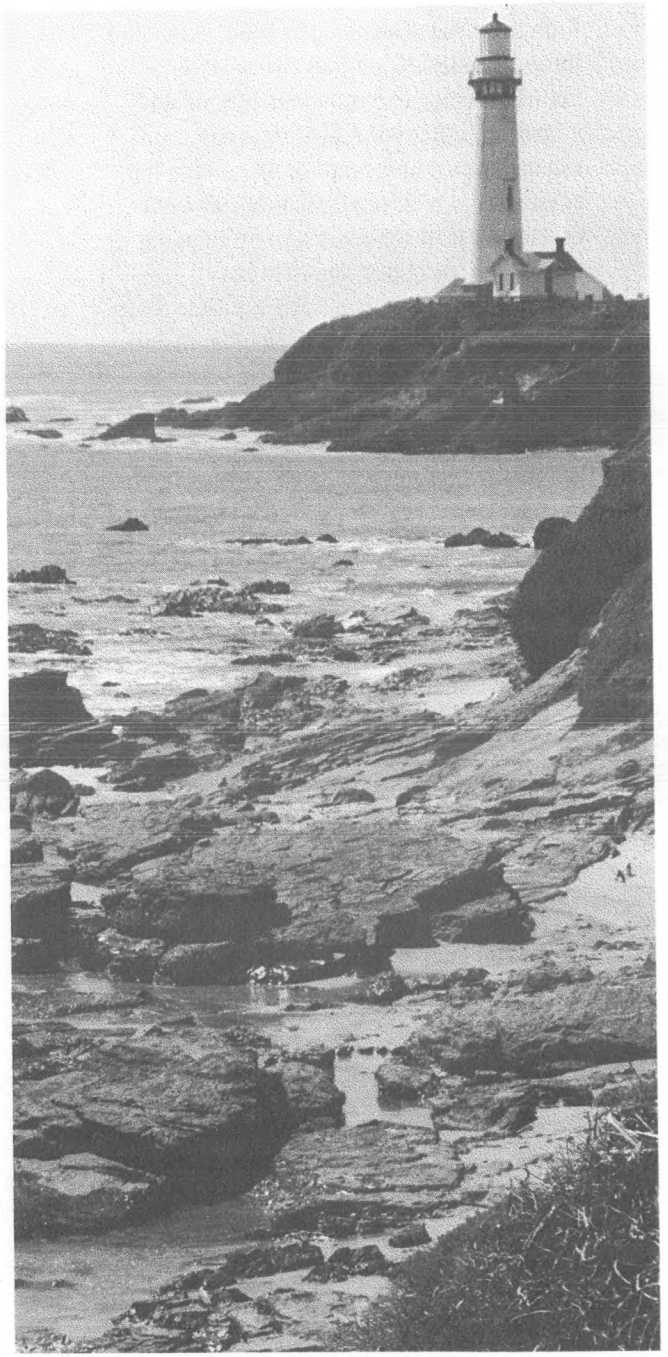
Deficiencies in this category relate to identification, acquisition, and interpretation of air power and space exploration. The coastal area, with its long and impressive history of flight exploration, is the logical location for a museum covering all aspects of flight and flight engineering.

Government: In Monterey, an important structure illustrates the beginning of civil government under American rule. Colton Hall, built in 1849, was the site of the first State Constitutional Convention. As such it has value far beyond local significance and should ultimately be acquired and made a part of Monterey State Historical Park.

Other areas diagnostic of government are various country courthouses, city halls, and federal buildings which dot the coastal area from Crescent City to San Diego. Outstanding among these are public buildings included within the Civic Centers at San Francisco, Santa Barbara, and San Diego. A unique distinction applies to one building, the San Francisco War Memorial Opera House, which was used as the first meeting place of the United Nations. This structure, from a world history standpoint, embodies value of considerable merit.

In addition to structures listed above, numerous lighthouses are found along the whole length of the coast. Most diagnostic of these structures are Pigeon Point Light, Point Cabrillo Light, Cape Mendocino Light, Point Conception Light, Point Vicente Light, and Point Pinos Light.

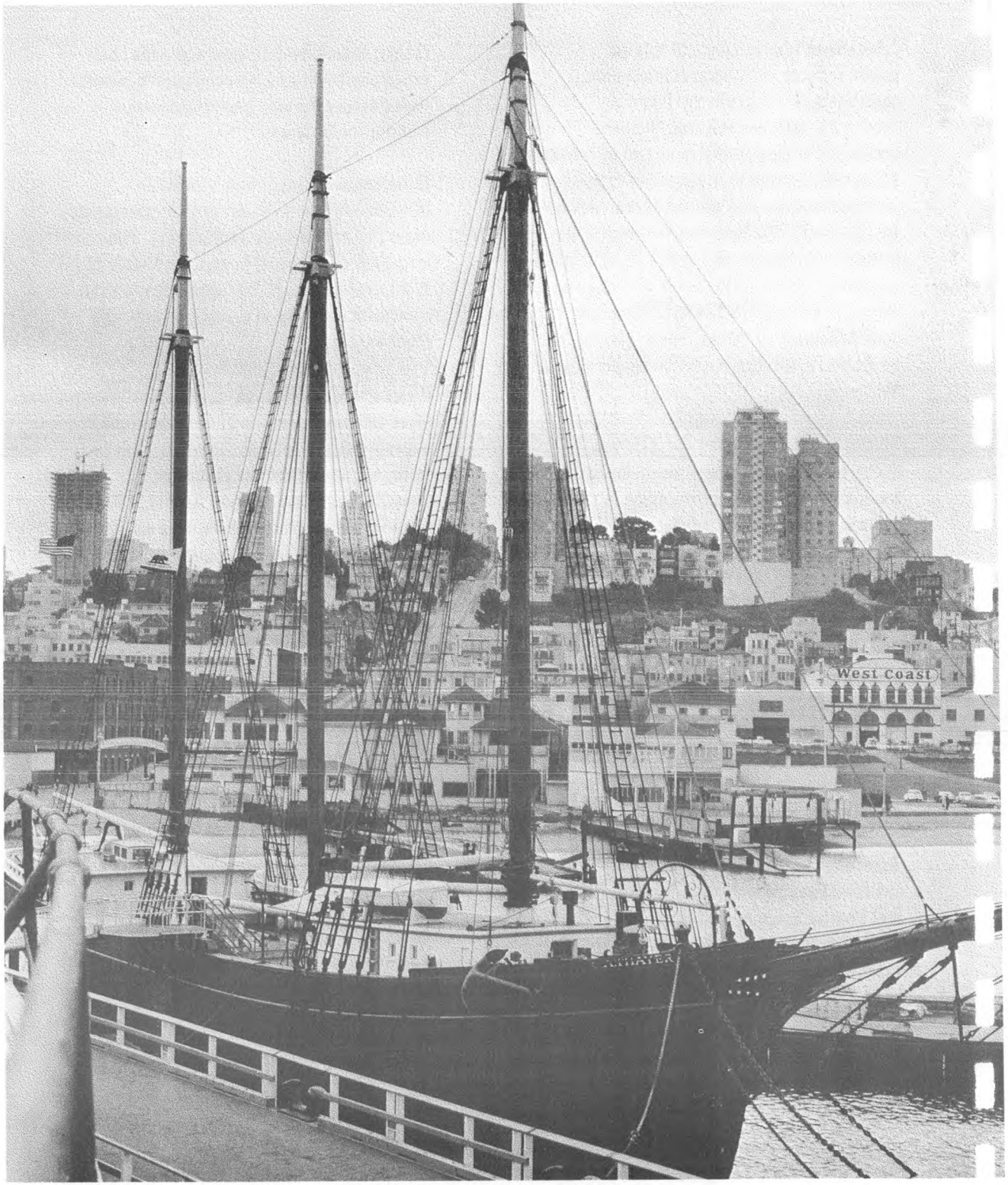
Pigeon Pt. Light House



Industry and Commerce: California's change from a pastoral land to that of Commerce and Industry is one of America's most impressive transformations. From a humble beginning in 1850, extending through transitory periods fraught with political, social, and economic turmoil and growth, production in California has reached miraculous proportions. Along the coastline the dominant influence has been development of foreign trade and shipping. Commemorating this, the state has established the San Francisco Maritime State Historic Park at the Hyde Street Pier in San Francisco, where four vessels important to California history are preserved and interpreted for the visiting public. In Humboldt County, efforts have been directed toward developing a state lumber exhibit. While showing an important factor in the economic development of the state, this exhibit conflicts with the site once occupied by Fort Humboldt. It is recommended that a site related to the lumber industry alone be acquired for such purpose, thereby releasing Fort Humboldt for interpretation of its military history.

Some industries, like whaling, fishing, and aeronautics, are likely candidates for development and interpretation by the State Park System, and should be carefully reviewed and evaluated as part of its future program.

Agriculture, as exemplified in coastal areas, has not assumed large proportions. Agriculture is represented in the Salinas River Valley, the Pajaro River Valley, and near Santa Cruz. Representation on the coast is spotty and less significant than that in the Sacramento and San Joaquin Valleys.



San Francisco Maritime State Historic Park →

Illustrative to a degree, however, of agricultural, animal husbandry, and horticultural development on the coast are examples shown at the Kruse Rhododendron State Reserve in Sonoma County, the Lick Conservatory in San Francisco, the Steele Ranch near Año Nuevo, and at numerous artichoke farms near Castroville. In southern California stretches of land along the sea were once planted to beans, tomatoes, peppers, squash, and other plants suited to irrigation by coastal fogs, but this activity has been dropped almost entirely because of inroads of urbanization.

Religion: California's origin as a Spanish colony established a strong base of faith dealing with Roman Catholicism, but this, with the arrival of Anglo-American immigrants, most of them Protestants, began to change. Fewer in number were immigrants from other areas of the world – notably those from China, the Mid-East, and South-Central Europe. Joined by those whose obedience to faith took different avenues, each faction built its churches and accepted its moral and religious responsibilities as a part of California's heterogeneous population.

Throughout the coastal area, as in other sections of the state, there are examples diagnostic of this vast number of religions. Outstanding among those in the northwest is the Mendocino Presbyterian Church. In San Francisco, old Saint Mary's wields its benevolent influence and in Carmel, Basilica San Carlos Borromeo continues to call its faithful to mass. Virtually every area of the state is represented with a multiplicity of religious sites and buildings. These historic churches should rely upon their memberships to insure their continued preservation.

Military: The fortification of California began concurrently with the arrival of the military in 1846-47. Because of California's isolation from other states in the Union, it was necessary to establish bases for the defense of what had been so recently acquired. This was the beginning of Benicia Barracks, Mare Island Naval Base, Camp Reynolds, Fort Humboldt, etc. During the Civil War, it was men from Camp Drum who kept southern sympathizers in check and who patrolled the vast frontier; it was the California 100 grown to 1000 who served on eastern battlefields. Coastal installations developed during this early period, and throughout subsequent years, were Drum Barracks (Wilmington), Camp Reynolds (Angel Island), Mare Island (Vallejo), Benicia Arsenal (Benicia), Fort Humboldt (Eureka), the Presidio (San Francisco), Fort Ord (Monterey), Fort McArthur (Los Angeles), Camp Pendleton (San Diego), and air bases located at Vandenburg, San Diego, and Alameda. Many of these installations continue to function as military bases. Others like Drum Barracks, Fort McDowell, and Fort Humboldt are part of the State Park System.

Camp Reynolds, on Angel Island, is on the critical list for want of funds to stabilize and restore structures. Another installation in need of preservation is Fort Mervine, located on Presidio lands in Monterey. This should be acquired and restored. Fort Point and other historic areas associated with the military in San Francisco should be preserved either by the National Park Service, the City, or the State. Camel barns, the guard house, and other historical structures located in what was the Benicia Arsenal, should be preserved, as should some of the buildings located on Mare Island and Fort McArthur. Adequate development should be given Fort Humboldt.

Mendocino Presbyterian Church

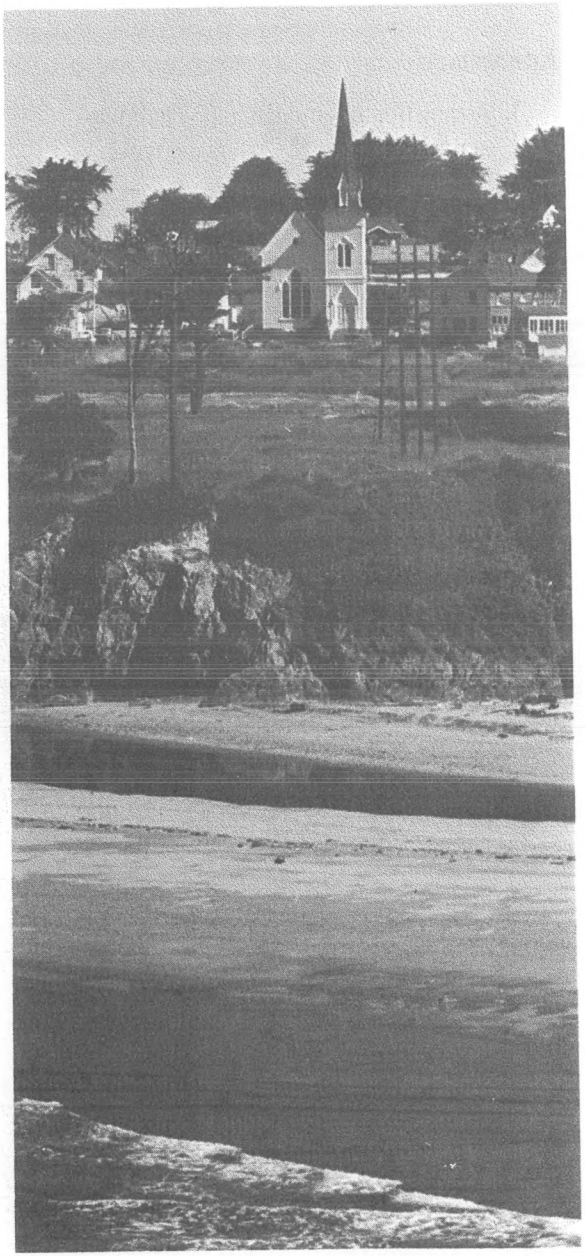


Photo by Bill Foote

DEFICIENCIES

The following are the recognized deficiencies in the preservation of American Era evidences of state significance:

Architecture:

1. Acquisition of an outstanding building representative of the following types:

   Victorian

   California Rustic

   Mission Revival

   California Eclectic

Exploration:

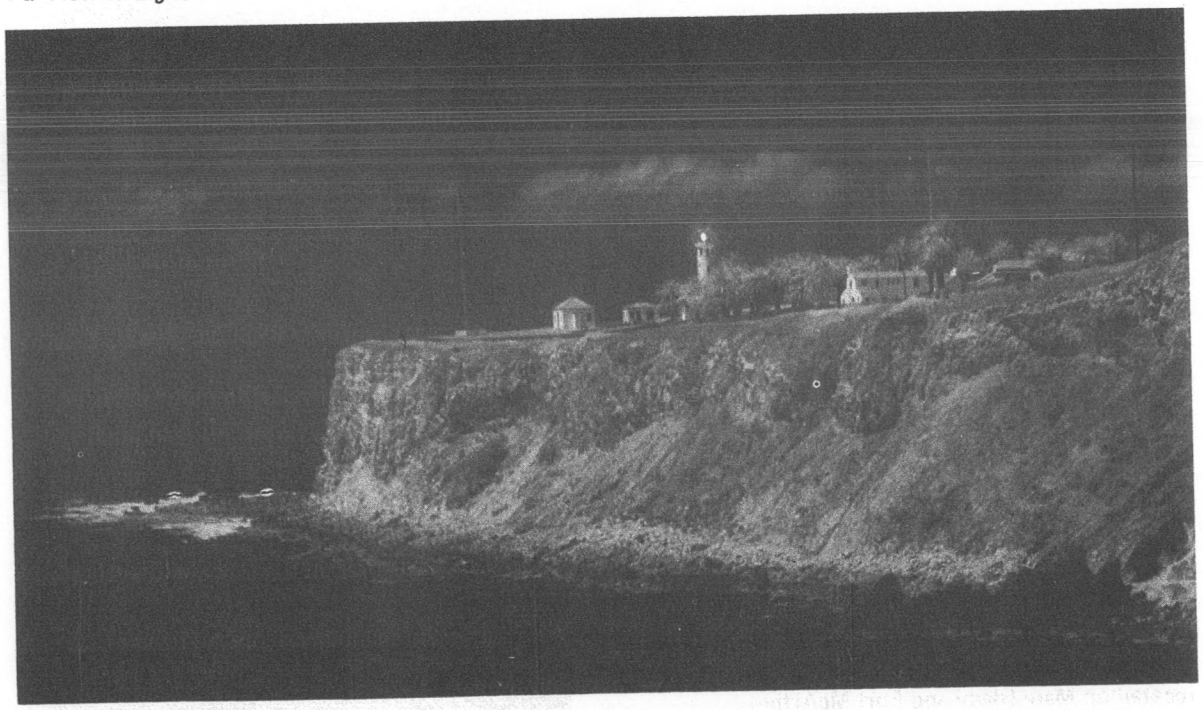
1. A state museum covering all aspects of flight and flight engineering.

Government:

1. Acquisition and redevelopment of Colton Hall, Monterey.

2. Acquisition of several lighthouse areas for multiple use: historic and recreational. Preference: Pigeon Point Light, Point Cabrillo Light, and Point Vicente Light.

Pt. Vicente Light



Industry and Commerce:

1. Expansion of the San Francisco Maritime State Historic Park.
   a. Acquisition of the tugboat *Hercules*.
   b. Acquisition of the *Eppleton Hall*.
   c. Acquisition of the *Balclutha*.
   d. Acquisition of the Lightship *San Francisco*.
2. Acquisition of the Old Whaling Station and first brick house in Monterey.
3. Development of an aeronautical museum – glider area.

Religion:

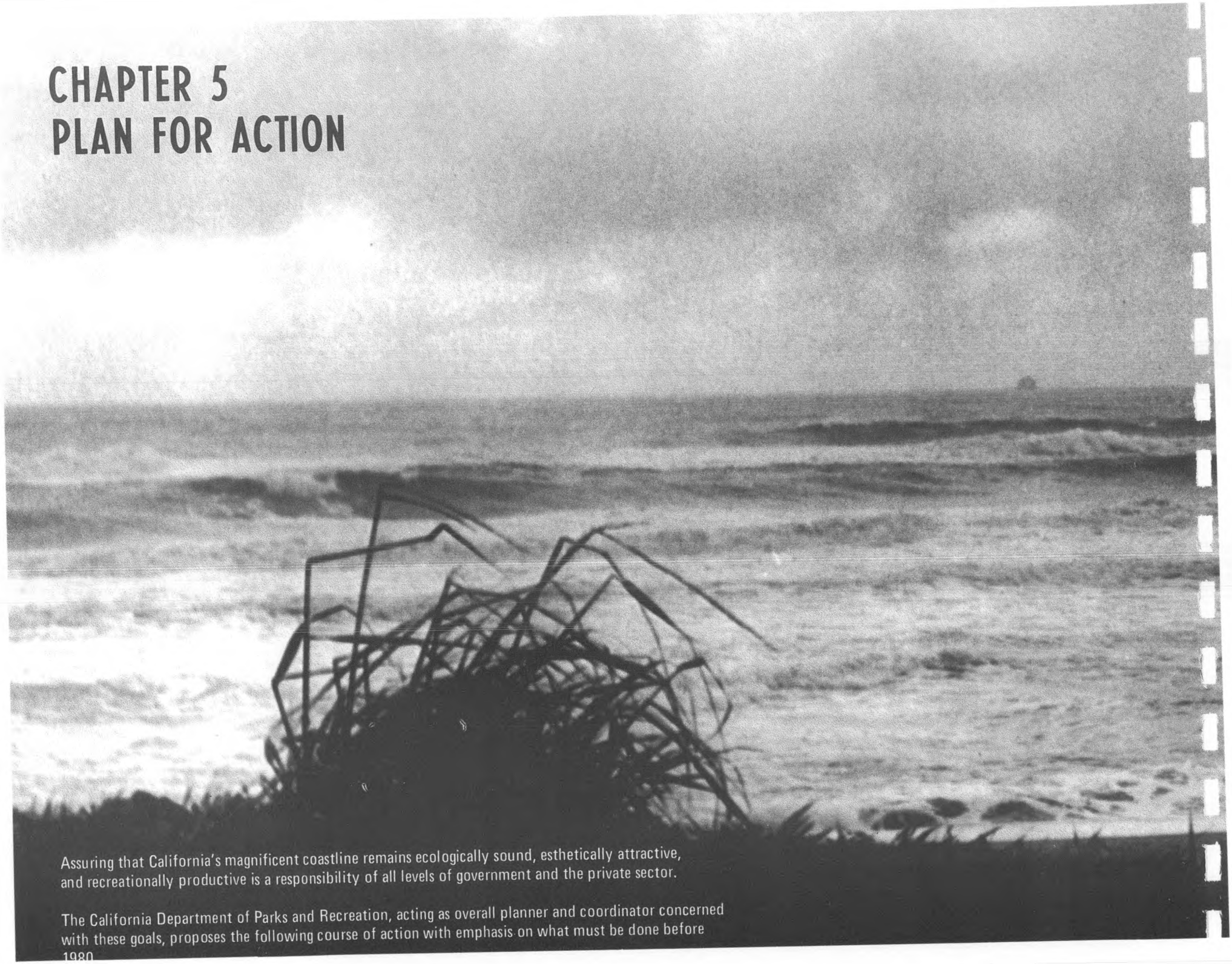
No deficiencies on the coastal plain.

Military:

1. Restoration-preservation of selected military structures on Angel Island.
   a. Camp Reynolds (West Garrison)
   b. East Garrison
   c. North Garrison
2. Acquisition of selected historic buildings at Fort McArthur.
3. Development of Fort Humboldt.
4. Development of Drum Barracks.
5. Acquisition and development of Fort Mervine, Monterey.

Drum Barracks →

CHAPTER 5
PLAN FOR ACTION



Assuring that California's magnificent coastline remains ecologically sound, esthetically attractive, and recreationally productive is a responsibility of all levels of government and the private sector.

The California Department of Parks and Recreation, acting as overall planner and coordinator concerned with these goals, proposes the following course of action with emphasis on what must be done before 1980.

LANDSCAPE PROTECTION

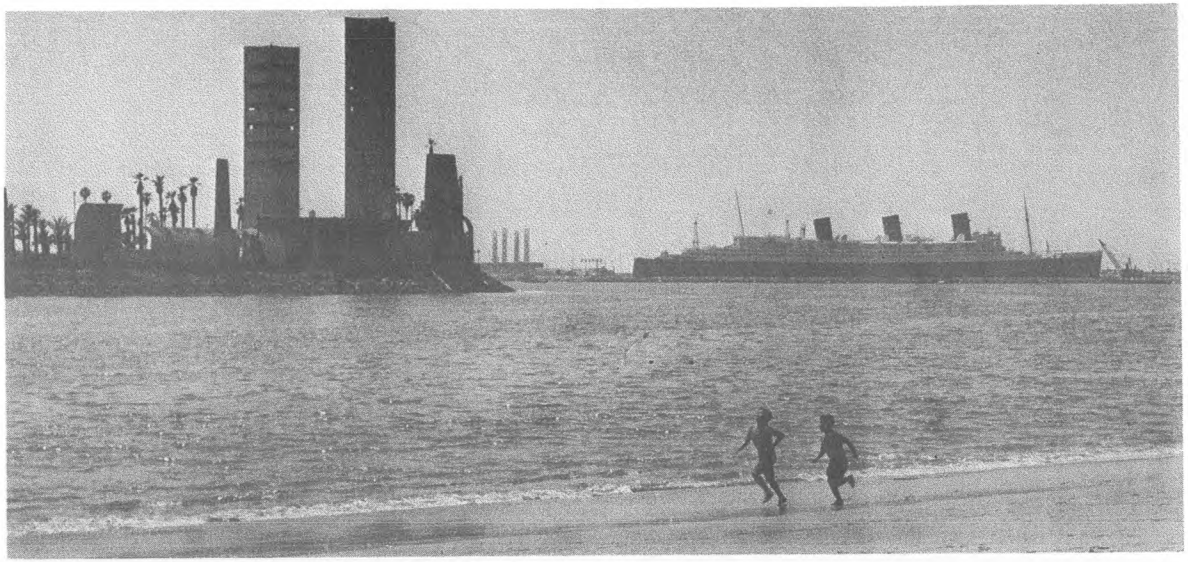
GENERAL ENVIRONMENTAL QUALITY

Land Use Control – The social and ecological effects of land use and development along the coast transcends the boundaries of the coastal municipalities and counties. Therefore, *all land use and development decisions within the coastal zone should be based on a comprehensive plan prepared and administered from a single focal point, which has a comprehensive perspective representing the local, regional, state and national view.*

Plan preparation and enforcement should be by an adequately staffed and financed organization that represents no special interest in coastal zone development or management. *This coastal zone authority's actions must be subject to full public hearings so that all interests can be considered.*

Day-to-day administration of the plan could be delegated to local authorities and regional commissions, but the coastal zone authority should have major influence over any coastal action or development that is in conflict with the coastal zone plan. Regional commissions should include representatives of statewide interests as well as local governmental officials.

Local government must continue to assume the primary responsibility for protecting the quality of the environment. *This will require firm stands by local planning commissions and legislative bodies. Developments should be set back from beach and bluff lines, and should not be allowed to obscure views of long stretches of the coast. These set backs should be especially generous where shoreline erosion is a problem.*



Long Beach

Natural features in or near urban areas add to the quality of urban living, and to the attractiveness of resort communities. In coastal communities, such features may include marshes and lagoons, rocky promontories, wooded flood plains, and sandy or rocky shorelines. These can be protected by zoning or public acquisition, with the latter method usually the most effective.

Tide and Submerged Lands – The state sovereign lands are a vital public resource. The management of these lands must reflect expertise in the field of environmental resources. *Therefore, all cooperation must be given to expedite the completion of a comprehensive ocean area plan so that management alternatives may be thoroughly discussed and the most desirable of those alternatives implemented for the wisest use of the coastal area at the 1972 session of the Legislature.*

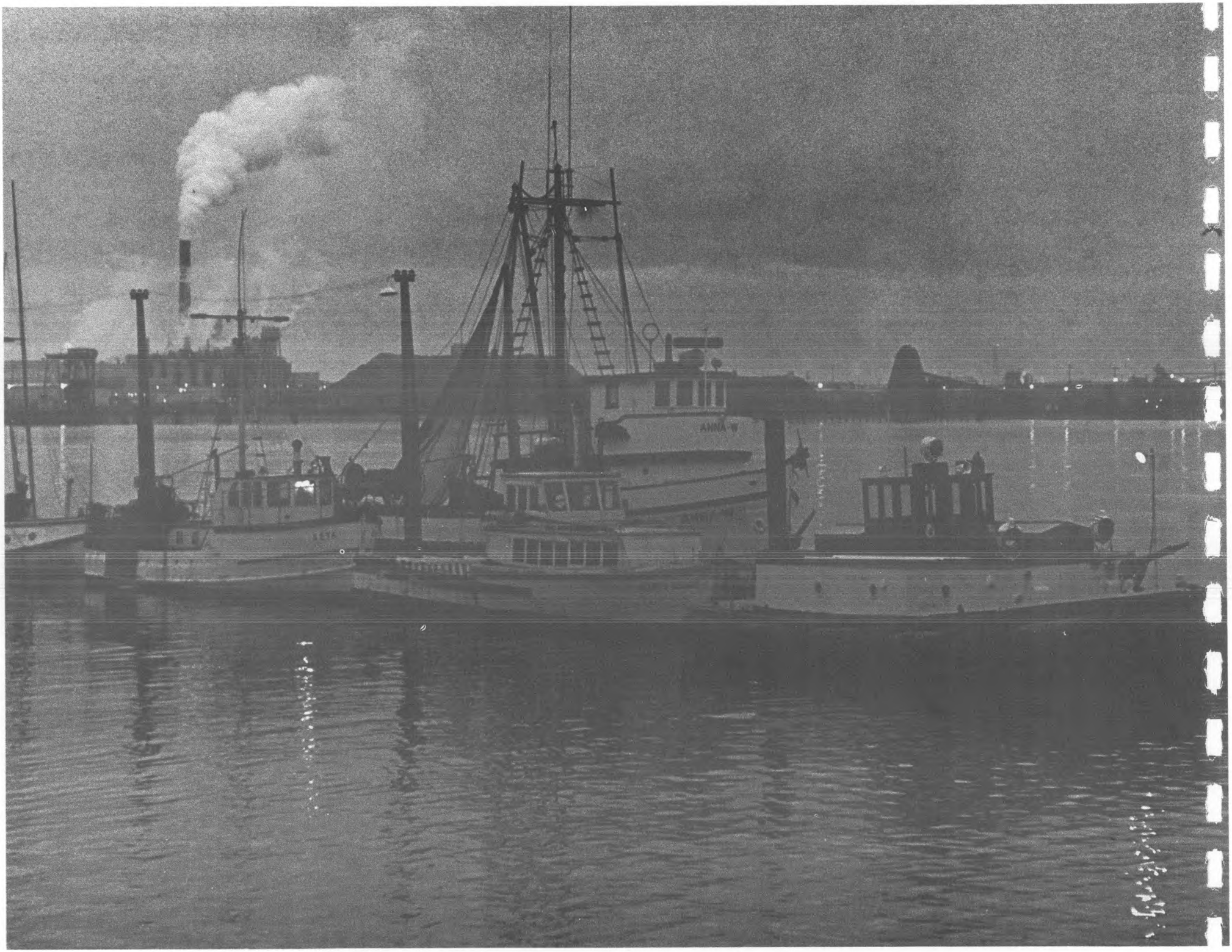
Public Works – *Structures and activities along the shoreline must be limited to those dependent upon the coastline. Those meeting this requirement should be located and constructed to minimize their impact on the shoreline's natural and recreational resources. Special consideration must be given to the protection of extremely scarce and fragile coastal wetlands and estuaries. If natural and recreational resources are lost because of a necessary public works project, they must be mitigated for or developed in kind in the vicinity.*

In the development of public works, all agencies should abide by the provisions of the recently enacted state and federal environmental protection acts. The needs for all public works should be determined on a statewide basis to avoid duplication and the resulting loss of resources.

Existing legislation should be amended to require appropriation of funds to correct adverse environmental effects of public works projects at the same time that funds are appropriated for project construction.

The California Division of Highways should acquire all land seaward of all coastal highways where the distance is 300 feet or less, thus preserving the scenic open space and coastal vistas so valuable to the sightseeing motorist. The Division of Highways should continue to provide scenic overlooks and rest stops along coastal highways.

Development North of Doheny


ANNA W

Pollution – Some years ago, Rachel Carson in her book *Silent Spring* warned that use of persistent chemicals would ultimately contaminate our environment; scientific evidence now appears to be proving her prediction correct.

The use of hard pesticides and other persistent chemicals can no longer be tolerated. A few mosquitoes in a campground or blemishes on vegetables are certainly more tolerable than the extinction of entire species of plant and animal life and the effects of the chemical residue in our bodies. *The jurisdiction of the state must be enlarged to regulate the use of chemicals dangerous to human life and the environment.*

The state should also monitor operations outside the three-mile limit, since activities beyond the three-mile limit may have a detrimental effect upon coastal resources. Therefore, the Secretary for Resources should transmit the opinions and comments of the Water Resources Control Board and the Department of Conservation to the Secretary of Interior through the Governor on all coastal shelf matters.

A permit system should be established regulating movement of chemicals injurious to life through the waters of the state. The system would be similar to those established for transportation of over-sized loads or explosive materials on our highways. Such a system would serve to identify those chemicals and assign responsibility.

The Department of Fish and Game should vigorously implement the new legislation authorizing petroleum cleanup and the new section of the Fish and Game Code prohibiting trash dumping adjacent to waters of the state. This section should be broadened to include "official" municipal dumps adjacent to state-owned lands and waters.

← *Eureka Sport Fishing Harbor*

PUBLIC EDUCATION

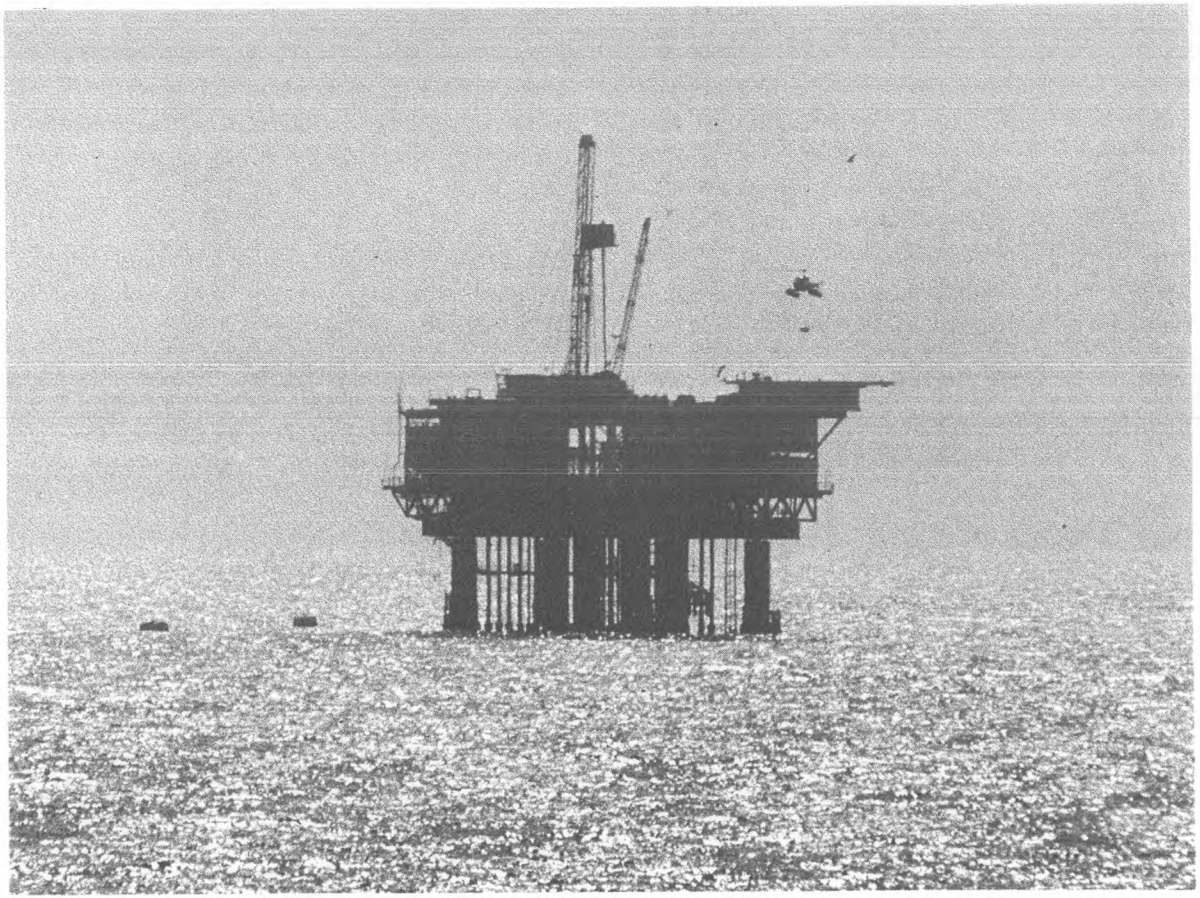
All levels of government must actively educate the public to the value of the coastal resources. The following initial actions are recommended for state agencies.

The Division of Highways in conjunction with appropriate departments within the Resources Agency should provide interpretive services and devices to explain the natural and cultural resources adjacent to overlooks and rest areas.

The Interpretive Services Section of the State Park System will develop an ocean resources information program. The highest priority for this program should be at coastal parks and beaches.

The State Department of Parks and Recreation in conjunction with other departments of the Resources Agency and the Department of Education will provide facilities interpreting the significance of the ocean's resources and man's relationship to them at selected State Park System units. The proposed program at Salt Point State Park is a first step in that direction.

Oil Rig



NATURAL AREA PROTECTION

The state and federal governments must protect significant examples of the California coastal landscape for the inspiration, education, enjoyment, and scientific study of the people of the state and nation. *Table 8 and Plate F identifies 38 natural areas which, if properly managed, would assure that adequate examples of California's coastal landscape heritage are protected.* These areas contain some of the best of the coast's scenic qualities, the better examples of all biotic communities native to the coast, and a representative display of typical coastal geologic landforms.

These areas encompass a total of about 432,000 land acres, 432 miles of shoreline, and 861,000 acres of off-shore area. Of these, 136,000 land acres, 196 shoreline miles, and all of the off-shore areas are already in public ownership. Acquisition of the remaining 287,000 acres of privately held lands will require a public investment of hundreds of millions of dollars, but would provide a kind of perpetual benefit seldom purchased with government budgets. Because California is a rapidly developing state, early acquisition of these areas is vital. Many of the areas would be better parks if they were larger, but it is more important that the complete array of areas be acquired so that a balanced system of natural areas is achieved.

The last column of Table 8 contains a listing of current priorities. These priorities reflect the degree to which the resources needing protection are threatened with irrepairable modification. Because of the dynamics of coastal land use and development, this priority list will be subject to early and continued damage.

Table 8 also recommends the public agency or agencies responsible for acquiring and administering each of the major landscape protection areas. In some cases, land exchanges and transfers may be made. Many of these land transactions can take place administratively, while others may require state or federal legislation. The tide and submerged lands in each area should be transferred to the jurisdiction of the appropriate administering agency.

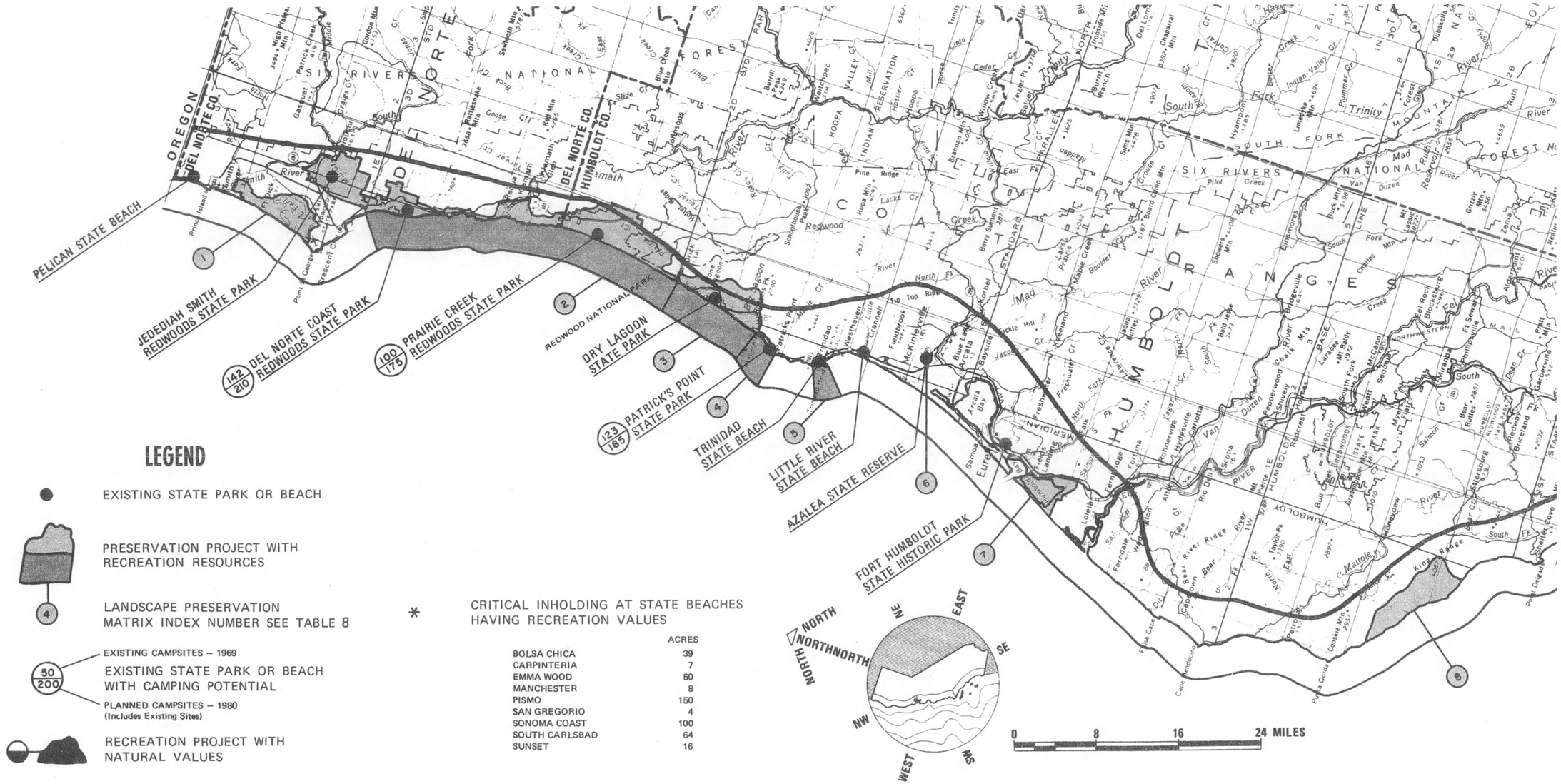
Public acquisition alone will not assure proper protection of these important areas. Within these areas "Natural Preserves" must be established where the natural regime is not interrupted. (For Natural Preserve criteria, see Chapter 2, Page 46). Within these preserves, no development should be allowed other than carefully located foot trails. Table 8 identifies potential Natural Preserves, totaling 324,000 acres, which encompass the most significant features of the coastal landscape.

Legislation authorizing a system of Natural Preserves within the State Park System is needed. All Natural Preserves within State Park System units should, after careful study, be submitted to the Legislature for official designation. Similarly, potential Natural Preserves within federal areas should be considered for inclusion in the National Wilderness System.

Certain significant natural features within the coastal strip warrant protection within state and federal parks and recreation areas but because of their limited size or the condition of their setting do not qualify for "Natural Preserve" status. Table 8 also identifies these areas, which total 104,000 acres.

It is neither feasible nor desirable for every acre of the natural areas listed in Table 8 to be included within Natural Preserves. Orientation, interpretative, camping, and other recreation facilities are needed to accommodate the visitor in these major outdoor areas. The department has identified 30,000 acres at these natural areas, within which such facilities can be judiciously placed without jeopardizing the landscape preservation objective.

In addition to the Natural Preserve program, *the Department of Fish and Game should use the Federal Dingell-Johnson and Pittman-Robertson Act funds for acquisition of scarce coastal wetlands.*



LEGEND

- EXISTING STATE PARK OR BEACH
- PRESERVATION PROJECT WITH RECREATION RESOURCES
- 4 — LANDSCAPE PRESERVATION MATRIX INDEX NUMBER SEE TABLE 8
- 50/200 — EXISTING CAMPSITES – 1969; EXISTING STATE PARK OR BEACH WITH CAMPING POTENTIAL; PLANNED CAMPSITES – 1980 (Includes Existing Sites)
- RECREATION PROJECT WITH NATURAL VALUES

* CRITICAL INHOLDING AT STATE BEACHES HAVING RECREATION VALUES

	ACRES
BOLSA CHICA	39
CARPINTERIA	7
EMMA WOOD	50
MANCHESTER	8
PISMO	150
SAN GREGORIO	4
SONOMA COAST	100
SOUTH CARLSBAD	64
SUNSET	16

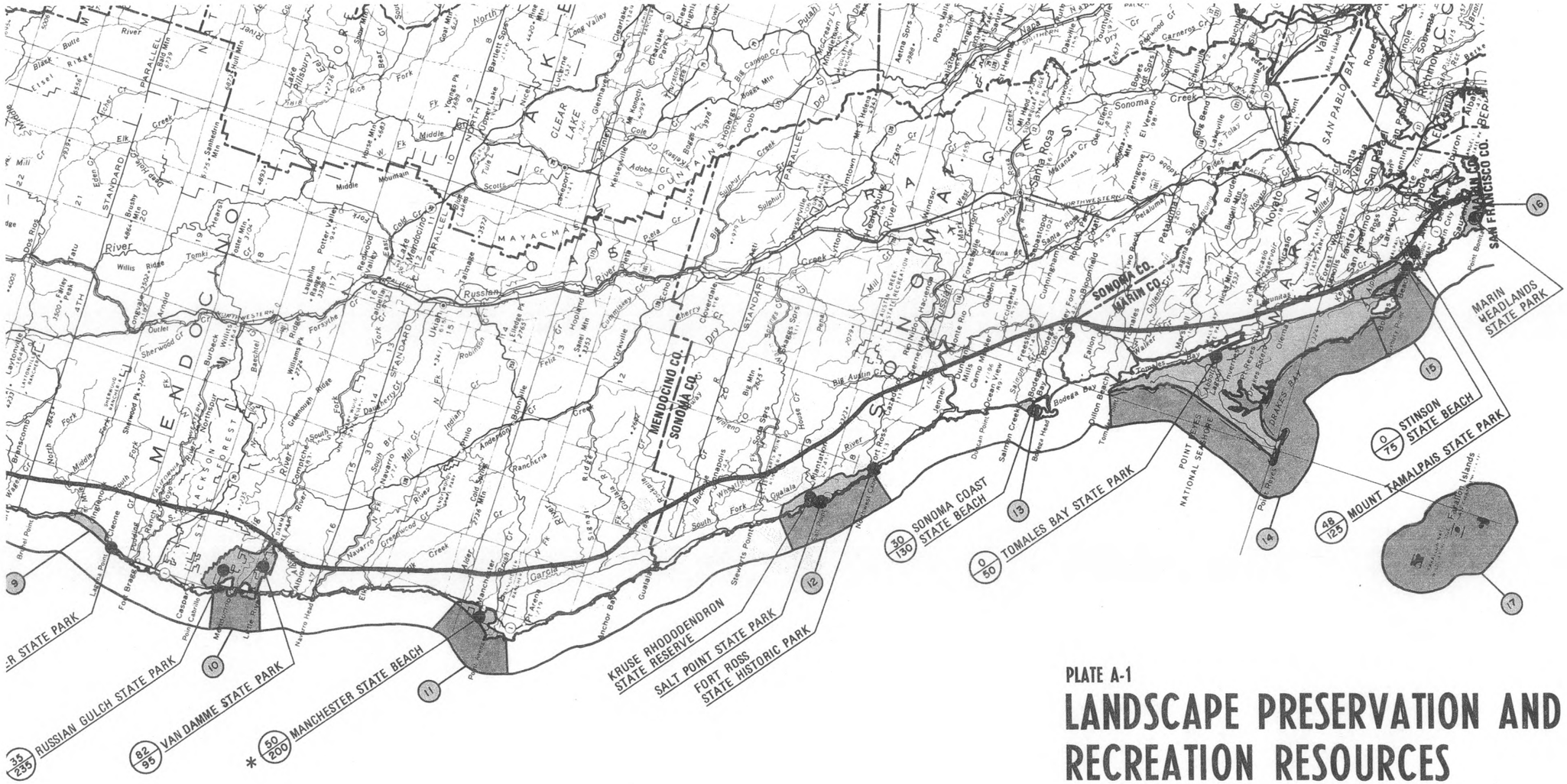


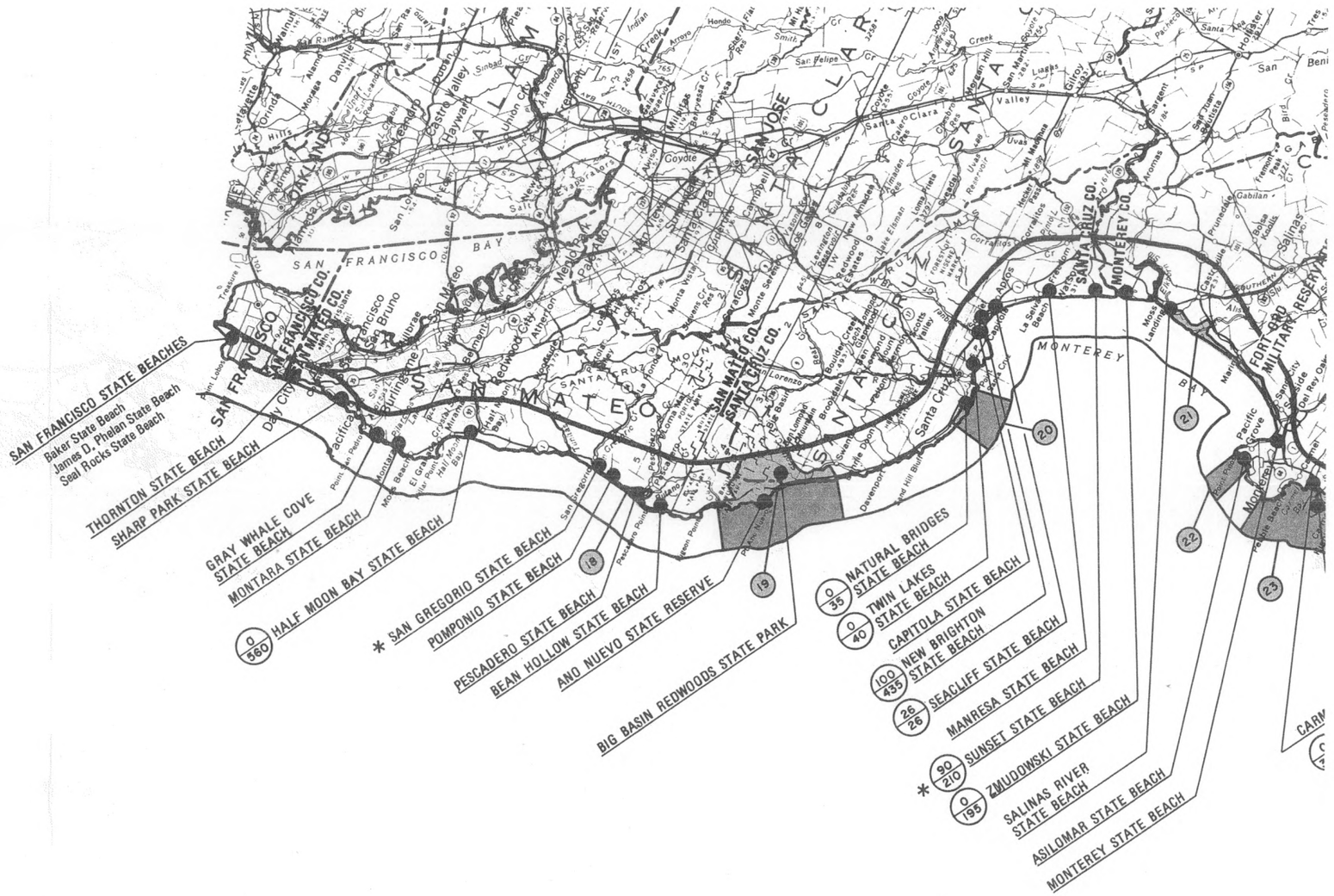
PLATE A-1

LANDSCAPE PRESERVATION AND RECREATION RESOURCES

LEGEND

- EXISTING STATE PARK OR BEACH
- PRESERVATION PROJECT WITH RECREATION RESOURCES
- 4 — LANDSCAPE PRESERVATION MATRIX INDEX NUMBER SEE TABLE 8
- 50/200 — EXISTING CAMPSITES -- 1969 / PLANNED CAMPSITES -- 1980 (Includes Existing Sites) — EXISTING STATE PARK OR BEACH WITH CAMPING POTENTIAL
- RECREATION PROJECT WITH NATURAL VALUES
- FEDERAL AREAS WITH RECREATION POTENTIAL
- * CRITICAL INHOLDING AT STATE BEACHES HAVING RECREATION VALUES

	ACRES
BOLSA CHICA	39
CARPINTERIA	7
EMMA WOOD	50
MANCHESTER	8
PISMO	150
SAN GREGORIO	4
SONOMA COAST	100
SOUTH CARLSBAD	64
SUNSET	16



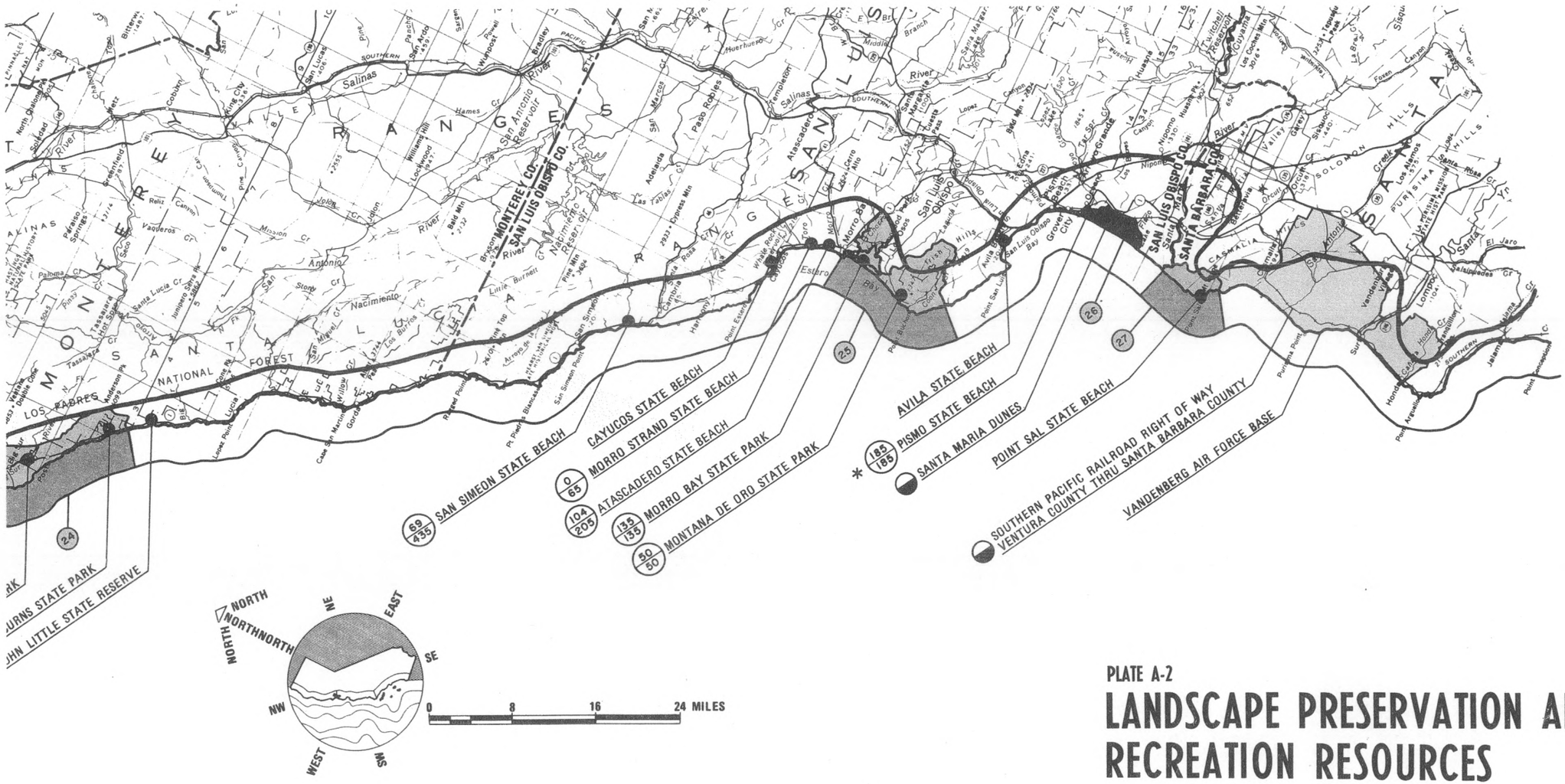


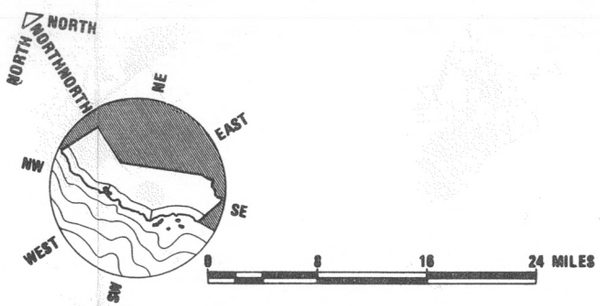
PLATE A-2

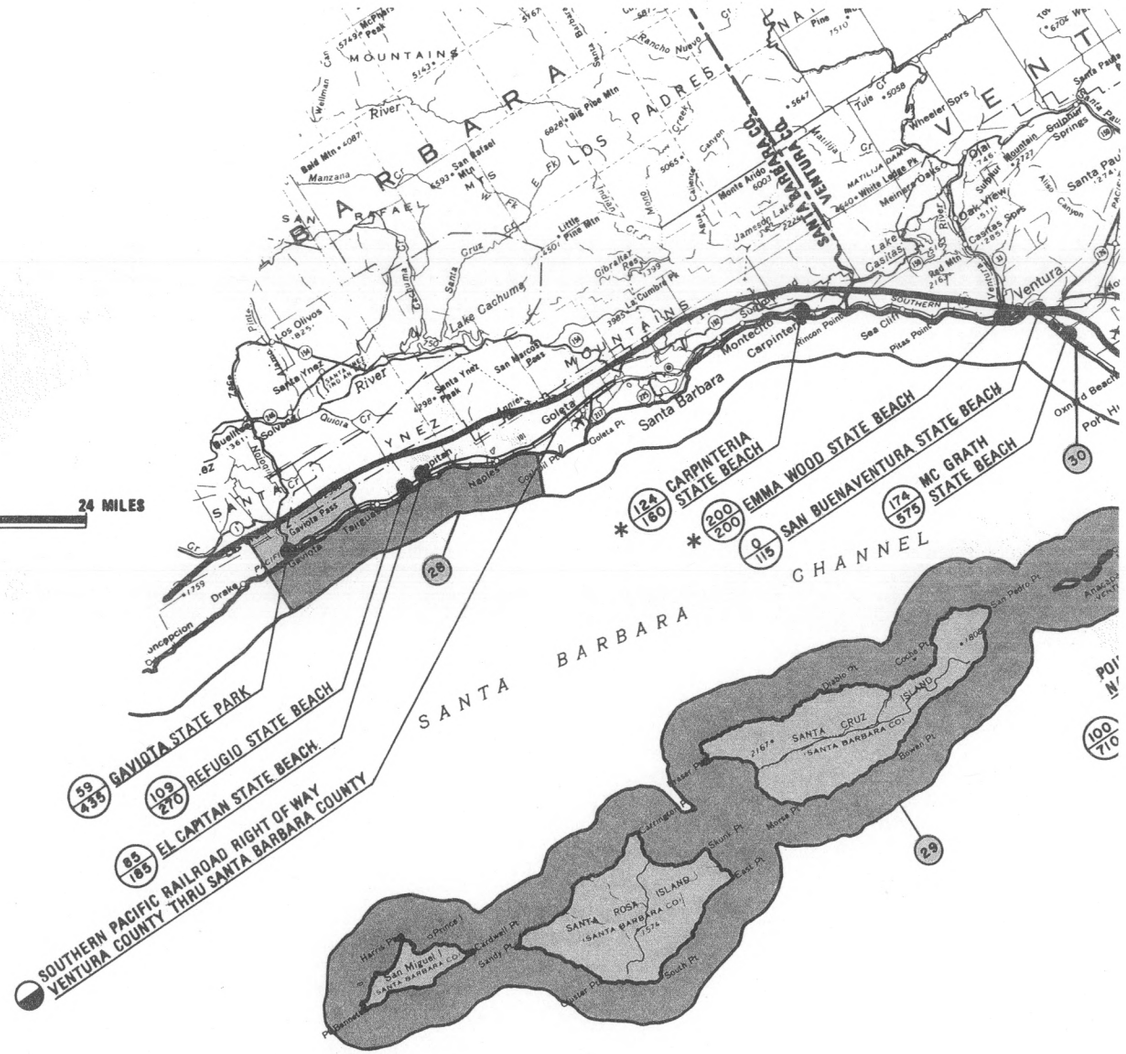
LANDSCAPE PRESERVATION AND RECREATION RESOURCES

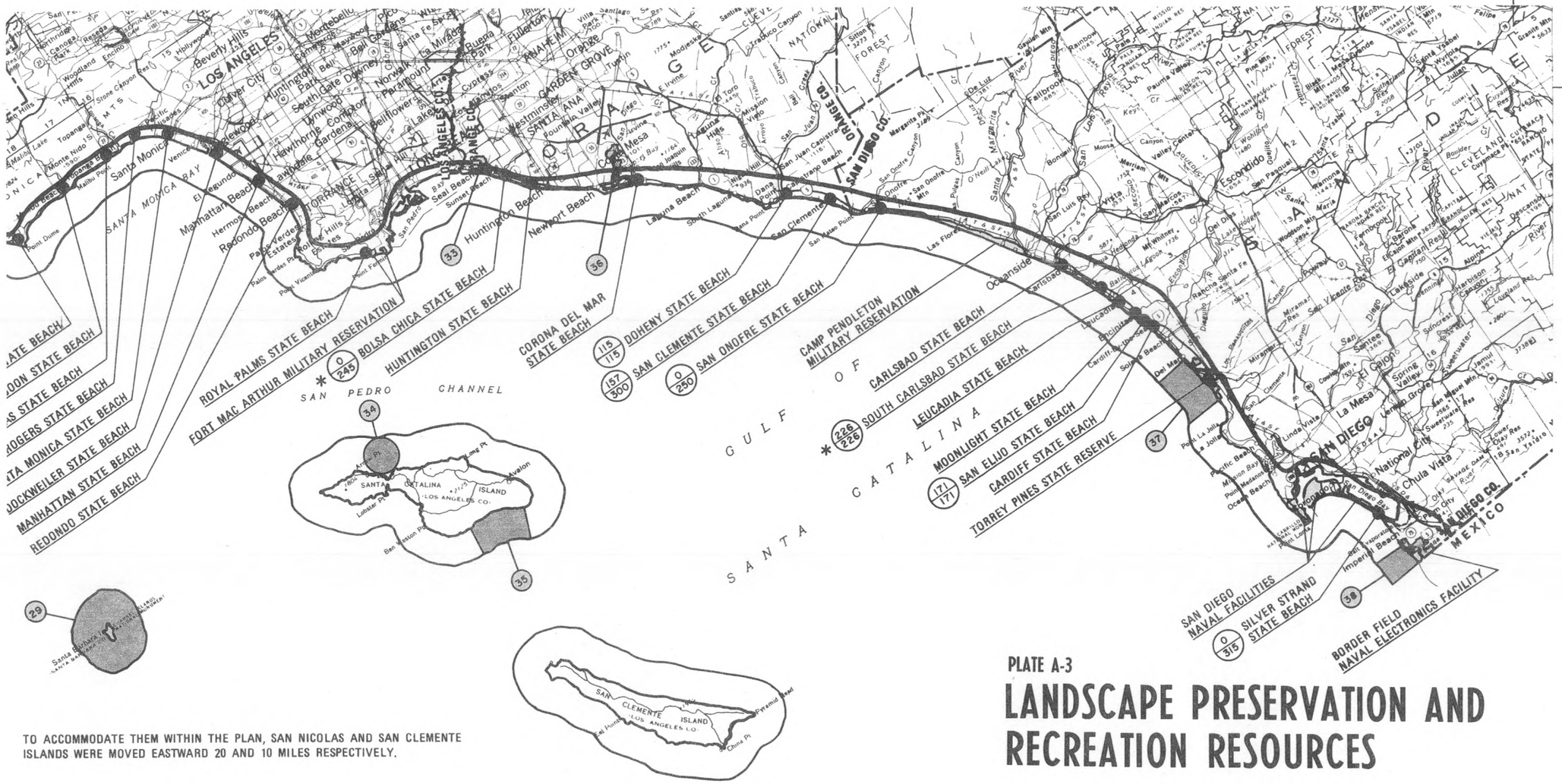
LEGEND

- EXISTING STATE PARK OR BEACH
- PRESERVATION PROJECT WITH RECREATION RESOURCES
- 4 — LANDSCAPE PRESERVATION MATRIX INDEX NUMBER SEE TABLE 8
- 50 / 200 — EXISTING CAMPSITES – 1969; EXISTING STATE PARK OR BEACH WITH CAMPING POTENTIAL; PLANNED CAMPSITES – 1980 (Includes Existing Sites)
- RECREATION PROJECT WITH NATURAL VALUES
- FEDERAL AREAS WITH RECREATION POTENTIAL
- * CRITICAL INHOLDING AT STATE BEACHES HAVING RECREATION VALUES

	ACRES
BOLSA CHICA	39
CARPINTERIA	7
EMMA WOOD	50
MANCHESTER	8
PISMO	150
SAN GREGORIO	4
SONOMA COAST	100
SOUTH CARLSBAD	64
SUNSET	16







TO ACCOMMODATE THEM WITHIN THE PLAN, SAN NICOLAS AND SAN CLEMENTE ISLANDS WERE MOVED EASTWARD 20 AND 10 MILES RESPECTIVELY.

PLATE A-3

LANDSCAPE PRESERVATION AND RECREATION RESOURCES


← Northern Coast Salt Marsh

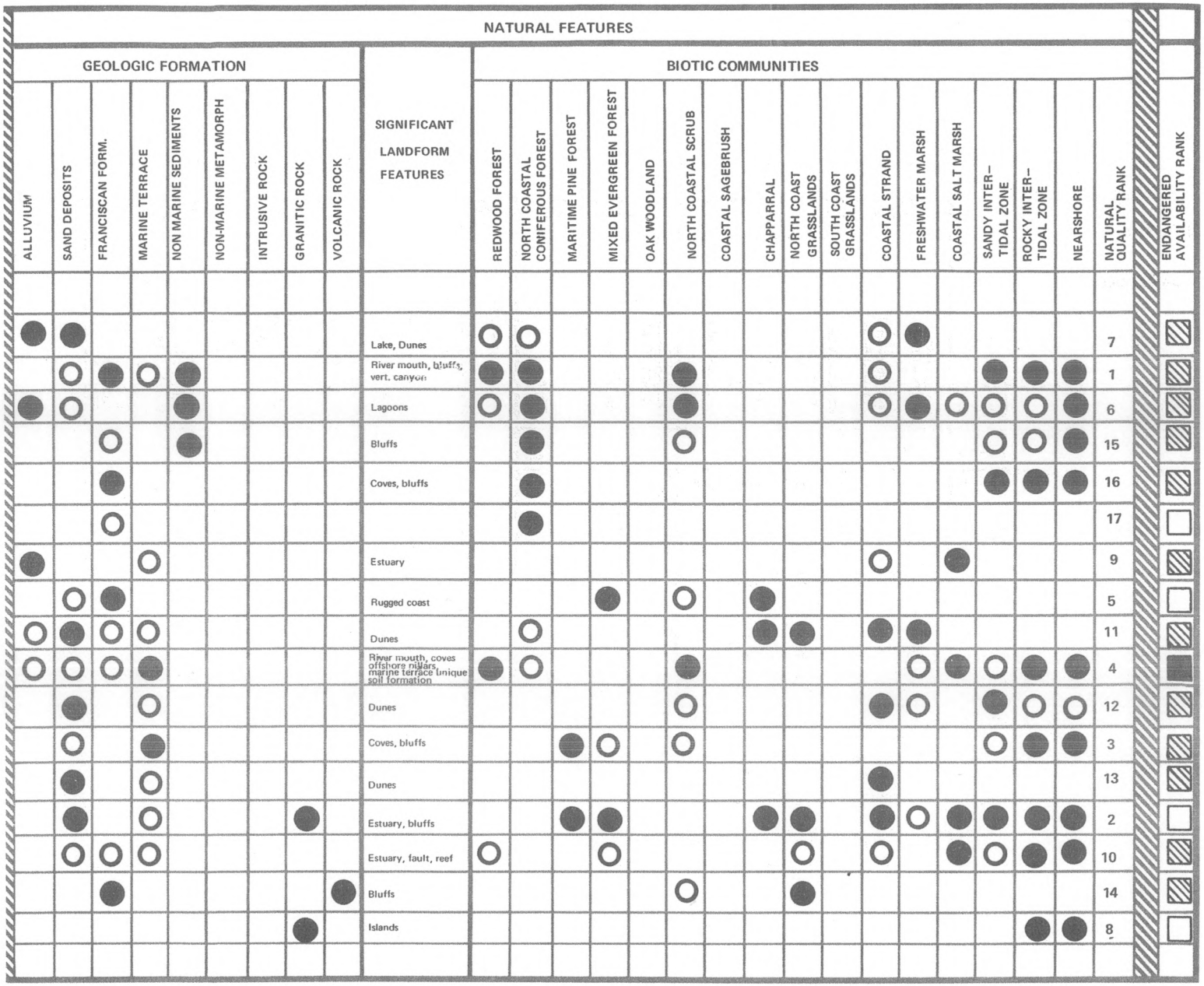
CALIFORNIA COASTLINE LANDSCAPE PRESERVATION PROJECTS

North Coast Subprovince

TABLE 8 - A

Project I. D. No.	PRESERVATION PROJECT AREA	COUNTY	PROPOSED PRESERVATION PROJECT STATUS																
			PUBLIC LANDS (Acres)					PRIVATE LANDS			PROJECT TOTALS		COASTLINE MILES			PROPOSED USES (Acres)			RESPONSIBILITY
			STATE PARK SYSTEM LANDS	NATIONAL PARK SYSTEM LANDS	OTHER PUBLIC LANDS	TOTAL	OFFSHORE AREA	NEW AREAS OR ADJACENT LANDS	INHOLDINGS	TOTAL	TOTAL: LAND ACRES	TOTAL: PROJECT AREA (LAND ACRES + OFFSHORE)	PUBLIC LANDS	PRIVATE LANDS ADDITIONS	PROPOSED PROJECT MILES	NATURAL PRESERVE (LAND ACRES)	OTHER FEATURES WARRANTING PROTECTION	SUITABLE FOR DEVELOPMENT	
	THE NORTH COAST SUBPROVINCE																		
1	PROPOSED LAKE EARL STATE PARK	D.N.	0	0	2,212	2,212	0	7,021	0	7,021	9,233	9,233	0.1	6.7	6.8	6,113	2,322	798	State Pk. Syst.
2	REDWOOD NATIONAL PARK AREA [a]	D.N./Hum.	18,580	9,216	0	27,796	67,320	5,860	0	5,860	33,656	100,976	34.0	0	34.0	10,176	19,000	4,480	Nat. Pk. Syst.
3	PROPOSED HUMBOLDT LAGOONS STATE PARK (including Dry Lagoon SB)	Hum.	1,037	209	2,018	3,264	15,831	7,326	80	7,406	10,670	26,501	8.1	0.4	8.5	7,519	1,359	1,792	State Pk. Syst.
4	PROPOSED PATRICK'S POINT STATE PARK EXPANSION	Hum.	425	0	0	425	15,246	103	14	117	542	15,788	7.0	0.7	7.7	0	239	303	State Pk. Syst.
5	PROPOSED TRINIDAD HEAD STATE PARK (Including Trinidad SB)	Hum.	179	0	63	242	3,960	106	0	106	348	4,308	2.3	0.8	3.1	156	64	128	State Pk. Syst.
6	PROPOSED AZALEA STATE RESERVE EXPANSION	Hum.	30	0	0	30	0	43	5	48	78	78	–	–	–	0	64	14	State Pk. Syst.
7	PROPOSED SOUTH HUMBOLDT BAY STATE PARK	Hum.	0	0	3,975	3,975	0	2,555	0	2,555	6,530	6,530	0.2	4.6	4.8	6,324	0	206	U.S. Fish & Wildlife Serv.
8	PROPOSED KINGS RANGE COAST NATIONAL WILDERNESS AREA	Hum.	0	0	7,700	7,700	0	4,013	312	4,325	12,025	12,025	1.1	8.6	9.7	11,952	0	73	Bureau of Land Mgmt.
9	PROPOSED TEN MILE RIVER STATE PARK (Including MacKerricher SB)	Mend.	285	0	280	565	0	1,947	0	1,947	2,512	2,512	3.8	4.5	8.3	1,503	700	309	State Pk. Syst.
10	PROPOSED MENDOCINO COAST STATE PARK (Including Russian Gulch and Van Damme SP's)	Mend.	3,072	0	1,421	4,493	15,840	5,065	617	5,682	10,175	26,015	1.8	6.2	8.0	1,400	6,365	2,410	State Pk. Syst.
11	PROPOSED POINT ARENA STATE PARK (Including Manchester SB)	Mend.	651	0	0	651	14,256	3,167	0	3,167	3,818	18,074	5.0	3.7	8.7	1,790	1,643	385	State Pk. Syst.
12	PROPOSED SALT POINT STATE PARK EXPANSION (Including Salt Point SP & Kruse Rhododendron SR)	Son.	3,174	0	0	3,174	29,700	5,499	0	5,499	8,673	38,373	3.2	10.3	13.5	5,480	2,184	1,009	State Pk. Syst.
13	PROPOSED SONOMA DUNES STATE PARK (Including south end Sonoma Coast SB)	Son.	707	0	0	707	0	275	0	275	982	982	2.0	0	2.0	440	349	193	State Pk. Syst.
14	POINT REYES NATIONAL SEASHORE (Including Tomales Bay SP)	Marin	1,018	20,080	91	21,189	83,160	35,731	64	35,795	56,984	140,144	23.0	19.0	42.0	35,302	17,070	4,612	Nat. Pk. Syst.
15	PROPOSED BOLINAS LAGOON STATE PARK	Marin	0	0	134	134	16,236	8,770	0	8,770	8,904	25,140	1.2	7.0	8.2	7,582	620	702	State Pk. Syst.
16	PROPOSED MARIN HEADLANDS STATE PARK EXPANSION	Marin	449	0	1,829	2,278	0	2,890	0	2,890	5,168	5,168	4.3	0	4.3	2,037	2,442	39	State Pk. Syst.
17	PROPOSED FARALLON ISLANDS NATIONAL WILDERNESS AREA	S.F.	0	0	220	220	107,274	0	0	0	220	107,494				215	0	5	U.S. Fish & Wildlife Serv.
	SUBPROVINCE TOTALS		29,607	29,505	19,943	79,055	368,823	90,371	1,092	91,463	170,518	539,341	97.1	72.5	169.6	97,989	54,421	18,108	

a) Figures do not include adjoining lands outside of the Coastal Landscape Province.



NATURAL FEATURES

- primary features used in project selection
- Other features preserved in project area

ENDANGERMENT

- HIGH
- MODERATE
- LOW

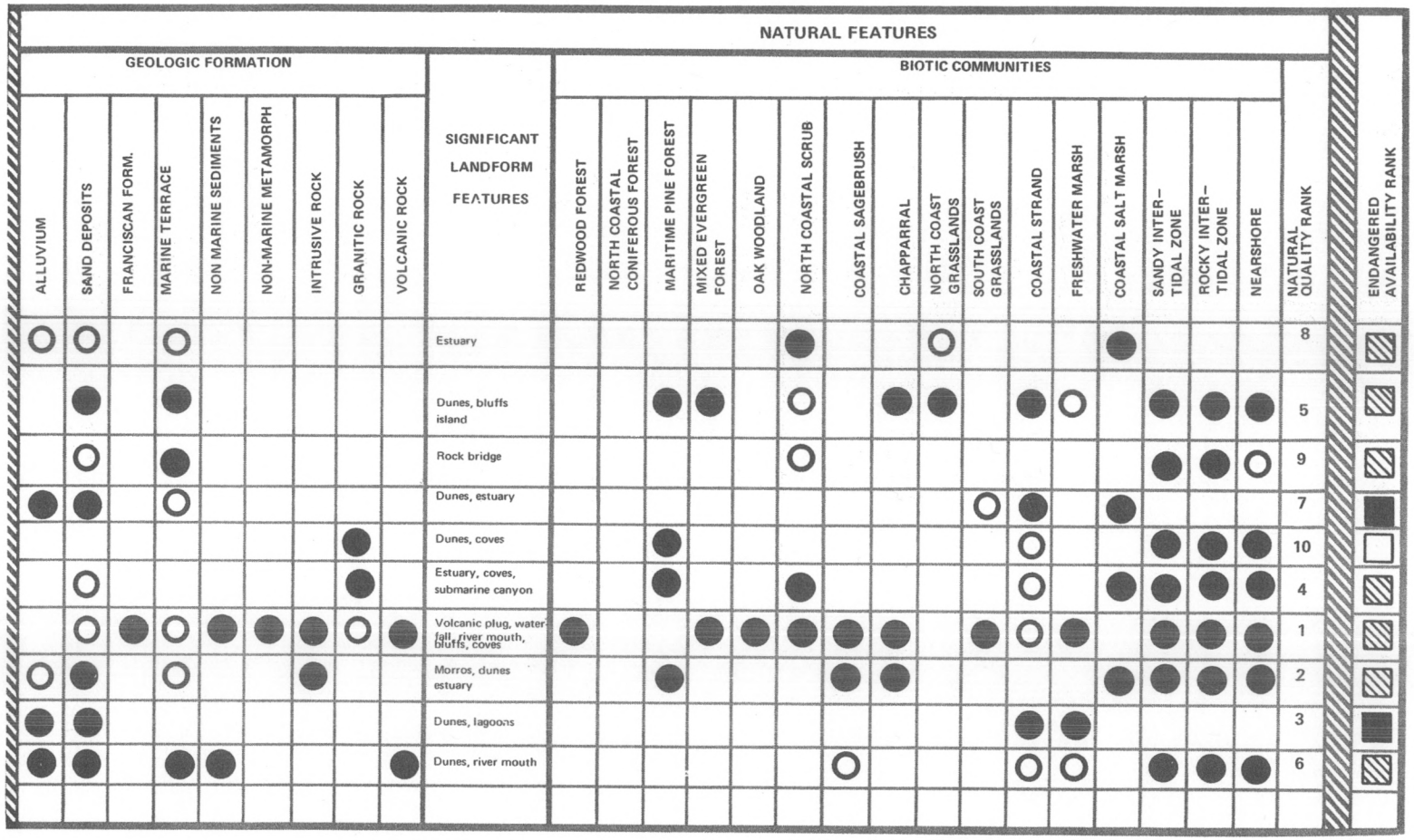
CALIFORNIA COASTLINE LANDSCAPE PRESERVATION PROJECTS

Central Coast Subprovince

TABLE 8 - B

Project I.D. No.	THE CENTRAL COAST SUBPROVINCE	COUNTY	PROPOSED PRESERVATION PROJECT STATUS																
			PUBLIC LANDS (Acres)					PRIVATE LANDS			PROJECT TOTALS		COASTLINE MILES			PROPOSED USES (Acres)			RESPONSIBILITY
			STATE PARK SYSTEM LANDS	NATIONAL PARK SYSTEM LANDS	OTHER PUBLIC LANDS	TOTAL	OFFSHORE AREA	NEW AREAS OR ADJACENT LANDS	INHOLDINGS	TOTAL	TOTAL: LAND ACRES	TOTAL: PROJECT AREA (LAND ACRES + OFFSHORE)	PUBLIC LANDS	PRIVATE LANDS ADDITIONS	PROPOSED PROJECT MILES TOTAL:	NATURAL PRESERVE (LAND ACRES)	OTHER FEATURES WARRANTING PROTECTION	SUITABLE FOR DEVELOPMENT	
18	PROPOSED PESCADERO STATE PARK (Including Pescadero SB)	S. Mateo	287	0	0	287	0	537	28	565	852	852	2.0	0.8	2.8	534	242	76	State Pk. Syst.
19	PROPOSED POINT ANO NUEVO STATE PARK b) (Including Ano Nuevo SR, coastal portion – Big Basin RSP, State Wildlife Conservation Bd. - Greyhound Rock fishing access)	S. Mateo	2,219	0	101	2,320	23,760	6,288	1,618	7,906	10,226	33,986	6.5	5.5	12.0	4,820	4,782	624	State Pk. Syst.
20	PROPOSED TERRACE POINT STATE PARK (Including Natural Bridges SB)	S. Cruz	54	0	0	54	2,574	478	0	478	532	3,106	0.7	1.6	2.3	0	321	211	State Pk. Syst.
21	PROPOSED MONTEREY BAY STATE PARK ((Including Salinas River SB)	Mon.	93	0	358	451	0	1,953	0	1,953	2,404	2,404	3.5	6.0	9.5	1,551	385	468	State Pk. Syst.
22	PROPOSED ASILOMAR STATE PARK (Including Asilomar SB)	S. Cruz	99	0	0	99	3,960	148	0	148	247	4,207	1.5	0.5	2.0	0	183	64	State Pk. Syst.
23	PROPOSED POINT LOBOS STATE PARK (Including Point Lobos SR, Carmel River SB)	Mon.	605	0	0	605	22,770	614	0	614	1,219	23,989	5.5	6.0	11.5	455	564	200	State Pk. Syst.
24	PROPOSED BIG SUR STATE PARK c) (Including Pfeiffer Big Sur SP, Andrew Molera SP Julia Pfeiffer Burns SP)	Mon.	4,568	0	5,900	10,468	49,500	24,921	376	25,297	35,765	85,265	10.0	15.0	25.0	24,051	9,492	2,222	S.P.S./U.S.F.S.
25	PROPOSED MORRO BAY STATE PARK (Including Morro Bay SP, Montana de Oro SP)	S.L.O.	7,106	0	1,643	8,749	21,780	10,795	468	11,263	20,012	41,792	7.3	3.7	11.0	12,668	5,462	1,882	State Pk. Syst.
26	PROPOSED SANTA MARIA DUNES STATE RECREATION AREA (Including portion - Pismo SB)	S.L.O.	646	0	0	646	0	4,760	0	4,760	5,406	5,406	3.4	2.3	5.7	0	4,791	615	State Pk. Syst.
27	PROPOSED POINT SAL STATE PARK (Including Point Sal SB)	S. Bar.	49	0	330	379	14,652	4,256	0	4,256	4,635	19,287	0.9	6.5	7.4	4,296	147	192	State Pk. Syst.
	SUBPROVINCE TOTALS		15,726	0	8,332	24,058	138,996	54,750	2,490	57,240	81,298	220,294	41.3	47.9	89.2	48,375	26,369	6,554	

b) & c) Figures do not include adjoining lands outside of the Coastal Landscape Province.



NATURAL FEATURES

- ● Primary features used in project selection
- ○ Other features preserved in project area

ENDANGERMENT

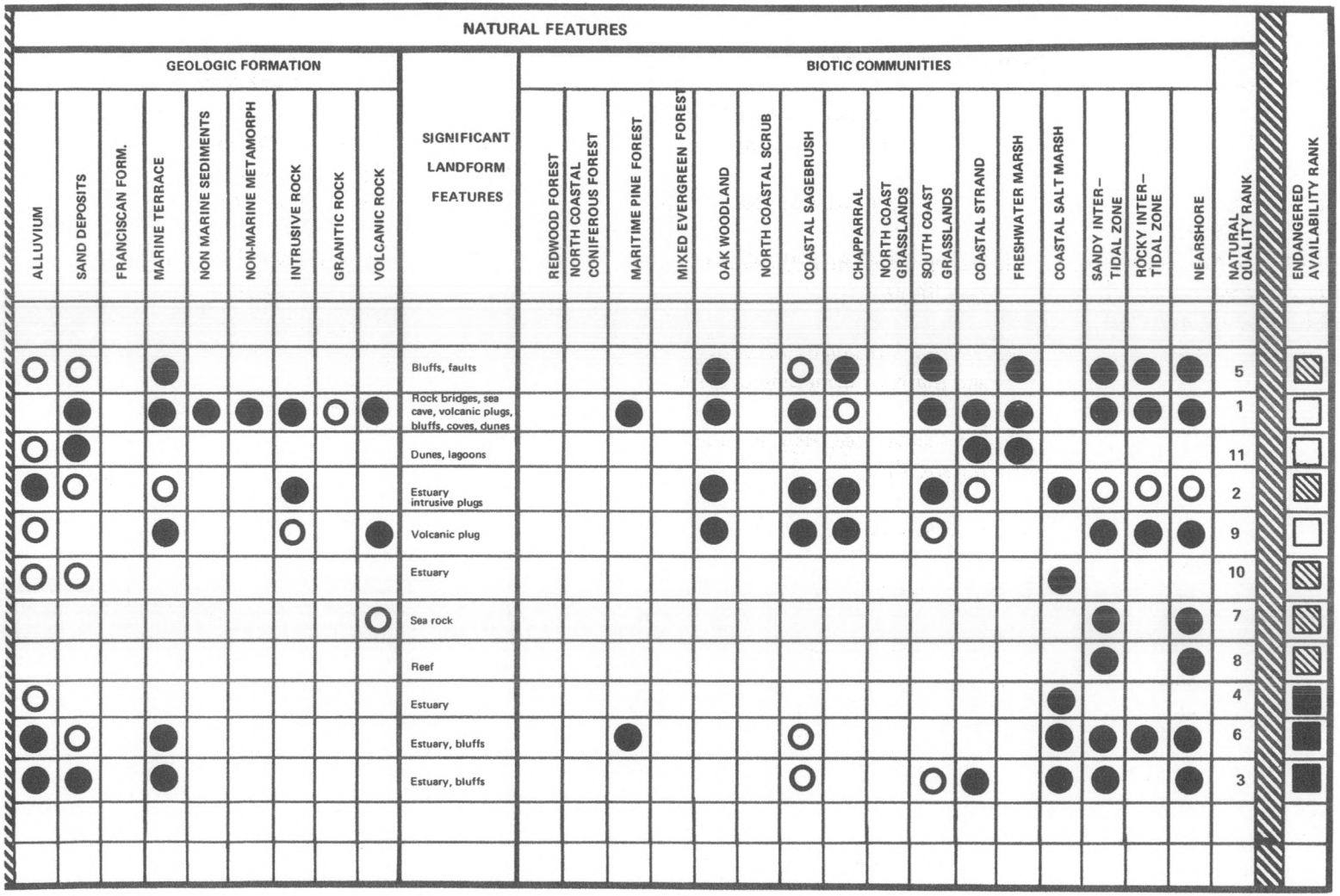
- HIGH
- MODERATE
- LOW

CALIFORNIA COASTLINE LANDSCAPE PRESERVATION PROJECTS

South Coast Subprovince

TABLE 8 - C

Project I.D. No.	PRESERVATION PROJECT AREA	COUNTY	PROPOSED PRESERVATION PROJECT STATUS																
			PUBLIC LANDS (Acres)					PRIVATE LANDS			PROJECT TOTALS		COASTLINE MILES			PROPOSED USES (Acres)			RESPONSIBILITY
			STATE PARK SYSTEM LANDS	NATIONAL PARK SYSTEMLLANDS	OTHER PUBLIC LANDS	TOTAL	OFFSHORE AREA	NEW AREAS OR ADJACENT LANDS	INHOLDINGS	TOTAL	TOTAL: LAND ACRES	TOTAL: PROJECT AREA (LAND ACRES + OFFSHORE)	PUBLIC LANDS	PRIVATE LANDS ADDITIONS	PROPOSED PROJECT MILES TOTAL:	NATURAL PRESERVE (LAND ACRES)	OTHER FEATURES WARRANTING PROTECTION	SUITABLE FOR DEVELOPMENT	
	THE SOUTH COAST SUBPROVINCE																		
28	PROPOSED GAVIOTA STATE PARK EXPANSION	S. Bar.	2,786	0	2,823	5,609	32,670	6,573	0	6,573	12,182	44,852	5.4	2.0	7.4	5,655	5,738	789	State Pk. Syst.
29	PROPOSED SANTA BARBARA CHANNEL ISLANDS NATIONAL PARK	S.B./Vent.	0	1,350	14,000	15,350	291,226	127,000	0	127,000	142,350	433,576	34.1	113.2	147.3	140,616	0	1,734	Nat. Pk. Syst.
30	PROPOSED McGRATH LAKE STATE PARK (Including McGrath SB)	Vent.	295	0	0	295	0	158	92	250	545	545	2.0	0	2.0	0	380	165	State Pk. Syst.
31	PROPOSED POINT MUGU STATE PARK EXPANSION	Vent.	6,555	0	826	7,381	0	761	0	761	8,142	8,142	7.0	0	7.0	3,488	3,415	1,239	State Pk. Syst.
32	PROPOSED LEO CARRILLO STATE PARK (Including Leo Carrillo SB)	L.A.	1,578	0	0	1,578	2,772	158	0	158	1,730	4,502	1.4	0	1.4	1,462	55	213	State Pk. Syst.
33	PROPOSED ANAHEIM BAY STATE PARK	L.A.	0	0	963	963	0	0	0	0	963	963	2.0	0	2.0	798	64	101	State Pk. Syst.
34	PROPOSED SHIP ROCK MARINE RESERVE (Santa Catalina Island)	L.A.	–	–	–	–	2,000	–	–	–	–	2,000	–	–	–	–	0	0	State Pk. Syst.
35	PROPOSED FARNSWORTH BANK MARINE RESERVE (Santa Catalina Island)	L.A.	–	–	–	–	11,520	–	–	–	–	11,520	–	–	–	–	0	0	State Pk. Syst.
36	PROPOSED UPPER NEWPORT BAY STATE PARK	Orange	0	0	165	165	0	863	0	863	1,028	1,028	–	–	–	542	110	376	State Pk. Syst.
37	PROPOSED TORREY PINES STATE PARK (Torrey Pines SR expansion)	S.D.	977	0	0	977	8,110	518	0	518	1,495	9,605	4.5	0	4.5	853	321	321	State Pk. Syst.
38	PROPOSED TIJUANA RIVER STATE PARK	S.D.	0	0	793	793	4,960	1,702	0	1,702	2,495	7,455	0.9	1.1	2.0	1,514	449	532	State Pk. Syst.
	SUBPROVINCE TOTALS		12,191	1,350	19,570	33,111	353,258	137,733	92	137,825	170,930	514,188	57.3	116.3	173.6	154,928	10,532	5,470	
	GRAND TOTALS		57,504	30,855	47,845	136,224	861,077	282,854	3,674	286,528	422,746	1,273,823	195.7	236.7	432.4	324,168	104,462	30,132	



NATURAL FEATURES

- ● Primary features used in project selection
- ○ Other features preserved in project area

ENDANGERMENT

- HIGH
- MODERATE
- LOW

HISTORIC PRESERVATION

Each governmental entity should survey all of the historic and archeologic resources within its jurisdiction and determine what is worthy of protection. For example, the state government should acquire and maintain only areas of state significance (i.e., greater than local significance, less than national), and relinquish all others.

Until the comprehensive statewide history plan is completed, it is not feasible to prescribe which level of government should undertake the preservation of specific cultural evidences in the coastal zone. However, it is possible to list those sites and structures that warrant consideration for state or national protection.

INDIAN ERA:

An adequately staffed and funded statewide archeological clearinghouse, possibly within the State Department of Parks and Recreation, is needed to coordinate the archeological survey work of colleges and public agencies.

Intensified archeological surveys are needed to identify sites most vital for future anthropological studies and interpretation. Such surveys are most needed in the following areas:

1. The north coast (Marin County northward)
2. San Mateo County
3. Southern Monterey County
4. Northern Santa Barbara County

Significant archeological sites in the State Park System units will be designated as "archeological preserves." One or more representative sites in the following areas should be added to the State Park System.

Northwestern Culture Area

1. Tolowa Tribal Area (Del Norte County, at Smith River or near Crescent City)
2. Yurok Tribal Area (Humboldt County)
3. Mattole Tribal Area (Humboldt County, Bear River)
4. Sinkyone (Southern Humboldt and Northern Mendocino Counties)
5. Yuki Tribal Area (Mendocino County, Navarro River)

Central Culture Area

1. Northern Pomo Tribal Area (Mendocino County)
2. Coast Miwok Tribal Area (Marin County, Point Reyes Area)
3. Costanoan Tribal Area (San Mateo and Santa Cruz Counties)
4. Salinan Tribal Area (Southern Monterey County, Lucia Area)

Southern Culture Area

1. Chumash Tribal Area (Santa Barbara County, Point Conception Area, Channel Islands, Santa Barbara and Goleta Area)
2. Southern Gabrielino and Juaneno Tribal Areas (Orange County)
3. Luiseno and Diegueno Tribal Area (San Diego County)

At least one major village should be reconstructed to portray each of the culture areas. Additional displays at other parks will be necessary to tell the full story of Indian life on the coast. Based on existing information, these are the best sites for such interpretive centers:

Northwest Culture Area – Dry Lagoon SP

Central Culture Area – Salt Point SP, Fort Ross SHP; Pfeiffer Big Sur SP, or Point Reyes National Seashore

Southern Culture Area – Point Mugu SP

The current antiquities laws must be upgraded. Local planning authorities should be given the authority to protect all known sites of archeological value on private lands within their jurisdiction. If sites must be developed, their archeological evidences must be salvaged by competent experts.

Lake Tolowa

HISPANIC ERA

Evidences of the Hispanic Era are rare, and those within public ownership should not be allowed to deteriorate. Buildings and sites of state significance should be restored and interpreted to the visiting public. The following areas should be investigated to determine the need for including them in the state or national park systems. (In some cases, it may be desirable to have these areas remain in their present ownership, if the owners can assure proper maintenance).

Expansion of Fort Ross (Sonoma County)

San Francisco Presidio (San Francisco County)

El Castillo (Monterey County)

Pedro and Jose Ortega Adobe and Rancho (Santa Barbara County)

Local agencies should consider acquiring privately-held evidences of the Hispanic Era that are significant to their local history.

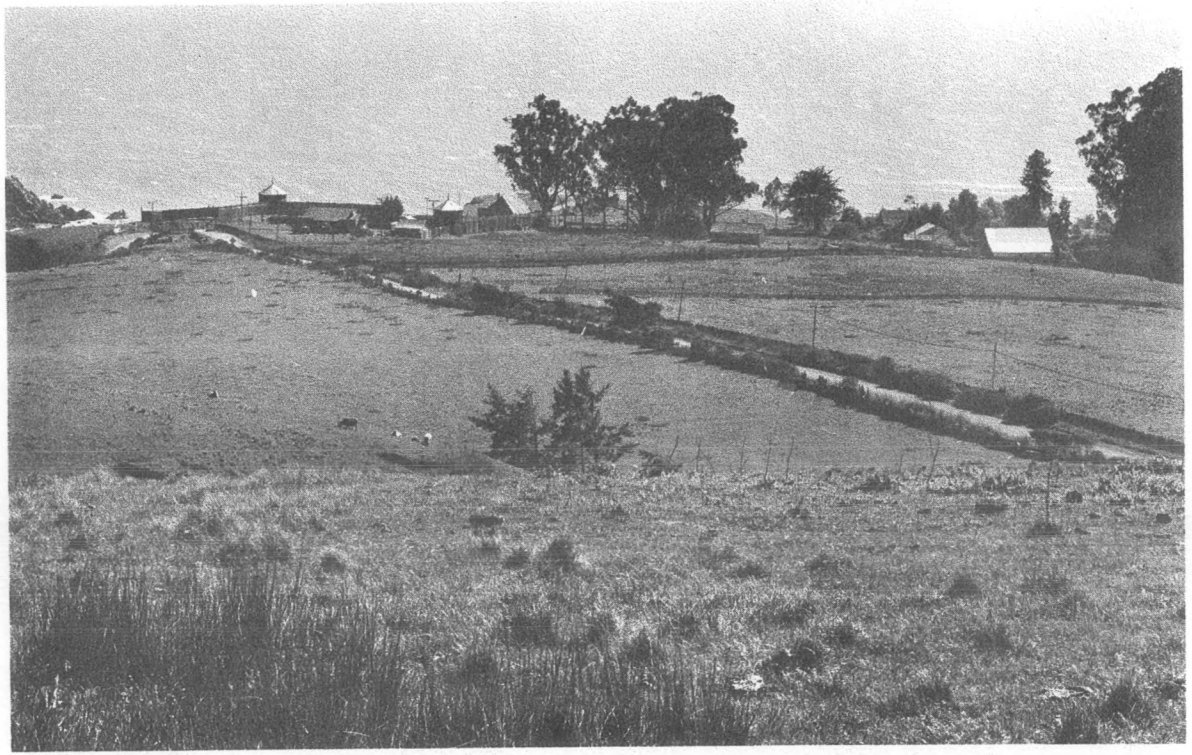
AMERICAN ERA

All evidences of state significance of the American Era within the State Park System should be restored and exhibited to the public. The following areas should be further investigated to determine the feasibility of including them within the state or national park systems:

Carson House (Humboldt County)

Town of Ferndale (Humboldt County)

A lumber camp (Humboldt or Mendocino County)



Ft. Ross Area

Mendocino City (Mendocino County)

Marin Headlands military installations (Marin County)

Historic ships (San Francisco County, including the *Eppleton Hall, Balclutha, Lightship San Francisco,* and tugboat *Hercules*)

San Francisco Presidio (San Francisco County)

Pigeon Point Lighthouse (San Mateo County)

Colton Hall and Jail (Monterey County)

Old Whaling Station (Monterey County)

Dickinson House (Monterey County)

Monterey Presidio (Monterey County, especially Fort Mervine)

Senator Hearst's old home and ranch buildings (San Luis Obispo County)

Channel Islands ranch buildings (Santa Barbara County)

Missile Base (Location to be determined, probably Vandenberg AFB, Santa Barbara County)

Naval station and shipyard (Location to be determined.)

Local agencies should consider acquiring privately-held evidences of the American Era that are significant to their local history.

PROVIDING RECREATION OPPORTUNITIES

All levels of government must share the responsibility for making the coastline available to public recreation.

LOCAL AND REGIONAL BEACHES

Most recreation takes place close to home and usually within one's own neighborhood, community, and metropolitan region. In coastal communities and metropolitan areas, the ocean beaches serve the same purposes as lakes, rivers, and large swimming pools within or adjacent to inland urban areas. Well over 85% of the day-users at beaches live in the immediate metropolitan area. Furthermore, coastal resort communities benefit economically from the tourist trade attracted to their beaches. *Therefore, in urban and urbanizing areas, acquiring and managing public beaches is largely a regional responsibility.*

It must be emphasized that the ocean shoreline recreation resources of a metropolitan region are the responsibility of the entire region, not just the municipalities and counties in which the resources are located. *All of the people of a metropolitan area should share in the cost of acquiring, developing, and maintaining the ocean beaches from which they benefit on a regular basis. The state should assist in the formation of metropolitan regional shoreline park districts. Coastal cities and counties could then transfer their beaches to metropolitan beach authorities for operation and development. It is also appropriate to transfer management of certain state-owned areas which receive primarily local or regional use to metropolitan beach authorities.* The tax bases of most coastal metropolitan areas are sufficiently large to support good regional shoreline park and recreation programs with only a modest tax rate.

Access to Public Tidelands

Local planning authorities should assure that new subdivisions in urbanizing areas do not block access to publicly-owned tidelands. State law now requires that reasonable access be provided by real estate developers. *In the cases of some residential areas developed prior to the enactment of the present shoreline access law it may be necessary to purchase public easements to the shoreline.* Reasonable access includes adequate parking and sanitary facilities in addition to physical access.

The 1970 *Gion vs Santa Cruz* and *Dietz vs King* California Supreme Court decisions state that the public cannot be denied access to the shoreline over routes across privately-owned lands that it has historically used. *The district attorneys of the coastal counties must diligently defend the public interest whenever such access is denied. The State Attorney General should render whatever support is needed to the district attorneys, and take the leadership where a district attorney is unable or unwilling to act.*

Construction of New Beaches

By widening some southern California beaches, new facilities can be constructed to meet the ever increasing demand beyond the year 1980.

The Corps of Engineers should continue to study the feasibility of providing perched beaches [1] *as an alternative to rock groins for shore protection and to accommodate recreation facilities along the shore's edge.*

[1] Underwater rock retaining wall holding and protecting sandy beaches.

RECREATION RESOURCES OF STATE AND NATIONAL SIGNIFICANCE

State and federal efforts should be concentrated on making available coastal recreation resources that attract people from long distances, inland metropolitan areas, and inland states.

State Park System

For most activities, visitors who are able to travel a few hours can find a state park facility to meet their needs. Much still remains to be done in developing existing areas, especially in acquiring critical private lands within and adjacent to existing park areas and in providing major areas for certain specialized activities.

One of the more obvious deficiencies is in campgrounds. *Between now and 1980, at least 6000 new camp units should be developed along the coast.* Slightly more than half of these should be constructed immediately to meet present deficiencies These new facilities can be developed on existing State Park System lands. *In certain areas this would involve conversion of some day use facilities to campgrounds, and in the long run would result in shifting a portion of the day-use demand to local and regional beaches.* This shift is considered appropriate, since in the critical areas most of the day-use demands are generated locally. *Plate H illustrates where the Department proposes to meet the camping demands through 1980.*

Doheny

Better use of recreation resources would result if additional parking and sanitary facilities were constructed at the following State Park System units:

Bolsa Chica SB	Dockweiler SB
Emma Wood SB	Manhattan SB
Malibu Lagoon SB	Redondo SB
Carlsbad SB	Will Rogers SB
Cardiff SB	Santa Monica SB

Many existing coastal parks could more effectively meet existing and future recreation demands with only minor additions. In some cases, private inholdings preclude logical development, in others, adjacent lands are needed to provide safe access. The following nine state beaches need critical additions to take care of inholdings:

Bolsa Chica SB	39 acres
Carpinteria SB	7 acres
Emma Wood SB	50 acres
Manchester SB	150 acres
San Gregorio SB	4 acres
Sonoma Coast SB	100 acres
South Carlsbad SB	64 acres
Sunset SB	16 acres

Additional lands will have to be acquired to meet camping demands beyond 1980 on almost all stretches of the coast. The major areas proposed in Table 8 as landscape preservation projects can provide space for meeting much of the long-range demand, and military lands declared surplus could also help. It is doubtful that the long-range demands can be met south of Point Conception. Here, very little land remains undeveloped, and it is easy to predict that there will probably be none by 1980.

Major acquisitions are needed for certain specialized recreation activities. *The Santa Maria Dunes should be acquired as the major center for dune buggy riding in California. The railroad right-of-way along the south coast should be abandoned as a railroad and developed as a recreation trail for hiking and bicycling.* The original reason for the coastal railroad was to provide travellers with a scenic route. Today, passenger service has been drastically curtailed, and the magnificent scenery along the coastal route is enjoyed only by freight train crews and "Knights of the Road."

National Park Service

California's coastline is clearly a significant natural recreation resource, but the federal government has only recently begun to share responsibility for making this resource available to the public. *The National Park System should complete the acquisition of Point Reyes National Seashore. This seashore should be developed with at least 200 camp units as soon as possible. The federal government should also establish a national seashore on the south coast, as well as acquire the Channel Islands as a national park as previously recommended under "Natural Area Protection."*

Other Federal Programs

The Coast Guard and the military services own substantial amounts of the California coast. *These agencies should make their lands available to the public, especially during the summer weekends. Any federal land along the coast that becomes surplus should be made available for park and recreation purposes. The abandoned lightkeeper's residences at the automated light stations would make a good chain of hostels for young people touring the coast.*

Pt. Vicente Light

FINANCING THE PLAN

The acquisition, protection, and development of coastal parks and recreation areas is a mammoth undertaking, requiring a public investment of well over a billion dollars (at present prices) between now and 1980.

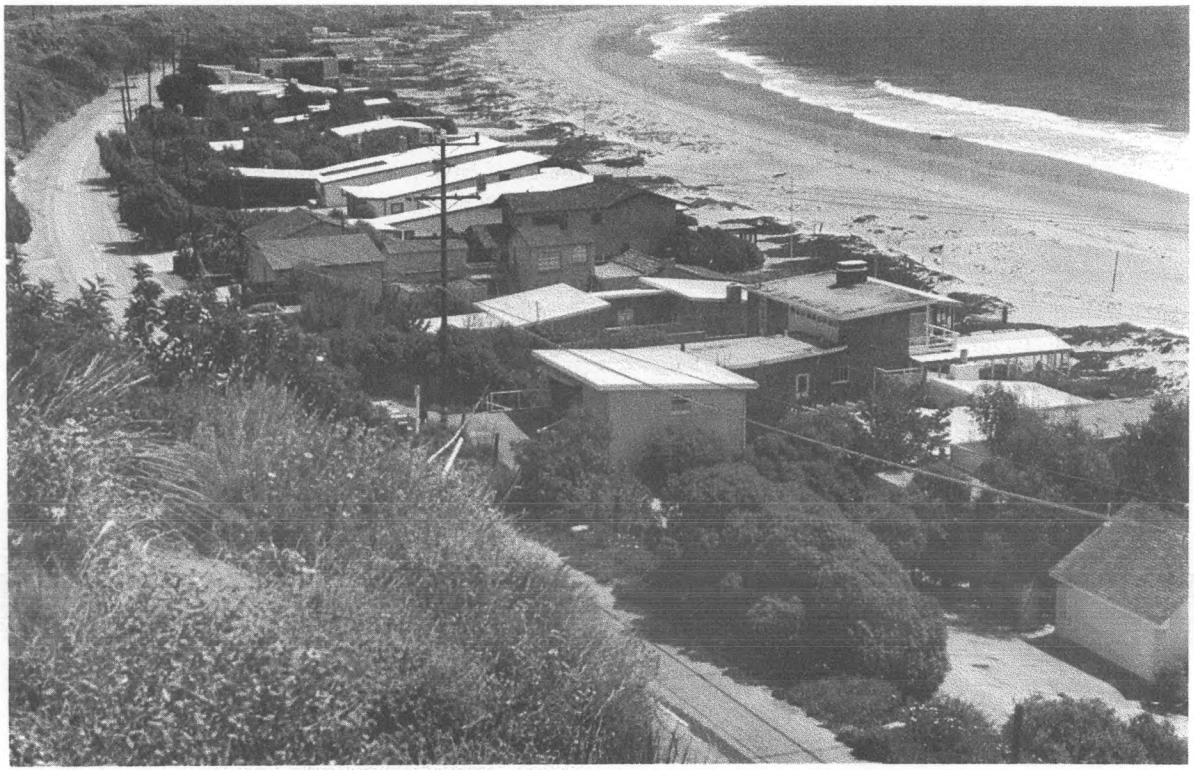
FINANCING LAND ACQUISITION

The biggest and most important job is land acquisition. The most money is needed to purchase landscape preservation areas, with substantially less needed to acquire historic sites, inholdings, and critical additions to state beaches and coastal recreation areas. Additional funds to assist local and regional agencies in beach acquisition are also needed. All possible means of financing these needs should be fully explored. The following are a few suggested sources which might be considered.

Traditionally, the state has relied heavily on general obligation bonds to finance land acquisition. This method offers the advantage of providing the large sums required to purchase major projects and at the same time spread some of the costs to future beneficiaries.

Coastal parks in Washington, Oregon, and California benefit the people of all the Western States. *A modest tax shared by all of the Western States and used exclusively for acquiring coastal parks would be another way of spreading the costs to the beneficiaries.*

Because of the national importance of the coastline, a major portion of the Federal Land and Water Conservation Fund should be devoted to acquiring national seashores and assisting state and local governments in shoreline acquisition.



Malibu

Highways along the coast are used primarily for recreation travel and sightseeing. Approximately 50% of travel, statewide, is for social-recreation purposes, and along the coast this percentage is far greater. However, the scenic qualities along these highways are being degraded by scattered developments, some of which completely obscure long stretches of the coastline and prevent access to the shore. Since the major incentive for coastal travel is recreational, *the use of a small portion of the gasoline tax revenue should be considered for shoreline acquisition adjacent to highways to assure continued enjoyment of the ocean shoreline by travellers.*

An alternative to this would be to establish sections of the Pacific Coast Highway as toll roads to be operated by special parkway authorities or by exisitng state agencies. Revenues would be used to acquire and develop scenic vistas, access-ways, and rest areas. The gasoline tax could continue to pay for roadway construction and maintenance.

FINANCING DEVELOPMENT

Funds are needed to develop parking facilities at state beaches, to increase the camping capacities at coastal parks, and to restore and interpret historic sites. *Ten million dollars a year for development of state coastal areas would be a good start. This amount could be provided from the general fund or by a special bond issue.*

The development of beaches used primarily by residents of single metroplitan areas can be financed by a modest region-wide tax. Such a revenue source, best administered by a region-wide authority, would allow all benificiaries to share in the costs of providing and maintaining regional day-use beaches. The alternatives of statewide or municipal taxes are not nearly so equitable.

APPENDICES

Appendix A

SHORELINE DISTANCE

The distance of the California coastline was measured on reproductions of quadrangle map sheets at a scale of 1" – ½ mile. Measurement was made with dividers and scale.

Del Norte	45 miles	Monterey	111 miles
Humboldt	121 miles	San Luis Obispo	93 miles
Mendocino	120 miles	Santa Barbara	110 miles
Sonoma	62 miles	Ventura	41 miles
Marin	70 miles	Los Angeles	74 miles
San Francisco	8 miles	Orange	42 miles
San Mateo	56 miles	San Diego	76 miles
Santa Cruz	42 miles		

Coastline measurements were taken across certain interior bays or bodies of water as follows:

Crescent City Bay – Follow exact shoreline. Omit breakwater distance.

Humboldt Bay – Straight line drawn across mouth of bay.

Bodega Harbor – Straight line drawn across mouth of harbor.

Tomales Bay – Straight line drawn at narrowest point in mouth of bay "Sand Point".

Bolinas Lagoon – Straight line drawn across mouth of lagoon.

San Francisco Bay – Follow shoreline to Golden Gate Bridge, across bridge to shore southward.

Morro Bay – Follow straight line drawn from Morro Rock to sand spit at narrowest point. Omit breakwater distance.

Santa Barbara Harbor – Follow exact shoreline. Omit breakwater distance.

Los Angeles and Long Beach Harbors – Distance was scaled along a "mean shoreline" through harbor between Carrillo Beach Park west and Long Beach Municipal Auditorium east.

Anaheim Bay – Follow straight line across mouth of bay. Omit breakwater distance.

Newport Bay – Follow straight line across mouth of bay. Omit breakwater distance.

Mission Bay – Follow straight line across mouth of bay. Omit breakwater distance.

San Diego Bay – Follow line from Ballast Point to Zuniga Point. Omit breakwater distance.

COASTAL RECREATION USE – 1969-1980
(Recreation Days)

		Estimated State Park Attendance		Estimated Total Recreation Use	
		1969	1980	1969	1980
North Coast Co.	Del Norte	142,065	263,900	278,525	517,200
	Humboldt	395,002	628,500	456,002	723,000
	Mendocino	546,645	793,800	692,630	1,008,200
	Sonoma	1,117,330	1,576,700	1,200,890	1,703,000
	Marin	1,409,079	2,363,000	2,402,968	4,041,000
Central Coast Co.	San Francisco	205,360	403,300	6,336,080	12,502,800
	San Mateo	3,618,137	5,509,400	5,888,737	8,925,200
	Santa Cruz	2,761,011	4,004,100	2,879,011	4,164,200
	Monterey	461,489	906,300	784,489	1,540,800
	San Luis Obispo	4,526,534	6,470,200	6,565,639	9,317,000
South Coast Co.	Santa Barbara	461,071	1,394,600	1,196,059	3,626,100
	Ventura	1,859,215	4,805,000	3,188,762	8,216,600
	Los Angeles	497,083	665,700	68,032,664	90,533,600
	Orange	3,486,357	4,644,400	14,638,181	19,506,500
	San Diego	2,054,907	2,830,600	7,484,865	10,275,200
TOTALS		**23,541,285**	**37,259,500**	**122,025,502**	**176,600,400**

STATE PARK RECREATION USE SURVEYS
DEFINITIONS OF RECREATION ACTIVITIES

BICYCLE USE: Any member of a recreation party riding any type of cycle (uni, bi, or tri) during a visit to a recreation area.

HORSEBACK RIDING: Any member of a recreation party riding a horse during a visit to a recreation area.

MOTORCYCLING: Any member of a recreation party riding motorized bike for trail, track, or recreation riding during a visit to a recreation area.

BEACH USE: Any member of a recreation party using the beach. Use may range from sleep to football.

SWIMMING/WADING: Any member of a party doing so.

SURFING: Any body-surfing or use of miscellaneous surfing paraphernalia for riding the surf. Surfing paraphernalia may include the following: surfboards, skimboards, tubes, styra-foam boards, or air mattresses.

SKIN/SCUBA DIVING: Any diving by a member of a recreation party whose minimum equipment is a mask and/or snorkel.

FISHING: Means the usual surf casting, bank or rock fishing, or fishing from a boat; but this category also includes digging for clams, going out for abalone, spear fishing, sand crabbing, or bow and arrow fishing.

WATER SKIING: Any attempt to, or success in, water skiing.

PICNICKING: Usually means bringing a prepared meal, or components to prepare a meal, to be eaten out of doors. Food purchased and eaten at a concession is not a picnic, but food may be purchased there to prepare a picnic lunch to be eaten elsewhere. A thermos of coffee or 6-pack of beer is not a picnic.

Campers may prepare a picnic lunch to be taken to the day use area to picnic either in their "home" park or in another park unit. Campers eating at their camp unit table are not recorded as picnicking.

USING PICNIC FACILITIES: Any use of fire rings, tables, provided stoves, or any other provided facility which may be used during the course of a picnic (bathroom and drinking fountain not included). These facilities may be used by any member of a recreation party to justify being indicated on the survey sheet. This category precludes campers using their own campsite facilities. They must go to a picnic area or leave for other recreation to be recorded as "using picnic facilities." Use of picnic facilities can occur without a picnic.

The particular facilities used that fall within this category will be indicated in the "comments" section on the survey section for each recreation area surveyed.

When conducting campground surveys, it is extremely difficult to determine any specific facilities a party might use during a recreation visit to another park. Try to determine the type of facilities used if they have already gone, or know what is available at the park they intend to visit. If this cannot be done, you will have to be satisfied with unqualified "Using Picnic Facilities".

GLOSSARY

HIKING: Any walk over two miles – along the beach, on the trails, or down the road.

WALKING FOR PLEASURE: Any walking *under two miles* – along beach, on trails, around campground, or wherever.

PARTICIPATION IN OUTDOOR GAMES: Any active participation in active outdoor games such as football, volleyball, frisbee, softball or baseball; including small children's games like hop-scotch.

VIEW INTERPRETIVE EXHIBIT: Viewing of any kind of display board, historical plaque, (not be include bulletin boards), nature exhibit, museum display, taped or recorded program, or self-guided tour provided by a park.

ATTEND INTERPRETIVE PROGRAM: Attending any *live* program provided by a park which serves to explain demonstrate, or entertain any member of a recreation party at a campfire, museum, or on a nature walk or guided tour.

PHOTO/PAINTING: Any taking of pictures, making sketches, or applying any color media in an artistic endeavor.

SIGHTSEEING: Any passive viewing of the scene by any member of a recreation party. This category also includes those parties driving through a recreation area just to take a look around. The primary intent is to identify those parties who are there merely to look, rather than to participate in anything except possibly to take photos.

ATTEND MOVIE/PLAY/SPORTS EVENT: Attendance at any movie, play, sports event, concert, art gallery or a local fair justifies an entry in this category. The majority of entries in this category will be campers who leave the camp, but it is conceivable that some of these activities might occur at a state park and be frequented by day use people.

HUNTING: This category is primarily intended to account for hunters who use a park as a bedroom for hunting activities. They may also participate in other surveyed activities, however.

NATURE STUDY: Any *identification* of plants or wildlife as to species; any geological investigation, incorporating scientific techniques. Just looking at trees or noticing deer and squirrels does not constitute nature study.

JUST "RELAXING": This category is intended to account for those campers who just seem to sit around and do nothing. Usually it is older couples who fulfill the requirements of this category, but any member of a recreation party doing so justifies an entry.

The categories beachcombing and dune buggy operation were not specifically defined prior to the onset of the survey program. During the course of the survey they were found to represent a significant amount of use in some park units and were tallied.

Beachcombing was considered search of beach areas for objects of interest. Anyone operating or riding in a dunebuggy was included in the dunebuggy column.

Bibliography

Association of Bay Area Governments
Ocean Coastline Study, Supplemental Report IS-5
Association of Bay Area Governments, 1970

Bailey, Harry P.
The Climate of Southern California
University of California Press, 1966

Barnes, Vera A.
An Ecology Study of the Intertidal Area and Estuary of Morro Bay State Park and Vicinity
Unpublished thesis, 1963

Baxter, John L.
In Shore Fishes of California
California Department of Fish and Game, 1966

California Department of Fish and Game
California Fish and Wildlife Plan – Volumes 1-3
The Resources Agency of California, 1965

California Forest and Range Experiment Station
Vegetation Types of California
U. S. Department of Agriculture, Forest Service, 1945

Daugherty, Anita E.
Marine Mammals of California
Department of Fish and Game, State of California, 1966

Dawson, E. Yale, Michael Neushul and R Wildman
"Seaweeds Associated with Kelp Beds Along Southern California and Northwestern Mexico"
Pacific Naturalist, March 1960

Fitch, John E.
Offshore Fishes of California
California Department of Fish and Game, 1969

Geologic Map of California
Olaf P. Jenkins, 1960-69 (Scale 1:250,000')
California Division of Mines and Geology

Hedgpeth, Joel W.
Seashore Life of the San Francisco Bay Region and the Coast of Northern California
University of California Press, 1964

Hedgpeth, J. and Sam Hinton
Common Seashore Life of Southern California
Naturegraph Press, 1961

Kuchler, A. W.
Potential Natural Vegetation of the Conterminus United States, Special Publication No. 36
American Geographical Society, 1964

Miller, Daniel J. and Daniel Gotshall
Ocean Sportfish Catch and Effort From Oregon to Point Arguello, California, Fish Bulletin 130
California Department of Fish and Game, 1965

Miller, Daniel J., Dan Gotshall and Richard Nitsos
A Field Guide to Some Common Ocean Sport Fishes of California
California Department of Fish and Game, 1965

Munz, Philip A., David D. Keck
A California Flora
University of California Press, 1963

Oakshott, Gordon B.
Geological Sketch of the Southern Coast Ranges, Mineral Information Service, Vol. 13, No. 1
California Division of Mines and Geology, 1960

Oakshott, Gordon B.
Guide to the Geology of Pfeiffer Big Sur State Park, Special Report 11
California Division of Mines and Geology, 1951

Page, Ben M.
"Geology of the Coast Ranges of California"
Geology of Northern California, Bulletin 190,
California Division of Mines and Geology, 1960

Peterson, Richard S.
Ano Nuevo Reports, Vol. 2
University of California, Santa Cruz, 1968

Pinkas, L., Malcolm S. Oliphant, and Charles W. Haugen
Southern California Marine Sportfishing Survey: Private Boats, Fish Bulletin 143
California Department of Fish and Game, 1968

Raven, Peter H.
Native Shrubs of Southern California
University of California Press, 1966

Rice, S.
Geologic Sketch of the North Coast Range
Mineral Information Service, Vol. 14, Number 1
California Division of Mines and Geology, 1961

Roedel, Phil M.
Common Ocean Fishes of the California Coast
Fish Bulletin 91
California Department of Fish and Game, 1953

Smith, Arthur C.
Introduction to the Natural History of the San Francisco Bay Region
University of California Press, 1960

Stebbins, Robert C.
Reptiles and Amphibians of the San Francisco Bay Region
University of California, 1966

Turner, Charles H., Earl E. Ebert and Robert R. Given
The Marine Environment Offshore from Point Loma, San Diego County, Fish Bulletin 140
California Department of Fish and Game, 1968

U. S. Department of Interior
Clean Water . . . For the Nations Estuaries
Proceedings of public meetings in Los Angeles, California, February 1969

Yocom, Charles and Ray Dasmann
The Pacific Coastal Wildlife Region
Naturegraph Press, 1965

Zeller, R. K.
A General Reconnaissance of Coastal Dunes of California, Misc. Paper No. 1-62
U.S. Department of Defense, Department of the Army, Corps of Engineers, Beach Erosion Board, 1962

Prepared by:

Robert M. Baker, Project Coordinator
Statewide Planning Branch

Assisted by:

Jacklynne Brown, Typing
Ray Chapman, Editing
James M. Doyle, Recreation Supply Analysis
Jack Hiehle, Biological Analysis
Martin Hughes, Graphics Coordination
William Kuromoto, Drafting
Robert N. Larson, Recreation Supply Analysis
Mary Lowe, Graphics
Suguru Mizutani, Drafting
MT/ST Unit, Typesetting
William Olsen, Archeological Analysis
Gerald H. Ramsdell, Recreation Demand Analysis
Dale A. Sutliff, Environmental Analysis
Betty Uhls, Clerical Supervision
Aldona Vilkas, Drafting
Carl Webster, Drafting
Alan Welts, Historic Analysis

Under the Direction of:

Elmer Aldrich, Manager, Statewide Planning Branch
Lon E. Spharler, Supervisor, State Park System
Plan Section

Photo Credit

Most of the photographs, unless credited otherwise were taken by California State Department of Parks and Recreation staff photographer, Gene Russell.