

UNIT 548

MALIBU LAGOON STATE PARK

GENERAL DEVELOPMENT PLAN

September 1978

Malibu Lagoon

State Beach

Resource Management Plan, General Development Plan, and Environmental Impact Report

LIBRARY COPY

Return to
DEVELOPMENT DIVISION
Room 905

PRELIMINARY

APRIL 1978

State of California - The Resources Agency
DEPARTMENT OF PARKS & RECREATION



This report was prepared by:

Albert Tjaden Assistant Landscape Architect
Jean Roberts Park Interpretive Specialist
Ken Pierce Associate Parks and Recreation Specialist

Under the supervision of:

Jack Harrison Chief, Development Division
H. Lee Warren Supervising Landscape Architect
George Hackelmann Senior Landscape Architect
Norm Wilson Supervisor, Interpretive Services Section

Graphics by:

Mary Lowe Senior Graphic Artist
Sam Amar Delineator

Malibu Lagoon State Beach

RESOURCE MANAGEMENT PLAN
GENERAL DEVELOPMENT PLAN
ENVIRONMENTAL IMPACT REPORT

April 1978

EDMUND G. BROWN JR.
Governor

HUEY D. JOHNSON
Secretary for Resources

RUSSELL W. CAHILL
Director



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
P.O. Box 2390
Sacramento, CA 95811

STATE PARK AND RECREATION COMMISSION

P.O. BOX 942896, SACRAMENTO, CA 94296-0001

**EXCERPTS FROM THE MINUTES OF SEPTEMBER 1978
Malibu Lagoon State Beach
Resource Management Plan and General Development Plan**

It was moved by Commissioner Altick, and seconded by Commissioner Egizi to approve the following resolution:

WHEREAS the Director of the Department of Parks and Recreation has presented to this Commission for approval the proposed Resource Management Plan, General Development Plan and Environmental Impact Report for Malibu Lagoon State Beach; and

WHEREAS this reflects the long-range development plan as to provide for the optimum use and enjoyment of the unit as well as the protection of its quality;

NOW, THEREFORE, BE IT RESOLVED that the State Park and Recreation Commission approves the Department of Parks and Recreation's "Resource Management Plan and General Development Plan for Malibu Lagoon State Beach," Preliminary dated April 1978, subject to such environmental changes as the Director of Parks and Recreation shall determine advisable and necessary to implement carrying out the provisions and objectives of said plan.

The Chairman called for a roll call vote. Commissioners Altick, Araujo, Egizi, Berk, Wald, Hailstone and Gibson voted AYE; the motion carried unanimously.

Errata

1. Acknowledgement is made to the following for their research that provided data on which this General Plan rests: Frank Lortie, historian; George Stammerjohan, historian; and Jack Hiehle, wildlife ecologist, all of whom worked under the supervision of James P. Tryner, Chief, Resource Preservation and Interpretation Division.
2. On page 4, in paragraph 1, the 7000 year time span for Chumash occupation refers to the Chumash and their ancestors throughout the area generally, most specifically at Malibu Lagoon. All other general statements about the Chumash in the first three paragraphs of page 4 also refer generally to the former inhabitants of the Malibu Lagoon site.
3. On page 4, paragraph 6, "livestock" refers to new kinds of animals.
4. On page 5, it is recognized that a certain amount of artistic freedom is taken with the illustrations, particularly the whole hunting scene; the Chumash were not whale hunters, and the boat is inaccurate.

Contents

INTRODUCTION	1
Purpose of Plan	3
Project Description	3
Historical Background	4
RESOURCE MANAGEMENT PLAN	7
General	9
Resource Objectives	9
Resource Use, Management and Protection Concepts and Philosophies	11
Resource Evaluation	13
Natural Values	13
Cultural Resources	16
Declaration of Purpose	17
Declaration of Resource Management Policy	17
GENERAL DEVELOPMENT PLAN	19
Introduction	21
Land Use Analysis	21
Existing Land Use	21
Proposed Land Use	21
Proposed Developments	21
West Side	21
North Side	23
Utilities	24
Special Considerations	24
Interpretive Prospectus-Summary	24
Interpretive Periods	25
Interpretive Themes	25
Interpretive Methods and Facilities	25
Problem Areas	26
Rapid Transit	26
Trails	26
Fire Control	26
DRAFT ENVIRONMENTAL IMPACT REPORT	27
APPENDIXES	33

RESPONSE TO COMMENTS

The preliminary plan for Malibu Lagoon State Beach; Resource Management Plan (RMP), General Development Plan (GDP), and Draft Environmental Impact Report (DEIR) was circulated to the State Clearinghouse (15 copies), Southern California Association of Governments (SCAG), Los Angeles County Regional Planning Commission and Sierra Club State Park Task Force.

Comments on the preliminary plan were received from the California Regional Water Quality Control Board, Los Angeles Region; the California Department of Fish and Game, the California Department of Transportation, SCAG and Los Angeles County.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

Specific concern cannot be addressed adequately. The EIR on page 28 states:

"The General Development Plan for Malibu Lagoon State Beach is broad in scope; therefore, the EIR is also a broad assessment of the potential impacts. Whenever a specific phase of the overall plan is budgeted and proposed for implementation, a more detailed and specific environmental assessment will be prepared for that particular project, as part of the budget package."

In general your comments can be addressed as follows:

1. Excavation and regrading in the marsh adjacent to the lagoon will be done in such a manner as to minimize turbidity and water pollution.
2. The water drainage from the Pacific Coast Highway will be investigated for high lead content and other pollutants.
3. Breaching the sandbar will be done so as to minimize turbidity.
4. The Department of Parks and Recreation would be interested in the results obtained from the one-year study of waste discharged into Malibu Creek from the Tapia Wastewater Reclamation Plant. We agree that the effects of a year-round discharge from the plan on the proposed restoration and enlargement of the salt water marsh adjacent to Malibu Lagoon should be reevaluated when the study is complete. The Department of Parks and Recreation will coordinate with your agency regarding specific proposals as the project progresses.

CALIFORNIA DEPARTMENT OF FISH AND GAME

1. The upstream portion of the project, or that north of Highway 1, will be protected and only minimally developed with trails.
2. No additional acquisitions are proposed at this time. If additional acquisitions are proposed, marsh restoration on these lands will be studied to see if it would be feasible to restore them.
3. The Department of Parks and Recreation will work closely with the Department of Fish and Game in order to insure the perpetuation, enhancement and utilization of the steelhead fishery in Malibu Creek. The Department of Fish and Game

will be notified and an agreement will be made prior to the commencement of streambed alteration.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
(CALTRANS)

The Department of Parks and Recreation will consult with CALTRANS pursuant to the Resources Agency guidelines for implementation of the California Environmental Quality Act. The specific phase of the development plan which would interact with the highway will be coordinated with CALTRANS.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
(SCAG)

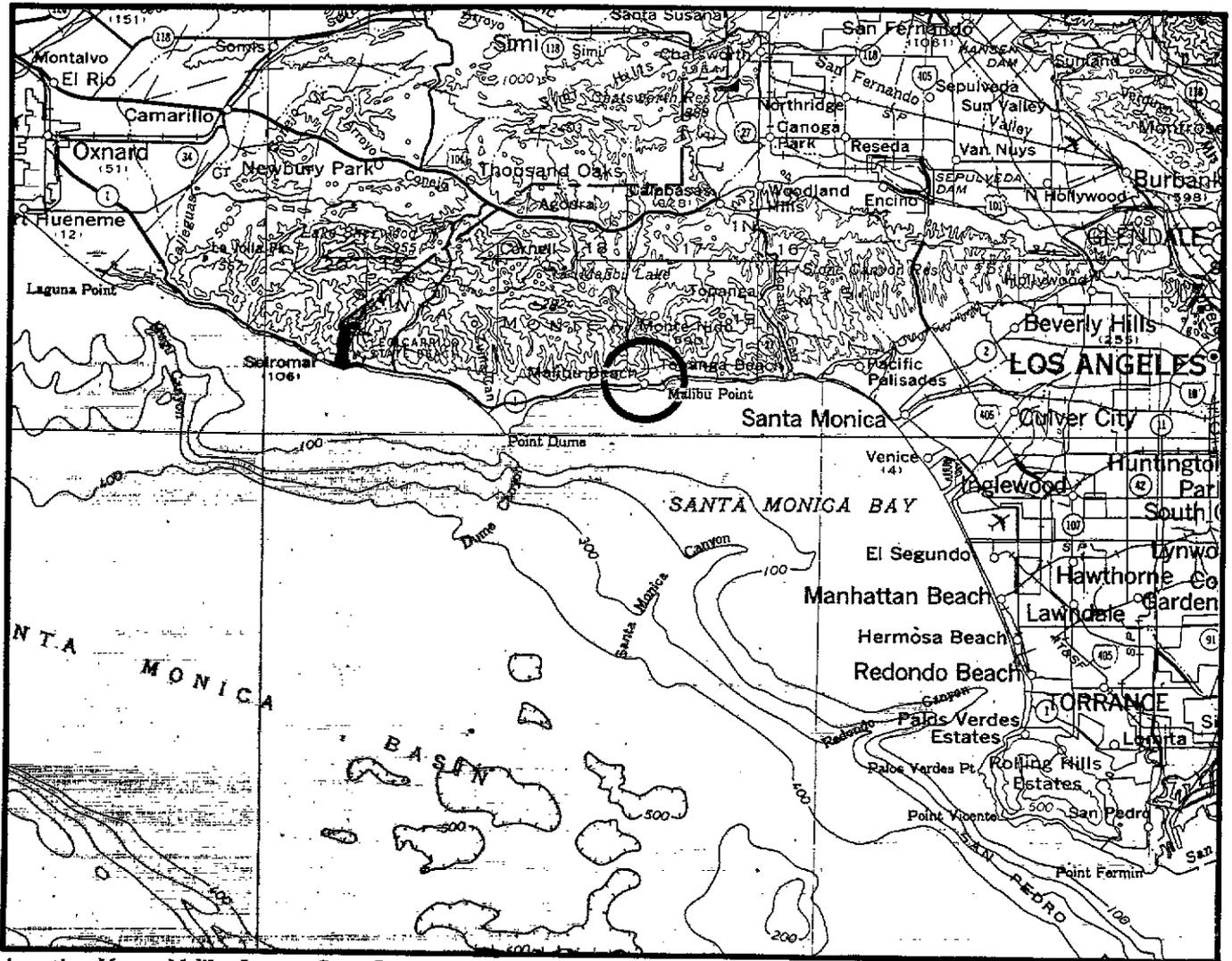
Southern California Association of Governments indicated that the preliminary Malibu Lagoon State Beach Resource Management Plan, General Development Plan and Draft Environmental Impact Report is consistent with its adopted Conservation and Open Space Plan. The Department of Parks and Recreation will coordinate with the appropriate local agencies.

COUNTY OF LOS ANGELES DEPARTMENT OF REGIONAL PLANNING

These comments do not need a response.

Introduction





Location Map – Malibu Lagoon State Beach



Snowy egret

INTRODUCTION

Purpose of Plan

The purpose of the Malibu Lagoon State Beach Resource Management and General Development Plans is to provide policies for preservation, interpretation, and public use of natural and cultural resource values within the unit.

Throughout the planning for development of this unit, citizen participation and interagency cooperation have been encouraged. An extensive study of the related land systems and adjacent environments of this park unit have formed the foundation for development guidelines. As a result, the general approach has been to preserve and restore as much of the natural landscape and biotic communities as possible, while providing facilities to make the outstanding resource values found here available to the public for its enjoyment.

It must further be understood that this proposed plan for Malibu Lagoon State Beach is in agreement with the guidelines and recommendations set forth by the California Coastal Plan.

Project Description

Malibu Lagoon State Beach forms part of the coastal portion of the Santa Monica Mountains chain, one of the transverse mountain ranges of southern California. These ranges run in an east/west direction, perpendicular to the major mountain ranges of the state.

The Santa Monica Mountains span a distance of 74.02 kilometers (46 miles), from Point Mugu to Griffith Park. The mountain range averages about 11.26 kilometers (7 miles) across, and contains about 80,800 hectares (200,000) acres.

Malibu Lagoon State Beach is located in Los Angeles County, where Malibu Creek meets the Pacific Ocean, and contains a total of 30.67 hectares (75.79) acres. The state beach is at the southern base of the Santa Monica Mountains, about 54 kilometers (34 miles) west of the Los Angeles metropolitan complex.

Most of the area consists of an alluvial fan formed by an antecedent stream, now called Malibu Creek, which originates deep in the Santa Monica Mountains.

The lagoon is about 2 hectares (5 acres) in size, and constitutes one of the few remaining migratory bird sanctuaries in Los Angeles County. The ocean along the beach has worldwide recognition as a surfing spot.

The park is bisected by Highway 101. North of the highway along Malibu Creek lies a parcel, 9.7 hectares (23.98 acres) in size, which was recently acquired.

Acquisition of 3.7 hectares (9.14 acres) west of the lagoon is now being considered.

Historical Background

The area around Malibu Lagoon State Beach has been occupied for more than 7,000 years, based on data derived from archeological work at the Native American site located in this unit. Unfortunately, there is little information about the earliest residents. Artifacts extracted from the earliest occupation levels are primarily grinding implements. These levels have been dated to 5,500 years B.C.

Researchers have interpreted from the archaeological data that these early inhabitants led a sedentary life. From 1,500 to 500 B.C., however, substantial changes took place in the lifestyles of the occupants; new and varied artifacts were created, and food resources were exploited in newer and more intensive ways.

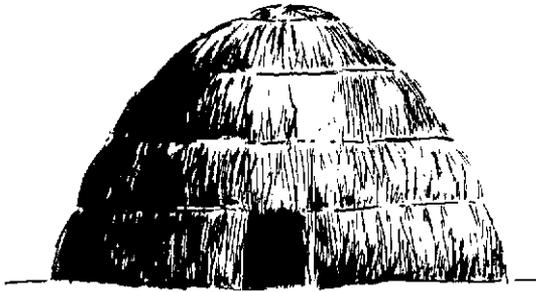
In contrast to the earlier inhabitants, the Chumash had a more complex culture and society, relying mainly on an economy based on marine fishing and hunting, and on inter-village trade. A sedentary people, the Chumash had a hierarchial social structure, and a considerable degree of craft and task specialization. Their ocean-going plank canoes, basketry, shell decorated implements, use of shell beads for currency, and extensive system of trade reflected exceptional skill and adaptive ability.

The first contact of Europeans with the Chumash in the Malibu area probably occurred at the very end of the 18th century. By 1802, Bartolome Tapia had received a concession for the Rancho Topanga Malibu Sequit, and had built a corral, several outbuildings, and an adobe residence in Malibu Canyon, not far from the lagoon. He (and later, his son Tiburcio), raised cattle, and were active in the political and economic life of the Los Angeles pueblo.

After Tiburcio died in 1848, the rancho was owned first by a Frenchman, Leon Victor Prudhomme, who had married Tiburcio's daughter, and later by a wealthy man named Matthew Keller. Keller eventually sold the rancho in 1891, to the grandfather of the woman from whom the state acquired the property. This man was Frederick H. Rindge.

Rindge, a member of an old, wealthy Massachusetts family, was an energetic capitalist, investing in and managing many business and agricultural concerns in the Los Angeles area and in northern California. He improved the ranch significantly, adding livestock to the cattle and sheep herds, and building a beautiful mansion not far from the site of the Tapia adobe. In 1903, most of the ranch structures, including all those in Malibu Canyon, were destroyed by a fire.

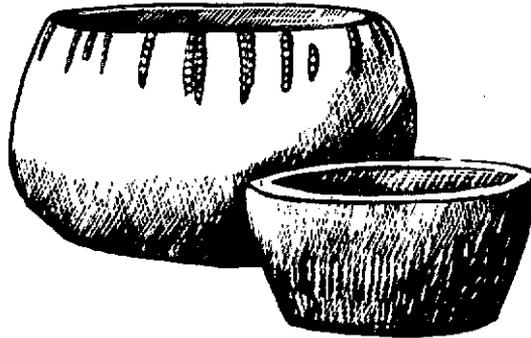
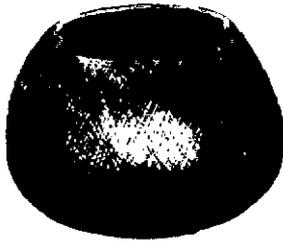
After Rindge's death in 1905, the Malibu ranch was run by his widow, May Rindge. She was a woman of notable ability, with a reputation for contentiousness and fierce determination. As the population in the Los Angeles area increased sharply after 1900, and the number of homesteading farmers increased on the northern borders of the ranch, demands on the ranch property intensified. In order to provide the homesteaders and others with access to



Chumash dwelling

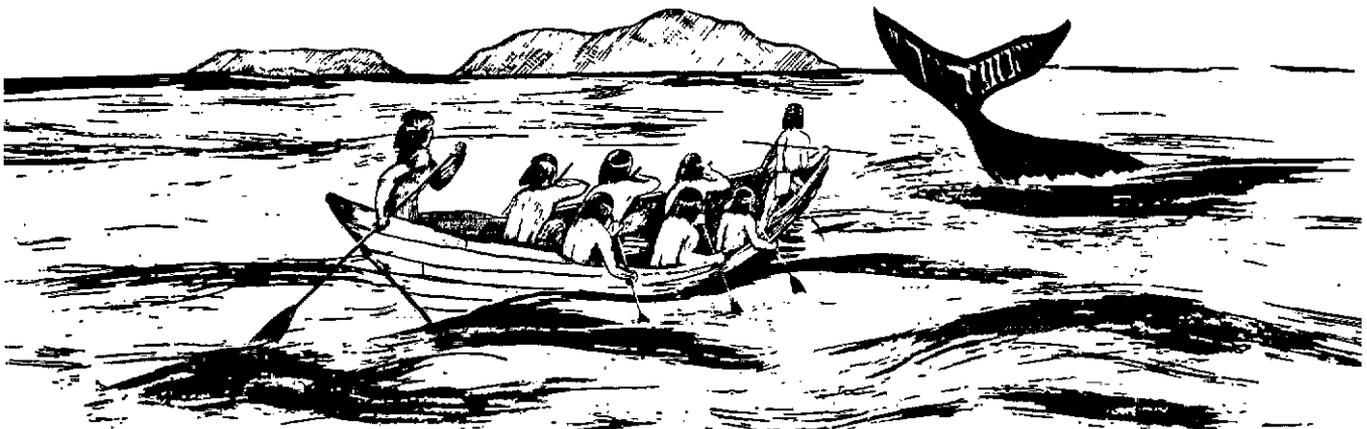


Malibu Canyon was the southern boundary of Chumash territory in Southern California.



Above: Steatite (soapstone) bowls were made by Chumash craftsmen.

Below: Ocean-going plank canoes were made watertight with asphalt caulking.



Los Angeles, the county demanded a right-of-way for a road. Then, the state made a similar demand, for a highway to cross the ranch. May Rindge fought the right-of-way condemnations in the courts (she took four cases to the State Supreme Court, and two to the U.S. Supreme Court) and at the ranch itself. Confrontations between Mrs. Rindge's armed ranch hands, riding on fence patrols, and homesteaders, surveyors, and county officials attracted much public attention. In 1919, the state courts finally decided for the county; in 1925, the courts gave a right-of-way to the state for that part of the Roosevelt Highway which was to cross the ranch.

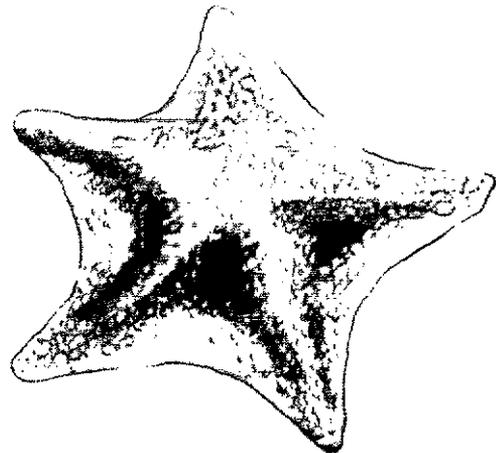
There had been no family residence on the ranch since the 1903 fire. In the late 1920s, Mrs. Rindge decided to build a forty room "castle" on the hill, just above the site of the first Rindge mansion. This massive structure was left unfinished, since financial pressures increased sharply after 1925, especially in the Great Depression. In 1926, a long strip of beach was put up for lease, and many Hollywood movie stars constructed beach houses there, becoming the nucleus of today's famous Malibu colony. By the mid-1930s, the Marblehead Land Company, which was the legal owner of the Malibu Ranch, and which was created and controlled by May Rindge, faced bankruptcy. Land, livestock, and other assets were liquidated, but by 1940, the ranch could not be saved, and the entire property was put up for sale.

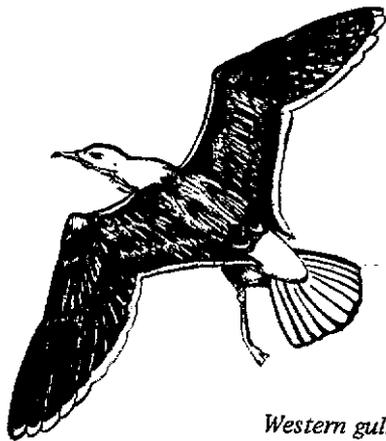
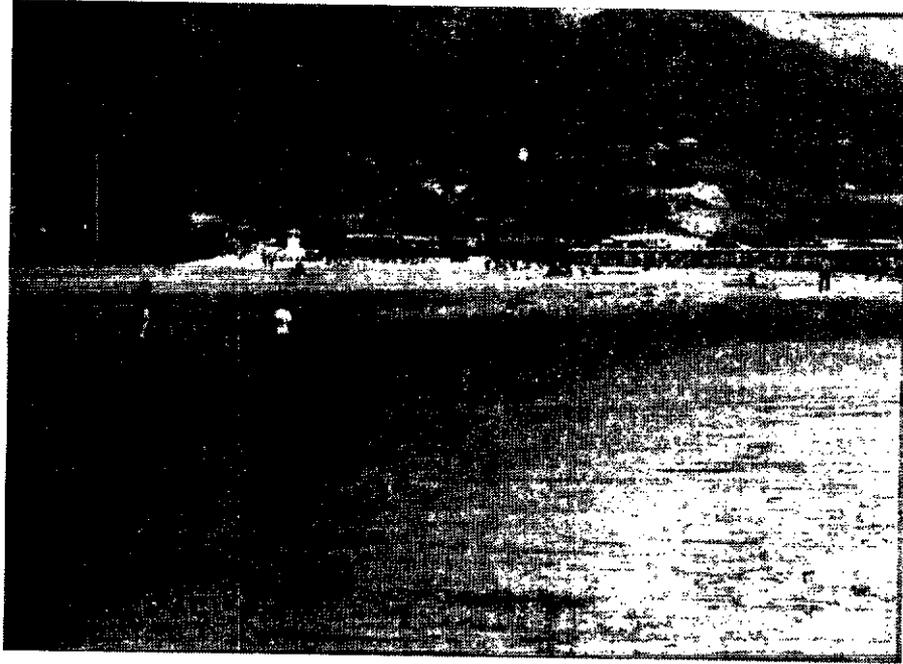
It was sometime in the 1920s when May Rindge's daughter, Rhoda Rindge Adamson, acquired from the ranch the property around Malibu Lagoon. In 1929, construction was completed on the house that is now part of Malibu Lagoon State Beach. Designed by the famous Los Angeles architect, Stiles Clement, of Morgan, Walls, and Clement, the home is a beautiful and unique example of Spanish, Moorish, and Mediterranean styles. The striking use of custom-made tile and the richly painted decorations and murals in the interior make the Adamson home truly one of a kind.

With her husband, Merritt H. Adamson, Rhoda Adamson launched the Adohr Dairy in 1916. By the time their Malibu home was finished, the dairy was one of the biggest in southern California. Adamson was president of the Adohr Corporation, and his wife was secretary (Adohr is Rhoda spelled backward). While managing this and other businesses and investments, which kept the Adamsons busy, they spent as much time as they could at the Malibu home, improving its garden and grounds. They owned several homes, but this was their main residence. Mrs. Adamson remained here after her husband died, and the Adamson presence at Malibu was continued after her death in 1962, when her daughter, Mrs. Sylvia Adamson Neville, moved there.

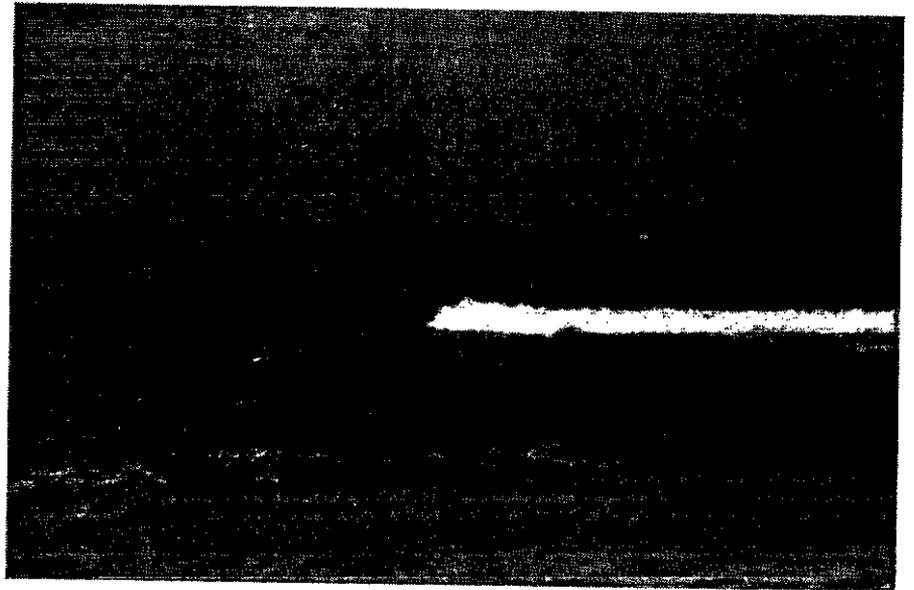
The State of California acquired the thirteen acres containing the Adamson home and grounds in April 1968. The state had problems providing personnel for the unit, so it was leased back to the Adamson family. From 1968 to 1971, the Adamsons maintained the property, and hired security guards to protect it. Pepperdine University leased the unit in March 1971, using the Adamson residence as a home and office for the Chancellor of the university, Dr. Norvel Young. The lease was renewed in 1975, and is still in effect.

Resource Management Plan





Western gull



RESOURCE MANAGEMENT PLAN

General

The Malibu Lagoon area has been classified as a state beach by the State Park and Recreation Commission, under authorization of Section 5001.5 of the Public Resources Code.

A state beach is a category of state recreation unit. The Public Resources Code defines a state recreation unit and state beach as follows:

"(d) State recreation units, consist of areas selected, developed and operated to provide outdoor recreational opportunities. Such units shall be designated by the State Park and Recreation Commission by naming, in accordance with the provisions of this article relating to classification.

In the planning of improvements to be undertaken within state recreation units, consideration shall be given to compatibility of design with the surrounding scenic and environmental characteristics

4. State beaches, (consisting) of areas with frontage on the ocean or bays designed to provide swimming, boating, fishing and other beach-oriented recreational activities. Coastal areas containing ecological, geological or scenic resources of significant value shall be preserved within state wildernesses, state reserves, state parks or natural preserves."

Malibu Lagoon State Beach has a number of significant features which set it aside from many other southern California beaches. It is considered to be one of the better surfing beaches in the southland, and is commonly known as "Surfrider's Beach." The area has enough drainage to support a stream that flows nearly year-round. It has a marsh and estuarine condition, mainly of saltwater but with a freshwater riparian habitat at the stream's mouth. The area also contains Humaliwu, one of the largest remaining southern Chumash archeological sites; it has been protected over the years because it is on private property. The Adamson House, a representative sample of affluent beach residences of the 1920s and 1930s, is also on the property. The village site and the house are on the National Register of Historic Places.

Resource Objectives

To maintain, perpetuate, and protect Malibu Lagoon State Beach and its resources at a high level of usefulness and productivity, and to keep it esthetically pleasing, the resource objectives shall be as follows:

1. To reserve the beach sand area for day-use beach activities, rather than for parking or other supportive uses.

2. To recognize the lagoon and associated marsh areas as a very important link in the habitat essential to maintaining a native resident and migratory bird population in southern California. This habitat has been greatly depleted in this area. It is a management objective to restore some of the marsh area that was lost by previous filling. This will also provide a scenic open-space area, in a location that is already highly developed.
3. To partially restore the marsh area, it will be necessary to excavate and regrade, so the entire marsh area will drain into the main lagoon. This includes drainage from adjacent lands, such as the Pacific Coast Highway. This will reduce, if not eliminate, much of the present mosquito breeding problem, that results largely from potholes and poor drainage.
4. To adequately protect the ecological values of the marsh and lagoon area, it is recommended that the Park and Recreation Commission be requested to classify that area as a natural preserve.
5. To further protect the fragile salt marsh and its environment, foot traffic should be prevented from crossing any part of the marsh for access to the beach. If an arm or portion of the marsh must be crossed to get proper trail alignment, the trail should be on a bridge.
6. To manage the water level of the lagoon through periodically breaching the sandbar, so the undesirable effects of the ponding lagoon waters will be held to a minimum, and the desirable effects enhanced. The undesirable effects include: a high water table with resulting mosquito breeding; flooding of the Malibu colony and its septic tank drain fields; maintaining too high a water level in the lagoon, covering the mud flats and reducing the feeding areas of water birds; warming of the lagoon waters; proliferation of algae and subsequent algae and marine life die-off, resulting in obnoxious smells; lack of flushing of the lagoon; and an unbalanced condition between fresh and salt water, which could be harmful to the saltwater marsh and the marine plants and animals.

Desirable effects include: the interchange of saltwater, which would provide an intertidal feeding area for water-associated birds; some control of the amount of freshwater algae; partial elimination of the mosquito problem; providing enough saltwater to keep the marsh plants in a healthy and thriving condition; helping to provide a saltwater habitat for those organisms which need it; and keeping the water quality at a much higher level, to prevent stagnation.
7. To encourage native species, except in the Adamson House gardens, and to discourage and/or eliminate aggressive non-native species. Native species that may proliferate and cause undesirable results, such as certain algae of the lagoon, should also be controlled.

8. To restore and maintain the natural environment needed to sustain a healthy native animal population.
9. To protect, manage, maintain, and interpret the cultural values of the area, particularly (but not limited to) those concerning the Adamson House and the evidences of Native American occupation.

Resource Use, Management and Protection concepts and Philosophies

The use concept of the beach is to make this area available for any day-use activities appropriate to a sandy beach with a cobble intertidal area. The waves at this beach make it a prime surfboard-riding location, and it attracts many surfers. It is not considered to be a good swimming beach, although many people use it for this purpose. Some fishing also takes place here, but this tends to be a minor use. Sunbathing, picnicking, and general sightseeing are major uses.

The marsh area has been treated more as an obstacle to cross in getting to the beach than as an ecological habitat. School groups visit it quite frequently, and bird watchers are often present. Since marsh areas are a disappearing habitat, especially in southern California, every effort should be made to enhance this habitat, and to prevent uses of it that would destroy its value. To a large extent, this means keeping visitors and domestic animals out of the marsh proper; use by visitors should be on the periphery, or on prepared trails leading to observation points.

The lagoon water levels must be controlled by breaching the sandbar. A management program for water level control is now in the experimental stage, to determine when the sandbar should be breached. Its purpose is: to determine how best to manage water levels, so minimum damage is done to the environment; to keep the flora and fauna flourishing; to keep the water quality from degrading; and to hold undesirable effects and resultant complaints to a minimum. As of now, the plan is to open the sandbar when the height of the lagoon reaches 1.07 meters (3.5 feet) above sea level, or when algae growth in the upper lagoon starts to proliferate, which may occur before that elevation is reached. Adjustments to the height of the water in the lagoon are also to be made, if observations deem this is warranted.

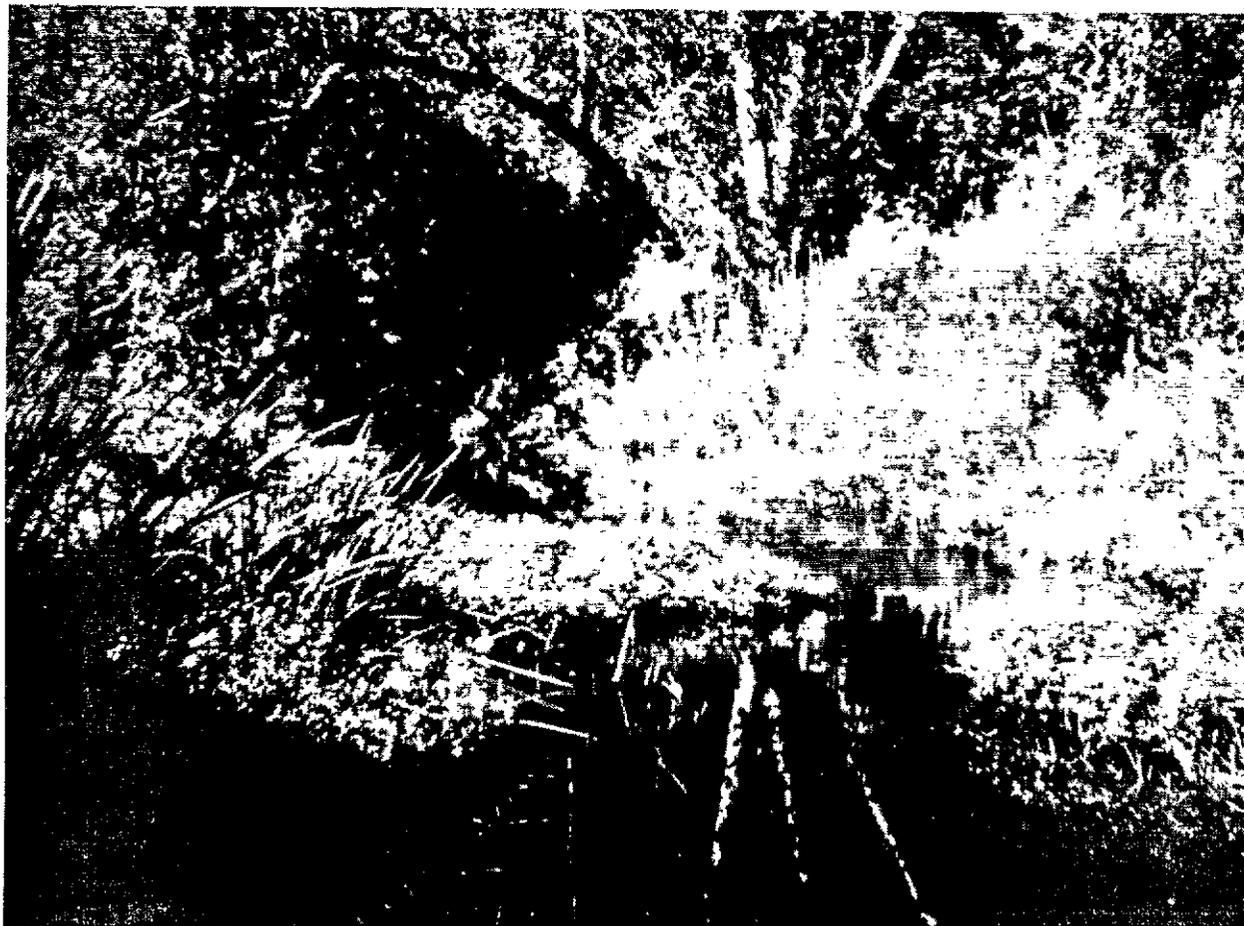
Proposals for acquisitions of land as additions to Malibu Lagoon State Beach should be evaluated in relation to the recreational, cultural, and natural resources of the unit, and public use and enjoyment of those resources. The relationship of this unit to the values in Malibu Canyon, and to Malibu Creek State Park farther upstream, should be considered carefully in any acquisition proposals.

The important historic Chumash village site at Malibu Lagoon State Beach must be preserved. Any adverse effect, whether by human or natural causes, must be mitigated by professional archeological procedures, in consultation with local people who have been selected by the Chumash to act as the tribe's representatives.

The Adamson House and the surrounding gardens are to be preserved, and a reasonable adaptive use of the structure and outbuildings will be found. The buildings and grounds should be open to the public.

The Department of Parks and Recreation is not opposed to year-round discharge of treated effluent into Malibu Creek by the Las Virgenes Water District, as long as the following conditions are met:

1. The water quality of the discharge must be equal to or better than water quality requirements of the State Water Resources Control Board.
2. The water quality of the discharge must be equal to or better than requirements of the state and county public health departments for water contact sports (free from contaminants and disease).
3. The water must not be enriched to the extent that it causes an excessive algae bloom in the receiving waters of the stream and lagoon.
4. If the year-round discharge causes added expense to breach the bar at the mouth of Malibu Creek, the Las Virgenes Municipal Water District should be responsible for funding this additional cost, or for conducting the breaching action.



Malibu Creek

Resource Evaluation

Malibu Lagoon State Beach now consists of 30.67 hectares (75.79 acres), including 899.16 meters (2,950 feet) of ocean frontage. It is in the southern part of the Coastal Landscape Province. The Resource Inventory is available in the department's Resource Preservation and Interpretation Division, 1220 K Street, Sacramento.

Natural Values

1. Pristine Conditions

Malibu Beach was formed from the discharge of Malibu Creek. The deposition of sand, gravel, and cobbles from the mouth of the creek formed the projection of land that juts out into the ocean at this point. As this buildup occurred, a delta formed, with some low places, which when inundated by high tides, formed a saltwater marsh and lagoon. The saltwater marsh area was once much larger than it is today.

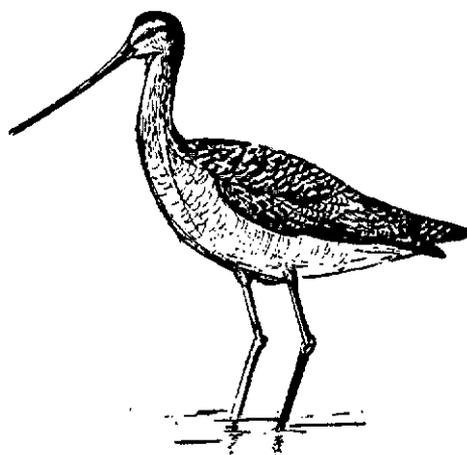
Indians settled at the mouth of the creek in this area, which was rich in foods. The cobble area produced good clams, as well as numerous other invertebrates that could be eaten. The beach sands also produced clams. The salt marsh was a food-gathering area for numerous animals, particularly birds. The ocean itself offered a good source of fish. Inland, the mountains and the vegetative habitat provided additional sources of food, both animal and vegetable. The creek itself provided water and additional fishing for fish that stayed in the stream, as well as anadromous fish that came up the creek to spawn. The creek, in the very early days, probably flowed year-round, since the sources of the stream waters were not used as they are today.

Mosquito problems were probably much worse than they are today, and were tolerated by the Indians as a condition of life to be expected.

Vegetation types originally present included a much larger coastal strand, a possible sand dune area, a riparian community along the shores of the upper part of the lagoon and along the creek, a saltwater (salicornia) marsh, and coastal sage scrub on the hills at either side of the creek. Except for the sand dune community, all of the habitats exist today, but they are greatly reduced in size, and include many introduced species of plants.



Ghost shrimp



Long-billed curlew

2. Current Conditions

Malibu Point and Malibu Beach have probably been altered somewhat, by directing Malibu Creek straight out to the ocean. This has resulted in concentrating the deposition of any sediments coming out of the canyon at this location. In pristine times, this deposition occurred in a much wider fan, which included all of the area occupied by the current Malibu Colony. It is difficult to determine historically the number of large fires in the watershed of the creek, which in turn influenced the amount and frequency of flooding, resulting in stream deposition.

The rocky and cobbly intertidal area tends to have few invertebrates; it is suspected that they are picked over by visitors, even though it is illegal to take most invertebrates.

Sand dunes that might have existed in the early days may have been flattened out with development of the Malibu Colony. It is not believed that these dunes were large or extensive in area, since there is not much evidence of sand deposits inland from the colony. There are no dunes now present.

The marsh area surrounding the lagoon has been greatly modified by developments in the area, and represents only a very small part of the marsh that once existed. Much of the marshland upcoast from the present location of the creek has been reclaimed and developed. The most recent part of the marsh to be destroyed was that portion between the Coast Highway and the Malibu colony. This remnant of the marsh, with its low places, was a good breeding area for mosquitos. The owners probably welcomed any fill they could get, so the land would become suitable for development, and would appreciate in value. As a result, this area has been reclaimed by filling, and the original flora and fauna have largely disappeared. In their places, many invading weeds and exotics have become established. In spite of the filling, there are some low places left that fill with rainwater, runoff from adjacent properties, or ground water, when the water table rises as the lagoon becomes filled. These become mosquito breeding areas, and require treatment from the local mosquito abatement district. Part of the filled area has been made into a Little League baseball field.

Some of the remaining marsh area also has low places that become good breeding spots for mosquitos. These mosquitos can carry encephalitis. Although low places in a marsh are quite natural, they cause problems when surrounding areas are developed with housing. Complaints of mosquitos come in, and these areas are treated by the mosquito abatement district. The treated areas are sprayed with a mixture of 80% diesel oil and 20% pesticide (Golden Bear 1111). The equipment carrying the spray material, the hoses, and the spray itself all do some damage to the marsh ecosystem.

It is believed that by regrading the marsh area so it properly drains into the lagoon, most of the mosquito control work could be eliminated. In one place in back of the Adamson House, there is a freshwater seep, probably drainage from the garden, which creates a place where freshwater mosquitos breed. Dredging of this area, creating a condition similar to when the boat dock was in operation, would eliminate this freshwater mosquito habitat.

When the water in the lagoon is down, visitors going toward the beach trail that crosses the marsh areas cause damage to the fragile marsh plants, disturb nesting birds, and create tracks that result in unsightly scarring of the marsh. Deeper channels, carrying water from the marsh to the lagoon, would discourage crossing the marsh.

The marsh vegetation has some introduced exotics, but if the marsh is maintained under proper conditions, natural marsh plants will dominate.

The lagoon and its water level are largely regulated by a number of constantly changing factors. The size of the lagoon is controlled by the width and depth of the channel, the porosity of the bottom and sides, and the amount of water reaching the lagoon. The width and depth of the lagoon are largely regulated by the amount of scouring and the amount of deposition of sediment. This changes from year to year, but without floods, the basin tends to silt up, and the capacity is reduced. A major flood occurred in 1969.

The deposition of decomposing vegetation on the bottom of the lagoon, along with fine silt, results in reduction in the porosity of the underlying sand and gravels, so less water seeps through the bottom and sides. A good flushing periodically will remove some of this material, which will increase the porosity. Here again, a large flow of water is necessary, to scour the bottom.

The amount of water reaching the lagoon is another factor in its size. Although summer discharges from the Tapia Treatment Plant directly to Malibu Creek are prohibited, much treated water gets into the lagoon through percolation to the underground aquifer. In the summer, .166 cu. meters per second (3,800,000 gallons per day) are discharged in the Malibu Creek watershed, of which .044 cu. meters per second (1 million gallons per day) are used to irrigate 80.9 hectares (200 acres) of crops, .105 cu. meters per second (2,400,000 gallons per day) are used to spray fields, and .017 cu. meters per second (400,000 gallons per day) are put in percolation ponds. In addition to this source of water, there is natural rainfall and runoff of domestic water. A large amount of water is taken up by plants, and transpiration by the plants gets much of this water into the atmosphere. Evaporation accounts for more water entering the atmosphere. The remainder goes into surface and underground storage and flow. In the summer, surface flows have not been recorded at Cross Creek Road immediately upstream from the lagoon, but the lagoon does fill up with water. Some of this could be coming from the ocean through the sand, but most of it is believed to be coming from the upstream watershed underground.

The natural channel of the creek as it enters the ocean tends to be on the downcoast side of the point. The waves at this location tend to move the sand downcoast, rather than pushing it up and forming a bar. In the summertime, when the sandbar is breached to let water out of the lagoon, the bar is opened straight out from the bridge. This is done so the beach is not cut in half by a stream. However, the breached sandbar tends to close much more quickly in this location than it would on the more natural downcoast side.

As has been mentioned before, the marsh and lagoon are a very important habitat for migratory water-associated birds. The upper reaches of the lagoon and creek (when it is present) provide habitat for birds preferring freshwater habitats, while the lower parts of the lagoon, the tidal mudflats, and the saltwater marsh provide the habitat needed for birds needing brackish or saltwater environments. When the creek flows through the sandbar to the ocean, as it often does in the wintertime, the tides keep an interchange of water coming into the lagoon. This tidal action keeps a biota of invertebrates viable, which provides good feeding for many of the migratory birds. It also keeps the fishery in the lagoon in good condition. Some of the migratory birds are fish eaters.

The saltwater marsh is marginal for mammals and birds, since its size is small, and there is a great deal of foot traffic through it, causing too much disturbance. Upstream areas not now state-owned, although once well landscaped and maintained, have reverted to a wild condition, with dense cover that makes them favorable for many bird and mammal species.

Cultural Resources

Themes and eras of California history have been identified in the California History Plan. The primary cultural resources of Malibu Lagoon State Beach are the Adamson House and its artifacts. They are related generally to the American era of architecture after the turn of the 20th century, and specifically to the Spanish colonial revival of 1915-1930. A second theme of the American era is the cultural development of drama, as witnessed by the advent of the motion picture industry. A third theme deals with the era of the California Indian, by examining the culture and technology of Indians of the southern California area.

Interpretation of the cultural parts of the unit will emphasize the lifestyles of the Chumash before European occupation, and the lifestyles of the Euroamericans who constructed the Adamson House.

This overall interpretive approach accommodates the flow-of-history concept, which addresses human use of the area.

The California History Plan indicates deficiencies in interpretation of these various themes. Public interest in the themes has grown steadily during the past several decades, while a fascination with the movie industry has remained high since before the First World War (1917-1918).

The unit's cultural resources are primarily located in the area east and northeast of the lagoon, in the forms of a large, rich Indian midden site and the buildings and grounds of the Adamson House (see Zone of Cultural Sensitivity Map, p. 37). They are significant to the prehistoric and historic story of the region.

Declaration of Purpose

The primary purposes of Malibu Lagoon State Beach are: to provide a place for beach-oriented recreation activities on the sandy beach fronting the ocean; to preserve and interpret the marsh and lagoon habitat so as to perpetuate the many species of animals that require this diminishing resource for survival; to provide a permanent scenic and open-space environment for an area that is rapidly growing and becoming heavily developed; and to preserve, maintain, mitigate, and interpret the Adamson House and other cultural resources of the area.

Declaration of Resource Management Policy

Natural Values

Management policy in relation to the scenic and natural values will be to enhance and perpetuate them, while providing for appropriate public use and enjoyment in such a way that these values will not be diminished or impaired.

1. The sandy beach frontage may be fully used for beach-oriented recreation activities.
2. The saltwater marsh and lagoon shall be reserved for a wildlife sanctuary, primarily to perpetuate this disappearing habitat and the species that use this area. Visitor use within this area shall be restricted to designated locations and observation points, so the habitat will not be destroyed or the animals disturbed. Domestic animals should not be allowed in this area. The Little League baseball field is an intrusion, and should be relocated.
3. Native plants should be encouraged in natural areas, and aggressive exotic plants should be removed if they restrict the growth of native plants.
4. The lagoon water level shall be controlled through adoption of a management program that will determine how and when the lagoon shall be opened to the sea. This plan shall be based on solving problems associated with the lagoon water levels, to the best interests of all people concerned.
5. The area should be managed so that it remains a beautiful and scenic open-space unit.

Cultural Values

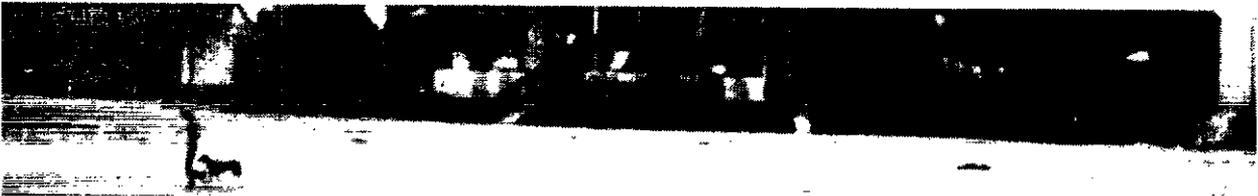
1. Before any development that may affect cultural resources, a thorough study will be conducted. The correct construction and use period of each structure will be determined, both as an individual entity and as it relates to the total cultural environment. Research and archeological investigation will be parts of this study.
2. Buildings which directly relate to the Adamson House should be preserved and stabilized. If stabilization is required to prevent loss or deterioration, it will be undertaken only in ways that will not threaten archeological, historical, or related environmental values.
3. Certain buildings within the zone of cultural significance are well suited for interpretive use. The Adamson House and its immediate gardens, pool, and bath house should be viewed as one unit. However, the pool (if opened to the public) and the garage section of the pool house could be used for interpretive displays not directly related to the house and grounds. The exterior integrity of the pool house and garage should remain compatible to the overall Adamson House theme. The "Doll House" could likewise be used for interpretation, as long as the frontal view is not disturbed. Preservation priorities should be determined in part by both the esthetic quality of the grounds and the need for such facilities as a house museum or visitor center.
4. The prehistoric site (CA:LAN:264) and the historic site are one and the same. The prehistoric site is of vast significance, and careful study of the site may produce needed information in defining the lifestyles of the Chumash Indians. Proper care and sensitivity to the site must be demonstrated at all times. Any future sites which are discovered on existing State Park System property, or which are subsequently acquired, shall be carefully recorded and protected.
5. At units with cultural resources, there is often a deficiency in artifacts to interpret those resources. There are large collections of artifacts from this site in local institutions, and private offers have been made to donate items useful to interpretation of the unit. The department should acquire all items available, and should include them in the presentation and use of the house and grounds.
6. Historic intrusions dominate the prehistoric sites. Removal of modern intrusions, such as the Little League diamonds, should be conducted with the utmost care, because of the significance of the sites on which they are located.

General Development Plan



Avocet

Black-necked stilt



GENERAL DEVELOPMENT PLAN

Introduction

The development of Malibu Lagoon State Beach is planned to provide interpretation and recreation opportunities that will complement and preserve the natural and cultural resources found here.

Land Use Analysis

Existing Land Use

Malibu Lagoon State Beach is located near the middle of the Santa Monica Mountain Range along Highway 1, where Malibu Creek enters the Pacific Ocean.

Malibu Canyon-Las Virgenes Road provides access from the Ventura Freeway to the west; the Santa Monica Freeway provides access from the east.

Malibu Lagoon State Beach has always been open for public use. The sandy beach totals about 54,870 centiares (590,000 square feet), and is used by surfers, sunbathers, fishers, and bird watchers.

When the existing highway was rerouted, part of it was converted into a 98-car parking lot. The Adamson house is occupied by a caretaker, while scheduled tours give visitors a taste of early 20th-century living on the site.

Proposed Land Use

No development is proposed for the beach, but maintaining a controlled water level in the lagoon remains a problem. The proposed development in this plan is minimal, and includes an interpretive facility, trails, restoration, and preservation and enhancement of the lagoon area.

Beach improvements include safety and sanitary equipment.

Proposed Developments

The General Development Plan Map shows the various areas in which development is proposed, and lists the planned facilities for each area.

West Side

Interpretive Facility

The interpretive facility will be made up of display panels and bulletin boards, which explain the ecosystems and functions of the lagoon.

Before any improvements, landscape rehabilitation must take place by removing the Little League baseball diamonds and reshaping the existing highway fill. This fill could be used for landscape construction, in lieu of removing it from the park premises, as originally suggested.

A site next to the lagoon was selected for outdoor interpretation and other support features.

Study and scientific data have shown that the proposed development will have minimal or no effects on the biological processes of the lagoon and marshlands. The intent is to preserve these wetlands; this plan also proposes to restore them, and to enhance their wildlife potential and qualities.

The interpretive facility will also function as an orientation point. Its design theme is further explained in the Interpretive Prospectus Summary for this plan (p. 24). From the facility, trails are extended that lead to an overlook platform, a peripheral walk partly around the lagoon, and self-guided trails.

Visitor use of the proposed facilities will be further accommodated by a 50-car controlled parking lot and two bus parking areas. Parking surfaces will be of a crushed rock base; asphalt will not be used.

Landscaping will be accomplished with compatible native plantings, in a manner that will blend with the local surroundings.

A peripheral unpaved road will serve for fire access and ranger patrol.

Lagoon

It has long been recognized that the lagoon systems are not functioning properly under current conditions. Human and other uses not conducive to maintenance of marsh environments have resulted in the disappearance of certain wildlife and plant species. It is for this reason that alterations to the marsh environment are proposed.

Drainage improvements would include restoring and enlarging the saltwater marsh. Tidal waters will be allowed to penetrate deeper into the backlands, by means of graded-out channels. Pickleweed (*salicornia*) is to be planted or replanted in appropriate locations. A 1.2 meter (4-foot)-high restraining fence could further control human penetration through these wetlands; compatible native plantings would make its presence less obvious.

The department further recommends that the area be classified a natural preserve within the proposed boundaries.

Adamson House

The main house would be used for historic and architectural interpretation, complemented by guided tours. Further details are in the interpretive prospectus summary (p. 24).

A state-owned parking lot directly north of the house contains 98 spaces; the lot is frequently filled to capacity by the vehicles of surfers and other beach users during the summer months and weekends. It is anticipated that increased parking will be needed once the Adamson House is opened for public viewing. One possible solution is to limit visitor use of the Adamson House to weekdays only.

The gatehouse offers excellent accommodations for a ranger residence. This would further help to fulfill a long-felt need for site patrol of the area.

Beach Improvements

The improvements will include one additional lifeguard tower, four portable restrooms, and trash bins less susceptible to vandalism and strong winds.

Motorized maintenance equipment of a tractor type must be sufficient in nature to mechanically breach the sand bar between ocean and lagoon, at designated times. It is desired that this piece of machinery have attachments capable of screen-cleaning beach sand, and performing other maintenance-related tasks.

North Side

A levee along the east bank of the state-owned lands protects the area from minor flooding.

The stream banks are densely covered with willows and other species typical of this kind of riparian habitat. Tall London plane trees and heavy undergrowth in most places make this an excellent wildlife sanctuary.

The plan proposes self-guided nature trails and two portable restrooms; most of this area will be left in its natural state. Rest areas with appropriate park furniture will be part of the trail system.

Beach Entrance

At least two entrances provide access into Malibu Lagoon State Beach. The official entrance provides access to the state-owned parking lot via Highway 1. With the proposed addition of interpretive attractions to the Adamson House, it will be necessary to improve the left-turn lane and to construct (by striping) a right-turn deceleration lane.

The second entrance is located directly opposite Cross Creek Road, and is now used by Little League members only. Traffic light and street lane improvements must be made, once the proposed interpretive facility is completed and made available for public use.

Utilities

Domestic water is supplied by the Los Angeles Metropolitan Water District, and is available on the site.

Southern California Edison Company power lines are located along Highway 101, and will provide adequate power for all proposed developments in the plan.

Since there is no local sewer system, portable, pump-out restroom facilities will be provided.

Special Considerations

1. It is recommended that a study be conducted:
 - a) To identify all potential and non-polluting inflow sources to Malibu Creek.
 - b) To explain what effects these combined inflow sources have on lagoon ecology.
 - c) To identify what effects secondary treated effluent has on lagoon ecology.
 - d) To lead to recommendations in order to establish an optimum lagoon environment.
2. It is recommended that the state acquire a right-of-way along Malibu Canyon, to provide trail access to other park lands in the Santa Monica Mountains.
3. It is recommended that local government and public transportation officials establish bus routes to Malibu Lagoon and the Santa Monica Mountains parks, to increase regional recreation and awareness, and to discourage use of individual automobiles.

Interpretive Prospectus - Summary

The goal of interpretation at Malibu Lagoon State Beach is to provide visitors with awareness and appreciation of the significant recreational, natural, and cultural resources of the unit. The scope of interpretation should include the variety of visitor interests.

There are three categories of interpretation suitable for Malibu Lagoon: the beach (for recreational interpretation); the lagoon (for environmental interpretation); and the Adamson House and grounds (for historical interpretation).

Many visitors to Malibu Lagoon are surfers. Once the Adamson House is opened to the public and an interpretive program is developed for the lagoon, other segments of the public will be attracted to the unit.

The Adamson House should introduce visitors to the area's local history. Environmental interpretation should encourage use of the unit as a nature study area. Beach interpretation should stress items of practical interest to surfers and other beach users.

Details of interpretation at the unit are found in the department's Interpretive Prospectus, on file with the Resource Preservation and Interpretation Division.

Interpretive Periods

The primary interpretive period should stress the formation of the unit's topographical features, from their origin to the present.

Secondary periods should be: (1) 1804 to 1968; from the original concession of Rancho Topanga Malibu Sequit, through acquisition of the rancho by Rindge, to acquisition of the Adamson House and grounds by the department in 1968 (2) 0 AD to the late 1600s; emphasizing the significant Native American history of the area.

Interpretive Themes

These include:

- Primary 1. Beach and ocean dynamics, and recreational uses of the unit.
- 2. The ecology of Malibu Lagoon.

- Secondary 1. The periods of Spanish and Rindge/Adamson ownership.
- 2. The Chumash and earlier inhabitants.

Interpretive Methods and Facilities

Interpretive panels on the beach should be located so a minimum of beach space is used, and preferably in a central area. The lagoon's fragility must be taken into account in placement of interpretive aids, such as a peripheral nature trail. Interpretive aids in the picnic grounds should remain very simple (a kiosk or outdoor panel), and should not call undue attention to archeological deposits in the area. The Adamson House is well suited for a house museum; the garages should be used to interpret the unit's primary and secondary themes.

Problem Areas

Certain specific problem areas were discovered during the planning stage. The primary problem is making this state beach more accessible to inner-city residents; others include the need for trails and fire control.

Rapid Transit

Expansion by the Southern California Rapid Transit District (RTD) to serve state parks and beaches in the Santa Monica Mountains area could become an important concept incorporated in this plan.

An ever-increasing need for this kind of service is apparent, when the heavy traffic burdens along major access arteries, and declining energy resources, are considered.

While an existing bus route traverses Highway 101, it does not emphasize recreation transportation.

Trails

Plans are in progress to link three major state parks in the Santa Monica Mountains (Point Mugu, Malibu Creek, Topanga) by means of the Backbone Trail. This trail will not be paved; it will have steep gradients, and will be used primarily for hiking and horseback riding.

Malibu Creek Canyon offers an excellent opportunity to expand the trail network, linking the Backbone Trail with Malibu Lagoon State Beach.

Sound judgment must be exercised where new trails are proposed, to prevent adverse impacts on watershed lands.

Fire Control

There is an exceptionally high fire danger in the Santa Monica Mountains; it is greatly increased when the Santa Ana winds are blowing.

The department is committed to constant monitoring, close cooperation with local fire officials, and continuous updating of fire management plans, to adjust them to current technology and an improved fire danger rating system.

Of special consideration is the creek canyon, with dense chaparral and riparian growth along its course. A continuous water supply in Malibu Creek itself would greatly benefit firefighting strategy, in case of a forest fire.

Environmental Impact Report



DRAFT ENVIRONMENTAL IMPACT REPORT

The Environmental Impact Report (EIR) is divided into three major sections: (1) description of project; (2) description of environmental setting; and (3) environmental impact. The degree of specificity of the latter two chapters is not in detail, due to the general, broad nature of the project description.

The General Development Plan for Malibu Lagoon State Beach is broad in scope; therefore, the EIR is also a broad assessment of the potential impacts. Whenever a specific phase of the overall plan is budgeted and proposed for implementation, a more detailed and specific environmental assessment will be prepared for that particular project, as part of the budget package.

Description of Project

Location: See Project Description, p. 3.

Objectives: See Purpose of Plan, p. 3.

Project description: See General Development Plan, p. 21.

Description of Environmental Setting

Existing environment: See Resource Evaluation, p. 14.

Regional considerations: See General Development Plan, p. 21.

Environmental Impact

The Significant Environmental Effects of the Proposed Project:

The left column in Table 1, page 29, lists the proposals in the General Development Plan. Each of these was assessed, with environmental factors listed across the top. It was determined that there would be no significant environmental effects from the proposed actions. The interactions were all found either not to interact, to be beneficial, or to have a non-significant effect. Most of the proposed planning objectives will have a beneficial effect on the environment when they are implemented.

Short-Term Effects: During development of the proposed facilities as described in the General Development Plan, there will be several non-significant effects, including increased levels of noise and consumption of energy.

Long-Term Effects: Most long-term effects will be beneficial. The proposed action will result in improved protection, preservation, and interpretation of recreational, natural, and cultural resources.

No rare or endangered species of plants or animals are present in the area.

The following non-significant structures will be demolished:

1. Little League baseball fields.

Any significant environmental effects which cannot be avoided if the proposal is implemented:

This section is not applicable, since there are no anticipated significant environmental effects.

Mitigation measures proposed to minimize the significant effects.

This section is not applicable, since it has been determined the proposed project will not create significant environmental effects. Precautions will be taken as outlined in the Resource Management Plan, to avoid possible significant effects on the environment.

Alternatives to the proposed action:

No change: The unit would continue to operate under the current conditions, but problems outlined in the General Development Plan and Resource Management Plan would continue, and would possibly increase.

Other alternative action: There are a myriad of project alternatives resulting from combinations of possible individual actions.

Alternative actions could include fewer or greater actions than the proposed plan. For example, the lagoon could be restored more extensively than proposed. Another alternative might be camping facilities, instead of the proposed day use only facilities.

The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity:

Implementation of the proposed General Development Plan and Resource Management Plan would protect and improve the unit's resources, and would increase facilities for the public. The public should be able to enjoy the area for many years.

Any significant irreversible environmental changes that would be involved in the proposed action should it be implemented:

None of the proposed environmental changes would be irreversible.

The growth-inducing impact of the proposed action:

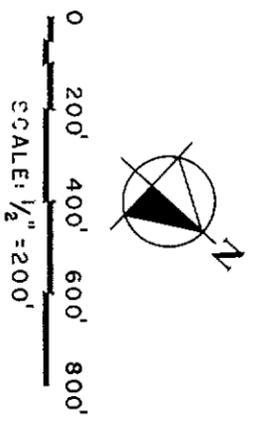
The proposed plan will not have a significant effect on the growth of the area.

Appendix

Maps:	General Development Plan	35
	Zone of Cultural Sensitivity	37
	50-Year Storm Hydrology	39
	Geology	40
Diagrams:	Ocean Wave Exposure	41
	Sand Spit Building	42
	Section Through Beach	43
	Section Through Lagoon, North - South	44
	Section Through Lagoon, East - West	45
	Beach Parking Analysis	46
	Existing Beach Parking Relationship	47
	Existing Beach Activities	48

LEGEND

- PARK BOUNDARY
- x-x- RESTRAINING FENCE
- ☁ NATIVE PLANTINGS
- ~ TRAIL
- REST ROOM



"CLASSIFY NATURAL PRESERVE"
MARSH RESTORATION
WILDLIFE OBSERVATION PLATFORM

LAGOON

O C C E A N

ADAMSON HOME
INTERPRETATION
RANGER RESIDENCE
OFFICES

BEACH IMPROVEMENTS
1- LIFE GUARD TOWER
TRASH CONTAINERS
BEACH MAINTENANCE EQUIPMENT
4- PORTABLE RESTROOMS
ENTRANCE

WEST SIDE

- ENTRANCE
- INTERPRETIVE FACILITY
- 50 - CAR CONTROLLED PARKING
- 2 - BUS PARKING
- LANDSCAPE REHABILITATION
- REMOVE BASEBALL DIAMONDS
- 2 - PORTABLE RESTROOMS
- PATROL ACCESS
- 5 - SEATING BENCHES

CAR PARKING

BUS PARKING

EXISTING PARKING

NORTH SIDE

- SELF GUIDED TRAILS
- INTERPRETATION
- 10 - SEATING BENCHES
- 2 - PORTABLE RESTROOMS

PROPOSED MALIBU LAGOON STATE BEACH GENERAL PLAN

DRAWING NO. 16109	SHEET NO. 1 OF 1	MALIBU LAGOON STATE BEACH GENERAL DEVELOPMENT PLAN	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		DESIGNED
			APPROVED	DATE	DRAWN 12-77 CHECK NET

MALIBU LAGOON STATE BEACH GEOLOGY MAP

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

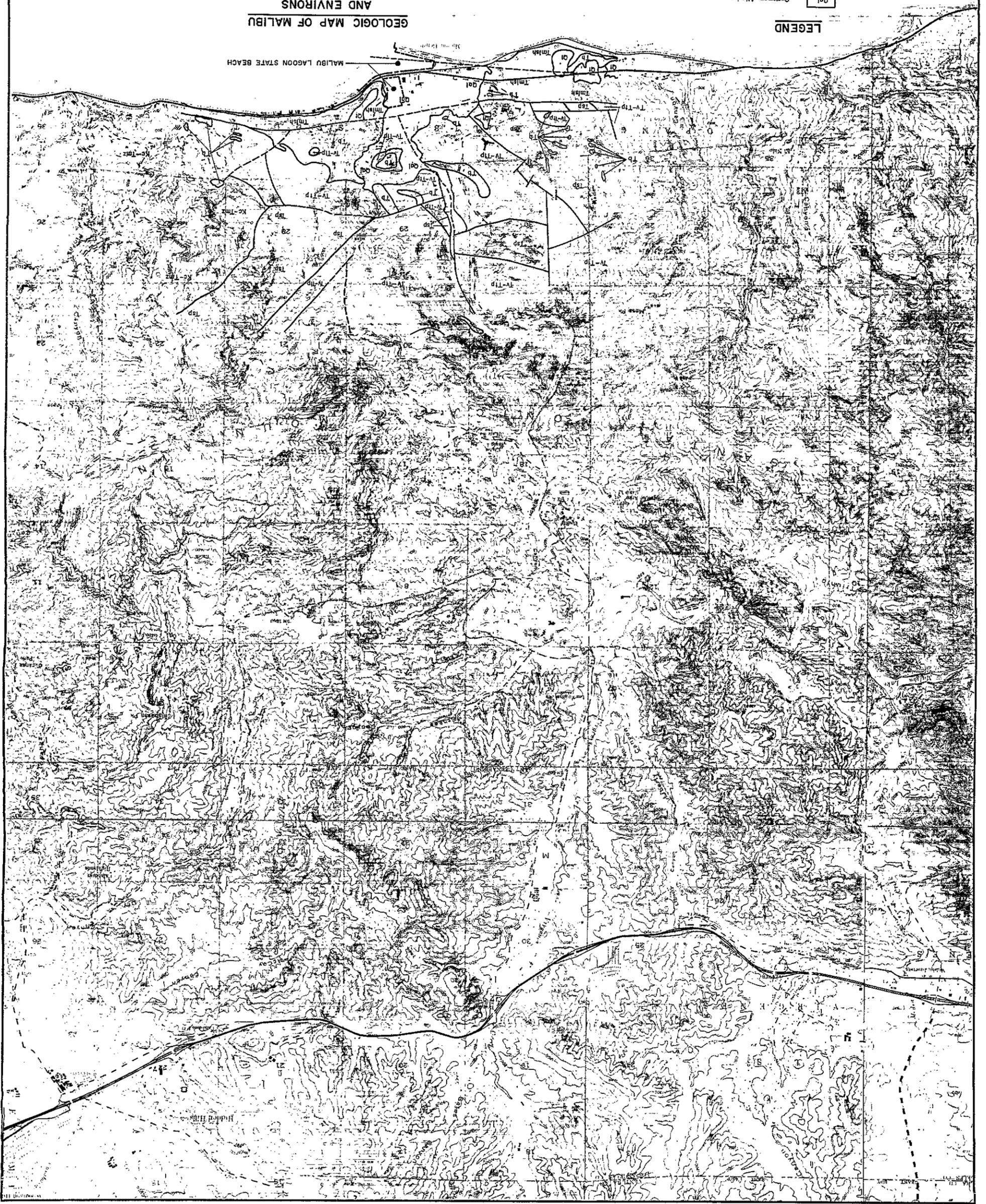
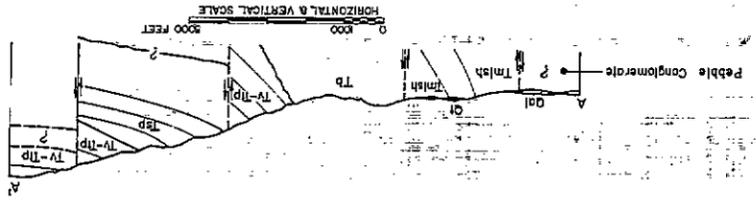
APPROVED _____ DATE _____

DESIGNED A. TUAJEN	DATE	REVISIONS
DRAWN S. AMAR B-77		
CHECKED		

LEGEND

- Qal Quaternary Alluvium
- Q1 Quaternary Terrace Deposits
- Upl Upper Miocene Lower Modelo Formation
- Mi Middle Miocene Intrusive & Extrusive Basalts
- Ml Middle & Lower Miocene Topanga & Vogueses Formations
- Oli (Oligocene?) Scape Formation
- Cp Cretaceous & Paleocene Chico & Martinez Formations
- Kc-Tmz Fault (Outcrop approx)

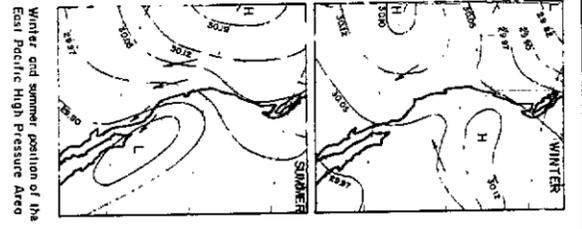
GEOLOGIC MAP OF MALIBU AND ENVIRONS



MONTH	DIRECTION OF WIND	CONSTANCY OF WIND	FORCE IN BEAUFORT SCALE	% OF DAYS FORCE EXISTS	RESULTANT WINDS		AVERAGE WIND VELOCITY IN KNOTS	FREQUENCY OF CALMS AT NOON GREENWICH	FREQ OF WINDS > BEAUFORT VII. > NOON GREENWICH	FREQUENCY OF WINDS > XII	DIRECTION OF WINDS > XII
					WINDS	FORCE					
JAN	NW	M	III	60	NW	I	8	10	1+	1	NW
FEB	NW	M	III	70	NW	I	8	10	1+	1	NW
MAR	NW	M	III	65	NW	I	8	5	1+	1	NW
APR	NW	F	III	65	NW	I	8	5	1+	1	NW
MAY	NW	F	III	65	NW	II	8	5	1+	0	NW
JUN	NW	F+	III	70	NW	I-II	8+	5	1+	0+	NW
JUL	NW	F	III	65	NW	I+	8+	5	1+	0+	NW
AUG	NW	F	III	60	NW	I	8+	5	0+	0+	NW
SEP	NW	F	III	70	NW	II	8	5	1	0+	NW
OCT	NW	F	III	70	NW	I	8	5	1+	0+	NW
NOV	NW	M	III	80	NW	I	8	5	1	0+	NW
DEC	NW	M	III	70	NW	I	8	10	1	1	NW

Relative Constancy: C=81+% of all winds from the quarter indicated
 F=61-80%
 M=41-60%
 P=25-40%

SUMMARY OF WIND DATA OF MONTHS FOR OCEANIC SECTOR BETWEEN MAINLAND AND 30° N. LAT. & 120° W. LONG.

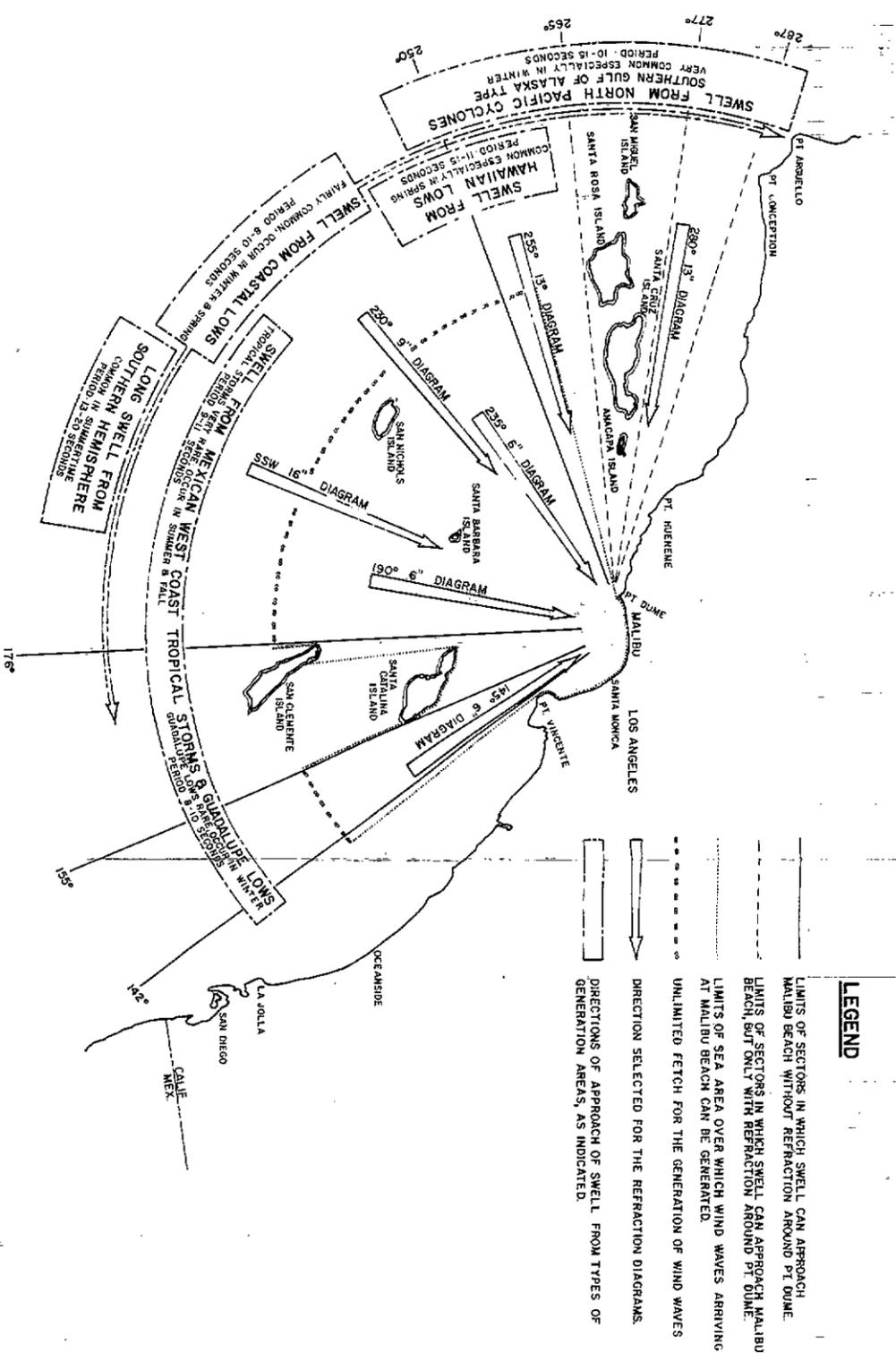


OCEANIC WAVE EXPOSURE AT MALIBU LAGOON

WAVES FROM WIND

WIND SOURCE: OFFSHORE THERMAL LOWS, SANTA ANA, LAND AND SEA BREEZE FROM THERMAL AIR LAYERING, ONSHORE WINDS TO CAUSE WAVES TO ±2.

N.W. WINDS: CAUSED BY S.W. DESERT LOWS AND NORTHERN OFFSHORE HIGHS.



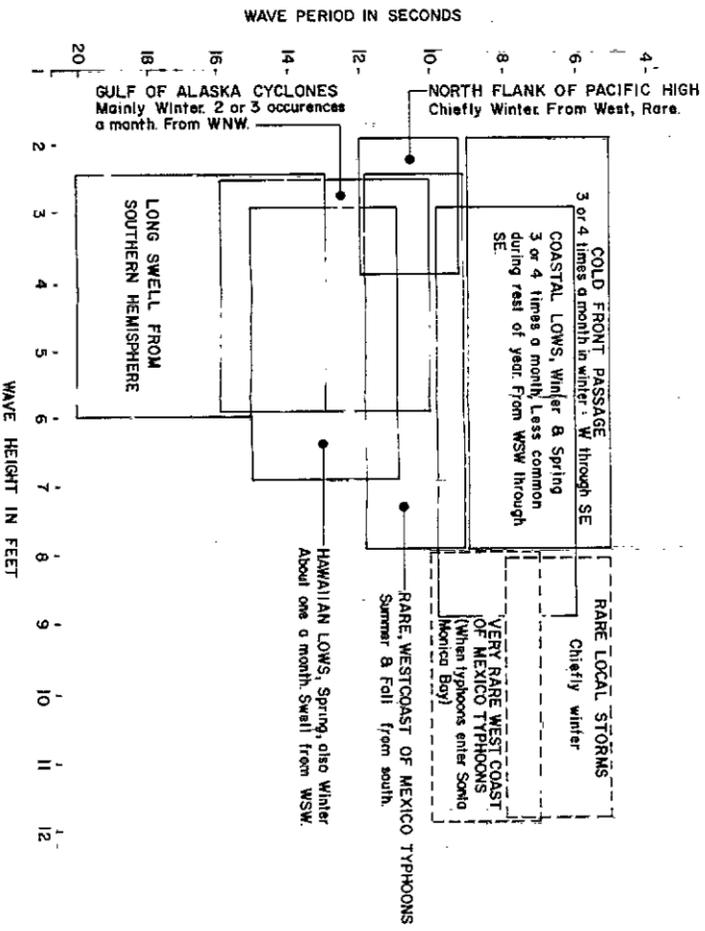
DIAGRAMATIC MAP OF WAVES APPROACHING MALIBU BEACH

NOTE: BEARINGS IN DEGREES CLOCKWISE FROM TRUE NORTH

WAVES FROM SWELLS

MAXIMUM EXPOSURE LIMITS OF WAVE SPECTRUM BETWEEN 176°-250°.

OFFSHORE ISLANDS WITHIN SPECTRUM HAVE LITTLE IMPORTANCE IN PROTECTING MALIBU BEACH.



CHARACTERISTICS OF WAVES ARRIVING AT MALIBU BEACH FROM THE GENERATION AREAS INDICATED

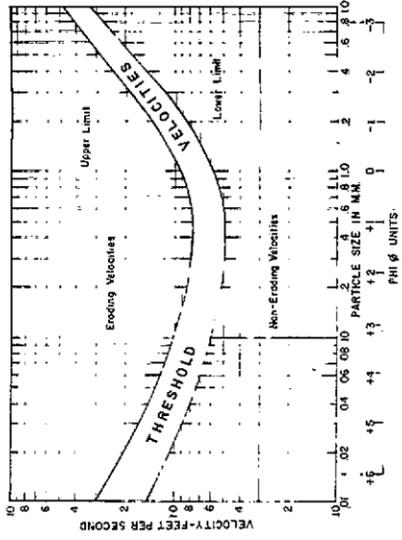
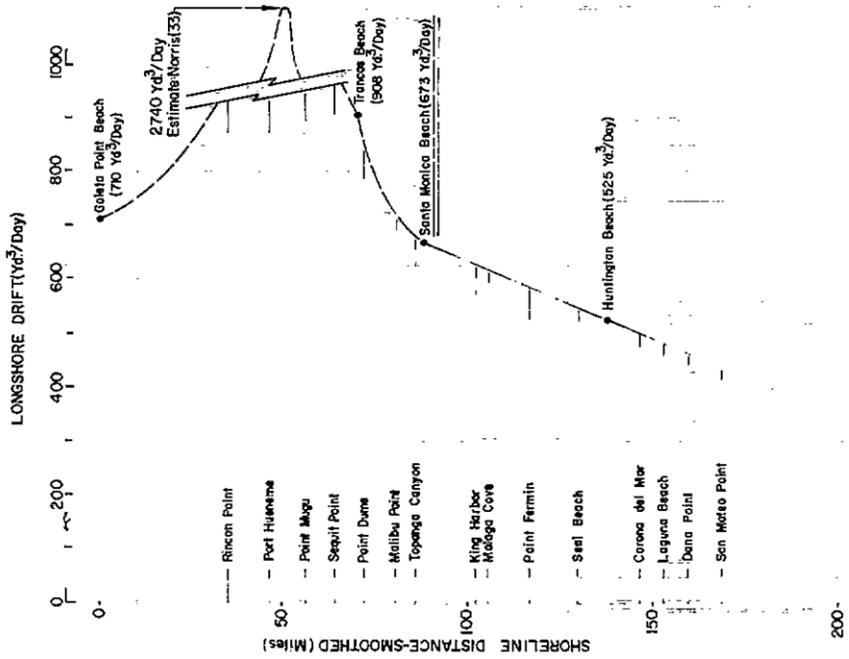
DESIGNED A TADEN
 DRAWN SAMAR 8-77
 CHECKED

REVISIONS	DATE

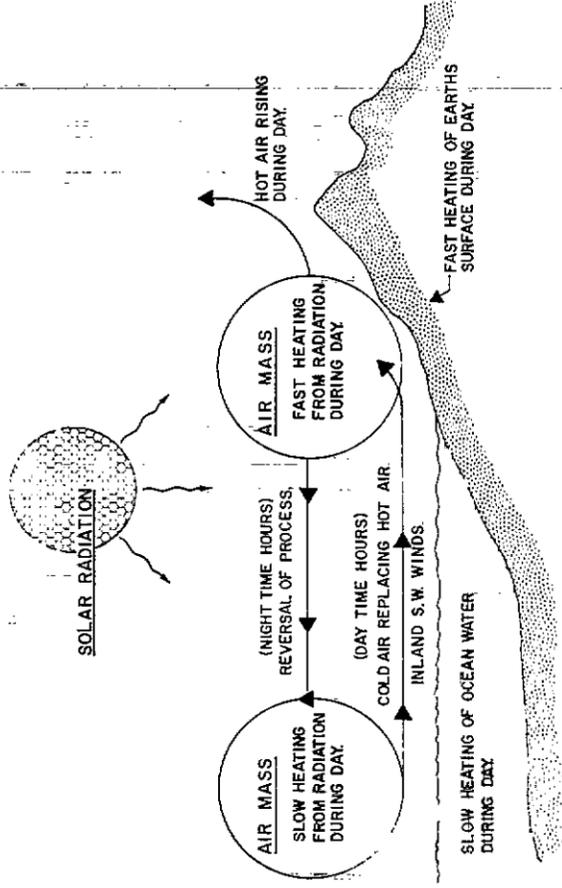
RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF PARKS AND RECREATION
 APPROVED _____ DATE _____

MALIBU LAGOON STATE BEACH
OCEAN WAVE EXPOSURE

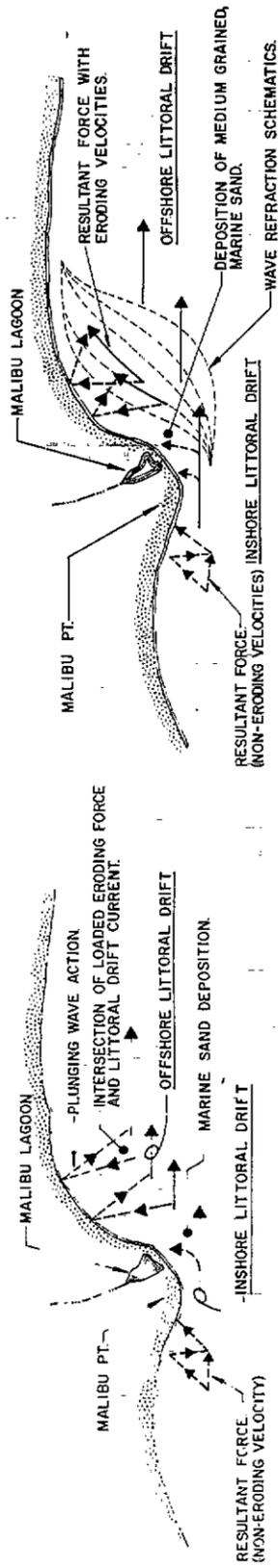
DRAWING NO.
 SHEET NO. 3 OF 10



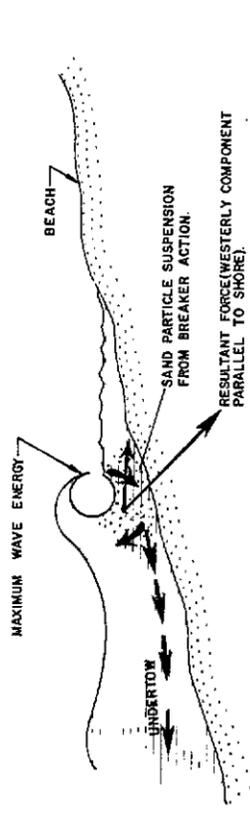
MEAN VELOCITIES REQUIRED TO ERODE SAND



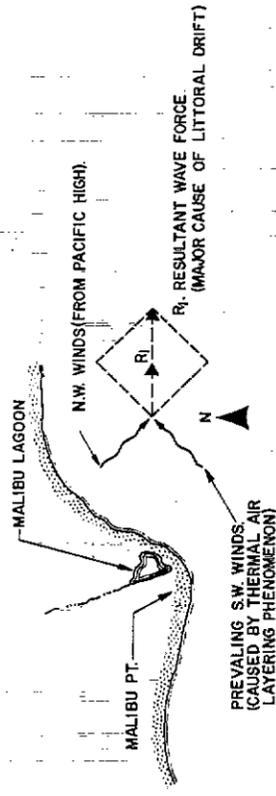
THERMAL AIR LAYERING PHENOMENON



THEORETICAL ANALYSIS OF BEACH BUILDING & BEACH EROSION



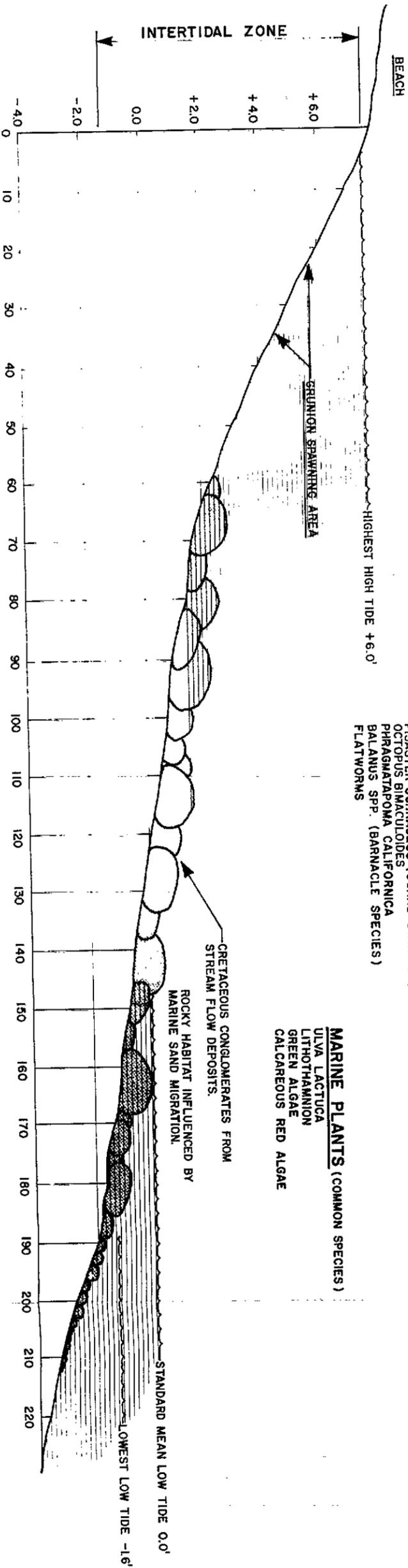
WAVE ENERGY EXPANSION



LITTORAL DRIFT GENERATION

LONGSHORE DRIFT FROM GOLETA POINT TO LAJOLLA

STRAND ZONE
ORCHESTOIDEA CORNICULATA (BEACH HOPPER)



- MARINE BIOTA (COMMON MEMBERS)**
- PAGURUS HEMPHILLI (HERMIT CRAB)
 - ANTHOPLEURA ELEGANTISSIMA (ANEMONE)
 - TEGULA FUNEBRALIS (URBAN SNAILS)
 - NUDIBRANCH
 - PACHYGRAPSUS CRASSIPES (ROCK CRAB)
 - STRONGYLOCENTROTUS PURPURATUS (SEA URCHIN)
 - PATIRIA MINIATA (BAT STAR)
 - PISASTER OCHRACEUS (OCHRE STARFISH)
 - OCTOPUS BIMACULOIDES
 - PHRAGMATOPOMA CALIFORNICA
 - BALANUS SPP. (BARNACLE SPECIES)
 - FLATWORMS

- MARINE PLANTS (COMMON SPECIES)**
- ULVA LACTUCA
 - LITHOTHAMNION
 - GREEN ALGAE
 - CALCAREOUS RED ALGAE

TYPICAL SECTION THROUGH MALIBU BEACH

SCALE:
HORIZ. 1" = 10'
VERT. 1" = 2'

(CRETACEOUS ROCK NOT TO SCALE)

MALIBU LAGOON STATE BEACH
SECTION THROUGH BEACH

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED: _____ DATE: _____

REVISIONS

DATE

DESIGNED
A TJADEN

DRAWN
S ANAR
8-77

CHECKED

DRAWING NO.

SHEET NO.

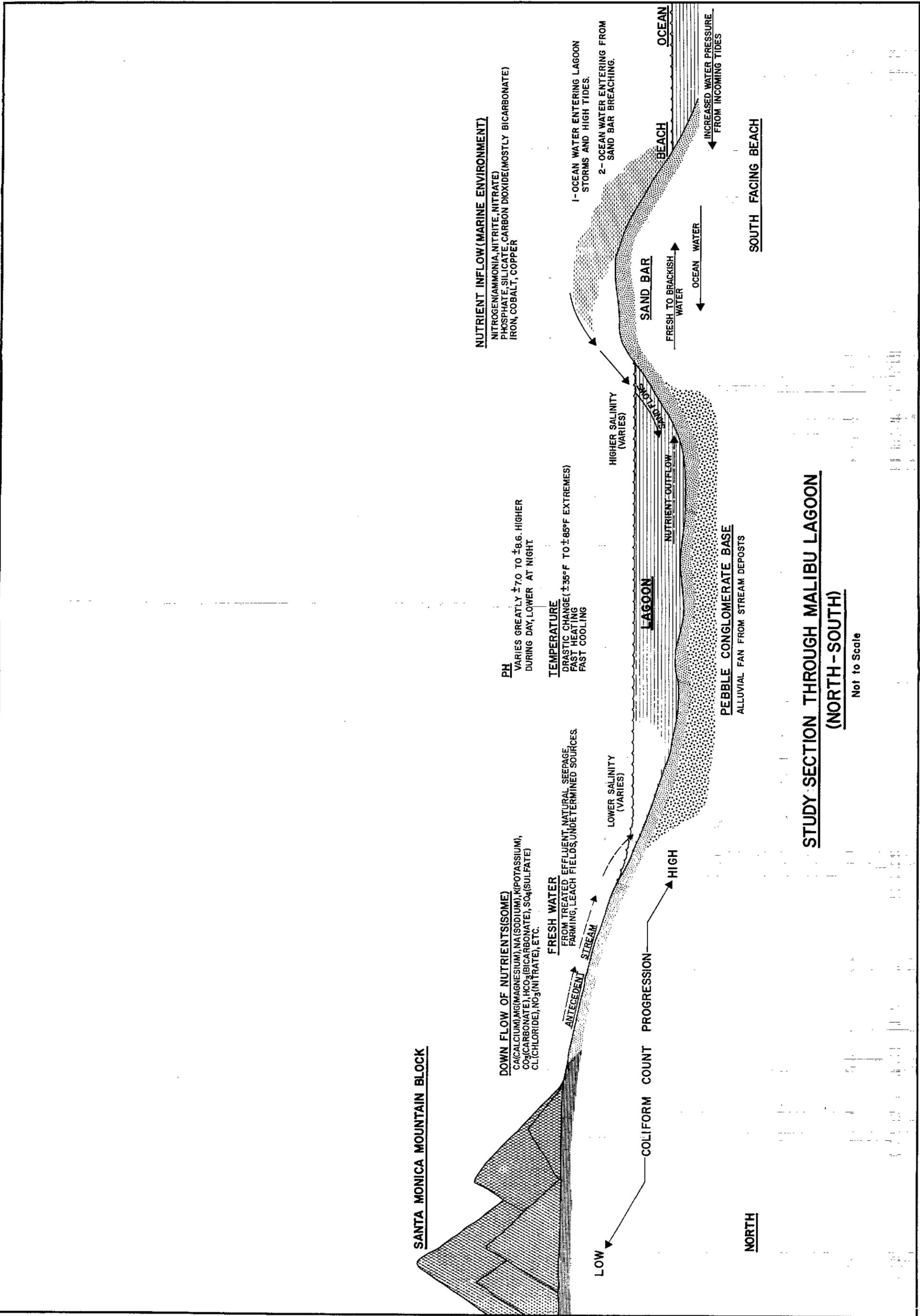
5
OF
10

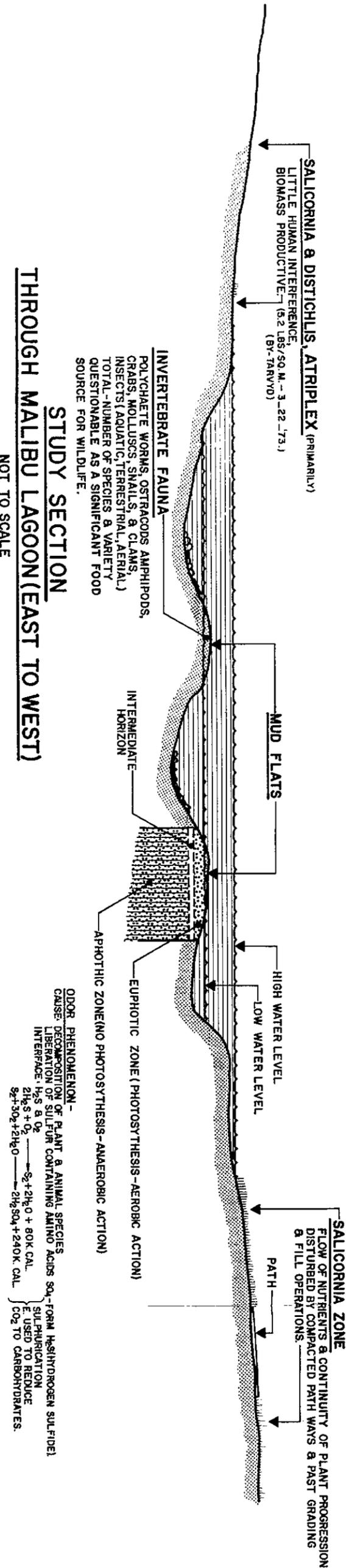
DESIGNED A. TADEN	DATE	REVISIONS
DRAWN S. AMAR 8-77		
CHECKED		

RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF PARKS AND RECREATION
 APPROVED _____ DATE _____

MALIBU LAGOON STATE BEACH
SECTION THROUGH LAGOON

DRAWING No.
 SHEET No. **9** OF **10**





BIRD LIFE

MIGRATORY: PRIMARILY A RESTING AREA FOR MANY & VARIED SPECIES. MUD FLATS OFFER SOME SECURITY FROM LAND PREDATORS & LOCAL DOGS. LIMITED FOOD SUPPLY (LIST & WESTERN FOUND. OF VERTEBR. ZOOLOGY)

RESIDENT: MANY SIGNIFICANT SPECIES. MOST SPECIES HAVE DISAPPEARED DUE TO HUMAN PENETRATION.

AQUATIC PLANTS

DUCKWEED, GREEN ALGAE
ENTEROMORPHA, SPIROGYRA

FISHES

MIGRATORY: SALMO GARDNERII (STEELHEAD)
ATHERINOPS AFFINIS (TOPSMILT)
MUGIL CEPHALUS (STRIPED MULLET)
PLATICHTHYS STELLATUS (STARRY FLOUNDER)
CYMATOGASTER AGGREGATA (SHINER PERCH)

RESIDENT:
FUNDULUS PARVIPPINIS (CALIFORNIA KILLIFISH)
GAMBUSIA AFFINIS (MOSQUITO FISH)
LEPTOCOTTUS ARMATUS (STAGHORN SCULPIN)
ENGRALLIS MORDAX (NORTHERN ANCHOVY)

STUDY SECTION
THROUGH MALIBU LAGOON (EAST TO WEST)

NOT TO SCALE

ODOR PHENOMENON -
CAUSE: DECOMPOSITION OF PLANT & ANIMAL SPECIES
LIBERATION OF SULFUR CONTAINING AMINO ACIDS SO_4 -FORM H_2S HYDROGEN SULFIDE!
INTERFACE: H_2S & O_2 → $S_2 + 2H_2O + 80K CAL.$
 $2H_2S + O_2$ → $2H_2O + 240K CAL.$
 $S_2 + 3O_2 + 2H_2O$ → $2H_2SO_4 + 240K CAL.$
SULFURICATION
E. USED TO REDUCE
 CO_2 TO CARBOHYDRATES.

MALIBU LAGOON STATE BEACH
SECTION THROUGH LAGOON

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

DESIGNED A T JADEN	DATE	REVISIONS
DRAWN S AMAR 8-77		
CHECKED		

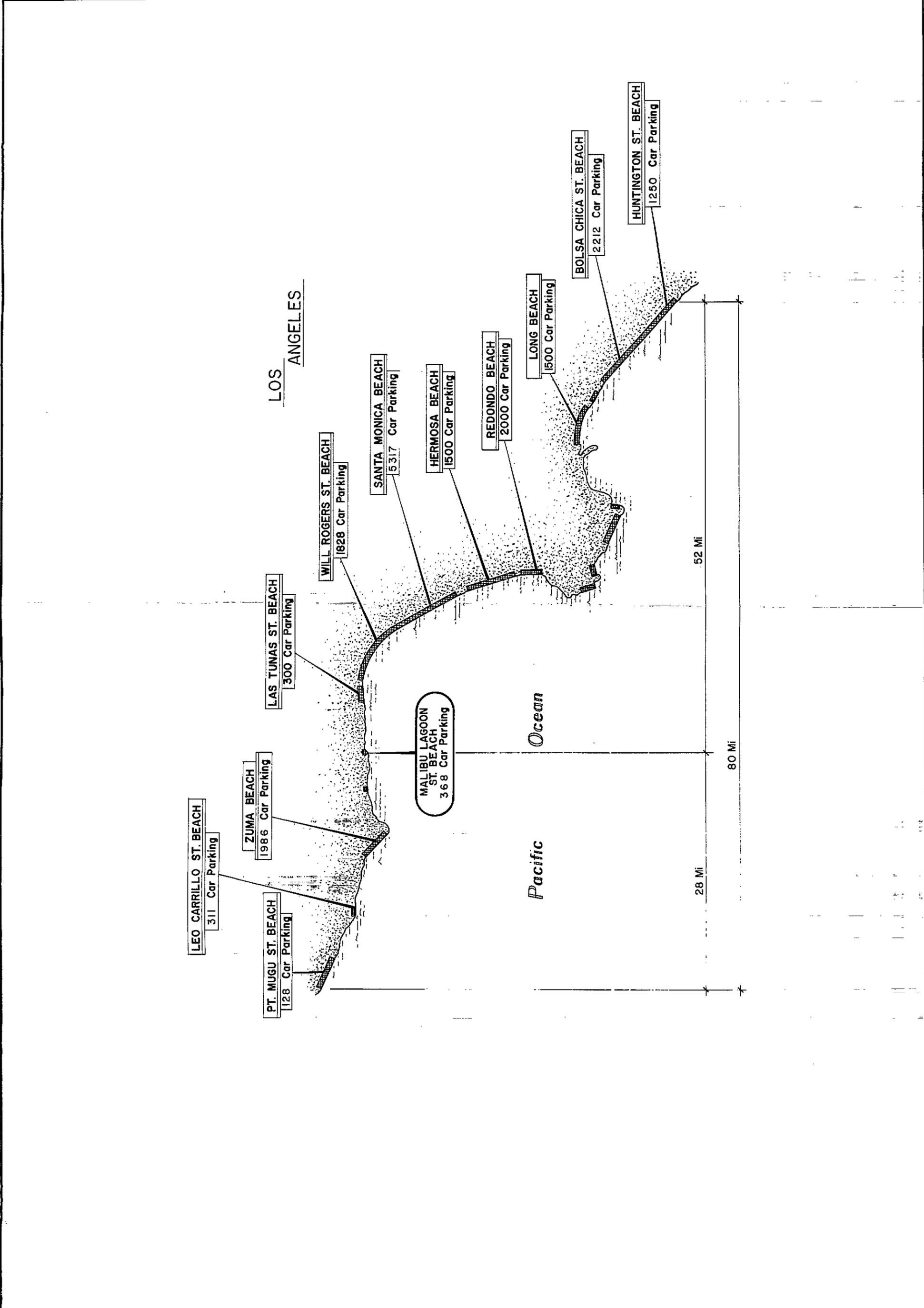
DESIGNED	DATE	REVISIONS
DRAWN		
CHECKED		

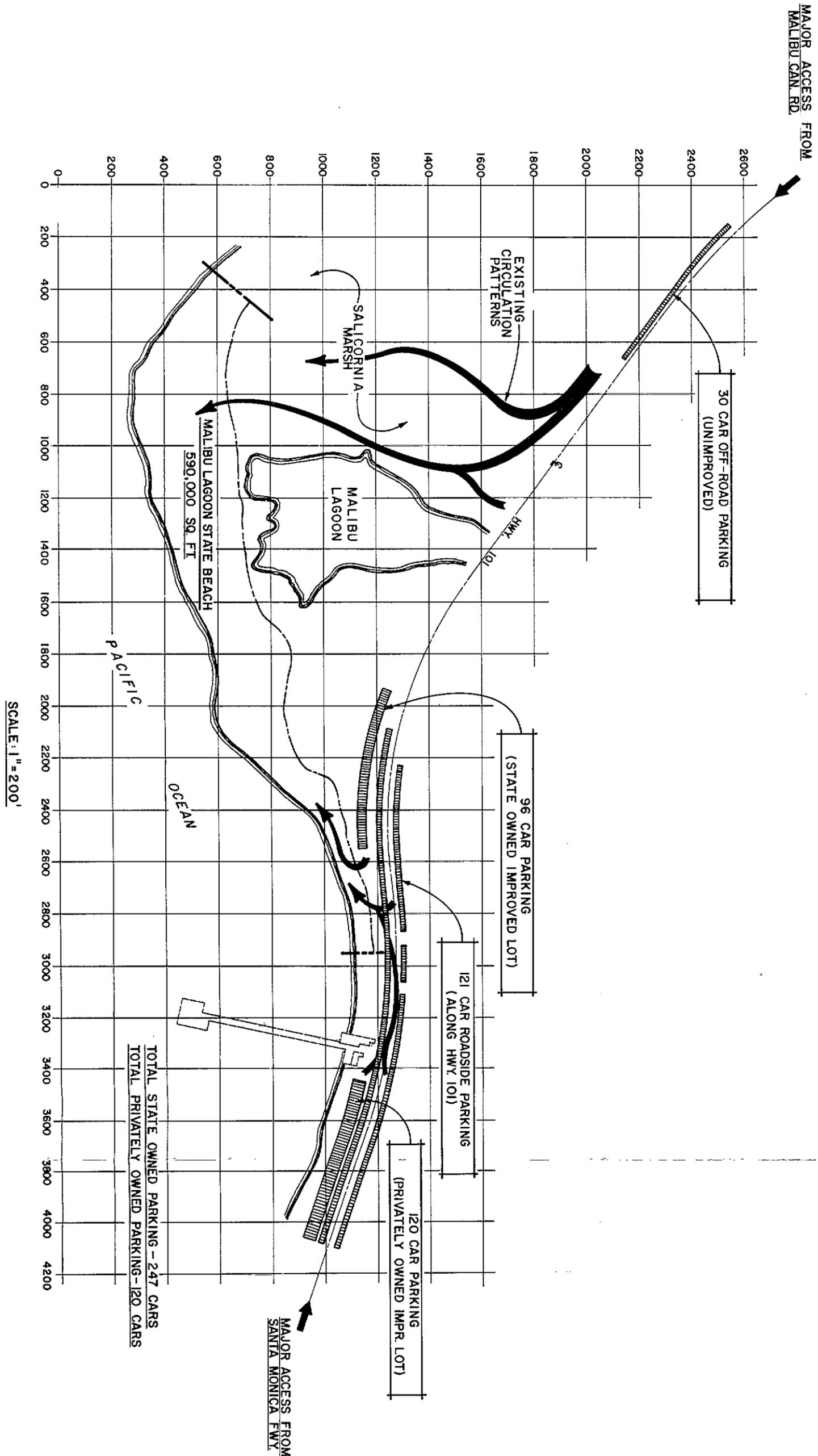
RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF PARKS AND RECREATION
 APPROVED _____ DATE _____

MALIBU LAGOON STATE BEACH
 BEACH PARKING ANALYSIS

DRAWING NO.

SHEET NO. 8 OF 10





MALIBU LAGOON STATE BEACH
**EXISTING BEACH
PARKING RELATIONSHIP**

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

REVISIONS

DATE

DESIGNED

DRAWN
OCT. 1977
CHECKED

DRAWING NO.

SHEET NO.

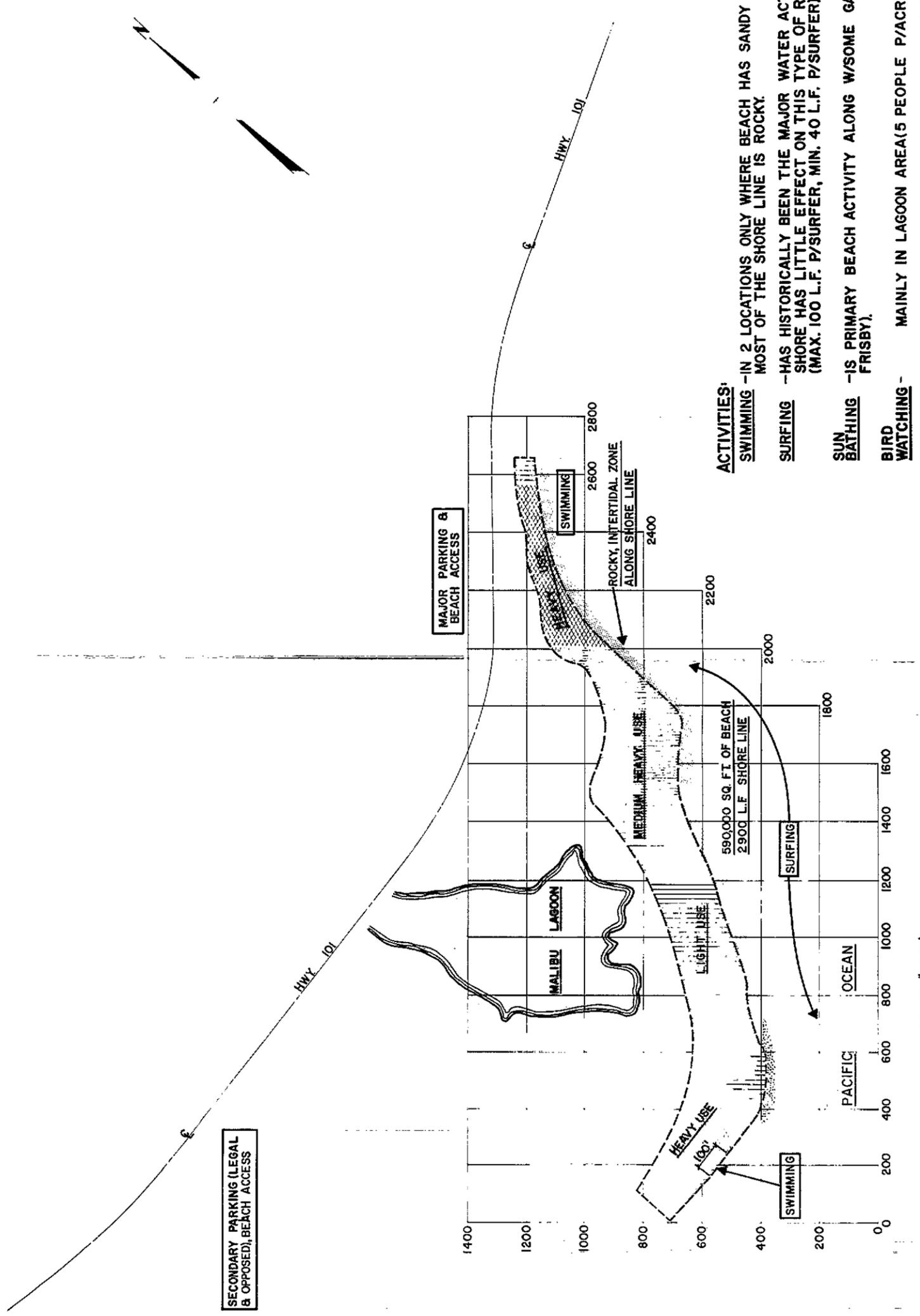
9
OF
10

DESIGNED	DATE
DRAWN	REVISIONS
S. AMAR	
10-77	
CHECKED	

APPROVED _____ DATE _____
 DEPARTMENT OF PARKS AND RECREATION
 RESOURCES AGENCY OF CALIFORNIA

MALIBU LAGOON STATE BEACH
EXISTING BEACH ACTIVITIES

DRAWING NO. _____
 SHEET NO. **10** OF **10**



ACTIVITIES:

- SWIMMING** - IN 2 LOCATIONS ONLY WHERE BEACH HAS SANDY INTERTIDAL ZONE. MOST OF THE SHORE LINE IS ROCKY.
- SURFING** - HAS HISTORICALLY BEEN THE MAJOR WATER ACTIVITY. ROCKY SHORE HAS LITTLE EFFECT ON THIS TYPE OF RECREATION. (MAX. 100 L.F. P/SURFER, MIN. 40 L.F. P/SURFER)
- SUN BATHING** - IS PRIMARY BEACH ACTIVITY ALONG W/SOME GAMES (VOLLEY BALL, FRISBY).
- BIRD WATCHING** - MAINLY IN LAGOON AREA (5 PEOPLE P/ACRE).
- VISITATION** - HEAVY ON WEEKEND & HOLIDAYS, SLOW TO MODERATE OTHERWISE.
- WATER QUALITY** - QUESTIONABLE, DUE TO HIGH COLIFORM COUNT AT CERTAIN TIMES OF YEAR.

SCALE: 1" = 200'