

# THE STATUS OF COASTAL WETLANDS IN SOUTHERN CALIFORNIA

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**Abstract:** There are 28 coastal wetlands scattered along the southern California coast from Santa Barbara County, south to the Mexican border. Fifteen of these wetlands possess high values for wildlife. The remainder, primarily because of smaller size or degree of alteration, are of lesser importance. About 67 percent of southern California's wetlands have been lost to dredging, filling and other alterations which have removed them as wildlife habitat. Of the remaining wetland acreage, 42 percent is threatened by existing plans for development and utilization of these wetlands.

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## INTRODUCTION

At the turn of the century, California possessed some 381,000 acres of wetlands (marshes and mudflats) scattered along its coastline from Del Norte to San Diego County. Today we have about 126,000 acres remaining--a 67% reduction. Only 8,500 acres of this amount remain in southern California along 343 miles of coastline from Santa Barbara County south to the Mexican border.

The purpose of this paper is to provide a thumbnail sketch of each southern California wetland. Hopefully, your interest will be sharpened and you will take positive action to protect this segment of our environment.

The percentage of wetlands lost in southern California has been about equal to the State-wide loss of 67 percent. It is estimated that five southern counties once possessed about 26,000 acres of wetlands, now reduced to 8,500 acres.

The acreage figures given above do not include the sheltered waters of the larger bays, such as San Francisco, Humboldt and San Diego. The large expanses of water are not as important to wildlife as the marshes and mudflats. Also, it is the marshes and mudflats that are first to be destroyed by man's intrusions into a wetland area. Figure I shows the location of the wetland areas along the southern California coast, except for the Santa Ynez and Santa Maria Rivers in northern Santa Barbara County.

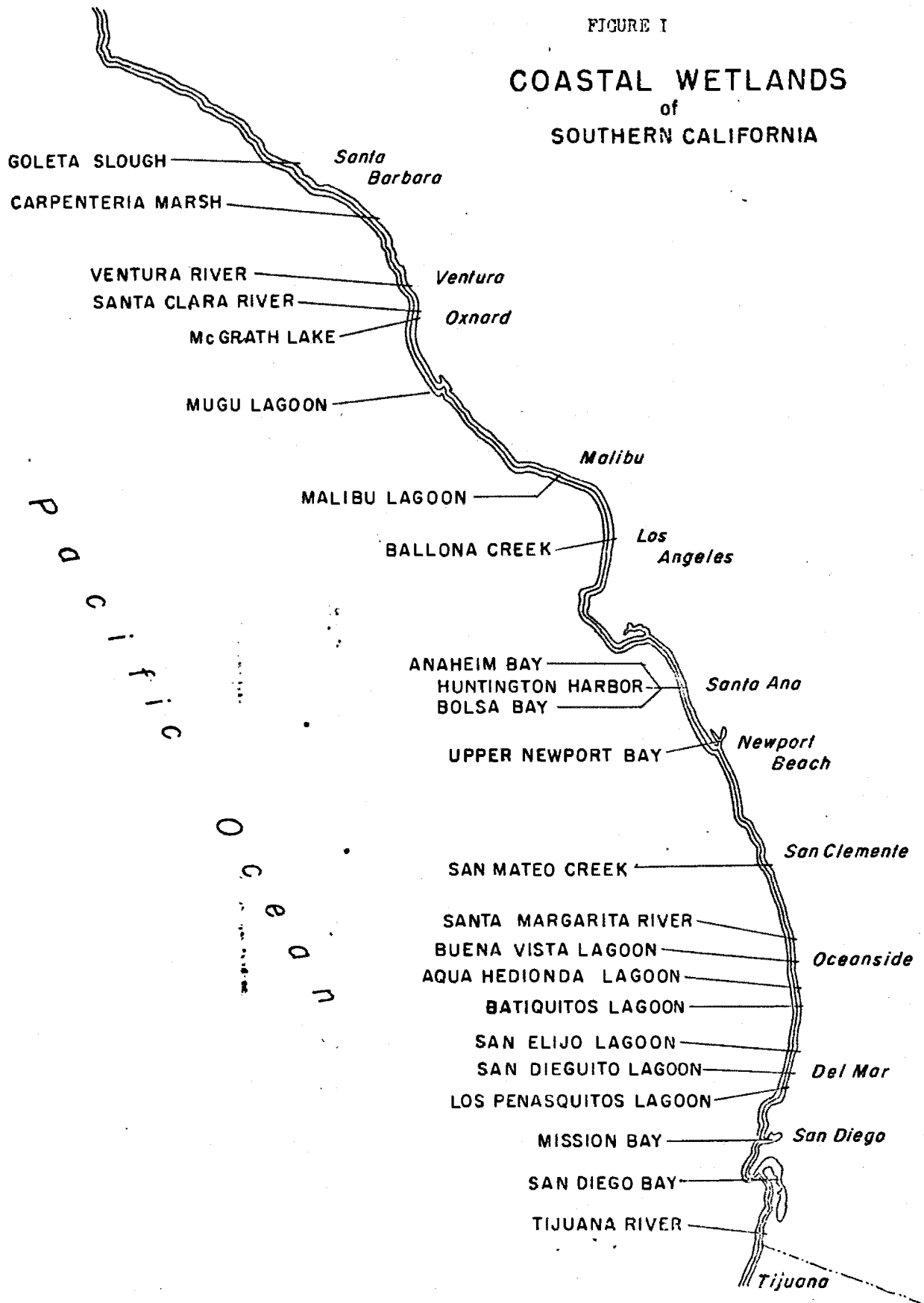
## THE WETLANDS

### Tijuana River - San Diego County

The southern-most wetland is the Tijuana River estuary. Its marshes and mudflats along a 10-mile network of tidal sloughs cover about 415 acres. An additional 760 acres is classed as maritime habitat, including the sand dunes, beaches and a zone between the marsh and uplands where we find a transition from salt to freshwater vegetation. There has been very little alteration of the area by man. The mudflats and shallow channels support an important bait fishery in San Diego County.

The estuary yielded \$25,000.00 in 1969 to commercial bait operators. The salt marsh is home to the light-footed clapper rail. The extent of the rail population in this estuarine area is not known, but a census effort under direction of Dr. Jehl from San Diego State College will probably produce the answer in 1971.

FIGURE I  
**COASTAL WETLANDS**  
 of  
**SOUTHERN CALIFORNIA**



The Border Area Plan adopted by the City of San Diego in 1967, proposes to develop this estuary into a marina-residential complex. The implementation of this plan is, however, dependent upon flood protection by the proposed Corps of Engineers Flood Control Project for the Tijuana River. The Division of State Lands recently completed an environmental impact report for the legislature (as required by ACR-132) on the proposed marina and flood control project. The Corps of Engineers is now finishing an environmental impact report required by P.L. 91-190 for their flood control project. These records will no doubt be the deciding factor whether or not the estuary or portion thereof is preserved for wildlife.

#### San Diego Bay - San Diego County

The bay now contains about 360 acres of salt marsh, 600 acres of mudflats and about 11,700 acres of sheltered water. Originally, the bay contained 2,450 acres of salt marsh and about 1,200 acres of mudflats. The marsh has been reduced by 86 percent, the mudflats by 50 percent, and the sheltered waters by 25 percent.

The primary landowners of the bay's tidelands are the San Diego Port District and the U. S. Navy. A small acreage is privately owned and is being developed into a venetian village, known as Coronado Cays. However, virtually all dredging and filling of marshes and mudflats has occurred on public lands.

The south end of the bay has been diked into a series of salt production ponds. The levee system around the ponds supports the only nesting colony of elegant terns in the United States, the northern-most extension of their range. The remaining salt marshes of the bay may support a few light-footed clapper rails although this has not been verified.

The San Diego Port District is now in the process of revising its master plan for development and utilization of its lands. The Department of Fish and Game was represented on the South San Diego Environmental Study Committee which is to present the Port District with recommendations for development and use of the south bay. The Committee will present its recommendations to the District in February 1971.

The U. S. Fish and Wildlife Service is on record opposing further dredge or fill operations until a master plan is complete which provides for preservation of the wetland habitats.

#### Mission Bay - San Diego County

A worthless marsh was transformed into a work of beauty for man to use and enjoy. All that remains of an original 2,400-acre marsh and shallow bay is 21 acres of salt marsh. Prior to its transformation, Mission Bay sustained one of the largest eel grass beds south of Morro Bay, and as such was a major stopover and wintering ground for black brant. A public official in the San Diego City Government used the preservation of this 21-acre area as an example of their real concern for conservation. I didn't have the heart to tell him what I thought about this conservation minded effort of local government. However, in all fairness, ten years ago there were few who were outwardly concerned about maintaining the natural qualities of our environment.

#### Los Penasquitos Lagoon - San Diego County

Located 17 miles north of San Diego, this lagoon is not immediately threatened with any dredge and fill projects. A portion of the lagoon, mainly west of the railroad tracks, is owned by the Department of Parks and Recreation. A substantial portion of the lagoon east of the tracks is owned by the San Diego Gas and Electric Company.

The lagoon contains about 200 acres of marsh and sheltered waters. In the dry season, a sandbar forms across the mouth of the lagoon blocking tidal access. It is, however, opened periodically by bulldozer to reduce mosquito production.

The lagoon is fed by 1.5 million gallons of sewage effluent daily. The cessation of sewage discharge scheduled for mid-1972 may reduce the wetted area in the upper lagoon.

The probability of maintaining this lagoon in a natural condition appears to be good. The proposed site of an electric power plant and Corps of Engineers flood control project are future threats. However, with the increased awareness of potential environmental damage by all parties concerned with these developments, prospects for full consideration of the lagoon's natural values are good.

#### San Dieguito Lagoon (Del Mar) - San Diego County

The original acreage of this lagoon is estimated at 250 acres. The racetrack operation is thought to have required the filling of about 100 acres leaving about 95 acres of marsh and 60 acres of sheltered waters. The remaining acreage is in private ownership. Because of ownership status, prior degradation and size of the remaining marsh, the area has a low priority rating for action by the Department of Fish and Game. The area is, however, included in the County sponsored San Diego Lagoon Study to determine proper use of the County's lagoons.

#### San Elijo Lagoon - San Diego County

The lagoon contains about 500 acres of wetted area. About 30-50 percent is marsh--most is shallow water. The present ratio of marsh to water is artificial in that 3,000,000 gallons of secondary treated sewage are fed into the lagoon each day. Even this inflow to the lagoon does not prevent the sandbar from forming at the mouth, blocking tidal flow and raising the water level in the lagoon. Periodically, however, the mouth is dozed open to allow flushing. Needless to say, the lagoon is severely eutrophicated. It gives off foul odors and is a source of mosquito and midge production. The local citizens would like to see anything happen to eliminate the smell and insects even if it meant developing it into a marina. The San Diego Regional Water Quality Control Board has ordered the cessation of sewage discharge into the lagoon by mid-1972.

In 1970, the San Diego County Board of Supervisors considered several proposals of private development firms to build a marina-residential complex. Action upon these proposals were deferred to allow the citizens of San Diego County to vote on a bond issue for acquisition funds. The issue received a simple majority, but not the 2/3 majority as now required by law. The County is awaiting the outcome of a court case which may overturn the 2/3 provision. Pending the outcome, the County has issued a special use permit to become effective March 1, 1971, allowing development of the lower 200+ acres of the lagoon.

#### Batiquitos Lagoon - San Diego County

Batiquitos Lagoon is located 27 miles north of San Diego and three miles south of Carlsbad. This lagoon like most lagoons in southern California does not have a sufficient inflow of water or a tidal prism to keep a sandbar from forming at the mouth during the dry season. The lagoon, which covers about 425 acres, is completely flooded during the wet season and dries down to several small ponds on the west end during the summer. In appearance, the lagoon resembles a sterile salt flat for most of the year.

The fish and wildlife values of the lagoon are presently low because of the absence of tidal action with associated marshes and mudflats. However, it has great potential for improvement with establishment of permanent tidal action. The lagoon's waters have been treated with copper sulfate and pramitol by the County to control odors produced by algae.

The lagoon is privately owned with the Boise-Cascade Corporation possessing a substantial portion. A residential development with a golf course overlooks the east end of the lagoon. As this residential area expands, it becomes a matter of time until a marina in the lagoon becomes economically feasible. The Department of Fish and Game has included the lagoon in its program to document the values of California's coastal wetlands.

#### Aqua Hedionda Lagoon - San Diego County

Translated, Aqua Hedionda means stinking water. Possibly, this was the case, before the lagoon was dredged out to form a deep lagoon. Two years ago, there still existed about 90 acres of marsh at the upper end. A portion of this acreage has been dredged

and filled for a marina development. This lagoon is of minor value to wildlife.

#### Buena Vista Lagoon - San Diego County

Buena Vista Lagoon is located 33 miles north of San Diego, sandwiched between the towns of Carlsbad and Oceanside. The lagoon covers 225 acres, mostly shallow water. It supports a freshwater marsh of 25-50 acres depending upon the water level in the lagoon which is regulated by a water control structure. Domestic irrigation runoff provides freshwater inflow in the lagoon.

In 1969, the Wildlife Conservation Board purchased 60 acres in the lagoon. Added to the 75 acres owned by Nature Conservancy, a total of 135 acres is now preserved for wildlife use. About 100 acres remain in private ownership and are subject to development. A recent application to the County Planning Commission to rezone 33 acres of commercial development was turned down. The same individual in 1970 requested highway construction spoils to fill the parcel but was denied again, this time by the Division of Highways. As long as lands in the lagoon remain land in private ownership, there will be continued demands to develop them.

#### Santa Margarita River - San Diego County

This wetland area is located just north of Oceanside on the Camp Pendleton Marine Base. The lower flood plain of this river west of the freeway contains about 100 acres of salt marsh and 40 acres of sheltered water. A large salt flat of about 100 acres adjacent to the marsh is presently of little value to wildlife. Under an adopted fish and wildlife plan for the base, the Department provided the military command with a specific plan for upgrading the marsh and establishing vegetation on the salt flat. A system of channels into the salt flat was proposed. The lower flood plain east of the freeway contains about 100 acres of freshwater vegetation. The threat of developments to the marshlands of the Santa Margarita River are minimal since the area is federally owned.

#### San Mateo River - San Diego County

The mouth of the river widens to form a small lagoon and brackish marsh covering about 130 acres. The mouth of the lagoon is closed by a sandbar most of the year.

The area is located on the northern end of Camp Pendleton just south of San Clemente. A Department of Parks and Recreation proposal to develop the area into a camping site for beach goers and surfers has been delayed because of security considerations for the Western White House, located immediately north of the area.

The Department of Fish and Game has reviewed the Department of Parks and Recreation development plans and has requested changes which would leave most of the area in a natural state. The area appears to be safe from any immediate threat of alteration.

#### Upper Newport Bay - Orange County

The Upper Bay contains 120 acres of marsh, 525 acres of mudflat and 120 acres of sheltered water.

It supports an estimated 4,000,000 bird days use by some 70 species of water associated birds.

The area has been embroiled in controversy between conservation and development interests following State Lands Commission approval of a land trade between Orange County and the Irvine Land Company in 1967. The County would exchange its lands along the shoreline, for Irvine lands within (islands) the bay, along with some upland acreage. The former Irvine lands in the bay would be dredged out and deposited along the shore to form land for waterfront residential development. This development would virtually result in total destruction of the bay's capability to support wildlife.

The constitutionality of the land exchange is now being tested in the courts. The Superior Court has held the exchange constitutional, however, it is expected that ultimately the U. S. Supreme Court will have to rule on the issue.

On January 5, 1971, the County Board of Supervisors gave notice to the Irvine Land Company that it will withdraw from the exchange.

It is doubtful that any development will take place in Newport Bay for several years. I may be optimistic, but I believe that any plan for development will contain a large area dedicated for maintenance of the bay's natural resources. This optimism stems from the tremendous public concern for Upper Newport Bay translated into positive action and involvement to preserve the bay.

#### Bolsa Bay - Orange County

The bay contains about 1,200 acres of marshlands and tidal channels, dotted with oil pads, interconnected with a network of roads. The bay, since the late 1800's has been cut off from tidal action. The existing marsh is degraded but could be rejuvenated if tidal action was restored to the bay.

Most of the tidelands are owned by the Signal Oil Company which proposes to phase out the oil pumping operation and transform them into a marina-residential complex. The channels are still owned by the State, but only comprise about 70-100 acres, according to the Signal Oil Company. The State Lands Division has not yet surveyed the area to determine ownership boundaries.

The proposed development is still a number of years away from realization as both State and Federal environmental impact reports must be completed and accepted before State or public funds can be committed, for the marina development.

#### Huntington Harbor - Orange County

This area was once a part of the Anaheim Bay-Bolsa Bay system of marshlands. It is estimated that the harbor development destroyed about 200 acres of marsh and tidal channels. The harbor is now of little value to wildlife. I might point out that the State relinquished its interest in the natural tidal channels in trade for the man-made harbor channels. The State is now responsible for maintaining these channels.

#### Anaheim Bay - Orange County

About 600 acres of salt marsh and tidal channels comprise the wetlands of Anaheim Bay. The area is owned by the U. S. Navy, and is the site of an ammunition storage and loading facility. The Department of Fish and Game completed a fish and wildlife plan for the marsh lands, in cooperation with the U. S. Fish and Wildlife Service. The plan which places high value on retaining the marsh in a natural condition was accepted by the Navy in 1970. The plan has already been used by the Navy to justify its opposition to a free-way through the marsh and to a harbor development proposed by Orange County.

As long as the area remains in Federal ownership it will be relatively safe from major alteration. However, the highway and marina developments are threats.

#### Ballona Creek - Los Angeles County

This 70-acre piece of tidal marsh just north of the Los Angeles International Airport is all that remains of an estimated 1,600 acre area now the site of Marina Del Rey. With the exception of about 200 acres of marsh in the Alamitos Bay area, this is all that remains of about 6,800 acres of former wetlands in Los Angeles County, a 96 percent reduction. The future of the Ballona Creek Marsh is very tenuous since it is privately owned and in the midst of the Los Angeles Metropolis.

#### Mugu Lagoon - Ventura County

The Mugu Lagoon wetland covers about 2,000 acres with salt marsh vegetation comprising about 1,400 acres of the area and mudflats about 500 acres. This wetland is the size

of the Pacific Missile Range Headquarters, a Naval operation. The lagoon has been significantly altered through construction and enlargement of the Naval base. Since 1950, alone, nearly 1,400 acres of the wetlands have been dredged, filled or otherwise removed from wildlife use.

The salt marsh supports a population of the California clapper rail, a species in danger of extinction. The size of the rail population is not known though several attempts have been made to census it.

A fish and wildlife plan has been prepared by the Department of Fish and Game and the U. S. Fish and Wildlife Service for Mugu Lagoon, but as yet has not been accepted by the base command. The plan stresses preservation of the salt marsh and mudflats.

Once the fish and wildlife management plan for the base has been accepted by the Navy, it is anticipated that full consideration will be given to maintaining the existing wetland habitat.

#### Carpenteria Marsh - Santa Barbara County

Historically known as El Estero, this wetland covers about 200 acres including 150 acres of salt marsh, 35 acres of mudflats, and 15 acres of tidal channels. El Estero receives fresh water during the summer with the consequent forming of a sandbar across its mouth. The sandbar, however, is regularly opened by bulldozer to allow continual tidal action within the lagoon--a mosquito control measure. The entire lagoon is privately owned. However, the present owners and the University of California are negotiating for the University to assume ownership of the marsh and maintain it in a natural condition. This area would be included in the University's Natural Land and Water Reserve System.

#### Goleta Slough - Santa Barbara County

This 360 acre salt marsh is located west of Santa Barbara, sandwiched between the Santa Barbara campus of University of California and the Santa Barbara Airport. The entire slough, except for about 20 acres owned by the University, is owned by the City of Santa Barbara. In the past 30 years, man's activities in the slough have contributed to the destruction or gross alteration of about 700 acres of the slough. About 500 acres were used for construction of the airport. A proposed freeway to the University, scheduled for construction in 1970, would have required another intrusion into the marsh. However, the students and faculty of the University, along with the Audubon Society and Sierra Club, were instrumental in preventing its construction. The Fish and Game Department published a report on the natural resources of the slough in August 1970. This data was used in Corps of Engineers environmental impact report for their proposed flood control project through the marsh. It appears, though no commitments have yet been made by the Corps, that the Department of Fish and Game's recommendations regarding the project will be given full consideration.

The Department of Fish and Game further recommended that the City of Santa Barbara dedicate Goleta Slough to uses compatible for maintaining its natural state. This recommendation is essentially in line with a plan developed for the City by Wm. L. Pereira Associates of Los Angeles.

#### Santa Ynez River - Santa Barbara County

The lower flood plain of the river contains about 110 acres of salt and brackish water marsh and 50 acres of sheltered water. The lagoon opens seasonally into the ocean when the sandbar is breached during periods of high water in the river.

This wetland is located on Vandenberg Air Force Base, about 75 miles up-coast of Santa Barbara.

The Department of Fish and Game and the U. S. Fish and Wildlife Service have cooperatively prepared a fish and wildlife plan for the base. The plan stresses the need to preserve the marshes of the lower Santa Ynez River.

This wetland is not threatened at present by any known plans for its alteration. The areas discussed above included all of the major wetlands and comprise most of the acreages of this habitat in the five southern counties. To complete the wetland picture, the smaller areas are:

1. San Diego River, San Diego County ----- 280 acres
2. San Luis Rey River, San Diego County ----- 40 acres
3. Los Flores Creek, San Diego County ----- 60 acres
4. Malibu Lagoon, Los Angeles County ----- 10 acres
5. McGrath Lake, Ventura County ----- 20 acres
6. Santa Clara River, Ventura County ----- 60 acres
7. Ventura River, Ventura County ----- 10 acres
8. Goleta Point Marsh, Santa Barbara County ----- 60 acres
9. Deveraux Lagoon, Santa Barbara County ----- 45 acres
10. Santa Maria River, Santa Barbara County ----- 65 acres

The present status and future of the coastal wetlands in southern California is summarized in the table below:

Areas	Acreage			
	Existing M & M	Sheltered Water	Immediately Threatened	Not Threatened
Tijuana River	415	-	415	-
San Diego Bay	970	11,700 <sup>2/</sup>	970	-
San Diego River	-	280 <sup>4/</sup>	-	280
Mission Bay	21 <sup>1/</sup>	2,300 <sup>2/</sup>	-	21
Los Penasquitos	200	15	-	215
San Dieguito	95	60	-	155
San Elijo	200	300	250	250
Batiquitos	-	475	-	475
Aqua Hedionda	90	250 <sup>2/</sup>	90	-
Buena Vista	50	175	90	135
San Luis Rey River	25	15	-	40
San Margarita River	300	40	-	340
Los Flores	50	10	60	-
San Mateo Creek	120	10	-	130
Upper Newport Bay	650	170	820	-
Bolsa Bay	1,000	200	1,200	-
Anaheim Bay	-	600	100	500
Ballona Creek	70	-	70	-
Malibu Lagoon	10	-	-	10
McGrath Lake	5	15	-	20
Santa Clara River	40	20	-	60
Ventura River	5	5	-	10
Mugu Lagoon	1,900	250	-	2,150
Carpenteria Marsh	185	20	-	205
Goleta Slough	300	60	-	360
Deveraux Lagoon	15	30	-	45
Goleta Point Marsh	25	35	-	60
Santa Ynez River	110	50	-	160
Santa Maria River	50	15	-	65
	9,751 <sup>3/</sup>		4,065 (42%)	5,686 (58%)

<sup>2/</sup> Large bodies of water not included in calculating threatened acreages.

<sup>3/</sup> Large bodies of water not included in total.

<sup>4/</sup> Eel grass in channel.



The "immediately threatened" category includes wetlands for which plans are firm and expected to be implemented in less than 10 years. The "not threatened" category includes wetlands for which firm plans do not exist or wetlands in public ownership.

The acreage figures for the "threatened" and "not threatened" categories are largely subjective. Plans for utilization of these wetland areas flow with the economic climate. More recently, development and utilization plans have been also greatly influenced by public concern and reaction. Plans once thought to be final have been substantially changed or dropped. Cases in point are the freeway plans for Goleta Slough and the land exchange plan for Upper Newport Bay.

