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STATE OF CALIFORNIA

RESOURCES AGENCY

SAN FRANCISCO BAY

REGIONAL WATER POLLUTION CONTROL BOARD

BOLINAS-STINSON BEACH
MARIN COUNTY

LONG-RANGE PLAN AND POLICY
FOR
WATER POLLUTION CONTROL

May 1964

WATER RESOURCES
CENTER ARCHIVES

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I. INTRODUCTION

A. AUTHORIZATION

The regional water pollution control boards of the State of California are required to regulate the discharge of sewage and industrial wastes for the abatement, prevention and control of water pollution and nuisance. The San Francisco Bay Regional Water Pollution Control Board at its February 20, 1964 regular meeting adopted Resolution No. 536 stating its intent to formulate and adopt a long-range plan and policy for water pollution control in the Bolinas-Stinson Beach Area, Marin County in accordance with Section 13052(e) of the California Water Code. This Section requires each regional board to formulate and adopt long-range plans and policies with respect to water pollution control within the region in conformity with State policies.

B. OBJECTIVES AND SCOPE

The objective of this report is to present detailed information for the formulation of a long-range plan and policy for water pollution control by the Regional Board by summarizing the known waste discharges, determining existing and potential beneficial water uses, determining present water quality, and determining the water quality necessary to protect the beneficial water uses. Specific requirements will be developed for existing and future waste discharges pursuant to a "Long-Range Plan and Policy" subsequent to its adoption by the Regional Board.

The investigation of the staff included interviews with staffs of various county, State and Federal agencies; review of data, reports and studies on existing and proposed land uses, water uses and water quality; and review of comments and recommendations of interested agencies. A summary of reports reviewed by the staff and agencies consulted is included as Appendix "B" to this report. Written comments received from various agencies are included in Appendix "C".

C. AREA OF INVESTIGATION

The area under study is generally that land included in the Marin County "Bolinas-Stinson Beach Master Plan" adopted by the Marin County Board of Supervisors on July 18, 1961⁽¹⁾. The area includes all that land drained to the Pacific Ocean between the southerly limits of the Point Reyes National Seashore and Rocky Point.

Two unincorporated communities, Bolinas and Stinson Beach, comprise the greatest concentration of residential development in the study area. Bolinas was originally settled under a Spanish Land Grant in 1836 and flourished during and immediately following the gold rush⁽¹⁾. Wharf timbers, piling and lumber were shipped to San Francisco on shallow draft schooners from Bolinas Lagoon, together with passengers and dairy and farm produce⁽²⁾. Today, Bolinas is essentially a residential community and has not changed in character significantly in the past quarter century. The 1960 U.S. Census indicates a population of 432 persons resident in the Bolinas Peninsula⁽¹⁾ and 366 persons in the community of Bolinas⁽²⁾. The remainder of the Bolinas Peninsula is sparsely settled and has experienced limited development in the past. The history of Stinson Beach began in 1851 and was officially designated as Stinson Beach in 1921. The 1960 U.S. Census indicates a population of 479 persons resident in the area between Rocky Point and Copper Mine Gulch north of Bolinas Lagoon. An expensive residential development exists on the "sand spit" in the Stinson Beach Area. Both communities are influenced by weekend and seasonal in-migration

of tourists and others seeking the recreational resources of the area. On a good summer weekend the total number of people in the area has been estimated to be in excess of 12,000 persons during the day⁽¹⁾. It is anticipated that the Point Reyes National Seashore will stimulate the economy of the Bolinas-Stinson Beach area with respect to tourist and commercial-recreation activity⁽¹⁾. The portions of the study area northerly of the communities of Bolinas and Stinson Beach are primarily utilized for agricultural purposes.

The "Bolinas-Stinson Beach Master Plan"⁽¹⁾ estimates the ultimate population of the Bolinas Peninsula at 8,460 persons as permanent residents and 3,135 persons as seasonal residents, of Stinson Beach at 3,285 persons as permanent residents and 1,500 persons as seasonal residents and the "Uplands" at 12,110 persons as seasonal residents. The "Uplands" are the steeply sloping lands easterly of and draining to Bolinas Lagoon from Mount Tamalpais State Park on the south to the northern boundary of the study area.

II. SUMMARY AND RECOMMENDATIONS

A. The following is summarized from the staff's investigation:

1. Sewage treatment and disposal within the service area of the Bolinas Beach Public Utility District and the Stinson Beach County Water District is accomplished by septic tanks and subsurface leaching systems. Sewage from the Bolinas Public Utility District is discharged untreated to the channel connecting Bolinas Bay and Bolinas Lagoon. The Regional Board's Resolution No. 510, an Order to Cease and Desist, requires compliance with the Board's requirements by August 15, 1965. Other waste discharges in the area include dairies, the Bolinas garbage dump, Lucian Marsh and Stinson Beach State Park.
2. Three water purveyors: Bolinas Beach Public Utility District, Bolinas Public Utility District, and Stinson Beach Water Company, which provide service within the area, obtain water from surface streams.
3. Water-oriented recreational activities include swimming, wading, surfing, skindiving, boating and esthetic enjoyment. 10,000 persons have utilized the beach at Stinson Beach State Park on a summer weekend.
4. Offshore commercial and sport fisheries are supported by rockfish, salmon, striped bass and crab. The sport fishery along the shoreline is supported by abalone, clams, striped bass, surf perch, greenling, rockfish and ling cod. Bolinas Lagoon is a popular sport clamming area. 203 persons were observed digging clams in Bolinas Lagoon on February 22, 1964. A small annual run of steelhead and a resident population of rainbow trout occur in Pine Gulch Creek. Bolinas Lagoon is an important waterfowl refuge area for black brant, a native goose, and many species of ducks and other waterfowl.
5. Commercial and party fishing boats fish the waters of Bolinas Bay and the Ocean in the vicinity of Duxbury Reef. Recreational boating occurs within Bolinas Lagoon and the artificially created lagoon of Seadrift Subdivision.

6. The shoreline from Bolinas Lagoon to Duxbury Point then northward is largely inaccessible during periods of high tide. Access is provided at Agate Beach, down the cliffs from Ocean Parkway, at the foot of Brighton Avenue and at the foot of Wharf Road. The eastern and western shoreline of Bolinas Lagoon remains in its natural state. Expensive homes have been constructed on the "sand spit" between Bolinas Bay and Bolinas Lagoon. Stinson Beach State Park provides public access to the shoreline from the "sand spit" to Rocky Point.
7. The chemical water quality data available indicates that the receiving waters are not adversely affected by the existing waste discharges. Coliform concentrations of equal to or greater than 24,000 MPN/100 ml have been found in the vicinity of the untreated discharge from Bolinas Public Utility District. Coliform concentrations of greater than 11,000 MPN/100 ml have been found in Bolinas Lagoon near streams receiving dairy wastes.
8. The State Department of Public Health recommended that no surface discharge of any human waste be permitted to any tributary of Arroya Honda above any domestic water intake. The Marin County Health Department and the State Department of Public Health recommendations on the bacteriological water quality criteria for protection of beneficial water uses including water-contact sports and sport clamming or shell fishing have been incorporated with modifications in the plan and policy. The Department of Fish and Game's recommendations on water quality criteria for protection of fish, shellfish and waterfowl have been incorporated in the plan and policy.
9. Domestic water will eventually be supplied to the Bolinas-Stinson Beach Area from an outside source. Recreational activities within the study area will increase in intensity in the future. A small craft harbor development proposed by the Bolinas Harbor District will increase recreational boating and sport and commercial fishing in the study area. The Audubon Canyon Ranch, Inc. and the Marin Audubon Society have acquired 377 acres in Bolinas Lagoon and the 502-acre Canyon Ranch as wildlife refuges. The Point Reyes National Seashore forms the northerly boundary of the study area and will have recreational features at Limantour, Double Point and Pine Gulch Creek. A proposal has been extended to make Bolinas Lagoon a controlled level lake. The future of the fish and wildlife resources will depend largely upon the preservation of the natural environment as proposed by the State Department of Fish and Game, Marin Audubon Society, Point Reyes National Seashore and the Marin County Master Plan. Bolinas Lagoon is an excellent shellfish area, with clamming rated superior. The Lagoon was once used for oyster culture but certification was denied by the State Department of Public Health because of sewage contamination.
10. Sewage treatment and disposal through the use of septic tanks and subsurface leaching systems in the unsewered portion of the area is regulated by Marin County's Ordinance No. 1244. The Regional Board's Resolution No. 372 prescribed requirements for the untreated waste discharge from Bolinas Public Utility District. Resolution No. 458 adopted by the Regional Board on April 18, 1963 is an order to cease and desist violation of the requirements of Resolution No. 372. Resolution No. 458 and its amendments requires compliance with the

requirements of Resolution No. 372 by October 14, 1965. The Bolinas Beach and Bolinas Public Utility Districts and the Stinson Beach County Water District jointly sponsored and the Marin County Board of Supervisors supported a survey of the sewerage needs of the Bolinas-Stinson Beach Area in 1963. Bolinas Public Utility District after a change in composition of its Board withdrew support of the survey and embarked on an independent study. Bolinas Beach Public Utility District has advised that it would support only an area-wide survey. Stinson Beach County Water District then undertook an independent survey to determine its sewerage needs. Bolinas Public Utility District and Stinson Beach County Water District have filed applications for Public Law 660 grants for the 1964-65 fiscal year.

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11. Bolinas Public Utility District's decision to withdraw its support of an area-wide study of the sewerage needs of the Bolinas-Stinson Beach area was reportedly based on financial limitations of the District. The costs of constructing and maintaining a sewer line beneath the channel leading to Bolinas Lagoon or around Bolinas Lagoon were cited. Recent estimates indicate that the cost of constructing a sewer line across the mouth of Bolinas Lagoon are less than half the cost cited by Bolinas Public Utility District as a reason for withdrawing from the area-wide joint study. The staff feels that the engineering and economic feasibility of consolidated sewerage facilities requires careful study at this time. The study should be undertaken prior to making any new waste discharges or to increasing the volume of any existing waste discharge.

C.

12. The Regional Board's Resolution No. 373 adopted on September 21, 1961 urged the County, local agencies and individuals to jointly plan and support an investigation leading to the development of plans and cost estimates for sewerage facilities to serve the Bolinas-Stinson Beach Area. The need for master planning of sewage treatment and disposal facilities is apparent on the Bolinas Peninsula if consolidation with Stinson Beach is not feasible and particularly if consolidation is feasible. Selection of the optimum points of waste discharge to insure protection of the many beneficial water uses will require studies of ocean currents. Serious consideration should be given to land confinement of waste until assessed valuation is sufficient to finance treatment and disposal facilities capable of meeting the requirements of the tentative plan and policy.

B. RECOMMENDATIONS

It is recommended that the Regional Board take the following actions to formulate a plan and policy for water pollution control in the Bolinas-Stinson Beach Area:

1. May 21, 1964 Regular Meeting

- a. Receive report and direct the Executive Officer to circulate it to all agencies and persons affected by the proposed Regional Board action. Comments and recommendations on the tentative policy (Appendix "A") will be requested by June 22, 1964.

2. July 16, 1964 Regular Meeting

- a. Consider adoption of a resolution establishing a long-range plan and policy for water pollution control (Appendix "A").

III. PRESENT WASTE DISCHARGERS

A. GENERAL

Following is a brief summary of the known waste discharges within the study area and their status with respect to having Regional Board requirements. Chapter VIII contains a chronology of Regional Board actions taken with respect to the public districts and a summary of the policies of public districts with respect to planning of sewerage facilities. Figure 1 shows the location of the waste discharges and the boundaries of the public districts.

B. BOLINAS BEACH PUBLIC UTILITY DISTRICT

Bolinas Beach Public Utility District was formed for the purpose of supplying water to a portion of Bolinas Mesa which is presently sparsely developed. Sewage disposal within the service area of the District is accomplished by utilizing septic tanks and subsurface leaching systems. Leaching system failures with resulting surfacing of septic tank effluent have been reported.

C. BOLINAS PUBLIC UTILITY DISTRICT

A portion of the present sewer system serving the Bolinas Community was constructed in 1906⁽⁸⁾. The original Bolinas Sanitary District was formed in 1906⁽²⁾. Sanitary District No. 3 of Marin County was responsible for sewerage service until December 7, 1962 at which time the Bolinas Public Utility District and Sanitary District No. 3 entered into an agreement transferring funds to Bolinas Public Utility District. The County Board of Supervisors on March 5, 1963 dissolved Sanitary District No. 3 effective June 30, 1963.

The Regional Board on September 21, 1961 adopted Resolution No. 372 prescribing requirements for an untreated sewage discharge estimated at 10,000 to 15,000 gallons per day from an estimated 200 persons. The waste is discharged into the channel between Bolinas Lagoon and Bolinas Bay. On April 18, 1963 the Regional Board adopted Resolution No. 458 an order to cease and desist the violation of the requirements of Resolution No. 372 and requiring compliance with requirements by February 1, 1966. The Order was later modified by the Regional Board's adoption of Resolution No. 510 on October 17, 1963 requiring compliance with Resolution No. 372 by August 15, 1965. The Regional Board granted the District a sixty-day extension of the time schedule at its April 1964 meeting for the purpose of studying the consolidation of sewage treatment facilities with Stinson Beach County Water District.

The District applied for a Federal Grant for construction of treatment facilities and intends to discharge waste through the present outfall.

A more detailed discussion of the past chronology with respect to the District and its policies is presented in Chapter VIII of this report.

D. BOLINAS GARBAGE DUMP

Sanitary District No. 3 of Marin County formerly operated an open refuse dump at the northwesterly corner of Bolinas Lagoon. This dump is now operated at limited times for disposal of garden cuttings and prunings. Material deposited from past and present operations are in contact with the waters of Bolinas Lagoon.

E. DAIRIES

Several dairies within the study area are known to be causing problems during periods when storm water runoff occurs. The streams receiving dairy waste are Wilkins Gulch Creek, Pine Gulch Creek and an unnamed creek immediately north of the R.C.A. overseas radio transmitting station.

F. LUCIAN MARSH

The Regional Board on January 18, 1962 adopted Resolution No. 394 which prescribed requirements for a waste discharge to a septic tank and sub-surface leaching system from a shopping center in Stinson Beach. The waste flow was estimated at 1500 gallons per day. Resolution No. 394 required the discharger to file a "Report on Waste Discharge" when a public sewer is within 300 feet of the septic tank.

G. STINSON BEACH COUNTY WATER DISTRICT

The Stinson Beach County Water District was formed on November 6, 1952 for the purpose of providing sewerage service to the Stinson Beach Area. Sewage disposal within the District is accomplished by utilizing septic tanks and subsurface leaching systems. On June 5, 1961 the Marin County Board of Supervisors directed the Sanitation Division of the Marin County Health Department to proceed with a preliminary survey of the adequacy of sewage disposal in the Stinson Beach Area. The report to the Board of Supervisors on the survey conducted during September 1961 indicated that, although a number of complaints had been received about overflowing septic tanks, the rate of failure during the survey was low. This was attributed to the time of the survey and the lack of rainfall during the preceding years. The report summarized that "It is our considered opinion that a public health problem does exist in this area and its solution lies with the formation of some sort of a publicly owned district in order that a problem can be uniformly dealt with both at the present time and in the future."

The District engaged the services of a consulting engineer and filed a "Report on Waste Discharge" for alternative points of waste discharge. The District Engineer applied for a Federal Grant for construction of treatment facilities and ocean outfall located at the southerly end of the Stinson Beach State Park's beach. The District's Engineer also filed an application for a project of joint sewage treatment and disposal facilities with Bolinas Public Utility District.

H. STINSON BEACH STATE PARK

Sewage disposal at the Stinson Beach State Park is presently accomplished by utilizing septic tanks and subsurface leaching systems. The State has indicated its intent to tie into the sewer system of Stinson Beach County Water District at their convenience when the facilities become available.

IV. PRESENT WATER UTILIZATION

A. DOMESTIC SUPPLY

One of the three domestic water supply systems serving the study area derives its water from a watershed within the study area. The Bolinas Public Utility District and the Bolinas Beach Public Utility District utilize surface water from Arroya Honda. The drainage basin of the Arroya Honda upstream from the surface diversions lies within the Point Reyes National Seashore. The approximate location of the stream diversions are shown on Figure 1.

The Stinson Beach Water Company, a private water company, obtains water from four small streams in the hills to the east of Stinson Beach. Surface water is diverted from Stinson Gulch, Webb Creek, Fitzhenry Creek and Black Rock Creek at the locations shown on Figure 1⁽³⁾. In 1962 there were 345 services to an estimated 750 persons⁽³⁾. The water consumption averaged 20,000 gallons per day during the winter and was as high as 150,000 gallons per day during summer weekends⁽³⁾. The Company operates under a permit from the State Department of Public Health.

The Bolinas Beach Public Utility District and the Bolinas Public Utility District have approximately 200 and 175 service connections, respectively.

The water supplies of the three entities do not receive treatment other than chlorination.

It has been reported that "the most severe limitation to potential growth and development of the Bolinas area is related to the problem of developing supplemental sources of water"⁽²⁾.

Information relative to the ground water quantity and quality was not reviewed for the report.

B. RECREATION

The water-oriented recreational activities within the study area include swimming, wading, surfing, skindiving, boating and esthetic enjoyment. Commercial and sport fishing including shell fishing are discussed under Section C of this Chapter. Sunbathing and picnicking are also considered in this Section. The entire area is outstanding for its outdoor recreational resources and many of the beneficial uses occur concurrently along the entire shoreline. Portions of the shoreline are inaccessible during certain tidal conditions.

An April 1931 memorandum⁽⁸⁾ of the State Department of Public Health reported that the beach 500 feet west of the outfall of Bolinas Sanitary District was used for bathing and fishing by large numbers of people during the summer months. The memorandum also reported some bathing in the lagoon and that a few clams are taken near the sewer outlet from the outlet to 1000 feet north of the outlet. A considerable amount of clamming was reported along the eastern shore of Bolinas Lagoon. The sewage was discharged under a pier alongside which tugs and boats unloaded their cargoes and its flow was estimated at 20,000 gallons per day.

Information relative to the intensity of the beneficial water uses was obtained from the following sources: State Department of Public Health's memorandum of February 18, 1964, State Department of Fish and Game's memorandum of March 31, 1964, both attached to Appendix "C", and the Regional Board staff's survey of February 22, 1964.

Following is a summary of the various recreational activities, their intensity, and place and period of occurrence as reported by the State Departments of Public Health and Fish and Game. The areas where the activities occur are shown on Figure 1. Table I summarizes the staff's observations on February 22, 1964.

SWIMMING AND WADING

The greatest intensity of swimming and wading takes place at the Stinson Beach State Park. The State Department of Public Health reported that 3550 persons utilize the beach at the State Park during summer weekends. The sandy beach is probably the most heavily utilized strip of ocean shoreline in Marin County. It has been reported that as many as 10,000 people from the Bay Area visit the Park on summer weekends⁽⁵⁾. The park supervisor verbally advised the staff that the beach is quite often utilized by 8000 persons during a single day during summer weekends and that 60% of the people visiting the Park wade or swim in the ocean waters. Swimming is discouraged during the winter months because of surf conditions and lack of lifeguards at the beach. Swimming and wading occur at Bolinas Beach between Duxbury Point and Bolinas Lagoon and within Bolinas Lagoon during the summer. The use was estimated at 10 persons per day.

SURFING

Surfing was reported to occur north of Duxbury Point and along Stinson Beach to the Bolinas Lagoon inlet. Surfing occurs throughout the year at any time there are good waves. The intensity was reported at 30 persons per day. Surfing at the State Park Beach is limited to the surf zone.

SKINDIVING

Skindiving has been reported to occur offshore on Duxbury Reef, northerly from Duxbury Reef and southerly from Stinson Beach State Park. No information was available about the intensity of this use. People also skindive for abalone in the above areas.

RECREATIONAL BOATING

The use of Bolinas Lagoon for recreational boating has been reported⁽⁵⁾. Sailboating has been observed in the artificially created lagoon of Seadrift Subdivision. Five boats launched from the shoreline were observed in Bolinas Lagoon by the staff on February 22, 1964 and were utilized to gain access to the clamming areas. Approximately a half dozen small pleasure boats have been observed anchored in the channel adjacent to Bolinas Lagoon in Bolinas.

AESTHETIC ENJOYMENT

This activity for the purpose of this report includes rock hunting, beach combing, study of intertidal marine life and observation and study of wildlife. The entire shoreline within the study area is utilized for the above purposes to some degree. Duxbury Reef is considered one of the best areas in this portion of the California coast for study of intertidal marine life and is used by both the public and by schools for biology field trips. 50 or more people have been observed on the reef at one time. Bolinas Lagoon is extensively utilized for the observation of waterfowl and shore birds. The right of public access to the shoreline of the "sand spit" has been limited in the past by private ownership.

SUNBATHING AND PICNICKING

The beaches and other areas adjacent to the shoreline when accessible from Rocky Point to the "sand spit" and from the mouth of Bolinas Lagoon to Duxbury Reef then northerly are extensively used for sunbathing and picnicking. Many of the persons swimming, surfing, sport fishing and sport clamming frequently utilize the beaches

AREA
(FIGURE)

A

B

C

D

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H

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NOTE:

for sunbathing and picnicking. An estimated 20 persons per day utilize the area north of Dumbury Reef during warm weather for picnicking.

TABLE I
SUMMATION OF RECREATIONAL ACTIVITY IN BOLINAS-STINSON BEACH AREA OBSERVED BY STAFF OF RWPCB ON FEBRUARY 22, 1964

AREA (FIGURE I)	TIME OF OBSERVA- TION	INTENSITY OF USE - NUMBER							
		SWIM- MING OR WADING	SHORE- LINE FISHING	FISH- ING (BOATS)	AESTHE- TIC ⁽¹⁾	SUN- BATH- ING & PICNICK- ING	SURF- ING	REC. BOAT- ING	CLAM- MING
A	1420	0	6	0	17	50	0	0	0
B	1430	25	0	0	150	2000	0	0	0
C	1445	0	0	0	17	0	0	0	0
D	1450	5 ⁽²⁾	1	0	10	0	0	2	102 ⁽³⁾
E	1500	0	0	0	5	0	0	3 ⁽⁴⁾	106
F	1445	30	0	0	70	250	9	0	25
G	1530	0	0	0	25	0	0	0	15
H	1525	0	0	0	32	12	0	0	5
I	1420	0	0	107	0	0	0	0	0

- NOTE:** (1) Aesthetic enjoyment - walking shoreline and exploring tidepools.
 (2) Five persons observed wading within 200 feet of waste discharge from Bolinas Public Utility District.
 (3) Evidence that clamming had taken place within 15 feet of point of discharge. Beach adjacent to outfall was the main access to Area "D" utilized for sport clamming.
 (4) Three sailboats were observed in Seadrift Lagoon.

The above observations were made during a period of ideal conditions for many of the recreational activities. The temperature was in the mid 60's, the sky was clear with a gentle ocean breeze and the tidal condition was such that low water (-0.5 feet) occurred at approximately 1345.

C. FISH AND WILDLIFE

The fish and wildlife resources of the study area are one of the most important along the coastline within the Region and include waterfowl refuge areas, wildlife refuge areas, sport and commercial fisheries including a shellfish fishery. For convenience, the study area has been divided into three sections and the fish and wildlife beneficial uses of each area are discussed below:

MOUTH OF BOLINAS LAGOON TO DUXBURY POINT THEN NORTHWARD ALONG THE PACIFIC OCEAN

Offshore throughout the coastal section crab and many species of fish are caught by both sport and commercial fishermen. The offshore area is heavily fished for rockfish, salmon and striped bass. Many of the party boats from the Bay Area come to the area to troll for salmon. It has been estimated that approximately 100 boats fish this area during the season and that many of the commercial boats offload their

for sunbathing and picnicking. An estimated 20 persons per day utilize the area north of Dumbury Reef during warm weather for picnicking.

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A	1420	0	6	0	17	50	0	0	0
B	1430	25	0	0	150	2000	0	0	0
C	1445	0	0	0	17	0	0	0	0
D	1450	5 ⁽²⁾	1	0	10	0	0	2	102 ⁽³⁾
E	1500	0	0	0	5	0	0	3 ⁽⁴⁾	106
F	1445	30	0	0	70	250	9	0	25
G	1530	0	0	0	25	0	0	0	15
H	1525	0	0	0	32	12	0	0	5
I	1420	0	0	107	0	0	0	0	0

- NOTE: (1) Aesthetic enjoyment - walking shoreline and exploring tidepools.
 (2) Five persons observed wading within 200 feet of waste discharge from Bolinas Public Utility District.
 (3) Evidence that clamming had taken place within 15 feet of point of discharge. Beach adjacent to outfall was the main access to Area "D" utilized for sport clamming.
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catch at Point Reyes⁽⁵⁾. The good salmon fishing is found off Duxbury Reef during the salmon run from May through September⁽⁵⁾. Duxbury Reef at low tide provides surf fishing for rockfish, greenling, perch and ling cod as well as abalone picking. The entire shoreline in this area is used for surf fishing. The commercial crab fishery occurs on shallow sandy bottoms normally at depths less than 30 fathoms. An excellent sport fishery for abalone exists along the rocky shore northward from Duxbury Reef for the fortunate few who are able to gain access⁽⁶⁾. Abalones are not abundant enough to sustain a major commercial fishery north of Monterey County⁽⁶⁾. Abalone pickers are limited to shallower depths of water but skindivers normally work in depths from 10 to 30 feet. Small stone boring clams, known as Piddocks are taken in the area northwest of Duxbury Reef and cockles are taken in the vicinity of Duxbury Point. A moderate amount of sport clamming occurs between Duxbury Point and the mouth of Bolinas Lagoon. The State Department of Public Health reported that as many as 50 persons per day have been observed clamming in this area during the season. Following is a summary of seasons of the State Department of Fish and Game's commercial and sport fishing regulations for the area:

	<u>COMMERCIAL SEASON DATES</u>	<u>SPORT FISHING SEASON DATES</u>
Salmon	Apr.15 thru Sept.29	Approx. Feb.15 thru Nov.1
Surf Perch and other fin fish	Variable	Open all year
Abalone	Mar.15 thru Jan.14	Mar.16 thru Jan.14
Crabs, Market	2nd Tues. Nov. thru June 30	2nd Tues. Nov. thru June 30
Clams (Razor, Wash- ington, Gaper, Littleneck, Cockles)	Sept.1 thru Mar.31	Open all Year ^(A)

(A) Sport clamming season for Gaper and Washington Clams is limited in Bolinas Lagoon to October 1 through June 30.

The State Department of Public Health posts ocean waters including bays and inlets during the period from May 1 through October 31 warning the public against taking of mussels for human consumption. The public is also advised of methods for determining the suitability of clams for human consumption. During the summer months dinoflagellate *Gonyaulax* became abundant in the ocean and form a substantial part of the diet of clams and mussels. Contaminated shell fish become toxic and if eaten by man may cause serious illness or may even be fatal.⁽⁶⁾

BOLINAS LAGOON

Bolinas Lagoon is an important habitat for shellfish and waterfowl. It is reportedly a good producer of Gaper, Washington and Littleneck Clams⁽⁶⁾. Surveys by the Department of Fish and Game have shown over 150 clam diggers in Bolinas Lagoon at one time and it is estimated that several thousand persons utilize the area in one season. The Regional Board's staff observed 203 persons digging clams in Bolinas Lagoon from its mouth to within a mile of its mouth on February 22, 1964. The sport clamming season for gaper and Washington Clams in Bolinas Lagoon is limited to the period from October 1 through June 30 by the State Department of Fish and Game. The Johnson Oyster Company formerly held a "State Allotment" of 240 acres in the Lagoon for the culture of oysters. The history and status of this allotment is discussed in Chapter VII.

A small annual run of steelhead and a resident population of rainbow trout occur in Pine Gulch Creek⁽⁶⁾. These populations maintain themselves without the aid of stocking. Angling pressure has not been measured⁽⁶⁾.

Bolinas Lagoon is important as a year-around waterfowl refuge area and is especially important during the winter months. The Lagoon is one of the principal areas for black brant, a native goose, which use the area from November through April. Over 600 brant have been observed using the lagoon at one time. About twenty-five percent of the black brant wintering in California utilize Tomales, Bolinas and Bodega bays and Drakes Estero⁽⁶⁾. Other waterfowl frequenting Bolinas Lagoon include the following species of ducks: Golden eye, American pintail, lesser and greater scaup, ruddy duck, canvasback, and bufflehead. Among the great variety of non-game birdlife using the lagoon are: American egrets, Bitterns, Herons, Gulls, Terns, Gribes and Cormorants. Numerous species of shore birds can be found at the lagoon throughout the year.

MOUTH OF BOLINAS LAGOON TO ROCKY POINT

The fishery offshore from this area was discussed previously. The area is popular for surf fishing for striped bass and surf perch during the fall months of the year. The beach in the southern portion of the area is popular for sport clamming and supports an abundance of razor clams. Sport picking of abalone occurs in the vicinity of Rocky Point.

D. NAVIGATION

Commercial navigation within the study area is limited by Duxbury Reef in Bolinas Bay and the shoaling within Bolinas Lagoon. Commercial and party fishing boats fish the waters of Bolinas Bay and the Ocean off Duxbury Reef. Bolinas Lagoon is used at present by recreational craft despite a complete lack of facilities⁽⁵⁾. Approximately six small boats (16-22 feet) have been observed anchored within the lagoon adjacent to Bolinas. Sailboating occurs within the artificiaally created lagoon of Seadrift Subdivision. A number of small boats were observed in Bolinas Lagoon on February 22, 1964, were launched from the shoreline and were utilized for gaining access to the clamming beds.

E. LAND USES

The study area occupies approximately 10,400 acres of land and Bolinas Lagoon contains about 1100 acres. The shoreline from the mouth of Bolinas Lagoon along Bolinas Bay then northward along the Pacific Ocean is largely inaccessible during periods of high tide because of the cliffs which drop directly to the Bay and Ocean. Access is available to the beaches when they are exposed within this area at Agate Beach down the cliffs off Ocean Parkway and at the terminus of Wharf Road. Bolinas Beach is utilized at most tidal stages and is accessible to the public at the foot of Brighton Avenue in Bolinas. These points are indicated on Figure 1. Lands immediately adjacent to the Ocean and Bay have remained in their natural state although a few homes have been constructed on the "Mesa" with commanding views of Bolinas Bay and the Pacific Ocean.

The western and eastern shoreline of Bolinas Lagoon is sparsely settled, remains in its natural state and is utilized for agricultural purposes. The Lagoon is accessible at its easterly shoreline by virtue of the fact that the Shoreline Highway traverses its entire length.

Expensive homes have been completed and are under construction on the "sand spit", the land lying between Bolinas Bay and Bolinas Lagoon. Most of the development has occurred on the Bay side of the "sand spit" and a few homes have been completed which front on an artificially constructed lagoon. Water from Bolinas Lagoon is circulated through the artificially created lagoon of Seadrift Subdivision from the westerly to the easterly end. Additional land is being filled for homesites. Access to the sand spit is partly controlled by private ownership. Cottages and homes front on the ocean between the "sand spit" and the northerly limit of Stinson Beach State Park. The remaining portion of the shoreline to the southerly end of Stinson Beach State Park is accessible to the public from Stinson Beach State Park. The shoreline from the southerly end of the State Park beach to Rocky Point is rocky and quite rugged. There are a number of small coves in this area accessible to people entering from the beach on the north and these are used for sunbathing, picnicking and wading.

The Bolinas Quail Refuge was established by the State Legislature⁽⁹⁾ and is administered by the State Department of Fish and Game⁽⁵⁾. The 800-acre refuge is shown on Figure I and is located in the community of Bolinas and south of Poplar Road on Bolinas Mesa.

V. PRESENT WATER QUALITY

A. DOMESTIC SUPPLY

No data were reviewed with respect to the quality of the domestic water supplies of the Bolinas Beach Public Utility District, Bolinas Public Utility District and the Stinson Beach Water Company. The latter purveyor operates under a permit issued by the State Department of Public Health and the others operate under the regulation of the Marin County Health Department.

B. BOLINAS BAY AND LAGOON

Limited data are available on the water quality of Bolinas Bay and Lagoon. Data were reviewed from the following sources and are summarized in Table II: Compliance investigation conducted by the State Department of Public Health, Regional Board Checking Program inspections, study by Kennebec Engineers⁽²⁾ and survey by State Department of Public Health. The available data indicates that the waste discharges within the area are not measurably affecting the chemical characteristics (dissolved oxygen, pH) of the receiving waters. The highest coliform concentrations were found in the vicinity of the untreated waste discharge of Bolinas Public Utility District during periods of low slack tide and in the vicinity of streams receiving dairy wastes.

TABLE II
WATER QUALITY - PACIFIC OCEAN, BOLINAS BAY AND BOLINAS LAGOON

SAMPLING STA. (FIG. 1)	SOURCE OF DATA	ANALYSIS OR OBSERVATIONS										OBSERVATIONS
		pH	TURBIDITY t.u.	5-DAY BOD mg/L	TEMP. OF	DIS. OXYGEN mg/L	COLIFORM, MPN/100 ml					
							MEAN	MINIMUM	MAXIMUM			
1	A	-	-	-	-	-	62 (F)	-	-	-	-	-
2	B	-	-	-	-	7.8 (E)	-	-	-	-	-	Fecal material and Grease.
3	A, B, C	7.5	1.0 - 10.0	-	54 to 57	7.4 - 9.0	2400	23	≥24000	-	-	Fecal material, Discoloration and odor.
4	D	7.4	3.0 - 3.7	-	55	8.4	-	23	62	-	-	Murky water, no odor.
5	D	8.0 (F) 7.5 (E)	-	1.3 (F) (9.8E)	-	7.1 (F)	-	4600 (F)	11000 (E)	-	-	-
6	D	7.9 (F) 8.0 (E)	-	1.0 (FSE)	-	7.5 (F)	-	>1100 (F)	2400 (E)	-	-	-
7	D	8.0 (F) 7.9 (E)	-	3.0 (F) 1.0 (E)	-	7.3 (F)	-	93 (E)	240 (F)	-	-	-
8	D	-	-	-	-	-	1600	-	-	-	-	-
9	D	8.0 (F) 7.6 (E)	-	1.5 (F) 3.2 (E)	-	6.7 (F)	-	93 (E)	>1100 (F)	-	-	-
10	D	7.9 (F) 7.6 (E)	-	3.3 (F) 23.6 (E)	-	6.3 (F)	-	11000 (E)	>11000 (F)	-	-	-
11	A	-	-	-	-	-	62 (F)	-	-	-	-	-
12	D	7.8 (F) 7.6 (E)	-	2.4 (F) 2.3 (E)	-	6.9 (F)	-	240 (E)	1100 (F)	-	-	-
13	A	-	-	-	-	-	240 (F)	-	-	-	-	-
14	A, C	7.3	1.0	-	55	9.8	6	<4.5	>2400 (F)	-	-	-
15	A	-	-	-	-	-	700 (F)	-	-	-	-	-
16	A	-	-	-	-	-	6 (F)	-	-	-	-	-
17	A	-	-	-	-	-	23 (F)	-	-	-	-	-
18	C	7.3	3.0	-	55	9.2	-	<4.5	6	-	-	Water clear, no odor.
19	D	8.0 (E&F)	-	(1.0 E&F)	-	7.4 (F)	-	43 (E)	150 (F)	-	-	-
20	D	-	-	-	55	-	6	-	-	-	-	-
21	A	-	-	-	-	-	50 (HS)	-	-	-	-	-
22	A	-	-	-	-	-	23 (HS)	-	-	-	-	-
23	A	-	-	-	-	-	240 (HS)	-	-	-	-	-
24	A	-	-	-	-	-	240 (HS)	-	-	-	-	-
25	A	-	-	-	-	-	240 (HS)	-	-	-	-	-
26	A	-	-	-	-	-	240 (HS)	-	-	-	-	-

(A) - State Dept. of Public Health Survey, Jan. 30, 1964.

(B) - RUPCB Checking Program Survey, October 23, 1963.

(C) - State Dept. of Public Health Compliance Investigation for RUPCB.

(D) - Kennedy Engrs. Survey, November 5, 1963, Sta. #8 on 1/4/64.

(E) - Ebb Tide

(F) - Flood Tide.

(HS) - High Slack

VI. WATER QUALITY CRITERIA

A. GENERAL

The various beneficial water uses discussed in the preceding chapters have different water quality requirements. Agency recommendations and other criteria for the protection of the present and potential water uses are presented in the following sections of this Chapter. The recommended criteria are incorporated in the Tentative Long-Range Plan and Policy attached as Appendix "A".

B. DOMESTIC WATER SUPPLY

The State Department of Public Health recommended that no surface discharge of any human waste be permitted to any tributary of Arroya Honda above any domestic water intake. The Department in other cases⁽⁴⁾ recommended that subsurface disposal of waste should not be allowed to affect adversely any surface supply or ground water aquifer from which domestic water is derived.

The staff recommended in the plan and policy that the discharge of sewage to any surface domestic water supply source be prohibited pursuant to Section 13054.3, California Water Code.

The staff further recommends that no waste discharge, whether it be from any part of a waste treatment facility or from any outfall pipe shall cause the ground water suitable for domestic use to exceed any of the limits of the most recent edition of the United States Public Health Service's Drinking Water Standards or any modifications or additions to the Standards adopted by the California State Board of Health.

C. RECREATION

The broad classification, recreational water use, includes water-contact sports as defined in Section 24155 Division 20, Chapter 1, Article 4, California Health and Safety Code which definition is "any sport in which the body of a person comes into physical contact with water, including but not limited to swimming, surfboarding, paddleboarding, skindiving and water-skiing. It does not include boating or fishing." Recreational boating and aesthetic enjoyment are also included in the category of recreational use for the purpose of this report. Bacteriological standards for sport clamming have been included in this section. The water quality criteria for boating and aesthetic enjoyment are not as rigid as those for water-contact sports and are primarily for prevention of nuisance conditions.

The State Department of Public Health's recommendations on the proposed discharges of the Stinson Beach County Water District were expanded to cover the study area. The State Department of Public Health has recommended against any sewage discharge to Bolinas Lagoon under any conditions. The Department commented that the safe harvesting of clams, oysters, and other bivalve shellfish from any area is based on the absence of sewage discharges in that immediate area. The Department further commented that "all sources of human waste discharge would be required to be removed from any possible discharge to the lagoon and its tributaries prior to any certification of Bolinas Lagoon use for oyster beds." Although this applies to commercial certifications the same degree of protection should be afforded the general public who utilize the lagoon for sport clamming.

The State Department of Public Health's and the Marin County Health Department's recommendation on the bacteriological quality necessary to protect the beneficial water uses are summarized in Table III.

TABLE III
BACTERIOLOGICAL STANDARDS FOR PROTECTION OF BENEFICIAL WATER USES
- RECOMMENDATIONS OF STATE DEPARTMENT OF PUBLIC HEALTH AND
MARIN COUNTY HEALTH DEPARTMENT

AREA	BENE- FICIAL WATER USE	PERIOD	MONITOR- ING FRE- QUENCY	REQUIREMENT IN RECEIVING WATER
Bolinas Lagoon at any point	Sport Clam- ming	Aug. 1 - Mar. 31	Monthly Sept. 1 - March 31	Maximum MPN Coliform Organ- isms of 70/100 ml (1)
Bolinas Lagoon	Water- Contact Sports	Apr. 1 - July 31	5 times monthly Apr. 1 - Aug. 31	Sections 7954 thru 7958 Title 17, Chapter 5, Sub- chapter 1, Group 10, Cali- fornia Administrative Code
Bolinas Bay (2) (Along shoreline from Rocky Point to Duxbury Point)	Sport Clam- ming	Aug. 1 - Mar. 31	Monthly Sept. 1 - Mar. 31	Maximum MPN Coliform Organ- isms of 70/100 ml
Bolinas Bay (2) (Within surf zone and 600 feet off- shore from Rocky Point to Duxbury Reef)	Water- Contact Sports	Apr. 1 - July 31	5 times monthly Apr. 1 - Aug. 31	Sections 7954 thru 7958, Title 17, Chapter 5, Sub- chapter 1, Group 10, Cali- fornia Administrative Code
Pacific Ocean (2) (Along shoreline from Duxbury Point to National Sea- shore)	Sport Clam- ming	Aug. 1 - Mar. 31	Monthly Sept. 1 - March 31	Maximum MPN Coliform Organ- isms of 70/100 ml
Pacific Ocean (2) (Within surf zone and 600 feet off- shore from Duxbury Reef to National Seashore)	Water- Contact Sports	Apr. 1 - July 31	5 times monthly Apr. 1 - Aug. 31	Sections 7954 thru 7958, Title 17, Chapter 5, Sub- chapter 1, Group 10, Cali- fornia Administrative Code
Artificial Lagoon at southeast corner of Bolinas Lagoon	Water- Contact Sports	Through- out the year	5 times monthly	Sections 7954 thru 7958, Title 17, Chapter 5, Sub- chapter 1, Group 10, Cali- fornia Administrative Code

NOTE: (1) State Department of Public Health recommended prohibition of discharge to Bolinas Lagoon - Coliform organisms would be result of a waste discharge other than to the lagoon. (i.e. - from outside lagoon affecting waters of lagoon, natural causes, wild animals, birds, etc.)

(2) Marin County Health Department recommended that waters offshore, a distance of 1000 feet seaward of the mean lower low water line, should meet standards for public water-contact sports areas.

The staff has recommended in the plan and policy that all discharges of waste to Bolinas Lagoon or its tributaries be prohibited pursuant to Section 13654.3, California Water Code. This prohibition would require that Bolinas Public Utility District discharge waste into the channel between Bolinas Bay and Bolinas Lagoon on an ebbing tide.

The recommended prohibition would also cover the discharge of sewage from boats to the waters of Bolinas Lagoon. The recommendation is in part based on statements of the State Department of Public Health(11):

"1a. Rather than specify the quality of effluent from Bolinas that would be compatible with oyster culture, our recommendation is for the complete removal of the effluent from the lagoon. A second choice would be primary settling and ponding for 30 days to obtain disinfection before discharging to water that might enter Bolinas Lagoon. Because of the short distances involved in Bolinas Lagoon and the difficulty of maintaining a chlorine residual at all times, disinfection by chlorination would not be considered as an ample safeguard to the oyster beds.

1b. The only adequate treatment for individual sewage disposal systems is the disposal of the effluent underground. If the effluent seeps to the surface at any time, the system is inadequate and should be corrected. There should not be a discharge to the lagoon or tributary stream under any circumstances.

2a. Effluent from dairy farm milking barns would be comparable to paragraph 1a above. If the effluent cannot be kept out of the lagoon, the minimum requirement would be elimination of solids by settling and disinfection of the effluent by ponding.

2b. Use of the two garbage and refuse dumps located on Bolinas Lagoon should be discontinued. If possible, they should be covered with clean fill.

2c and 2d. Water having a median MPN of coliform organisms less than 70 per 100 milliliters may be considered as an approved shellfish growing area if other requirements are also met. In the case of Bolinas Lagoon, we feel that the waters are not suited for oyster culture although the median coliform requirement is met in most parts of the lagoon. The discharge of raw sewage from Bolinas is considered as a direct discharge to the oyster beds and cannot be approved regardless of the coliform concentration found by sampling."

Representatives of the State Department of Public Health have verbally advised the staff that they no longer consider 30 days ponding (see item 1a and 2a above) as adequate disinfection and that the 30 days of ponding of waste would not permit certification of Bolinas Lagoon for oyster culture.

The State Department of Public Health in its comments submitted to the Regional Board on the waste discharge of Sanitary District No. 3 of Marin County recommended that the waste discharge to Bolinas Lagoon be abated. The requirements of Resolution No. 372 do not prohibit the present waste discharge but it should be noted that these requirements apply only to the volume of waste flow existing at the time the requirements were adopted.

The bacteriological standards recommended by the State Department of Public Health have been incorporated in the tentative plan and policy with changes in duration to correspond to sport clamming seasons. The staff also recommends adoption of requirements normally prescribed by the Regional Board for the prevention of nuisance.

D. FISH AND WILDLIFE

The State Department of Fish and Game recommended the following water quality standards for all waters of the area for protection of fish, shellfish and waterfowl:

- "1. Dissolved Oxygen - not less than 5 ppm.
2. pH - not less than 6.5 nor more than 8.5.
3. No deposits of settleable solids.
4. Water quality shall be maintained at a level which permits human consumption of shellfish resources.
5. No materials shall be discharged that are deleterious to fish, waterfowl, shellfish, or other aquatic life."

The recommendations on sewage disposal and on bacteriological water quality criteria for the protection of public health for human consumption of shellfish resources were presented in the preceding section of this chapter. The prohibition of waste discharges to tributaries of Bolinas Lagoon recommended in the preceding section of this chapter would protect the fisheries resources of Pine Gulch Creek.

The staff incorporated the recommendations of the Department of Fish and Game in the tentative plan and policy.

E. NAVIGATION

The water quality criteria necessary to prevent nuisance conditions affecting recreational uses are more restrictive than those necessary to protect navigation. The recommended criteria are those normally prescribed by the Regional Board for the prevention of nuisance.

VII. RESOURCES OF AREA

A. GENERAL

The resources of the area including proposed recreation oriented projects that will increase existing beneficial water uses and potential water uses are discussed in the following sections of this chapter.

B. FUTURE DOMESTIC WATER SUPPLIES

The adequacy of the present water supplies and sources of future water supplies for the Bolinas-Stinson Beach area were not investigated by the staff. It has been stated that the most severe limitation to potential growth and development of the Bolinas area is related to the problem of developing supplemental sources of water⁽²⁾. The remoteness of the District (Bolinas Public Utility District) from possible supply from Marin Municipal Water District and the cost of development of sources of supplemental water supply may enforce a strict limitation on growth and development of the Bolinas area⁽²⁾. The water supply source (Arroyo Honda) of the Bolinas Beach Public Utility District and the Bolinas Public Utility District is within the boundaries of the Point Reyes National Seashore.

Water will eventually be supplied from some source outside the Bolinas-Stinson Beach planning area⁽¹⁾.

C. RECREATION

It is anticipated that the recreational activities of study area discussed under Chapter IV-B will increase in intensity in the future. The wide sandy beach southerly from Bolinas Lagoon which includes Stinson Beach State Park is one of the outstanding recreational resources of the area. Bolinas Lagoon offers such features as a wildlife sanctuary for nature studies, shellfish fishery and has potential for recreational boating. The shoreline westerly from Bolinas Lagoon including Duxbury Reef does not have the broad sandy beach of that located on the Stinson Beach side of Bolinas Bay. This portion of the shoreline is heavily used for nature studies, surf fishing, and shell fishing. Smaller beaches including Bolinas Beach and small areas north of Agate Beach are utilized for sunbathing, picnicking and some water-contact sports. The following proposed projects will increase the intensity of existing uses, protect the existing uses and/or will change the character of the beneficial water uses in some locations.

BOLINAS HARBOR DISTRICT

The proposal of the Bolinas Harbor District includes construction of protective jetties in Bolinas Bay at the lagoon entrance, a 300-foot wide entrance channel and a 400-foot wide interior access channel dredged to a depth of 12 feet below mean lower low water, a berthing basin with slips for 100 fishing boats located on the eastern shore of the lagoon, a launching ramp and slips for 20 recreational boats⁽⁵⁾. The estimated construction cost is \$2,688,800⁽⁵⁾. The anticipated annual usage with the harbor improvement is summarized as follows⁽⁵⁾:

<u>CONDITION OF USAGE</u>	<u>BOAT-DAYS</u>
San Francisco Bay Closed	2000 (A)
Overnight Docking	3270 (A)
Fishing Season	2500 (A)
Sport Fishing	5 (B)
Recreational (Permanent)	
Sailboats	10 (C)
Outboards	10 (C)
Recreational (Transient)	3600 (A)

(A) Seasonal usage - season estimated at 200 days.

(B) Five-party boats would transfer to Bolinas for the salmon fishing season - annual usage not estimated.

(C) Recreational craft permanently moored in harbor - annual usage not estimated.

The Harbor District is giving consideration to the provision of a site at which the State Division of Small Craft Harbors or the California Wildlife Conservation Board would provide funds for the construction of boat launching facilities.

The Harbor District is also giving consideration to leasing property to a private party for a marina development. The approximate location of the facilities are shown on Figure 1.

AUDUBON CANYON RANCH, INC.

The Audubon Canyon Ranch, Inc. is a corporation governed jointly by the Golden Gate and Marin Audubon societies. The corporation has secured title to the Canyon Ranch and is raising additional funds to complete the purchase of 375 acres of the Ranch. 132 acres of the Ranch are to be deeded as a gift upon completion of the purchase. The

Canyon Ranch contains the last major rookery of great blue herons and American egrets in Marin County. The project will create a wildlife refuge and a nature-education center(7). The Bolinas Harbor District leased to the Marin Audubon Society 363 acres of waters and tidelands in Bolinas Lagoon for a period of 50 years. The Society's intent is to preserve Bolinas Lagoon, a vital link in the Pacific Flyway, as a sanctuary for the migrating and wintering shore and water birds that use it for rest and food. The Society was given a 9 1/2 acre island located in the southwesterly corner of Bolinas Lagoon. The above acres are shown on Figure 1.

STATE OF CALIFORNIA - DIVISION OF SMALL CRAFT HARBORS

A study(10) prepared for the Division of Small Craft Harbors concluded that to provide an adequate chain of harbors of refuge for ocean-going small craft a new harbor would be needed at Bolinas. The harbor described in the report would be located at the southwesterly corner of Bolinas Lagoon and would cost \$6,200,000. The project included 4600 feet of jetties in Bolinas Bay, channel and harbor dredging, public landings, fueling facilities, and navigation aids(10).

The Small Craft Harbor Commission can construct or can make loans available for the construction of small craft harbors. No funds have been provided at the present for a project in Bolinas Lagoon.

STATE OF CALIFORNIA - WILDLIFE CONSERVATION BOARD

The Wildlife Conservation Board on March 12, 1964 allocated \$20,600 for the construction of parking, drainage control and erosion control facilities to provide parking and access to several miles of the beach north of Duxbury Reef. The project near Agate Beach will probably be built this summer.

U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers has authorized an investigation on the improvement of Bolinas Lagoon for light traffic (recreational) navigation and fishing boats. They are nearing completion of a report on the proposed navigation improvements at Bolinas Channel and Lagoon. The report will review the proposal of the Bolinas Harbor District. Federal participation in the project will depend on its economic feasibility. To date no final determination of the feasibility of the plan has been made.

U.S. DEPARTMENT OF THE INTERIOR - NATIONAL PARK SERVICE

The Point Reyes National Seashore now under development by the National Park Service forms the northern most boundary on the Bolinas Peninsula in the study area. The development of the Point Reyes National Seashore is best exemplified by the Congressional Act which is "Point Reyes National Seashore was authorized to preserve a portion of the seashore in its natural condition for purposes of public recreation, benefit and inspiration." Recreational developments within the park include facilities at Limantour approximately 12 miles north of the southerly boundary of the park, at Double Point approximately 1.3 miles north of the southerly boundary and at Pine Gulch located on the divide between Olema and Pine Gulch Creeks. At the present Limantour is the only area of the three considered for beach development. Primary activities at this area would include salt water beach activities, fishing, boating, sunbathing and picnicking. Activities at Double Point would include ocean watching with a seal and bird overlook, nature trails, picnicking and a saddle horse base. Access to the beach would

probably be limited because of the seal pupping grounds in this area. Detailed planning has not taken place for this area and development will probably not occur for five years. The Pine Gulch area is scheduled for development in the future and no planning has occurred to date.

BOLINAS LAGOON - CONTROLLED LEVEL LAKE

A proposal has been extended to make Bolinas Lagoon a controlled level lake by constructing an earth (or other) fill with a tide gate across the mouth of the lagoon. The proposed action would result in a large body of water with a minimum water depth of 4 to 5 feet. The water-oriented recreational aspects of this proposal would be unlimited but would be contrary to the proposal to make Bolinas Lagoon a harbor of refuge for fishing boats and possibly to certain wildlife interests.

D. FISH AND WILDLIFE

The future of the fish and wildlife resources of the study area will depend largely upon the preservation of the present natural environment.

The State Department of Fish and Game has undertaken a project to re-establish eel grass in Bolinas Lagoon. Approximately 2,000 root stalks were transplanted from Tomales Bay during 1963. The re-establishment of eel grass to Bolinas Lagoon would primarily increase the habitat for black brant, a native goose, as well as other waterfowl.

The Marin Audubon Society leased 363 acres of Bolinas Lagoon for a waterfowl refuge area and has been given a 9 1/2-acre island near Bolinas. The Canyon Ranch project preserves a wildlife refuge area and creates a nature-education center.

The Marin County Master Plan envisions preservation of the shoreline along the Ocean, Bay and Lagoon in its natural state. Provision of access routes to the shoreline, such as the Agate Beach project, will increase the intensity of water-oriented activities including: surf fishing, shell fishing, wading, swimming, nature study, etc.

The location of a refuge harbor for fishing boats in Bolinas Lagoon will increase the intensity of the ocean fishery near Duxbury Reef.

Bolinas Lagoon is reported as an excellent shellfish area, with clamming rated as superior, but oyster culture as being limited⁽⁶⁾. The Coast Oyster Company at one time held a 240-acre State Allotment #57 for oyster culture and spent two years in developing it⁽⁶⁾. In 1956 the State Department of Public Health found that "the discharge of raw sewage from Bolinas is considered as a direct discharge to the oyster beds and cannot be approved regardless of the coliform concentration found by sampling" (11) and as a result found that Bolinas Lagoon was unsuitable for the culture of oysters. The holdings of the Coast Oyster Company were later purchased by Mr. Charles Johnson and the oysters that were in Bolinas Lagoon were transplanted to Drakes Estero under a provisional approval of the State Department of Public Health. The State Allotment has since been declared abandoned. Mr. Johnson reapplied for the allotment on January 24, 1963 and was turned down by the State Fish and Game Commission.

Representatives of the State Department of Fish and Game verbally advised the staff that the allotment was declared abandoned because Mr. Johnson had not met their minimum requirements of usage. It is their understanding that their requirement of usage was not met because

11 of the expense involved in transferring the oysters from Bolinas Lagoon to Drakes Estero. Reissuance of the allotment would be considered after receipt of an application and the necessary public hearings.

The State Department of Public Health in a letter dated March 9, 1963 advised:

"We would not certify this area for oyster culture unless satisfactory sewage disposal facilities were constructed and properly operated to protect this use of waters. All sources of human waste discharge would be required to be removed from any possible discharge to the lagoon and its tributaries prior to any certification of Bolinas Lagoon use for oyster beds."

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E. LAND USE

The Bolinas-Stinson Beach Master Plan⁽¹⁾ states that growth will occur and will be greatly influenced by the location and natural features of the area. The Point Reyes National Seashore and improvement of the Shoreline Highway will stimulate the recreation oriented economy and the growth of the area. The primary uses proposed for the Bolinas-Stinson Beach Area are residential and recreational. The Master Plan considers the future of the area to be directly dependent upon preservation to a large degree of the existing charm and beauty of the area. Preservation of the entire shoreline and immediate adjacent lands with the exception of the northerly shoreline of the sand spit as a natural open space reserve or public recreation reserve is a feature of the Master Plan. Preservation of Bolinas Lagoon as open water is considered by the Plan as being necessary. The development of the lagoon includes a channel to Bolinas Bay protected by breakwaters, a channel within the lagoon, a turning basin, facilities for small-boats and commercial boats on the eastern shore and small boat facilities on the Bolinas shore. Improvement of access to the Bolinas Beach and the shoreline is considered in the Plan.⁽¹⁾

Preservation of the natural features of the area through the Audubon Society's purchase of the Canyon Ranch and lease of 368 acres of Bolinas Lagoon is an important consideration.

The State Division of Beaches and Parks has obtained possession of the land southerly of and including Rocky Point. Plans for the future include provision of access to the shoreline near Steep Ravine.

VIII. CONSOLIDATION OF SEWERAGE FACILITIES

A. SUMMARY OF ACTIONS BY REGULATORY AGENCIES AND ACTIONS AND POLICIES OF PUBLIC DISTRICTS

Following is a summary of a chronology of actions taken in regard to waste disposal by the State and County regulatory agencies and a summary of actions and policies of public districts with respect to consolidated sewerage facilities.

BOLINAS BEACH PUBLIC UTILITY DISTRICT

Sewage disposal through the use of septic tanks and subsurface leaching systems in the Bolinas Beach Public Utility District is complicated because the original subdivision was subdivided into 20-foot by 100-foot lots. Three such lots are normally required for a residential unit. Regulation of septic tanks is accomplished by Marin

County's Ordinance No. 1244 which establishes a permit system for sewage disposal other than to a public sewer. The County attempts to secure a "failsafe" area of 50% of the leaching field in approval of septic tanks to ensure that adequate land is available in cases where septic tank leaching systems fail. The Bolinas Beach Public Utility District with the Bolinas Public Utility District and Stinson Beach County Water District in a letter dated February 2, 1964 jointly petitioned the Marin County Board of Supervisors for assistance in performing an economic and engineering survey to determine the feasibility of a sewage collection and disposal complex in the Bolinas-Stinson Beach Watershed. The Directors of Bolinas Beach Public Utility District withdrew their support of the study after the Bolinas Public Utility District decided against participation in the study. The President of the District indicated in a letter dated March 12, 1964 (Appendix "C") that "the directors of the district wish to state for the record that only an area-wide solution of the sanitation problems of the Bolinas-Stinson Beach area would receive their support."

BOLINAS PUBLIC UTILITY DISTRICT

Sanitary District No. 3 of Marin County in 1958 investigated the possibility of acquiring Federal Funds to assist in meeting the County Health Department's requirements concerned with the treatment and disposal of wastes.

Sanitary District No. 3 of Marin County filed a "Report on Waste Discharge" with the Regional Board on February 14, 1961 at the request of the staff. The untreated sewage discharge was estimated at 10,000 to 15,000 gallons per day from an estimated 200 persons. Resolution No. 372 prescribing requirements for the waste discharge was adopted by the Regional Board on September 21, 1961. The State Departments of Public Health and Fish and Game submitted the following comments and recommendations on the waste discharge:

State Department of Public Health Memorandum dated May 1, 1961.

"This department has for many years been greatly concerned about the possible effects the waste discharges may have on the safeness of the shellfish in Bolinas Lagoon for human consumption. Although the waste discharge is small, dilution available in the lagoon is limited and the lapse of time between when the sewage enters the water and the possible uptake of contamination by the shellfish is short. Because of the extensive use of Bolinas Lagoon for shellfish gathering, we recommend that the discharge of sewage or sewage effluent to the waters of Bolinas Lagoon should be discontinued and a more remote site of discharge selected."

State Department of Fish and Game Memorandum dated April 10, 1961.

"Because this area is especially rich in marine life and is so easily accessible to the public and is heavily used, the Department of Fish and Game strongly recommends that no waste discharge be permitted at any point within either the lagoon or the bay."

The staff after consultation with representatives of the Marin County Health Department and State Department of Public Health recommended adoption of waste discharge requirements rather than prohibition of the waste discharge. It was felt that the District would take the initiative and secure assistance in a study of sewerage needs for the entire watershed. The State Department of Public Health under contract with the Regional Board conducted a compliance investigation

during the period from November 2 through December 18, 1961. Based on the results of this investigation the Regional Board on March 15, 1962 required Sanitary District No. 3 of Marin County to file by June 15, 1962 a schedule for compliance with the requirements of Resolution No. 372. The District Board requested, in a letter dated June 19, 1962 and was granted by the Regional Board on July 19, 1962, an additional sixty days for completion and submission of the time schedule. The District Board subsequently failed to submit the required time schedule and the staff placed on the September 1962 regular meeting agenda Regional Board consideration of a Cease and Desist Order for violation of the requirements of Resolution No. 372. On September 20, 1962 the Regional Board received a letter from the Chairman of the Stinson Beach Progressive Club advising of a possible joint study of sewage problems with Sanitary District No. 3, of an election for the formation of a district to provide sanitation in Stinson Beach and of the fact that Sanitary District No. 3 recently added three new board members with no hold-over members. The Regional Board delayed consideration of the tentative Cease and Desist Order until a later meeting. The new members of the District Board subsequently voted to dissolve Sanitary District No. 3 of Marin County with Bolinas Public Utility District assuming its duties and powers. The Regional Board was advised by the Chairman of the Bolinas Public Utility District in a letter dated January 13, 1963 that it was decided at a meeting of Stinson Beach County Water District, Bolinas Beach and Bolinas Public Utility Districts held on January 11, 1963 to appeal to the Marin County Board of Supervisors for assistance in performing an economic and engineering survey to determine the feasibility of a sewage collection and disposal complex in the Bolinas-Stinson Beach Watershed. The appeal was made to the County Board of Supervisors in a letter dated February 2, 1963 signed by the Presidents of the three District Boards.

The County Board of Supervisors on February 19, 1963 designated their Director of Public Works as project coordinator of the survey and instructed the County Counsel to determine whether the County had power to assist financially in the survey.

Sanitary District No. 3 of Marin County was dissolved effective June 30, 1963 by action of the County Board of Supervisors on March 5, 1963. The Bolinas Public Utility District assumed the duties of Sanitary District No. 3 on December 7, 1962 through a joint exercise of powers agreement and transfer of funds. The Regional Board at its April 18, 1963 regular meeting adopted Resolution No. 458, an order to cease and desist the violation of the requirements of Resolution No. 372. Resolution No. 458 contained a time schedule developed with the assistance of the Marin County Director of Public Works and was directed to Sanitary District No. 3 of Marin County and Bolinas Public Utility District. The time schedule was prepared recognizing that four entities would be involved in the planning requiring more time for official actions on the final report and arranging financing of recommended facilities. On May 7, 1963 Bolinas Public Utility District held an election for two Board members, and also submitted the proposition as to whether the Board should be increased to five members. Following the passage of the proposition the Board appointed two new members. On July 5, 1963 the Board passed a motion that it "get expert engineering advice on the best solution to its sanitary problem considering the cease and desist order from the pollution control board and on the advisability of entering into a Stinson Beach, Bolinas feasibility survey." The District retained Mr. G. A. Horstkotte, Manager-Engineer of

Central Contra Costa County Sanitary District, who subsequently recommended against District participation in the area-wide survey. On July 26, 1963 the District Board unanimously voted against the adoption of the resolution authorizing a study and feasibility survey of the Stinson Beach-Bolinas area. The District in September 1963 retained the services of Kennedy Engineer's to conduct an independent survey of the District's sewerage needs. The Regional Board on October 17, 1963 adopted Resolution No. 510 amending the time schedule of Resolution No. 458. The District's consulting engineer recommended construction of waste treatment facilities with a capacity of 40,000 gallons per day utilizing the existing outfall for disposal. The present average daily flow was estimated as high as 37,000 gallons per day. The District applied for a Public Law 660 grant for construction of the treatment and pumping facilities. The Regional Board on April 16, 1964 granted the District a sixty-day extension of the time schedule of Resolution No. 510 after receiving reports from the District and Stinson Beach County Water District indicating that the two districts were giving consideration to consolidated treatment facilities. The District is now required to be in compliance with the requirements of Resolution No. 372 by October 14, 1965. The District's President in a letter dated March 14, 1964 (Appendix "C") advised that "The purpose of Bolinas Public Utility District is to abate the nuisance of raw sewage into Bolinas channel as quickly as may be possible."

STINSON BEACH COUNTY WATER DISTRICT

A report of a survey conducted of the Stinson Beach Area in September 1961 by the Marin County Sanitation Department at the direction of the County Board of Supervisors summarized that: "It is our considered opinion that a public health problem does exist in this area and its solution lies with the formation of some sort of a publicly owned district in order that a problem can be uniformly dealt with both at the present time and in the future." The Marin County Director of Sanitation in a letter dated April 14, 1964 reported that approximately twenty to twenty-five percent of the individual waste disposal systems in the Stinson Beach County Water District area are showing evidence of failing. Regulation of septic tank installations is accomplished by Marin County's Ordinance No. 1244. The Stinson Beach County Water District was formed by an election held on November 6, 1962 for the purpose of resolving sanitation problems. The District jointly petitioned the County Board of Supervisors with the two districts previously discussed in this chapter for assistance in performing the area-wide sewerage survey. The District undertook an independent sewerage needs survey after Bolinas Public Utility District withdrew from the area-wide survey. The District on December 13, 1963 applied for waste discharge requirements for three alternate points of disposal: Rocky Point, Bolinas Lagoon and to the channel between Bolinas Bay and Bolinas Lagoon with a discharge on an ebbing tide. The District filed for a Public Law 660 grant for two alternates: District treatment facilities located near the south end of Stinson Beach State Park with an ocean outfall, and joint treatment and disposal of sewage with Bolinas Public Utility District. The President of the District in a letter dated March 22, 1964 (Appendix "C") advised that "this District is giving serious consideration to a consolidated sewage treatment facility with Bolinas Public Utility District, among other alternatives."

B. CONSOLIDATION OF SEWAGE TREATMENT FACILITIES

Paragraph VI of Resolution No. 536 adopted by the Regional Board on February 20, 1964 directed the staff to investigate and report on the problems involved in the consolidation of sewage treatment and/or disposal facilities in the Bolinas-Stinson Beach Area and requested various agencies to cooperate with the staff in this matter.

The planning for a combined feasibility study to determine the immediate, interim and ultimate sewerage needs of the Bolinas-Stinson Beach area terminated when Bolinas Public Utility District withdrew its support of the proposed joint study. The District's reasons for withdrawing support of the study have been cited in letters to the Regional Board dated July 15, 1963, February 17 and March 14, 1964 (Appendix "C") and are summarized as follows:

1. "The geography of the Bolinas peninsula and the financial limitations of the area provide certain checks which are difficult to overcome. Bolinas Public Utility District feels that the physical difference in geography, the character of the two villages and the financial obligation of Bolinas towards its sewer problem and towards its water problem are such as to not warrant a joint venture."
2. The District retained the services of Mr. G. A. Horstkotte, Jr. to give expert engineering advice on the best solution to its sanitary problem, considering the cease and desist order from the pollution control board and on the advisability of entering into a Stinson Beach-Bolinas feasibility survey. Mr. Horstkotte in a letter dated July 15, 1963 strongly recommended against any consideration of the inclusion of the District with a general plan for sewerage which would include the District and the Stinson Beach area. This opinion was justified on the basis of the cost of constructing and maintaining a sewer line across the channel leading to Bolinas Lagoon or around the lagoon. Mr. Horstkotte said that the problem which resulted in the issuance of the cease and desist order is first priority and can be solved economically by the installation of a treating facility which would meet the effluent standards set by the Regional Board. The letter also said that consideration should be given to joint action by the Bolinas Beach and Bolinas Public Utility Districts for the satisfaction of their long-term sewerage needs.
3. The cost of crossing Bolinas Lagoon channel with a sewer line was considered prohibitive because it had cost Pacific Telephone Company in excess of \$200,000 for a six inch line under the channel. The property value of the Bolinas District allows a maximum of \$194,540 in bonded indebtedness.

It is the opinion of the staff of this Regional Board that the matter of possible consolidation of sewage treatment and disposal facilities requires careful study at this time despite the earlier decision of the Bolinas Public Utility District to withdraw from the proposed joint study. The proposed joint study as decided previously would have determined the economic and engineering feasibility of a sewage collection and disposal complex in the Bolinas-Stinson Beach Watershed. The staff believes that a study of this scope with recommendations for immediate, interim and ultimate solutions to the sewage problems of the entire area should be made now.

If the people of the area, through their elected representatives on the various district boards, do not see fit to undertake an area-wide, long-range sewerage study at present we believe that the Regional Board should insist that investigations into the feasibility of consolidating sewage treatment facilities be made by the districts prior to the time that they are permitted to make any new waste discharges or to increase the volume of any existing waste discharge.

It should be noted in this regard that:

1. More recent estimates of constructing a sewer across the mouth of Bolinas Lagoon are on the order of \$80,000 rather than \$200,000 and the larger estimated cost was one of the prime reasons given by the Bolinas Public Utility District for its decision to withdraw from the area-wide joint study.
2. The waste discharge requirements prescribed by the Regional Board in its Resolution No. 372 apply only to the present volume of waste flow from the sewerage system of the Bolinas Public Utility District. These requirements give the District the specifications needed for correction of its immediate problem, but do not apply to the future discharge of larger volumes of waste at this point.
3. The Regional Board has a policy of requiring waste dischargers to file a report with the Board when their waste flow reaches a certain percentage (usually 80%) of the design flow of the treatment facilities. The purpose of these reports is to assure the Regional Board that the discharger is planning and will provide additions to his sewerage system before it is overloaded. In keeping with this policy the Regional Board should, therefore, require the Bolinas Public Utility District to submit a report showing what the District intends to do with respect to providing for increases in waste flow. The staff will recommend that this report be required when the requirements of Resolution No. 372 are revised pursuant to Paragraph XVII of the tentative plan and policy. The staff feels that the feasibility of land confinement of the waste flow should be determined.

C. MASTER PLAN FOR SEWAGE TREATMENT, COLLECTION AND DISPOSAL

The Regional Board at its September 21, 1961 regular meeting adopted Resolution No. 373. The resolution urged the Marin County Board of Supervisors, Sanitary District No. 3 of Marin County and the unincorporated communities of Bolinas and Stinson Beach to jointly plan and support an investigation leading to the development of plans and cost estimates for sewerage facilities to serve the Bolinas-Stinson Beach Area.

The importance of a master plan for sewage disposal to include detailed plans of facilities to serve the immediate, interim and ultimate development in the Bolinas-Stinson Beach Area is apparent. Bolinas Public Utility District and Stinson Beach County Water District have considered alternatives of sewage treatment and disposal which if fulfilled would probably preclude any chance of consolidated facilities. The two Districts are currently investigating other alternatives which could lead to the consolidation of treatment and disposal facilities.

The State Department of Fish and Game cited in a memorandum dated March 31, 1964 (Appendix "C") that "The area is far too important to the entire Bay Area to allow, small, adequate treatment units to be installed. Such units have in the past been a problem through overloading or neglect in many areas." The Department recommended that the Board adopt a long-range plan and policy that includes the principal of the development of a master plan encompassing adequate waste collection, treatment, and disposal facilities for the entire area. The Department further recommended that "A technical study is needed to determine the most suitable location for effluent disposal, either on land or into the ocean. In the event that an ocean outfall is decided upon, additional study will be needed in order to determine the optimum location and length of outfall with relation to prevailing currents and general circulation of the receiving waters. Any facilities built for the temporary solution to this problem should be designed so as to be incorporated into the long-range plans for the area."

The State Department of Fish and Game in its memorandum dated February 18, 1964 (Appendix "C") recommended "against any plan providing for a sewage discharge into Bolinas Lagoon. A proposal to discharge in the lagoon outlet only on an outgoing tide might be worth considering provided sufficient safety factors are built into the treatment units. The controls would have to be closely designed and operated to protect public health through proper operation and disinfection procedures. These treatment units should be furnished in duplicate with separate sources of power."

The Marin County Director of Sanitation in a letter dated February 6, 1964 (Appendix "C") expressed the following relative to matters of planning:

"At the outset when the Stinson Beach County Water District and the Bolinas Public Utility District (then Sanitary District No. 3) were jointly discussing sewerage of this particular area we were of the belief that the waste disposal problems common to this entire area would be solved by joint action. The joint action, we felt, should consist at least of joint engineering feasibility studies for the entire area."

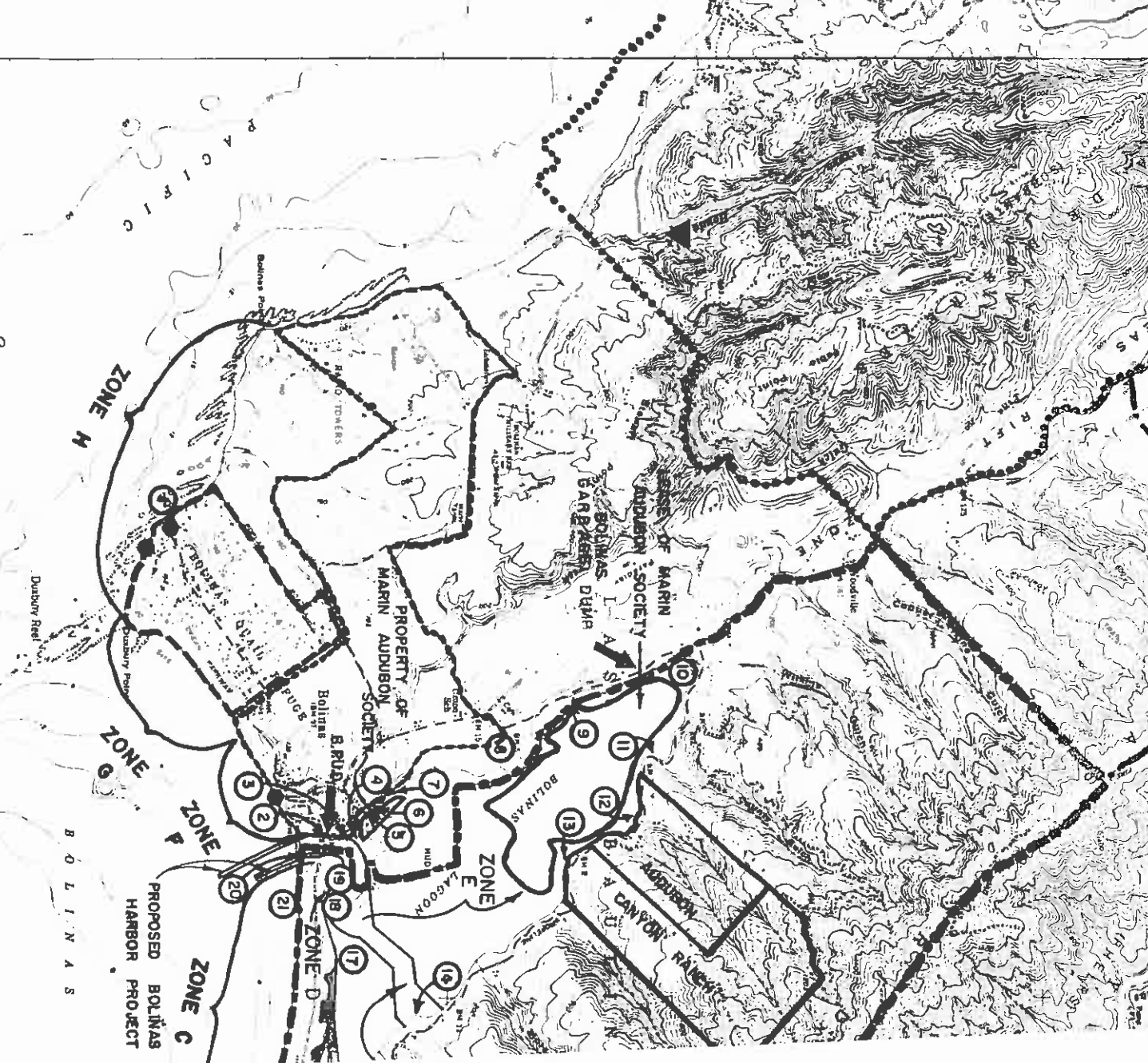
"The County in the last six or seven years has been obliged to phase out almost a dozen waste treatment facilities. This is due to the fact that poor planning and inadequate cooperation on the part of all persons concerned was evident shortly after initiation of plans for sewerage. The public has consistently turned down plans for centralizing waste treatment works. This is usually due to lack of information, or simply lack of experience and/or civic pride.

"In conclusion, it is our considered opinion, however humble, that the engineers for these two districts should meet in joint session with their boards at some time in the near future and thoroughly explore what can be done to arrive at some understanding on the overall sewerage plan for this area. The fact that all areas cannot be included in the initial installation of a sewerage facility is obvious. There are too many questions which remain unanswered concerning the waste disposal plans. They are of utmost importance to the Health Department, not only from the economic standpoint, but primarily from the public health standpoint.

"It is obvious to all that a poorly located, maintained and operated treatment facility is going to precipitate the need for costly future changes in a plant which is inadequate from its inception. Our hope is that the facility or facilities will be located at the outset at the proper place."

The most economical means of achieving compliance with the requirements of the plan and policy and of providing the facilities to guarantee protection of the resources of the area will require detailed planning of sewage treatment and disposal facilities for the immediate, interim and ultimate development of the Bolinas-Stinson Beach Area.

Selection of the optimum point of waste discharge to Bolinas Bay and the Ocean will require studies of the ocean currents. Serious consideration should be given to the feasibility of land confinement of the waste during the interim until the assessed valuation is sufficient to finance a treatment plant and disposal facilities capable of meeting the requirements of the plan and policy.



STATE OF CALIFORNIA
REGIONAL WATER POLLUTION CONTROL BOARD **TENTATIVE**
SAN FRANCISCO BAY REGION

RESOLUTION NO. ____

ADOPTING A LONG-RANGE PLAN AND POLICY WITH RESPECT TO WATER
POLLUTION CONTROL WITHIN THE BOLINAS-STINSON BEACH AREA,
MARIN COUNTY

- I. WHEREAS, this Regional Water Pollution Control Board is required by law to control the disposal of sewage and industrial wastes in the San Francisco Bay Region in such a manner that beneficial uses of waters of the State are not adversely and unreasonably affected, and in such a manner that nuisance and hazards to public health are prevented; and
- II. WHEREAS, the Regional Board controls sewage and industrial waste discharges by specifying the quality of each waste discharge and/or the conditions to be maintained in the waters affected by said discharges; and
- III. WHEREAS, this Regional Board is required by Section 13052(e) of the California Water Code to formulate and adopt long-range plans and policies with respect to water pollution control within the Region in conformity with the policies set forth in Chapter I of the Water Pollution Control Act; and
- IV. WHEREAS, this Regional Board adopted Resolution No. 536 on February 20, 1964 entitled "Statement of Intent to Formulate and Adopt a Long-Range Plan and Policy With Respect to Water Pollution Control in the Bolinas-Stinson Beach Area, Marin County"; and
- V. WHEREAS, this Regional Board has received a Staff Report entitled "Bollinas-Stinson Beach, Marin County, Long-Range Plan and Policy for Water Pollution Control" on May 21, 1964; and
- VI. WHEREAS, said report contained comments and recommendations received from various local, State and Federal agencies relative to the proposed Long-Range Plan and Policy; and
- VII. WHEREAS, said report reviewed various reports and plans published by local, State and Federal entities and agencies; and
- VIII. WHEREAS, a public hearing was held on July 16, 1964 relative to the Tentative Long-Range Plan and Policy With Respect to Water Pollution Control Within the Bolinas-Stinson Beach Area and all objections and recommendations were heard and considered; and
- IX. WHEREAS, the Regional Board has not received a report on the engineering and economic feasibility of the consolidation of existing and proposed sewage treatment and disposal facilities in the Bolinas-Stinson Beach Area; now
- X. THEREFORE, BE IT RESOLVED, that this Regional Board finds that:
 - A. The present beneficial water uses of Bolinas Bay from Rocky Point to the mouth of Bolinas Lagoon include:
 1. Swimming, wading and surfing with extensive use at Stinson Beach State Park

2. Boating
 3. Sport and commercial fishing
 4. Sport clamming and abalone picking
 5. Habitat for marine fishes
 6. Habitat for shellfish and other aquatic invertibrates
 7. Skindiving south of Stinson Beach State Park Beach
 8. Aesthetic enjoyment;
- E. The present land uses between Rocky Point and the mouth of Bolinas Lagoon include:
1. Surf fishing
 2. Picnicking
 3. Sunbathing
 4. Residential
 5. Stinson Beach State Park
 6. Beach Combing;
- C. The present beneficial water uses of Bolinas Lagoon include:
1. Swimming and wading
 2. Sport fishing
 3. Habitat for shellfish and other aquatic invertibrates
 4. Habitat for marine fishes
 5. Boating
 6. Sport clamming from October 1 through June 30
 7. Waterfowl refuge area
 8. Migratory route for spawning runs of steelhead trout entering Pine Gulch Creek
 9. Recharge of the recreational lagoon of Seadrift Subdivision
 10. Aesthetic enjoyment;
- D. The present land uses adjacent to Bolinas Lagoon include:
1. Wildlife refuge area including Audubon Canyon Ranch, Inc.
 2. Agricultural
 3. Residential in Bolinas, on the "Sand Spit" and in Stinson Beach
 4. Shoreline fishing
 5. Refuse dump;
- E. The present beneficial water uses of Bolinas Bay from the mouth of Bolinas Lagoon to Duxbury Point include:
1. Limited amount of swimming, wading and surfing with heaviest use occurring at the foot of Brighton Avenue in Bolinas
 2. Sport and commercial fishing offshore from Duxbury Reef
 3. Sport clamming
 4. Habitat for marine fishes
 5. Habitat for shellfish and other aquatic invertibrates
 6. Aesthetic enjoyment;
- F. The present land uses between the mouth of Bolinas Bay and Duxbury Reef include:
1. Surf fishing
 2. Picnicking
 3. Sunbathing

4. Beach combing during low tide
 5. Residential in Bolinas and on Bolinas Mesa;
- G. The present beneficial water uses from Duxbury Point northerly to Double Point including Duxbury Reef include:
1. Surfing and limited amount of wading
 2. Skindiving
 3. Sport and commercial fishing offshore from Duxbury Reef
 4. Abalone picking
 5. Habitat for marine fishes
 6. Habitat for shellfish and other aquatic invertibrates
 7. Aesthetic enjoyment;
- H. The present land uses northward from and including Duxbury Reef include:
1. Surf fishing at low tide
 2. Limited amount of picnicking and sunbathing north of Duxbury Reef and Agate Beach
 3. Study of inter-tidal marine life during low tide
 4. Sport Clamming for piddocks
 5. Beach combing during low tide;
- I. Arroya Honda is presently used as a source of domestic water supply by Bolinas Public Utility District and Bolinas Beach Public Utility District;
- J. Stinson Gulch, Webb Creek, Fitzhenry Creek, and Black Rock Creek are presently used as sources of domestic water supply by Stinson Beach Water Company;
- XI. BE IT FURTHER RESOLVED, that it is the consensus of this Regional Board that the present beneficial uses will increase in intensity and expand in location as public access is provided to certain areas, as proposed recreation-oriented developments become a reality and as population increases;
- XII. BE IT FURTHER RESOLVED, that it is the intention of this Regional Water Pollution Control Board to:
- A. Prevent nuisance, as defined in California Water Code Section 13005, from being caused by a waste discharge or by treatment or conveyance of waste tributary thereto;
 - B. Protect the ground water for domestic supply;
 - C. Protect the beneficial water uses summarized in Paragraphs X-A, C, E, G, I and J;
 - D. Prevent hazards to public health;
 - E. Make and preserve Bolinas Lagoon suitable for sport shellfishing and commercial oyster culture;
- XIII. BE IT FURTHER RESOLVED, that in order to fulfill its intentions in the preceding paragraph, this Regional Board prescribes the following requirements for waste discharge in the Bolinas-Stinson Beach Area:

A. FOR THE PREVENTION OF NUISANCE

1. No waste discharge shall cause:

- a. Floating, suspended, or deposited macroscopic material of waste origin at any place
- b. Atmospheric odors recognizable as being of waste origin at any place outside the property of the discharger
- c. Foaming in the waters of the State at any place
- d. Turbidity or discoloration in waters of the State beyond areas specified in individual waste discharge requirements
- e. Dissolved sulfide concentration of more than 0.1 mg/L in waters of the State at any place;

B. FOR THE PROTECTION OF BENEFICIAL WATER USES

1. No waste discharge shall cause the waters within the Bolinas-Stinson Beach Area from Rocky Point to the Point Reyes National Seashore to exceed the following limits of quality at any place beyond areas specified in individual waste discharge requirements:
 - a. Dissolved Oxygen - 5.0 mg/L, minimum
 - b. pH - 6.5 minimum, 8.5 maximum
 - c. Substance or combination of substances in concentrations adverse to fish, waterfowl, shellfish or aquatic life - None
2. The discharge of sewage to any surface domestic water supply source is prohibited pursuant to Section 13054.3, California Water Code;
3. No waste discharge, whether it be from any part of a waste treatment facility or from any outfall pipe shall cause the ground water suitable for domestic use to exceed any of the limits contained in most recent edition of the United States Public Health Service's Drinking Water Standards or any modifications or additions relating to drinking water quality adopted by the California State Board of Health;
4. The bacteriological quality of waste discharges shall be such that the following conditions are maintained:

AREA	PERIOD	REQUIREMENT
Bolinas Lagoon	Sept. 1 - June 30(A)	MPN Coliform Organisms of 70/100 ml, maximum
Bolinas Lagoon	Jul. 1 - Aug. 31(A)	Sect. 7958, Title 17, Chapter 5, Subchapter 1, Group 10, Calif. Administrative Code
Bolinas Bay & Pacific Ocean - Shore- ward from mean lower low water line, from Rocky Point to Point Reyes National Seashore	All Year	MPN Coliform Organisms of 70/100 ml, maximum
Bolinas Bay & Pacific Ocean - In Zone between shoreline at mean lower low water and 1000 feet offshore, from Rocky Point to Point Reyes National Seashore	All Year	Sect. 7958, Title 17, Chapter 5, Subchapter 1, Group 10, California Administrative Code

NOTE: (A) - Dates subject to review by Regional Board when changes are made in the sport clammaing season by the Fish and Game Commission

C. FOR THE PROTECTION OF PUBLIC HEALTH

The discharge of sewage to Bolinas Lagoon or its tributaries is prohibited pursuant to Section 13054.3, California Water Code; and that for the purpose of this requirement any discharge to Bolinas Bay or to the channel between Bolinas Bay and Bolinas Lagoon which influences the waters of Bolinas Lagoon shall be considered a discharge to Bolinas Lagoon;

- XIV. BE IT FURTHER RESOLVED, that under the authority of Sections 13054 and 13054.1 of the California Water Code, waste dischargers are required to include with the "Report on Waste Discharge" a written report on the feasibility of the consolidation of sewage treatment and disposal facilities with existing or proposed sewerage systems and on the feasibility of land confinement of the waste discharge;
- XV. RE IT FURTHER RESOLVED, that under the authority of Section 13054.3 of the California Water Code, this Regional Board will prohibit any new waste discharge from a community sewerage system or any increase in volume beyond the volume of any existing waste discharge from a community sewerage system, as of the date of this resolution, until a satisfactory report has been received and accepted pursuant to Paragraph XIV of this Resolution;
- XVI. BE IT FURTHER RESOLVED, that:
- A. It is the experience of this Regional Board that the use of septic tanks and leaching systems is, with few exceptions, a temporary solution to sewage disposal problems;
 - B. Because of their temporary nature, the installation of septic tanks in urban and fringe areas and subsequent replacement with sewers is more expensive than construction of sewers at the outset;
 - C. This Regional Board urges that all responsible legislative and planning bodies in Marin County and the Marin County Health Department;
 - 1. require connection to a public sewer as a condition of development of any subdivision;
 - 2. investigate the feasibility of connection to public sewers prior to approval of any septic tank permits;
 - 3. deny septic tank permits where connection to a public sewer is feasible in the opinion of the County Health Officer or where in the opinion of the County Health Officer the disposal of sewage from subsurface leaching systems would adversely affect the potability of ground water suitable for domestic use;
 - 4. advise the Regional Board at the earliest possible date of all proposals to use septic tanks in new subdivisions for the disposal of sewage;
- XVII. BE IT FURTHER RESOLVED, that the staff is directed to prepare tentative requirements and monitoring programs, which will be in conformance with this Resolution, for all waste dischargers in the Bolinas-Stinson Beach Area;

- XVIII. BE IT FURTHER RESOLVED, that if the beneficial uses of the receiving waters should change in the future, it may be necessary to reconsider and revise this Long-Range Plan and Policy;
- XIX. BE IT FURTHER RESOLVED, that the Executive Officer is directed to distribute copies of this Resolution to all interested agencies and individuals and to carry out the objectives of this Regional Board as outlined above.

GRANT BURTON
Chairman

July 16, 1964

I, John B. Harrison, hereby certify the foregoing is a true and correct copy of Resolution No. , as adopted by the Regional Water Pollution Control Board of Region No. 2, at its regular meeting on July 16, 1964.

JOHN B. HARRISON
Executive Officer
REGIONAL WATER POLLUTION CONTROL BOARD NO.2

JBH,FHD,RBJ/lek

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- (8) California Department of Public Health Memorandum dated April 20, 1931 by F. E. DeMartini.
- (9) California Public Outdoor Recreation Plan Committee - "California Public Outdoor Recreation Plan - Part II".
- (10) Leeds, Hill and Jewett, Inc. "Interim Report on Coastal Harbors of Refuge" January 1963.
- (11) State Department of Public Health. Inter-Departmental Communication dated February 27, 1956 to Regional Water Pollution Control Board.

AGENCIES, GROUPS AND PERSONS CONSULTED

U. S. Department of the Interior - National Park Service
U. S. Army Corps of Engineers - San Francisco District
California Department of Fish and Game
California Department of Public Health
California Department of Water Resources
California Small Craft Harbors Commission
California Division of Beaches and Parks
Marin County Board of Supervisors
Marin County Health Department
Marin County Division of Parks and Recreation
Marin County Planning Commission
Bolin's Beach Public Utility District
Bolin's Public Utility District
Stinson Beach County Water District
Bolin's Harbor District
Bolin's Progressive Club
Stinson Beach Progressive Club
Dr. Knox Finley
William Kent Estates
Marin County Audubon Society
National Audubon Society
Stinson Beach Water Company