WATER QUALITY CONTROL PLAN
(Interim)

NORTH COASTAL
Basin 1-B

JUNE 1971

STATE
WATER RESOURCES
CONTROL BOARD

STATE OF CALIFORNIA

THE RESOURCES AGENCY

STATE WATER RESOURCES CONTROL BOARD

INTERIM

WATER QUALITY CONTROL PLAN

for the

NORTH COASTAL BASIN

JUNE 1971

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

NORTH COAST REGION
2200 County Center Drive, Suite F
Santa Rosa, California 95401

George A. Dinsmore, Chairman, Eureka
Bert L. Smith, Vice-Chairman, Santa Rosa

Members

Harry Crebbin, Yreka
James B. Keegan, Santa Rosa
Bradford W. Lundborg, M.D., Santa Rosa
David L. Nichols, Santa Rosa
Willard E. Pratt, Arcata
Edmund H. Smith, Ph.D., Sebastopol
Andrew W. McBride, Ferndale

David C. Joseph, Ph.D.
Executive Officer

FOREWORD

This report contains the Interim Water Quality Control Plan for the North Coastal Basin to satisfy federal and state requirements for construction grant programs. The plan also complies with the Porter-Cologne Water Quality Control Act requirements for water quality control plans.

The Interim Plan will serve as a guide for water quality management and for waste treatment plant construction in the next two years, until completion of comprehensive basin and regional plans which are now under preparation. This plan has been adopted by the Regional Water Quality Control Board, North Coast Region, and approved by the State Water Resources Control Board. It supersedes all previous water quality control plans adopted by this Regional Board.

TABLE OF CONTENTS

FIGURES

TABLES

CHAPTER I

INTRODUCTION

Until recently it was assumed that wastes could be discharged to the environment in great quantities without adversely affecting aquatic resources. Waste discharges were evaluated in the traditional sense; that is, with major consideration given to oxygen depletion, gross toxicity, and bacteriological quality measured against a presumed assimilative capacity of receiving waters and a tolerable degree of water quality degradation. Requirements for waste discharges were based almost exclusively upon protection of the benefits that man could derive from the direct and consumptive uses of the waters.

Recent advances in technology and science show that certain constituents of wastes can result in far reaching adverse effects upon aquatic environments and man's beneficial uses of his environment. Certain substances in concentrations previously considered inconsequential to man do, in fact, greatly reduce his ability to realize benefits from aquatic resources. This is notably true for persistent toxicants that concentrate in food webs and eventually enter man's diet with potentially debilitating results. Already many species of aquatic animals and plants have been harmed, some of them seriously by the discharge of certain known toxic substances and, presumably, many other unidentified toxic substances into the aquatic environments. Many factions are indifferent to these losses and believe them to be inconsequential unless man is directly affected. Others want only the level of control that will assure sustained commercial exploitation of water resources. Still others, in daily increasing numbers, are demanding total protection of aquatic environments regardless of man's uses of these resources.

While California is endowed with more water of good quality than many areas of the nation, the compounded effects of increased use of water and increasing volume and strength of municipal and industrial wastes have degraded and threatened water quality in many areas of the State. Inadequately treated municipal wastes are discharged to freshwater streams above domestic water intakes, residential and recreational developments have degraded mountain lakes and streams by siltation and inadequate sewage disposal systems, industrial wastes have toxified certain estuaries to levels that are harmful to aquatic organisms, and beaches have been closed to recreation due to bacteriological contamination from domestic waste discharges. Many past efforts to protect and manage California's waters have averted catastrophes and abuses. Frequently, however, they have lacked general applicability and force. These circumstances, coupled with the conflicting social attitudes previously cited, virtually demand a water quality control and water resource management policy that equates to water conservation: wise use, reasoned management, and adequate protection of water and water resources to insure their preservation for the beneficial uses and enjoyment of present and future generations of the people.

As technology advances and societal needs increase, new benefits of aquatic resources will materialize. Aquatic resources must be managed to provide sustained yields while recognizing the dependence of man on the environment in which he must continue to live. Basin plans must be sufficiently restrictive to assure protection while being sufficiently flexible to adjust to new knowledge, capabilities, and needs. Basin planning further must be cognizant of the costs of wastewater management and the reciprocal compensations of water reclamation.

Clearly, there is growing public awareness of the precarious state of man's global environment. The once predominant indifference to environmental deterioration is yielding to an appreciation of the environment as an indispensable, but threatened and destructible life requirement that needs conservation. Water quality control and management policy must acknowledge this developing environmental ethic. Accordingly, the policy set forth here will embody sound principles of water conservation.

The creation of the State Water Resources Control Board in 1967, and the adoption of the Porter-Cologne Water Quality Control Act in 1970, recognized the need for a long-range, balanced plan for water quality management that will anticipate man's potential needs and technological abilities. This plan is a major step toward fulfilling this responsibility.

CHAPTER II

SCOPE

This Interim Water Quality Control Plan was prepared by the staff of the California Regional Water Quality Control Board, North Coast Region, with statewide guidance from the State Water Resources Control Board and its staff. Technical assistance from the State Departments of Fish and Game, Public Health and Water Resources is gratefully acknowledged.

Limitations of time did not allow detailed planning studies to be performed for this report but fortunately considerable technical data was available as a result of past and on-going State and local planning efforts. Specifically, the Board drew liberally from the concepts of the Yoder Plan for the Santa Rosa plains and from the recently completed Mid-Humboldt County Urban Planning Program conducted by Baruth and Yoder. Using these data, provisional plans have been derived for the interim period until completion of fully developed basin plans in July, 1973.

The overall objective of the interim water quality control plan for this basin is to set forth a definitive program of action designed to preserve and enhance water quality and protect beneficial water uses in a manner which will result in maximum social and economic benefits to the people of the state.

The beneficial uses to be protected for the various streams and water bodies are listed in Chapter IV. The regional policy guidelines used as a guide in preparing water quality objectives and sewerage plans are the subject of Chapter V.

To protect the beneficial uses of the streams and water bodies of this basin, certain water quality objectives were formulated and are presented in Chapter VI. Waste discharge prohibitions are also included in this report. These prohibitions provide the legal basis for enforcement action which may be necessary to meet water quality objectives and protect the beneficial uses.

The actual sewerage plans formulated to meet both local and regional needs for water quality improvement are presented in Chapter VII. These plans are not intended to serve as the final word on future sewage plans but will serve to allow planning and construction to continue under the guidance of a basin-wide plan.

As part of the program to monitor water quality conditions and to enforce waste discharge prohibitions each regional board has embarked upon a surveillance program which is described in this report.

An important portion of the basin plan will be the yearly project list of needed sewerage projects for each of the succeeding five fiscal years. In the future, prior to January 31st of each year the State Water Resources Control Board in conjunction with the Regional Board will update the area list and extend it for the succeeding 5-year period. Projects will be scheduled according to the following criteria:

Lists of proposed projects which are in accordance with basin-wide plans and are thus eligible for state and federal grants-in-aid are appended to this report along with a summary of comments received during hearings held on the report and proposed plan.

It should be restated that the dates – subsequent to 1971-72 – in the project lists are subject to change after further study. Consequently failure of a community to comply with those dates will not necessarily constitute a violation of waste discharge requirements.

CHAPTER III

BASIN DESCRIPTION [1/]

The North Coastal Basin as shown in Figure 1 includes all tidal waters and coastal streams draining to the Pacific Ocean from the Humboldt-Del Norte County line in the north to the watersheds draining to Stemple Creek and the Estero de San Antonio in Marin and Sonoma Counties.

Topography

The area is extremely mountainous and contained within the northern coast ranges. The area consists mostly of ridges and peaks cut by deeply incised stream valleys. With the exception of the Russian River and the coastal streams, river courses generally run west-of-north along the structural valleys, except for short reaches which cut across the grain. The Russian River flows in a southeasterly direction from its origin north of Ukiah to near Santa Rosa where the stream turns and flows in a westerly direction to the Pacific Ocean. The valley lands within the Russian River drainage constitute the broadest expanse of flat land in the North Coast planning area. The Mendocino Coast streams are small streams flowing in a westerly direction through steep canyons to the ocean.

Climate

Climate in the planning area varies with the distance from the Pacific Ocean and differences in elevation. The area lying along the coast has moderate temperatures, influenced largely by the ocean. Temperatures often exceed 105 degrees Fahrenheit in the inland valleys during the summer months while coastal temperatures remain around 60 degrees Fahrenheit.

Precipitation in the planning area has a much more clearly defined regional character than the temperature. Winter storms moving in from the ocean must rise to clear the mountains; the result is heavy precipitation on the western slopes of the mountain ranges. Average annual rainfall varies from 30 inches in the vicinity of Santa Rosa and Tomales Bay to 120 inches in the highest elevations of the Mattole River drainage. Snow falls in moderate amounts above 2,000 feet, but only at altitudes above 4,000 feet does snow remain on the ground for appreciable periods of time. Approximately 90 percent of the rainfall in the planning area occurs during the six-month period of December through May.

Geology

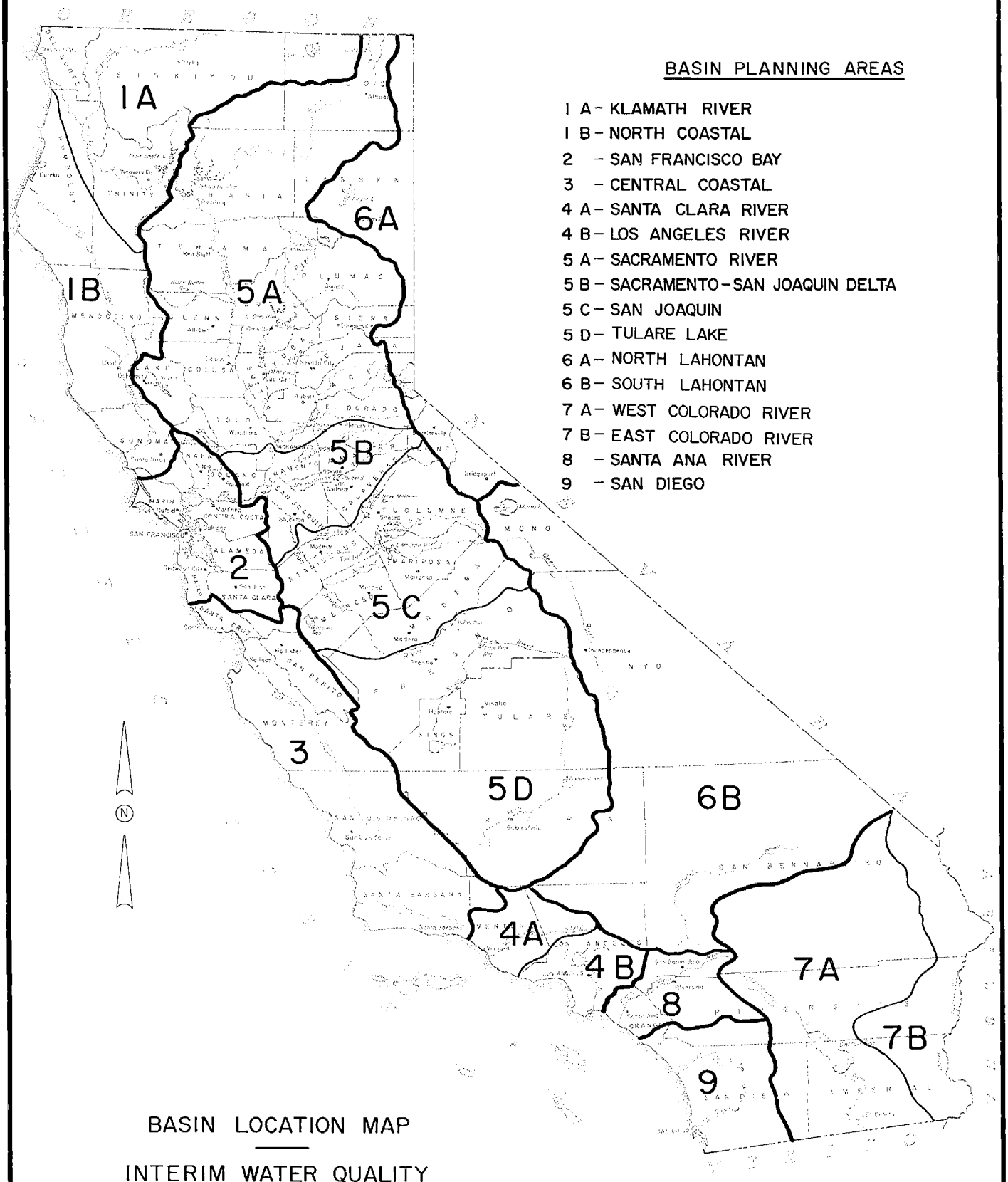
With the exception of the Russian River, streams in the North Coastal planning area drain an area characterized by elongated, northwest-trending ridges and valleys which are controlled by the underlying geologic structures of the Northern Coast Ranges. The drainage pattern is markedly trellis; that is, the major streams are parallel to the structural grain of the area. Zones of weakness, such as faults or crushed zones, are commonly important factors in the development of major drainage channels.

Landsliding is widespread throughout the Northern Coast Ranges. The terrain, underlain by severely folded, faulted, and crushed rock, has developed a distinct type of landsliding; i.e., the earthflow type. The depth of an earthflow slide is generally quite shallow as compared to its areal extent, and resistant knobs of in-place bedrock commonly protrude through the slide debris. Large scale sliding is well illustrated along the Eel River Canyon.

Within the Northern Coast Ranges are several ground water basins. These basins have been created through the filling-in of structural depressions with alluvial and lacustrine deposits. Most notable among these basins are Little Lake Valley, Laytonville Valley, Round Valley, Eel River Valley, Mad River Valley, a portion of Smith River Plains, and the valleys adjacent to the Russian River.

[1/] Numerical Data derived from Department of Water Resources Bulletin #160-70

FIGURE 1. BASIN LOCATION MAP



BASIN LOCATION MAP

INTERIM WATER QUALITY CONTROL PLAN CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD 1971

Drainage

The mountainous terrain and heavy rainfall in the North Coast planning area have resulted in the formation of a complex stream system. There are a great number of individual drainage basins, including three basins with over 1,500,000 acre-feet of annual runoff. The total mean annual natural runoff for the entire area is about 13,937,000 acre-feet.

Although the Eel and Mad Rivers do have some contribution from snowmelt, the stream system is fed primarily by rainfall and consequently the runoff follows a seasonal pattern. In many years, runoff from even the major rivers dissipates rapidly during the late spring and summer. Some of the rivers are little more than a series of pools in the late summer.

Population

Like so many other areas of the State the first impetus toward settlement was related to the discovery and search for gold. Similarly, other activities grew from these initial settlements, the most prominent being agriculture, lumbering and sawmills. Centers of activity grew with the area's development and remain prominent today. Humboldt Bay is the principal center for industry, trade, and commerce in the northern part of the basin; the southern portion is anchored by the Santa Rosa-Ukiah complex and to a lesser extent Willits.

Present and expected future population in the North Coastal Basin is shown in Table 1. As can be seen by examining the data in Table 1, the North Coastal Basin is expected to increase in population from 286,000 in 1970 to 471,000 in 2000. Both the present and future population accounts for approximately one percent of the total state population.

Table 1

Population Projections
North Coastal Basin
(1000's)

County [1/]	1970	1975	1980	1990	2000
Humboldt	95	99	103	114	129
Lake	–	–	–	–	1
Mendocino	51	52	54	59	64
Sonoma	140	166	199	234	276
Trinity	–	1	1	1	1
Totals	286	318	349	408	471

[1/] Includes only that portion of County within North Coastal Planning Basin

Employment

Future growth in the North Coast, generally, will be limited by the development of its natural resource-based industries. This is especially true in the northern half where lumbering and pulp and paper are so important. At the present time two pulp plants exist in the vicinity of Eureka producing about 1,000 tons of pulp per day and employing about 500 employees. It is estimated that the North Coastal area plus adjacent lands have the capacity to produce 2,900 tons of pulp per day, all but 800 tons of which will be in the Humboldt Bay region. This increase in capacity will help offset expected reductions in employment in other aspects of the lumber and timber industries. The situation in the southern half of the basin

is somewhat different in that it is much closer to the San Francisco Bay area and is apt to experience some of the pressures and "spill" from that region. In general, and this is true for the entire North Coastal planning area, the most significant increases in employment are likely in government, trade and related service industries.

A summary of present and projected employment of the basin is shown in Table 2.

Table 2

Present and Projected Employment
North Coastal Basin
(1000's)

	1970	1975	1980	1990	2000
Agriculture, Forestry & Fishery	16.3	17.4	18.5	17.5	16.6
Mining	0.5	0.5	0.5	0.5	0.5
Construction	5.3	6.0	6.4	7.3	8.3
Manufacturing					
Food and Kindred Products	3.2	3.3	3.4	4.1	4.7
Textile Mill Products	0.1	0.1	0.1	0.1	0.1
Chemical and Allied Products	0.4	0.4	0.7	0.7	0.7
Paper and Allied Products	1.8	2.6	3.2	3.6	4.0
Petroleum Refining	0.3	0.3	0.3	0.3	0.2
Primary Metals	0.7	0.8	0.9	1.0	1.2
Other Manufacturing	22.3	25.7	28.8	35.0	41.8
Total Manufacturing	28.8	33.2	37.4	44.8	52.7
Armed Forces	1.6	1.6	1.6	1.6	1.6
Other	61.5	70.3	77.6	93.3	100.3
Total Employed	114.0	129.0	142.0	165.0	190.0

Land Use

The North Coastal area is endowed with a plentiful water supply, but due to other factors such as isolation, climate and time of occurrence of runoff only a moderate increase is expected in irrigated acreage and urban development. As shown in Table 3, the irrigated acreage is projected to increase by 20,000 acres, from 70,000 in 1970 to 90,000 by the year 2000. The urban area in this time period will increase by 30,000 acres, from 70,000 to 100,000.

Table 3

Present and Projected Land Use
North Coastal Basin
(1000 Acres)

	1970	1975	1980	1990	2000
Urban Land					
Residential	48	48	56	62	69
Commercial	9	9	10	12	13
Industrial	13	13	14	16	18
Total Urban Land	70	70	80	90	100
Irrigated Land	70	70	80	80	90
Remaining Irrigable Land	470	470	450	450	430
Other Land Suitable for Urban Development	80	80	80	70	70
Remaining Land	4850	4850	4850	4850	4850
Total Area	5540	5540	5540	5540	5540

Waste Disposal

Present waste disposal sites in the North Coastal Basin are shown in Figure 2. Included in Figure 2 are industrial and municipal waste dischargers. The code numbers shown in Figure 2 are identified in Table 4.

Table 4

Explanation of Code Numbers
Used on Figure 2

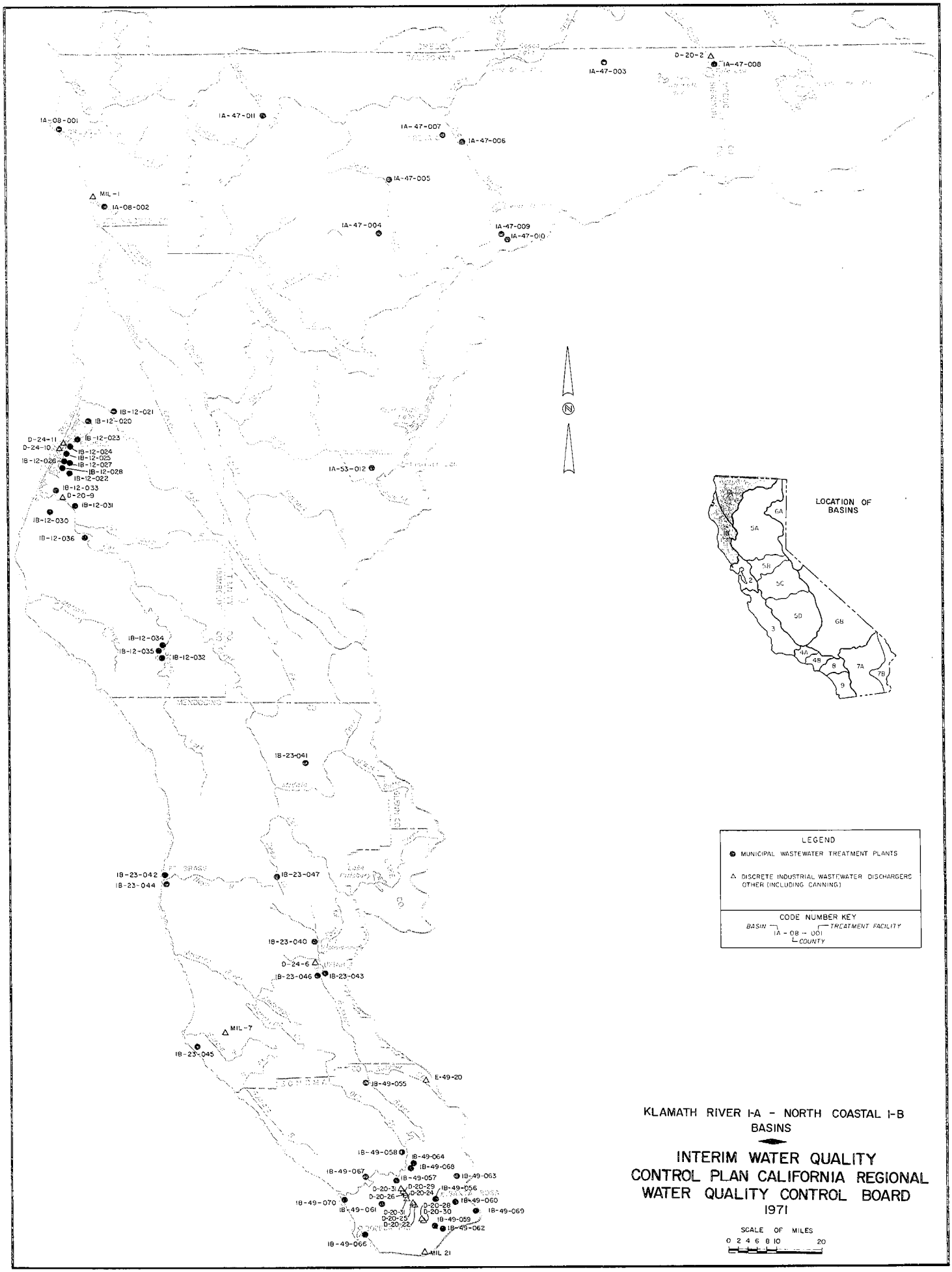
Code Number	Waste Discharger
1B-12-020	City of Arcata
1B-12-021	City of Blue Lake
1B-12-022	College of the Redwoods
1B-12-023	City of Eureka - Hill Street Plant
1B-12-024	City of Eureka - Murray Street Plant
1B-12-025	City of Eureka - McCullens Street Plant
1B-12-026	King Salmon County Sanitation District
1B-12-027	Seaview Manor County Sanitation District
1B-12-028	South Bay County Sanitation District
1B-12-030	City of Ferndale
1B-12-031	City of Fortuna
1B-12-032	Garberville Sanitary District
1B-12-033	Loleta Sanitary District
1B-12-034	North Coast Conservation Center
1B-12-035	Redway Sanitary District
1B-12-036	City of Rio Dell
1B-23-040	Calpella County Water District
1B-23-041	Covelo Community Services District
1B-23-042	City of Fort Bragg
1B-23-043	Mendocino State Hospital

Table 4 (Continued)

1B-23-044	Noyo Harbor District
1B-23-045	City of Point Arena
1B-23-046	City of Ukiah
1B-23-047	City of Willits
1B-49-055	City of Cloverdale
1B-49-056	City of Santa Rosa - College Avenue Plant
1B-49-057	Forestville County Sanitation District
1B-49-058	City of Healdsburg
1B-49-059	City of Santa Rosa - Laguna Plant
1B-49-060	City of Santa Rosa - Oakmont Plant
1B-49-061	Occidental County Sanitation District
1B-49-062	City of Rohnert Park
1B-49-063	Stewards Training and Recreation, Inc.
1B-49-064	Windsor County Water District
1B-49-066	Bodega Bay Public Utility District
1B-49-067	Russian River County Sanitation District
1B-49-068	Sonoma County Airport
1B-49-069	Los Guilucos School
1B-49-070	Jenner Bay County Sanitation District
D-20-9	Humboldt Creamery
D-24-6	Masonite Corporation
D-24-10	Crown Simpson Pulp Mill
D-24-11	Georgia-Pacific Pulp Mill
D-20-22	City of Sebastopol - Industrial Wastes
D-20-23	Manzana Products
D-20-24	James O'Connell Company
D-20-25	Sebastopol Cooperative Cannery #2 and #3
D-20-26	Hallberg Canning Corporation
D-20-28	Sebastopol Cooperative Cannery #4
D-20-29	Sebastopol Cooperative Cannery #5
D-20-30	Vacu-Dry Company
D-20-31	Hunt-Wesson Foods, Inc.
MIL-7	Point Arena Air Force Station
MIL-21	Two Rock Ranch Station

FIGURE 2. MUNICIPAL AND INDUSTRIAL WASTE DISCHARGERS
NORTH COASTAL BASIN

FIGURE 2



CHAPTER IV

BENEFICIAL USES TO BE PROTECTED

The logical sequence of steps leading to a comprehensive water quality control plan must begin with a statement of the Basin's beneficial water uses which are to be protected.

Obvious and important consumptive uses of fresh waters in the Basin include municipal, domestic, agricultural, and industrial water supply with the most intensive development of facilities on the Russian and Mad Rivers. While extensive, these developments have tapped only a small fraction of the Basin's developable fresh water supplies. The Eel, for example, with monumental volumes of winter run-off remains virtually undeveloped. Protection of water supplies for potential consumptive use both within the Basin and in other parts of the State must be a matter of serious concern.

Non-consumptive beneficial uses of Basin waters, both fresh and marine, include preservation and enhancement of fish, aquatic life and wildlife; sport and commercial fishing and shellfishing; hunting; water contact recreation; boating; aesthetic enjoyment, scientific study; the support of marinas, small boat harbors, navigation and marine commerce. These non-consumptive uses, enjoyed to a large extent by tourists from outside the Basin, are growing at a rapid rate.

The occurrence and location of these beneficial uses throughout the principal waters of the basin is summarized in Table 5. While some of the uses may become more important (e.g., sport fishing and recreation) as our population increases, it is not believed that the list as a whole will change in the foreseeable future.

Definitions and abbreviations of terms found in Table 5 are as follows:

- Municipal and Domestic Supply (MUN) – includes usual community use and individual use for domestic purposes.
- Agricultural Supply (AGR) – includes crop, orchard, and pasture irrigation, stock watering, and all uses in support of farming and ranching operations.
- Industrial Supply (IND) – includes mining, cooling water, process water, etc.
- Commercial Fishing (COM)
- Shellfish Harvesting (SHEL)
- Scientific Study, Research, Training, and Marine Life Refuge (SCI)
- Esthetic Enjoyment (AES)
- Hydroelectric Power Generation (POW)
- Freshwater Habitat (FRSH) – provides freshwater habitat for fish, waterfowl, and wildlife
- Marine Habitat (MAR) – provides habitat for fish, plant, and animal propagation and sustenance, shrimp, crab, and other shellfish, waterfowl and other water-associated birds plus mammal rookery and hauling grounds
- Ground Water Recharge (GRW) – recharge for eventual extraction for municipal, industrial, agricultural, and recreational use.
- Fish Spawning (SPWN) – provides high quality aquatic habitat especially suitable for fish spawning

- Fish Migration (MIGR) – migration route for anadromous species

- Water-Contact Recreation (REC1) – all recreation uses involving actual body contact with water such as swimming, wading, and water sports including water skiing, skindiving, surfing, and sport fishing

- Non-Water-Contact Recreation (REC2) – recreational uses which involve the presence of water but do not require contact with water such as picnicking, sunbathing, hiking, beachcombing, tidepool and marine life study, camping, pleasure boating, and waterfowl hunting

- Navigation (NAV)

TABLE 5

BENEFICIAL USES OF THE NORTH COASTAL BASIN

	MUN	AGR	IND	COM	SHEL	SCI	AES	POW	FRSH	MAR	GRW	SPAWN	MIGR	REC1	REC2	NAV
REDWOOD CREEK			X			X	X		X			X	X	X	X	
MAD RIVER	X	X	X			X	X	X [1/]	X			X	X	X	X	
HUMBOLDT BAY			X	X	X	X	X			X		X	X	X	X	X
EEL RIVER	X	X	X			X	X	X [1/]	X		X	X	X	X	X	X
VAN DUZEN RIVER	X	X	X			X	X		X			X	X	X	X	
BEAR RIVER		X	X			X	X		X			X	X	X	X	
MATTOLE RIVER	X	X	X			X	X		X			X	X	X	X	
TEN MILE RIVER		X	X			X	X		X			X	X	X	X	X
NOYO RIVER	X	X	X			X	X		X			X	X	X	X	X
BIG RIVER			X			X	X		X			X	X	X	X	
NAVARRO RIVER		X	X			X	X		X			X	X	X	X	X
GARCIA RIVER		X	X			X	X		X			X	X	X	X	
GUALALA RIVER			X			X	X		X			X	X	X	X	
RUSSIAN RIVER	X	X	X			X	X	X	X		X	X	X	X	X	X
COASTAL WATERS			X	X	X	X	X			X		X	X	X	X	X

[1/] Proposed

CHAPTER V

POLICY GUIDELINES

Within the past two years Californians – as never before – have expressed their desire for a far-sighted water quality management program; and, of most significance, have demonstrated their willingness to pay their share for public facilities that will make that program a reality.

In 1969, the Porter-Cologne Water Quality Control Act received the almost-unheard-of unanimous endorsement of the California State Legislature. A year later over 70% of the voters of California approved the Clean Water Bond Act of 1970 to provide $250 million of matching State funds to augment existing Federal Grant programs.

While California has reason to be proud of its water quality control accomplishments over the past 20 years, failure to recognize that Californians are demanding an even more aggressive and effective water quality control program now would be most unrealistic.

To support these expressions of legitimate public concern, the California Regional Water Quality Control Board, North Coast Region, declares that:

1. Further degradation of the quality of ground or surface waters in the North Coastal Basin is neither warranted nor acceptable.

2. All existing waste discharge and water quality problems will be resolved at the earliest practicable date with emphasis on restoring appropriate protection to all beneficial uses in accordance with basin plans.

GOALS

In developing this Basin Plan, the California Regional Water Quality Control Board, North Coast Region recognizes the following **waste water management goals:**

1. Protection and enhancement of all waters, surface and underground, fresh and saline, for all present and anticipated beneficial uses including esthetics and aquatic environmental values.

2. Maintenance and/or enhancement of the quality of all surface waters to permit maximum recreational use.

3. Development, insofar as practical, of combined wastewater treatment facilities so as to avoid duplication of effort and inefficient operations.

4. Management of municipal and industrial waste water as part of an integrated system of fresh water supplies to achieve maximum use of fresh waters through waste water reclamation and recycling by agriculture, industry and municipalities.

5. Continual improvement of waste water treatment systems to assure consistent high quality effluents at minimum cost.

MANAGEMENT GUIDELINES

Accordingly, in order to achieve these five goals and implement the Basin Plan herein set forth, the California Regional Water Quality Control Board, North Coast Region has adopted the following **land and water use management guidelines:**

1. All water quality management systems throughout the basin shall be designed to promote waste water reclamation.

2. Plans shall direct that wherever practical waste treatment facilities be consolidated. The consolidated systems shall be sized and located to assure efficient management of wastes and to meet potential demands for reclaimed water.

3. Insofar as they affect water quality, land use practices shall be controlled to assure protection of beneficial water uses.

4. Industrial and municipal discharges shall contain essentially none of the following:

   A. Chlorinated hydrocarbons

   B. Toxic substances

   C. Harmful substances that may concentrate in food webs

   D. Excessive heat

   E. Radioactive substances

   F. Grease, oil, and phenolic substances

   G. Excessively acidic or basic compounds

   H. Heavy metals such as lead, copper, zinc, chromium, mercury, etc., and their compounds

   I. Other known deleterious substances

5. Applicants for State and Federal grants for construction of waste treatment facilities shall be required to submit proof of implementation of adequate source control of the constituents listed above in paragraph 4.

6. The board shall prohibit waste discharges into areas which are found to possess unique or uncommon cultural, scenic, esthetic, historical, ecological or scientific values.

7. Wastes discharged to surface waters shall contain no materials in concentrations which are hazardous to plant, animal, or aquatic life, or which may become detrimental as a result of their accumulation in the environment or the food webs.

8. Waste of quality suitable for disposal in tidal waters shall be discharged through diffusion systems designed to rapidly disperse waste constituents so as to assure protection of all beneficial uses, and to prevent the return of wastes in recognizable form to inshore areas.

9. Waste waters percolated into ground waters shall be of such quality at the point where they enter the ground that the continued usability of all ground waters in the basin is assured.

10. The Regional Board shall encourage and promote a positive program of research into improved waste treatment and management methods and systems with the objective of developing more effective means of resolving waste problems common in the North Coastal Basin.

CHAPTER VI

WATER QUALITY OBJECTIVES AND DISCHARGE PROHIBITIONS

WATER QUALITY OBJECTIVES

In 1967, water quality objectives for Humboldt Bay and all tidal waters in the North Coastal Basin were adopted by this Regional Board as part of the program to develop water quality control policy for California's interstate waters.

The objectives stated below supersede those adopted in 1967. While slight, there are some differences between the water quality objectives in this Basin plan as compared to those in the earlier policy documents on Humboldt Bay and coastal waters.

Specifically, color and odor limitations are now included; turbidity and toxicity limitations have been reworded and clarified; limitations on bottom deposits, pesticides, biostimulants, and floatables, oil and grease have been reworded; and temperature objectives have been reworded to reflect adopted State Policy. The water quality objectives for the North Coastal Basin are as follows:

INSOFAR AS THEY MAY BE INFLUENCED BY WASTE DISCHARGES, BY WASTES ORIGINATING FROM LAND MANAGEMENT OR CULTURAL PRACTICES OR FROM OTHER HUMAN ACTIVITIES, THE NORTH COASTAL BASIN WATERS SHALL MEET THE FOLLOWING OBJECTIVES:

Color:

The color of the waters of the North Coastal Basin shall not be significantly increased above naturally occurring background levels.

Turbidity:

The turbidity of the waters of the North Coastal Basin shall not be increased more than 20 percent above naturally occurring background levels.

Bottom Deposits:

There shall be no bottom deposits other than of natural causes in the waters of the North Coastal Basin.

Floatables, Oil and Grease:

There shall be no visible evidence of any floatable material or oil and grease other than of natural causes in the waters of the North Coastal Basin.

Odors:

There shall be no odors other than of natural causes in the waters of the North Coastal Basin.

Pesticides:

The waters of the North Coastal Basin shall not contain concentrations of individual pesticides or combinations of pesticides known to be deleterious to fish or wildlife.

Biostimulants:

No substance which promotes aquatic growths in the receiving waters to the extent that such growths cause nuisance or damage any beneficial use shall be discharged to the waters of the North Coastal Basin.

Bacteriological:

The bacteriological quality of the waters of the North Coastal Basin shall be maintained at levels deemed appropriate by State and local health authorities to protect the public health and to assure their continued suitability for all present and foreseeable future beneficial uses.

In addition, all wastes otherwise suitable for disposal into North Coastal Basin waters shall be disinfected to meet the following limitations in terms of median most probable number of coliform organisms:

1. Humboldt Bay – prior to January 1, 1976: 70 per 100 ml;

2. Coastal Waters: 540 per 100 ml; and

3. Mad, Eel, and Russian Rivers: 50 per 100 ml.

Toxicity:

No toxic substance which will produce deleterious effects upon the aquatic biota or which would render aquatic life undesirable for human consumption shall be discharged to the waters of the North Coastal Basin.

Radionuclides:

Levels of radioactivity shall not exceed limits prescribed by provisions of Chapter 5, Title 17, of the California Administrative Code.

Temperature:

The temperature of the waters of the North Coastal Basin shall conform to those objectives as set forth by the State Water Resources Control Board in its "Policy Regarding the Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California".

In addition to the aforementioned general water quality objectives, the waters of the North Coastal Basin shall be maintained within the naturally occurring baseline numerical limits contained in Table 6.

WASTE DISCHARGE PROHIBITIONS

Section 13243 of the Porter-Cologne Water Quality Control Act authorizes the Regional Board – in a water quality control plan or in waste discharge requirements – to "specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted".

While not stated in the law, this Board believes that appropriate situations for waste discharge prohibitions fall generally into two categories:

1. The first are those situations where experience, judgment and knowledge of treatment reliability indicate a strong probability that water quality objectives cannot or will not be continuously met. **As proposed for this Basin,** such situations have two additional characteristics in common:

TABLE 6
WATER QUALITY OBJECTIVES
For The
NORTH COASTAL BASIN [4/]

	Specific Conductance (micromhos)		Total Dissolved Solids (mg/1)		Dissolved Oxygen (mg/1)		Phosphate (mg/1)	Nitrate (mg/1)	Hydrogen Ion (pH) [3/]	
	Max	Med	Max	Med	Min	Med	Median	Median	Min	Max
Redwood Creek	220	125	115	75	7.0	10.0	0.05	0.1	6.5	8.5
Mad River	300	150	160	90	7.0	10.0	0.05	0.4	6.5	8.5
Eel River	375	225	275	140	7.0	10.0	0.10	0.4	6.5	8.5
Van Duzen River	375	175	200	100	7.0	10.0	0.05	0.3	6.5	8.5
South Fork Eel River	350	200	200	120	7.0	10.0	0.10	0.2	6.5	8.5
Middle Fork Eel River	450	200	230	130	7.0	10.0	0.10	0.2	6.5	8.5
Outlet Creek	400	200	230	125	7.0	10.0	0.05	0.3	6.5	8.5
Bear River	390	255	240	150	7.0	10.0	0.05	0.2	6.5	8.5
Mattole River	300	170	170	105	7.0	10.0	0.05	0.2	6.5	8.5
Noyo River	185	150	120	105	7.0	10.0	0.05	0.2	6.5	8.5
Big River	300	195	190	130	7.0	10.0	0.10	0.2	6.5	8.5
Navarro River	285	250	170	150	7.0	10.0	0.10	0.2	6.5	8.5
Gualala River	–	–	–	–	7.0	10.0	0.10	0.2	6.5	8.5
Garcia River	–	–	–	–	7.0	10.0	0.10	0.2	6.5	8.5
Russian River (upstream) [1/]	320	250	170	150	7.0	10.0	0.06	1.5	6.5	8.5
Russian River (downstream) [2/]	375	285	200	170	7.0	10.0	0.40	2.0	6.5	8.5
Humboldt Bay	–	–	–	–	6.0	7.0	–	–	(3)	8.5
Coastal Waters	–	–	–	–	–	–	–	–	(3)	8.5

[1/] Russian River (upstream) refers to the mainstem river upstream of its confluence with Laguna de Santa Rosa.
[2/] Russian River (downstream) refers to mainstem river downstream of its confluence with Laguna de Santa Rosa.
[3/] pH shall not be depressed below natural background levels.
[4/] Numerical values shown in the Table are based on data collected over many years through a cooperative monitoring program conducted by the California Department of Water Resources and the U. S. Geological Survey.

First, failure to meet objectives would threaten very significant beneficial uses; and

Second, the terms of the prohibition are currently being met by all or a majority of potential dischargers or can be met by all with methods that are available under the current "state of the art."

Under the above criteria and definitions and in order to achieve water quality objectives, protect present and future beneficial water uses, protect public health, and prevent nuisance the California Regional Water Quality Control Board, North Coast Region, declares that waste discharges are prohibited in the following locations within the North Coastal Basin:

A. All Surface fresh water impoundments and their tributaries;

B. Water contact recreation areas;

C. The Mad, Eel, and Russian Rivers (excluding the Laguna de Santa Rosa) during the period May 15 through September 30 and all other periods when the receiving stream's flow is less than 100 times greater than the waste flow. (See p. 24 re: Laguna de Santa Rosa).

2. The second general category of situations that this Board believes warrant discharge prohibition are those where the proposed receiving water or its beneficial uses have unique or exceptional cultural, esthetic, historical, scientific or ecological values. The public's need and concern for these values is so important that no risk of degradation from wastes should be accepted. **As proposed for this Basin,** such areas share two other common characteristics:

First, with virtually no exception, there are no wastes now being discharged to these areas nor is there any forseeable future necessity for such discharges; and

Second, those very few discharges still entering such areas will be in compliance with the prohibition in the very near future and the terms of the prohibition can – in all foreseeable instances – be met with methods available under the current "state of the art."

Under the above criteria and definitions and in order to preserve unique cultural, esthetic, historical, scientific or ecological values of areas within the Basin, the California Regional Water Quality Control Board, North Coast Region, declares that waste discharges are prohibited in the following locations:

A. All coastal streams and natural drainage ways that flow directly to the ocean.

B. All intertidal reaches of the coast, bays, and estuaries;

C. All other tidal waters unless it is demonstrated on the basis of waste characteristics, degree and reliability of treatment, location of discharge, rate of mixing and dilution, and other technical factors that water quality objectives will be met and all beneficial uses will be protected.

As further implementation of this plan to meet water quality objectives and protect beneficial uses, the following conditions are imposed with respect to solid wastes, vessel wastes, and individual sewage disposal systems:

A. **Solid Wastes**

a. No Class I solid waste material shall be discharged at any location other than a Class I solid waste disposal site.

b. No Class II solid waste material shall be discharged at any location other than a Class I or II solid waste disposal site.

c. No Class III solid waste material shall be discharged at any location other than a Class I, II, or III solid waste disposal site.

B. **Vessel Wastes**

The discharge of vessel wastes including sewage, trash, rubbish, grease, oil, galley waste, shower waste, and all other waste substances is prohibited in all fresh waters, bays, estuaries, and nearshore tidal waters.

C. **Individual Sewage Disposal Systems**

a. Individual sewage disposal systems are prohibited at all locations not in conformance with those regulations contained in the "Uniform Plumbing Code" or local county ordinances, whichever is the more restrictive. (See Rational, Appendix D.)

b. The Board prohibits individual sewage disposal systems in all new subdivisions until such time as the developer demonstrates to the satisfaction of the Board that the geologic and hydrologic conditions are such that the quality of the underlying groundwater or adjoining surface water will not be impaired and that the proposed lot size provides sufficient space to permit additional leach lines to be constructed on the lot should it become necessary.

CONSIDERATION OF OTHER PROHIBITIONS

Based on data presented in the Mid-Humboldt County Urban Planning Program by Baruth-Yoder and Associates, it appears to the Regional Board staff that protection of the beneficial uses of Humboldt Bay waters justifies removal of all wastes from the Bay by 1976. (See Rationale, Appendix D.) The implications of this relatively early date continue to be a matter of serious concern to local government. However, by July 1. 1973, with completion of the "Comprehensive Plan", additional data will be available and the Board and local interests will be in a better position to resolve the matter of prohibiting waste discharges to Humboldt Bay.

CHAPTER VII

PROGRAM OF IMPLEMENTATION

An important portion of any basin-wide plan is its program of implementation. Of equal importance, however, is its acceptance by the public. Therefore, the Board has relied upon local planning efforts – where available – in developing its conceptual plans. The following pages contain a facilities plan for water quality control as well as a statement of the Board's intent with respect to surveillance.

FACILITIES PLAN FOR WATER QUALITY CONTROL

In the development of an area-wide facilities plan for water quality control, the North Coastal Basin has been divided into the following subareas: the greater Humboldt Bay area, the Eel River drainage basin, the Russian River drainage basin including the Santa Rosa Plains, the Coastal streams, and tidal waters.

A summary of the facilities plans for these five subareas follows:

The Greater Humboldt Bay Area

The greater Humboldt Bay area includes Humboldt Bay and its tributary streams, the Mad River drainage basin, and the smaller coastal stream drainage basins from Trinidad south to Humboldt Bay. In broad terms the plan calls for the following:

1. The immediate prohibition of waste discharges to minor coastal streams. Until 1985, low volumes of well disinfected effluent may be discharged to the Mad River during periods of high flows.

2. The possible elimination of all waste discharges to Humboldt Bay by January 1, 1976. Final determination is to be made in the "Comprehensive Plan". To implement the elimination of waste discharges by 1976 would require adherence to the following schedule:

   A. Between 1972 and 1976, the conversion from treatment to pumping plants at Eureka's Hill Street and McCullen Street facilities as well as the College of the Redwoods facility, and the King Salmon, South Bay, and Seaview Manor County Sanitation Districts' facilities.

   B. Waste presently being treated at the plants which are to be phased out will be pumped to Eureka's Murray Street Plant for treatment on an interim basis.

   C. By 1976, effluent from Eureka's Murray Street Plant and Arcata's plant would be piped to the Samoa Peninsula for possible reclamation, land disposal, or ocean disposal.

   D. By 1985, construction of a consolidated treatment facility on the North Spit west of Arcata. This facility will treat all wastes generated in the basin.

3. Commencing immediately, serious study will be given in the "Comprehensive Plan" to the possibility and desirability of reuse of all treated, domestic wastewater by the Georgia-Pacific and Crown Simpson pulp mills.

In order to implement the basin-wide plan it appears most desirable to have a single governmental agency responsible for planning, financing, constructing, and operating all major transmission, treatment, and disposal facilities.

The facilities plan for the greater Humboldt Bay area is shown in Table 7. It should be noted that the facilities called for beyond 1973 are subject to change by the "Comprehensive Plan".

Eel River Drainage Basin

In broad terms the plan for the Eel River Drainage basin calls for the following:

1. The immediate prohibition of all waste discharges to surface streams during the period May 15 through September 30. The discharge of highly treated and disinfected waste water may be permitted during other periods, provided that the flow of the receiving stream exceeds 100 times that of the waste water flow.

2. The phasing out of the North Coast Conservation Center's facilities. Waste from the Conservation Center would be treated at the nearby Redway Sanitary District's facilities.

The facilities plan for the Eel River drainage basin is shown in Table 7.

Russian River Drainage Basin

The plan for the Russian River drainage basin calls for the following:

1. The immediate prohibition of all waste discharges to surface streams during the period May 15 through September 30 and all other periods when the receiving stream's flow is less than 100 times greater than the waste flow.

2. The Laguna de Santa Rosa will continue to receive very highly treated domestic waste for beneficial use on adjacent lands. However, by May 15, 1974 the flow of the Laguna to the Russian River shall be eliminated during the period May 15 through September 30 and all other periods when the Russian River's flow is less than 1000 cfs.

3. By May 15, 1974 the development of facilities and operating procedures to implement item #2 above.

4. By 1972, diversion of all excess dry weather flows from the City of Santa Rosa's College Avenue Plant to its Laguna plant.

5. By 1973, enlargement of the City of Santa Rosa's Laguna Wastewater Treatment Plant which will ultimately treat the waste from Rohnert Park, Cotati, Sebastopol, and most of the Santa Rosa area.

6. By 1985, construction of a consolidated facility which will treat wastes from the Healdsburg, Windsor, and Northern Santa Rosa areas.

In order to implement this plan it appears essential that one governmental agency manage the water resources of the Laguna de Santa Rosa. This agency would be responsible for planning, financing, constructing, and operating the Laguna control works and also would be responsible for coordinating the water use activities of landowners adjacent to the Laguna who will be using the majority of Laguna water for irrigation.

The facilities plan for the Russian River drainage basin is shown in Table 7. It should be noted that the facilities called for beyond 1973 are subject to change by the "Comprehensive Plan".

Coastal Streams

The plan for the coastal streams within the North Coastal Basin calls for the following:

1. The immediate prohibition of all waste discharges to coastal streams and natural drainage ways.

2. All waste generated in these areas shall be reclaimed for beneficial use.

Tidal Waters

For purposes of this plan, tidal waters include all coastal ocean waters, bays, and estuaries upstream to the inland limit of tidal action. (Humboldt Bay waters are covered on page 23 of this plan.)

Broadly, the plan for the North Coastal basin tidal waters calls for the following:

1. The prohibition of waste discharges to areas which are found to possess unique or uncommon cultural, esthetic, historical, scientific, or ecological values.

2. The prohibition of waste discharges to all intertidal reaches of the coast, bays, and estuaries.

3. The prohibition of waste discharges to all other tidal waters unless it is demonstrated to the satisfaction of this Board that water quality objectives will be met and all beneficial uses will be protected.

4. The submission of an environmental impact study on all existing waste discharges by July 1, 1972.

The facilities plan for tidal waters is shown in Table 7.

TABLE 7
FACILITIES PLAN
INTERIM WATER QUALITY CONTROL PLAN
NORTH COASTAL BASIN
GREATER HUMBOLDT BAY AREA

Facility	Facilities Plan	Start Construction	Reclamation Potential
City of Eureka – Hill Street Plant	Phase out plant and divert all flow to the City's Murray Street Plant	1973-74 *	Possible reclamation and reuse at the pulp mills on the North Spit
City of Eureka – McCullen Street Plant	Phase out Plant and divert all flow to the City's Murray Street Plant	1972-73	
City of Eureka – Murray Street Plant	Eliminate discharge to Humboldt Bay and transport all effluent to the proposed regional plant site on the North Spit for ultimate disposal	1974-75 *	
City of Arcata	Eliminate discharge to Humboldt Bay and transport all effluent to the proposed regional plant site on the North Spit for ultimate disposal	1974-75 *	
King Salmon County Sanitation District	Abandon plant and divert all flow to the City of Eureka's Murray Street Plant	1973-74 *	
Seaview Manor County Sanitation District	Abandon plant and divert all flow to the City of Eureka's Murray Street Plant	1973-74 *	
South Bay County Sanitation District	Abandon plant and divert all flow to the City of Eureka's Murray Street Plant	1973-74 *	
College of the Redwoods	Abandon plant and divert all flow to the City of Eureka's Murray Street Plant	1973-74 *	

* actual date to be determined in "Fully Developed Plan"

TABLE 7
FACILITIES PLAN
INTERIM BASIN WATER QUALITY CONTROL PLAN
NORTH COASTAL BASIN
EEL RIVER DRAINAGE

Facility	Facilities Plan	Start Construction	Reclamation Potential
City of Willits	Enlarge present facility to maintain all flow on land during the summer months and discharge to Outlet Creek during the winter	1972-73	None
Covelo Community Services District	Maintain present facility	--	Presently being used for irrigation by adjacent rancher
Garberville Sanitary District	Maintain present facility	--	None
Redway Sanitary District	Maintain present facility	--	Possible irrigation use on land adjacent to the plant
North Coast Conservation Center	Abandon present septic tank system and connect to the Redway Sanitary District facility	1971-72	--
Pacific Lumber Company at Scotia	Maintain present plant and construct irrigation system for summer disposal	1971-72	Irrigation on discharger's property
City of Rio Dell	Maintain present facility	--	None
City of Ferndale	Enlarge present facility to maintain flow on land during the summer months and discharge to Salt River during the winter	1971-72	Possible irrigation of pasture land adjacent to the plant
Loleta Sanitary District	Maintain present facility	--	Possible irrigation of pasture land adjacent to the plant
City of Fortuna	Increase effluent holding capacity	1972-73	None

TABLE 7
FACILITIES PLAN
INTERIM BASIN WATER QUALITY CONTROL PLAN
NORTH COASTAL BASIN
RUSSIAN RIVER DRAINAGE

Facility	Facilities Plan	Start Construction	Reclamation Potential
City of Healdsburg	Phase out present facility and pump all waste to the proposed Sonoma County Airport reclamation plant*	1985	Open space irrigation
Windsor County Water District	Phase out present facility and pump all waste to the proposed Sonoma County Airport reclamation plant*	1985	Open space irrigation
Sonoma County Airport	Construct new 10 mgd waste water reclamation plant in stages of 2.0 mgd*	1973-74 (phase I)	Open space irrigation
City of Santa Rosa – West College Plant	Divert all flows in excess of 5.0 mgd to the city's Laguna Plant	1971-72	Possible reuse by downstream landowners during the summer months
City of Santa Rosa – Oakmont Plant	Continue to reclaim all waste from the Oakmont service area for use on the Oakmont Golf Course	--	--
City of Santa Rosa – Laguna Plant	Expand the plant to 20 mgd capacity in two stages of 10 mgd	1972-73 (phase I)	Possible reuse by farmers adjacent to the Laguna de Santa Rosa
City of Sebastopol	Phase out present facility and pump all waste to the City of Santa Rosa's Laguna Plant	1972-73	This area has the potential to use 20 mgd during the summer season
City of Rohnert Park	Convert existing facility into a surge facility and pump all waste to the City of Santa Rosa's Laguna Plant	1974-75	

* Concept and timing subject to continuing study

TABLE 7

FACILITIES PLAN
INTERIM BASIN WATER QUALITY CONTROL PLAN
NORTH COASTAL BASIN
RUSSIAN RIVER DRAINAGE

Facility	Facilities Plan	Start Construction	Reclamation Potential
City of Cloverdale	Enlarge existing facility to maintain all waste on land during the summer months	Under construction	Possible irrigation use
City of Ukiah	Maintain all waste on land during the summer months and low flow periods	--	Possible irrigation of orchards
Forestville County Sanitation District	Maintain all waste on land during the summer months and low flow periods	--	Possible irrigation
Occidental County Sanitation District	Maintain all waste on land during the summer months and low flow periods	--	Irrigation of cemetery and fire protection
Calpella County Water District	Maintain all waste on land	--	--

TABLE 7
FACILITIES PLAN
INTERIM BASIN WATER QUALITY CONTROL PLAN
NORTH COASTAL BASIN
TIDAL WATERS

Facility	Facilities Plan	Start Construction	Reclamation Potential
Georgia-Pacific Pulp Mill	Provide treatment (color removal) and dispose of waste through a properly designed ocean outfall	1972-73	None
Crown Simpson Pulp Mill	Provide treatment (color removal) and dispose of waste through a properly designed ocean outfall	1972-73	None
Resort Improvement District #1 (Shelter Cove)	Maintain all waste on land	--	Irrigation of District owned land
Community of Westport	Provide secondary treatment and maintain all waste on land	1972-73	Open space irrigation
City of Fort Bragg	Provide secondary treatment and dispose of waste through a properly designed ocean outfall	Presently under construction	Possible reuse by Boise-Cascade
Noyo Harbor District	Abandon present facility and pump all waste to the City of Fort Bragg's facilities	Presently under construction	--
Community of Mendocino City	Provide secondary treatment and dispose of waste through a properly designed ocean outfall	1971-72	Possible irrigation of open space
Mendocino County Water Works District #2 (Anchor Bay)	Provide secondary treatment and maintain all waste on land	1972-73	Open space irrigation

PROJECT LISTS

In order to implement the aforementioned conceptual plan for water quality control the Regional Board has developed a yearly project list of needed sewerage projects for each of the succeeding five fiscal years. In the future, prior to January 31 of each year, the State Water Resources Control Board, in conjunction with the Regional Boards, will update the yearly list and extend it for the succeeding five-year period.

Projects will be scheduled according to the following criteria:

1. Those needed to correct an existing water quality or water pollution problem or to conform to an area-wide sewage collection plan will be scheduled at the earliest practicable date.

2. Projects affecting a common receiving water or that can be logically included in an area-wide or consolidated system will be scheduled as close together in time as water quality needs permit.

3. Treatment plants nearing flow or treatment design capacity will be scheduled so the expanded facilities will be available before a problem develops.

4. Water reclamation projects which beneficially improve water quality and which conserve water resources through feasible reuse will be scheduled as soon as practicable.

5. Not foregoing any of the above criteria, projects will be scheduled for a uniform level of construction for each fiscal year within the five-year period.

Following these criteria, project lists indicating those projects which will be considered for certification by the State Water Resources Control Board and the Environmental Protection Agency were prepared. They are included in this report as Appendix A.

SURVEILLANCE

Effective water quality management requires three categories of water quality monitoring. First, individual treatment plant monitoring is necessary to maintain optimum treatment efficiencies and compliance with waste discharge requirements. Plant effluent monitoring is also essential to assess the individual effects of each waste source on the waters into which it discharges. Second, the rivers, lakes, ground and coastal waters receiving wastes must be examined to assure attainment and maintenance of water quality levels consistent with state water quality criteria. Third, the effects on water quality of manipulating the state's waters through water resource development projects must be determined and evaluated. These three categories of monitoring will provide information necessary for efficient management of pollution control facilities and water resource development projects, and the effective administration of water quality criteria.

The objectives of a comprehensive surveillance or monitoring program for water quality management are to identify:

- Compliance and noncompliance with water quality criteria.
- Water quality baselines and trends.
- Improvements in water quality produced by abatement measures undertaken.
- Emerging water quality problems, in sufficient time to effect adequate preventive measures.

The State Water Resources Control Board and California Regional Water Quality Control Boards have an established program of surveillance based on discharger self-monitoring, regional board routine sampling and data acquisition from other state agencies.

Significant waste discharges and, in many cases, the attendant receiving waters are monitored by the discharger in compliance with waste discharge requirements adopted by the regional board. These data are supplemented by sampling conducted by the regional board staff and by special surveys conducted by other agencies at the Board's request.

The Department of Fish and Game conducts many special surveys of water quality and aquatic biota at specific locations for limited time periods.

The Department of Public Health requires public water suppliers to periodically report certain water quality parameters of importanc to public health and supplements this information with sampling and analyses by departmental staff. Special surveys of new water supply sources also yield considerable data.

The Department of Water Resources operates an extensive water quality monitoring program. The program includes, in general, monthly sampling of both surface and groundwaters. In addition, short-term studies yielding water quality data are made of specific areas. Additional data are acquired from local agencies and are available through Department of Water Resources.

In addition to the various state and local agencies, several federal agencies routinely collect water quality information within their respective areas of interest and conduct studies and investigations which yield water quality data. Particularly significant among these are the U. S. Geological Survey; Environmental Protection Agency, Water Quality Office; U. S. Bureau of Reclamation; and the U. S. Corps of Engineers.

The need for a comprehensive surveillance program encompassing the requirements of all state agencies has already been recognized by the State Board. A preliminary evaluation was presented in the February 1971 report, "Evaluation of Water Quality Monitoring Programs in California". The steps leading to a comprehensive program were described as:

1. Define objectives and scope.

2. Develop a data management system capable of handling the data and providing for evaluation of the program.

3. Evaluate existing monitoring against the program objectives.

4. Identify methods of sampling and analysis to include in the program.

5. Prepare and implement the detailed program.

The objectives of a comprehensive surveillance program for water quality management have been previously presented. The State Water Resources Control Board is currently preparing and implementing a data management system capable of satisfying the needs of the total statewide surveillance program. Detailed evaluations of water quality monitoring needs have been made for the Bay-Delta area ("An Environmental Monitoring Program for the Sacramento-San Joaquin Delta and Suisun Bay", State Water Resources Control Board Publication No. 40), and for pesticides monitoring throughout the state ("A Review of Pesticide Monitoring Programs in California", State Water Resources Control Board, February 1971). The utility of remote sensing has been studied ("Study to Evaluate the Utility of Aerial Surveillance Methods", State Water Resources Control Board Publication No. 21) and monitoring by satellite is being investigated through the Earth Resources Technology Satellite program.

As techniques appear practical, they are being tested in pilot programs. Two pilot programs will be in operation shortly after July 1, 1971. A low altitude aerial surveillance program will be conducted by board staff as a routine surveillance component. An intensive monitoring of hazardous materials will be conducted in the Monterey Bay drainage area to determine the most effective approach to a full statewide operation.

These surveillance planning and development activities are proceeding on a schedule which will complement and support the fully developed water quality management plans.

APPENDIX A

PROJECT LISTS

Basic to the implementation of this interim plan are lists of municipal and industrial projects proposed for construction. These are presented on the following pages.

On April 1, 1971, the California State Water Resources Control Board adopted regulations for administering the joint federal-state grant program for construction of wastewater treatment projects. These regulations (Subchapter 7, commencing with Section 2100 of Chapter 3, Title 23, California Administrative Code) were adopted to implement the Clean Water Bond Law of 1970 (Water Code, Division 7, Chapter 13) and Section 8 of the Federal Water Pollution Control Act. Federal regulations (18 CFR 601.32) state that no federal grant shall be made unless a project is included in "an effective current basinwide plan for pollution abatement consistent with applicable water quality standards". Sections 2120 and 2121 of the aforementioned State regulations cover establishment and scheduling of municipal projects.

The Municipal Project List is a list of municipal wastewater treatment projects by fiscal year that contains the name of the project, a brief description, estimate of project cost, and project group. A project must be on the list to be considered for certification by the State Water Resources Control Board to the Environmental Protection Agency.[1/] In addition, each construction grant application will undergo a thorough evaluation by the Regional and State Board staffs as required by Section 2140 through 2149 of the State regulations. **Therefore, it should be absolutely clear that inclusion of a project on the project list does not mean that it is approved for grant participation but merely that it will be considered for grant participation.**

Corresponding Industrial Project Lists are also presented. Grants are not available for projects on the Industrial Project List. The projects listed, however, are necessary to assure basinwide improvement in water quality and the regional water quality control board will take the necessary action to insure conformance.

[1/] As eligible for federal grant participation.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
BASIN 1–B NORTH COASTAL BASIN
MUNICIPAL PROJECT LIST

Responsible Agency	Project Group	Description of Project	Estimated Eligible Cost
		1971-72	
Bodega Bay Public Utility District	I	New plant and interceptor	$ 400,000.00
Ferndale, City of	I	Plant expansion	100,000.00
California Department of Mental Hygiene Mendocino State Hospital	I	Chlorination facilities	25,000.00
California Department of Corrections North Coast Conservation Center	I	Class A interceptor	65,000.00
Westport County Water District	I	New plant and interceptor	150,000.00
Mendocino, City Community Services District	I	New plant and interceptor	250,000.00
California Department of Parks and Recreation McKerricher State Park	I	Interceptor	197,000.00
California Department of Parks and Recreation Van Damme State Park	I	New plant	43,600.00
Sebastopol, City of	I	Chlorination facilities	70,000.00
Sebastopol, City of	I	Industrial waste treatment facilities	178,560.00
		1972-73	
Russian River County Sanitation District	I	New plant and interceptors	1,300,000.00

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
BASIN 1–B NORTH COASTAL BASIN
MUNICIPAL PROJECT LIST

Responsible Agency	Project Group	Description of Project	Estimated Eligible Cost
		1972-73 (Continued)	
City of Willits	I	Plant expansion	X
Mendocino County Water Works District #2	I	Plant expansion	$ 100,000.00
City of Eureka	I	Interceptor	790,000.00
Laguna Wastewater Treatment Plant City of Santa Rosa	I	Plant expansion	3,915,000.00
Llano Road Interceptor Joint	I	Interceptor	1,165,000.00
City of Fortuna	I	Increased Holding Capacity	X
Laytonville County Water District	I	New plant and interceptor	125,000.00
		1973-74	
Sonoma County Airport County of Sonoma	I	Plant expansion plus interceptors	3,800,000.00
Graton – County of Sonoma	I	Plant expansion plus interceptors	1,500,000.00
College of the Redwoods	I	Interceptor	412,500.00
City of Eureka	I	Interceptor	1,500,000.00
City of Eureka	I	Outfall	7,012,500.00

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
BASIN 1–B NORTH COASTAL BASIN
MUNICIPAL PROJECT LIST

Responsible Agency	Project Group	Description of Project	Estimated Eligible Cost
		1974-75	
Rohnert Park Trunk City of Rohnert Park	I	Interceptor	$1,500,000.00
City of Arcata	I	Outfall	1,437,500.00
City of Eureka and City of Arcata Joint Outfall	I	Outfall	7,687,500.00

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

BASIN 1-B NORTH COASTAL BASIN
INDUSTRIAL PROJECT LIST

Responsible Agency	Description of Project	Estimated Eligible Cost
	1971-72	
Georgia-Pacific Corporation	Log deck sprinkling system (hydraulic debarker reuse)	---
Pacific Lumber Company	Effluent irrigation system	---
	1972-73	
Crown Simpson Pulp Company	Color removal (bleached kraft pulp mill effluent)	--
Georgia-Pacific Pulp Company	Color removal (bleached kraft pulp mill effluent)	---

APPENDIX B

COMMENTS AND RECOMMENDATIONS RECEIVED AT PUBLIC HEARINGS ON NORTH COAST PLAN, May 11, 1971, Eureka May 13, 1971, Santa Rosa

	Comments and Recommendations
1. Edward Dermott Attorney Representing Russian River Property Owners	Septic tank regulations on p. 14 would pre-empt local ordinances which in Sonoma County have adequate safeguards. No known problems in the area. The 100 foot setback for leach lines would preclude use of Russian River front properties. No limitation should exceed 50 feet. Further restrictions appropriate, such as, 1) require sewer hookup when available, 2) require appropriate percolation tests on individual lots.
2. Donald D. Moore, Jr. Sonoma County Board of Realtors	If vast parcels of property rendered unusable along Russian River, Brush Creek, Petaluma River, and Santa Rosa Creek will result in enormous economic loss and hardship.
3. Ferrel H. Ensign Engineer, Development & Resources Corp.	Points out that, with respect to vessel wastes, federal standards will pre-empt state and local regulations.
4. Jacob H. Miller Chairman, Water Resources Subcommittee Sierra Club	Strongly commends Board and staff. Believes prohibitions and time schedules are reasonable and in some respects should be strengthened.
5. Broy Riha City Engineer Santa Rosa	Basic agreement with plan for Santa Rosa Plains but believes time schedule may be unrealistic from political and economic standpoint. Rejects as arbitrary the plan's limit of 5 mgd at College Plant. Agrees to 10 mgd enlargement at Llano Road if others participate financially.
6. Larry F. Walker Baruth & Yoder Engineers and Planners	For Humboldt Bay area B&Y plan and Board plan are in close conformance. Differ primarily in timing. B&Y calls for elimination of Humboldt Bay discharges by 1985, Board plan calls for 1976. Based on model studies, no technical justification for removal prior to 1985. Existing plants, with some improvements for wet weather flow treatment, can continue to operate safely. County concerned with ability to finance 21 million in improvements over next five years. Larger population base available to finance improvements in 15 years. Blue Lake and Fieldbrook will not be able to confine summer flows to land. Request continuation of summer flow with 100:1 dilution. Also request nearshore or even inland stream discharges for Trinidad and Moonstone since offshore system would be prohibitively expensive.
7. Kennedy Engineers San Francisco	In general concur with plan and goals and requirements on p. 7 (except for requirement #7). Strongly disagree with philosophy and application of "prohibitions" on p. 9. Limitations should only be in terms of quality needed and required treatment necessary to achieve quality. Appropriately enforced waste discharge requirements are the answer rather than arbitrary prohibition.

8. City of Sebastopol Mel Davis	Does not disagree with plan but points up difficulty of legal and fiscal hurdles in their dealings with Santa Rosa and Sonoma County and their connection to Llano Road plant.
9. Lucille Vinyard Redwood Chapter Sierra Club	Commends Board for plan, agrees with 1976 deadline for Humboldt Bay, calls for greater surveillance in Humboldt Bay and urges greater emphasis on principle of recycling.
10. Don Peterson Chairman Humboldt County Board of Supervisors	Plan compatible with policies of Board of Supervisors. Regional Board to be commended but unrealistic time given to those affected for adequate evaluation. Plan underestimates or makes light of moneys needed for completion. Standards are very serious and proposal alone will have major impact on Humboldt Bay in future. Requirements on p. 7 and 8 except for #7 which needs further precise definition of "Objectionable colors, tastes, or odors" prohibited in nearshore discharges needs more precise definition. Objects to waste prohibitions that are arbitrary without reference to quality. Would re-evaluate Class I disposal site definition since all of County underlain with usable ground water. Would change individual disposal system criteria to indicate that systems **are permitted** if it can be demonstrated that system will work satisfactorily. Disagrees with most restrictive nature of temperature standards. Takes strong exception to 1976 deadline for Humboldt Bay prohibition and indicates that Mid-Humboldt Bay study call for 1985 deadline at the earliest and Board staff has not utilized that information. Strongly doubts that Eel, Mad, and Russian River summer prohibitions can be met by holding waste on land. In closing states that County is in basic agreement with objectives and pledges help. However, believes time schedules and standards must be re-evaluated.
11. City of Eureka City Council Resolution 6183 May 18, 1971	Generally concurs with goals of the plan and vitally concerned with water quality of Humboldt Bay. Mid-Humboldt County waste water plan not complete and no opportunity to determine relationship between that plan and Board's plan. Implementation will require public support and time. Requests that Board re-evaluate time table and other aspects of plan in consultation with various agencies of Mid-Humboldt County. If plan adopted prior to July 1, 1971 the Board is requested to provide for further revisions as result of consultation with the Mid-Humboldt County local agencies.
12. City Manager G. M. Wood City of Arcata	Has long recognized the need for basin wide approach to manage wastes and has joined with Mid-Humboldt Bay study group to develop plans. In March, 1971, city spent 1.5 million on trunk line and treatment plant modifications to meet state standards. Yoder model studies indicate Arcata can discharge "intermittently into Bay until 1985". Possible by that time ocean discharges may be unacceptable and should be further studied over next 5 to 10 years. Major problem and costs are collection systems and Arcata requests legislation be sought to make **additional funds available for such works.**
13. Dave Stang Watershed Branch Chief, Six Rivers National Forest	Forest Service in basic agreement with objectives and goals of the plan. Wants clarification of waste discharge as relates to prohibitions; i.e., does discharge prohibition relate to **direct** discharges rather than **indirect**? Does reference to Mad, Eel, and Russian Rivers refer to tributaries as well as main stems?
14. R. J. O'Brien Regional Manager Department of Fish and Game, Redding	Objects to discharge prohibition as it may relate to fish hatcheries. With proper treatment hatchery discharge will not exert adverse effect on receiving waters. Department wants objective of 9 ppm dissolved oxygen in salmon spawning areas during spawning season.

15. Humboldt Bay Municipal Water District, Fred W. Slack, Secretary	While District has a number of areas of concern in the Plan's concepts, statement limited to comment on HBMWD as the potential agency to implement the Bay Plan. District Directors held special meeting on May 7 and took action to state their position; i.e., does not oppose concept of District assuming authority but feels such action should be directed by vote of people. Also, points out that District does not encompass same geographical area as North Coastal Basin.
16. Fred W. Slack Chairman, Policy Committee of the Mid-County Urban Planning Program	Commends Board for their concern and agrees with objectives. Describes $400,000 Mid-County Study and recognizes similarity between the two plans except for timing schedules. Timing schedule calling for 1976 removal of waste from Humboldt Bay cannot be met financially or politically. Neither is it necessary since Mid-County plan, with overly-optimistic growth figures show a 1985 date. Septic tank prohibitions overly harsh. Area has been moving in an orderly and realistic way to solve problems and the timing and other elements of the conceptual plan should not be imposed.
17. Robert Clawson Acting Northern District Engineer Department of Water Resources	Commends the Board for the plan. Generally concurs with goals and management requirements. Suggests cannot make it mandatory to consolidate facilities unless it is practical, points out difficulty of interpreting unique areas for prohibitions and would permit discharge after evaluation. Believe prohibitions on Mad, Eel, Russian and coastal streams are too restrictive and will hurt industry and agriculture. Should relate only to domestic wastes.
18. Charles Johnson Manager, Humboldt County Community Services District	Points out concern of District with extreme costs of implementing the plan. Doubts validity of 1985 prohibition, much less one for 1976 since population projections appear much too optimistic. Greatly concerned with intent and impact of septic tank prohibitions. Favors concepts of the plan but time limits and costs are totally unrealistic.
19. Herman Bistrin City Councilman City of Fortuna	City of Fortuna long concerned with water pollution and has continually upgraded treatment facilities without pressure from Regional Board. City objects to short time available for review of plan. Objects to prohibition against summer discharges to Eel, on grounds impossible to retain such quantities of effluent on land. No such all encompassing plan should be adopted until it's proven that present practices are degrading the Eel and other rivers. Fortuna will continue to meet their obligations but the standards must be practical.
20. John L. Yarnall President Humboldt Bay Ecological Society	Supports the plan and makes following comments: Concept of recycling is essential and should reduce demand for development of new water sources. Predicts many requests for deviation from time schedules. Requests that such requests be granted only when **no** further degradation results. Necessary implementing facilities should have minimal environmental impact. Consideration should be given to providing sewer service to Jacoby Creek, Elk River, and Freshwater Creek areas.
21. Mrs. William Hilfiker and Mrs. Ralph Kraus, League of Women Voters, Eureka	Commends Board for plan and especially endorses concept of water reuse. Endorses goal of waste prohibition to Bay by 1976 and points up present degradation of beneficial uses due to pollution. Urge implementation as soon as possible and enforcement of existing code in the interim.
22. Robert H. Weiss Ph.D., Bayside	Supports both the generalities and specifics of the plan. Time schedules not impossible nor unrealistic in view of nature of crisis. Points up past and recent problems and suggests that correction would not have occurred if not demanded by the Board. Points out that major public works would be of great economic value to the area.

23.	Paul Golis Rohnert Park Realty	Does not agree with concept that Rohnert Park should join City of Santa Rosa in Llano Road treatment plant.
24.	Chris Harper Contractor Guerneville	Strongly objects to proposed 100 foot setback of septic systems from streams.
25.	Jack W. Wright Realtor Guernewood Park	A 50 foot setback for septic tanks is adequate and standard throughout the country. To change the limit to 100 feet would amount to inverse condemnation of properties valued at between 4 and 5 million dollars. Since all river water chlorinated, sanitation or protection of health is not valid reason. Inundation no problem due to great dilution during winter floods. Sonoma County health standards are adequate.
26.	Willard Greenwald Regional Manager Department of Fish and Game,San Francisco	Urges greater emphasis on restricting discharge of substances that accumulate in the food chain. Especially, commend the Board for its proposed waste discharge prohibitions.
27.	Michael D. Powers President Monte Rio Chamber of Commerce	Very concerned over the economic hardship that would result from increasing septic tank set back from present 50 feet to 100 feet from stream. No evidence of pollution under present standards.
28.	Winzler and Kelly Consulting Engineers, Eureka	Comments prepared in capacity as engineers for various Districts within the affected North Coast and Klamath Basins: With respect to beneficial uses, Redwood Creek has domestic supply potential, Mad River has hydroelectric potential, all rivers have "other" use for drainage including treated sewage. Questions extent to which plan will control land use. Should be better definitions of harmful substances, excessive heat, specific toxic levels of various metals, "unique" areas. Asks if secondary effluent acceptable for percolation. Questions 1976 Bay discharge prohibition, does not believe Redwood college waste is detrimental to White Slough. Believes summer discharge restrictions on Mad, Eel, or Russian Rivers, regardless of treatment, will close down towns and industry unless it is made clear that they may percolate waste into gravels. A requirement allowing no measurable change as result of discharge is neither realistic nor necessary. Solid waste disposal site restrictions would eliminate desirable use of sewage sludge as fertilizer. Clarification needed in septic tank proposals. More guidelines needed with respect to Board's intentions re: land use practices. Temperature restrictions would prevent all discharges no matter how well treated. Believes coliform standards can be met but more studies needed on necessary limits for other sewage constituents. With regard to Humboldt Bay conceptual plan: public will not accept 1976 deadline. Blue Lake would be immediately precluded from Mad River discharge, College of Redwoods should not go to Eureka where lesser treatment available, either outfall or acceptance by pulp mill needed when Eureka first transports wastes to Samoa Peninsula. Suggests that if Redway receives Conservation Center sewage, **all** funds to operate enlarged facilities must come from the state. More careful study needed on future course of action for Blue Lake, Glendale-Fieldbrook, McKinleyville, Hoopa, Willow Creek, etc. Ferndale facilities not now designed for land disposal. Agree to need for long range planning, but should recognize implications of unimpeachable plan that would completely restrict further growth on North Coast.
29.	Gordon Miller Chief Engineer Sonoma County Water Agency	From standpoint of use, Russian River most important stream in Basin. Management goals should be return of stream to its pristine state with elimination of all waste discharges. Waste flow should be limited to 1% of tributary flow rather than waste flow. Should be no difference in quality

29.	Contd.	objectives upstream or downstream of Laguna. Supports stronger septic tank regulations. Water Agency does not have sufficient authority or funds to assume responsibility of waste management system in the Laguna. Does not believe plan is sufficiently restrictive and more emphasis should be directed toward protection of direct consumptive uses.
30.	Ben Cummings President Izaak Walton League, Redwood Empire Chapter	Commends Board and staff for Plan. Believe plan is in range of today's technology and should be aggressively adopted and implemented. Need for controls has long been recognized. Suggests "casual human consumption" as beneficial use of all fresh waters. (Includes very long series of helpful, very specific, recommended clarifications and changes.)
31.	NENCO-Neighborhood Environment Corps, Sebastopol Mrs. Helen Libeu Mrs. Charlene Stone	Strongly supports the Board and its plan. Suggests a separation of immediate goals from long range plan so that public will be encouraged by rapid and tangible accomplishments. Urges quick and serious enforcement of pollution laws against timber operators in violation. Urges **enhancement** of Laguna and Russian River water quality. For ease of enforcement standards should be numerical whenever possible. Raises questions on algae growth potential, need for reclaimed water in Laguna, enforcement of standards for land use practices, "impact studies", etc.
32.	League of Women Voters, Santa Rosa	Strongly supports fundamental goals of the plan and looks forward to truly coordinated effort at implementation. Believe that determination of unique areas be made by more representative group involving more public at large.
33.	Russian River Recreation and Park District Phil Guidotti, Chairman	Effluent should be used for irrigation whenever and wherever possible. Septic tank setback of 100 feet is too restrictive and unnecessary. Recommend 50 rather than 100 feet.
34.	Jenner Coastside Conservation Council, Mrs.Virginia Hechtman, Director	Commends the staff and Board for the plan. Recommends: only waters of recyclable quality be allowed into the Russian River; stricter controls on gravel operations; no discharge to the ocean on the North Coast; 1976 is too late for prohibitions – should be 1973. Can no longer support the myth that growth equals progress.
35.	Don Head Director of Public Works, Sonoma County Sanitation Department	Questions wisdom of consolidation of Healdsburg and Windsor sewage flows with new county facility near airport if land disposal is required. Smaller plants may be more feasible. If irrigation of effluent to be required, PL 660 should allow purchase of land.
36.	Howard McDowell Tech. Supt. Georgia Pacific Corp., Samoa Paper Division	Company supports objectives of plan. Questions the basis for proposing no further discharges to Humboldt Bay. Believes recommendation based only on economics and not on water quality protection. Does not believe company has esthetic problem relative to color of pulp mill effluent and requests elimination of the requirement. Inclusion of restrictions of settleable solids in effluent would pose impossible problem since water supply can contain 500-600 tons of silt per day. Plan was prepared too hastily and recommend adequate time for further study.
37.	D. M. Harrison General Manager, Masonite Corp.	Intends to comply fully with revised in both spirit and letter. Ukiah plant is old and will require considerable engineering and modification. Will work closely with Board staff to develop meaningful schedule to comply with proposed regulations.
38.	R. L. Holtzer, M.D. Health Officer Mendocino County	Approves of move toward increased treatment, reclamation, and decreased direct discharges. Agrees fully with goals and objectives and would also urge development of devices which result in lower volumes of waste.

38.	Contd.	Raises a number of excellent technical questions. Questions the rationale and inconsistencies in temperature regulations. Generally approves conceptual plan but questions wisdom of abandoning some of existing plants.
39.	Edwin Langhart City Administrator, Healdsburg	City has recently completed new facilities and will be studying effects and possibilities of retaining all effluent on land. Requests consideration-after thorough analysis – be given to use of waste water for irrigation in local area rather than transport to central county facility.
40.	Ralph Johanson President, Russian River Board of Realtors, Monte Rio	Proposed septic tank regulations are discriminatory and would create severe and undue hardship on numerous property owners. Strongly support suitable sanitary systems but transition must be made in equitable and non-discriminatory manner.
41.	Chas. Hinkle President, COAAST	Heartily concur with plan as both enlightened and practical. Would like more explicit definition of unique coastal areas. Still awaiting Board's action to declare entire coastline of California as "no discharge" area.
42.	Ernestine Smith Conservation Chairman, Madrone Audubon Society	Strongly support plan, urge adoption without weakening compromises.
43.	B. W. Shackleford Vice President, Planning and Research, PG&E	Seeks clarification on effect of Humboldt Bay prohibitions as regards PG&E power plant.
44.	John J. Gannon Bureau of Sanitary Engineering, State Department of Public Health	Report comprehensive and ambitious. Review Garcia and Gualala Rivers re: domestic use; insert additional references for protection of shellfish and water contact uses; should consider McKinleyville as well as Arcata in conceptual plans; should define "deep area" for waste dispersion.
45.	Peter Callinan City Manager, Rohnert Park	Rohnert Park has long planned connection to Santa Rosa's Llano Road Plant and is not requesting that negotiations be entered into with Santa Rosa to develop terms for connection.
46.	E. F. Sullivan Asst. Reg. Director, U. S. Department of Interior, Bureau of Reclamation	Supports concept of basin wide plan. Suggests beneficial use be expanded to indicate commercial fish values for those salmon streams which contribute to commercial fish stocks. Concerned with turbidity standards insofar as they may affect possibility of short term turbidity in connection with dam construction and reservoir releases.

APPENDIX C

Glossary of Terms

As used in this plan:

1. "State Board" means the State Water Resources Control Board.*

2. "Regional Board" means the California Regional Water Quality Control Board, North Coast Region.*

3. "Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation or animal origin, or from any producing, manufacturing, or processing operation of whatever nature, including such waste placed within containers of whatever nature prior to, and for purposes of, disposal.

   Waste has also been interpreted by the Attorney General to include all of the following:

   A. Drainage from inoperative and abandoned mines.

   B. Drainage, flow or seepage containing debris or eroded earth from logging operations; waste materials in dumps; drainage from agricultural operations; liquids from a stratum intercepted by a well which flows through the well into another stratum.

   C. Discharge of water from a hydroelectric plant.

   D. Changes in the physical or chemical characteristics of receiving waters caused by extraction of sand, gravel or other materials from a stream bed.

   E. Waste from construction operations, dumped in waters of the state.*

4. "Waters of the state" means any water, surface or underground, including saline waters, within the boundaries of the state.*

5. "Water quality objectives" means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area.

6. "Water quality control" means the regulation of any activity or factor which may affect the quality of the waters of the state and includes the prevention and correction of water pollution and nuisance.*

7. "Water quality control plan" consists of a designation or establishment for the waters within a specified area of (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation needed for achieving water quality objectives.*

8. "Bays" mean indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works.

9. "Estuaries" mean waters at the mouths of streams which serve as mixing zones for fresh and ocean water during a major portion of the year. Mouths of streams which are temporarily separated from the ocean by sandbars shall be considered as estuaries.

10. "Tidal waters" mean all coastal ocean waters of California including bays and estuaries upstream to the inland limit of tidal action.

---

* As defined in Section 13050 of the Porter-Cologne Water Quality Control Act.

11. "Intertidal" means that area alternately covered by marine water at extreme high tide and exposed at extreme low tide.

12. "Fresh waters" mean all freshwater lakes and streams downstream to the limit of tidal action.

13. "Ground waters" mean all potentially usable subsurface waters that occur in and below the saturation zone.

14. "Biostimulants" mean substances which promote the growth and reproduction of aquatic organisms, including but not limited to nitrates, phosphates, vitamins, minerals, and other trace elements.

15. "Pesticides" mean substances or chemicals applied to kill or control pests including weeds, insects, algae, rodents, and other undesirable agents.

16. "Toxicity" (toxicant) means any substance which, when it contacts or enters the body of an organism, by its chemical activity kills, debilitates, or otherwise impairs the vital processes of the organism.

17. "Vessel" means watercraft or other contrivances used or capable of being used as a means of transportation or habitation on or in the waters of the state.

18. "Nearshore tidal waters" mean all tidal waters inland from the breaker line or otherwise sufficiently close to shore to that waste discharged from vessels reach shore in recognizable form or adversely affect any beneficial use.

APPENDIX D

Rationale for Waste Discharge Prohibitions

Individual Sewage Disposal Systems

This Board and virtually all responsible agencies, believe that connection to an adequate public sewerage system is the most satisfactory method of sewage disposal for the individual property owner. This is particularly true in areas likely to undergo significant urbanization or where there is any question as to the suitability of soil conditions and lot sizes to assure system reliability and to protect water quality and the public health.

However, the Board recognizes that connection to a public sewerage system is not always feasible – especially in the more remote parts of the Basin. Moreover, in instances where individual systems are properly engineered on adequately sized lots and where hydrological and geological conditions are suitable, there need be no adverse water quality problems.

In the broadest terms, a septic tank-leach field disposal system is considered satisfactory if it is located in an area not subject to unundation, the effluent is accepted by the soil without surfacing, and if there is sufficient distance and travel time between the system and any surface or ground water to prevent contamination or pollution.

Within the Basin, the regulation of individual sewage disposal systems is the responsibility of the County Health officer, and, as might be expected, there are some differences between individual County regulations. Table D-1 summarizes the present individual County regulations relating to required setback from streams.

The most generally accepted standards in this regard are those contained in the "Uniform Plumbing Code" of the International Association of Plumbing and Mechanical Officials. Those standards are included as the last line in Table D-1 and are recommended as minimum basin-wide, set-back standards.

Table D-1
Existing Set-Back Regulations Pertaining to Individual Disposal Systems

1971

	Required Setback from Streams Minimum Horizontal Distance		
	Septic Tanks	**Disposal Fields**	**Seepage Pits**
Humboldt County – Ordinance No. 324	100'*	100'*	100'*
Lake County – Ordinance No. 418	75'	75'	75'
Marin County – Ordinance No. 18.06	25'	100'	100'
Mendocino County	xxx	xxx	xxx
Sonoma County – Ordinance No. 798	50'	50'	100'
Trinity County – Ordinance No. 315	100'	100'	100'
UNIFORM PLUMBING CODE	50'	50'	100'

* when stream is otherwise suitable for a domestic water supply

* subject to case by case determination by County Health Department, but under no circumstances less than 25 feet

The Board commends those counties that have adopted ordinances equal to or more stringent than those contained in the Uniform Plumbing Code. In accordance with Section 13225(d) of the Porter-Cologne Water Quality Control Act the Board requests those counties to aggressively enforce their respective local ordinances.

Humboldt Bay Discharge Prohibitions

Presently, there are eight municipal waste discharges to Humboldt Bay: City of Arcata, City of Eureka's Hill Street, Murray Street, and McCullens Street Plants, King Salmon County Sanitation District, Seaview Manor County Sanitation District; South Bay County Sanitation District, and College of the Redwoods. These eight facilities presently discharge about 5 million gallons per day of treated waste. All these facilities are presently able to meet their waste discharge requirements during dry weather conditions. However, it is common practice during wet weather for a number of these facilities to bypass untreated or partially treated waste to the bay.

During the Mid-Humboldt County Planning Program study a mathematical model was developed for Humboldt Bay. The results of this model indicate that with the bypass of untreated waste for only a one-day duration, the coliform levels of sewage origin exceeded 70 per 100 ml (existing objective) throughout the entire bay. Clearly, it will be necessary to construct additional facilities to prevent untreated bypasses as well as fail-safe disinfection facilities at all existing plants if they are to continue to discharge to the bay in compliance with existing discharge requirement.

These model studies also indicated that a continuing Arcata discharge will seriously depress the dissolved oxygen concentration and increase toxicity in north Humboldt Bay. Toxicity will become a serious problem by 1975 unless modifications are made in method and timing of discharge.

In order to continue the discharges to Humboldt Bay, the Mid-Humboldt County Planning Program states that it would be necessary to provide the following:

1. For discharge to north Humboldt Bay, secondary treatment in conjunction with intermittent discharge (i.e., discharge only on outgoing tides) will be required from 1975 through 1985. Beyond 1985 it will be necessary to completely remove the Arcata discharge from the Bay.

2. For discharge to the central or south bay waters, secondary treatment will be required by 1975 with the exception that any existing primary treatment plant can continue in operation until it is necessary to expand at which time it will be necessary to provide secondary treatment.

3. In addition, it will be necessary for **all** plants to provide facilities that will prevent the bypassing of untreated or undisinfected waste to the bay under any condition. Thus, all treatment plants will need: (a) standby power available in the event of power failure; (b) standby equipment for critical processes whose failure would result in the bypassing of untreated or undisinfected waste; and (c) hydraulic capacity to take peak wet weather flows.

Based on the above, the Board's staff cannot reject the possibility that it may be necessary to prohibit all waste discharges to Humboldt Bay by January 1, 1976 in order to adequately protect the beneficial water uses. Implementation of such a prohibition would require staging of construction as indicated in Table D-2.

It should be pointed out that regardless of whether the fully developed plan supports a 1976 prohibition, both the Board staff and the Mid-Humboldt County Planning Program recommend elimination of Eureka's McCullens Street Plant by 1972, since that facility is now at capacity.

It should also be noted in Table D-2 that the total capital cost to eliminate all discharges to the Bay by January 1, 1976 would be $17,861,000 or about $5.70* per person annually if 80% State and Federal assistance is available. This cost might actually be considerable less if the City of Eureka could utilize one of the existing pulp mill outfalls and the City of Arcata utilize land disposal at the dunes. Certainly, the possibility of wastewater reclamation and reuse at the pulp mills should be thoroughly investigated.

*this value is based on 25-year financing at 6%

Table D-2
Staged Construction Program
Necessary to
Eliminate All Municipal Discharges
to
Humboldt Bay by 1976

Begin in Year	Description of Facilities	Cost in $1000's
1972	Eliminate Eureka's McCullen Street Plant – Connect to Murray Street Pump station – 2.7 mgd capacity	151
	2500' of 18" force main – 5.45 mgd capacity	66
	5000' of 24" gravity sewer – 5.45 mgd capacity	168
	engineering, contingencies, etc.	116
	total cost	501
1973	Eliminate Eureka's Hill Street Plant – Connect Murray Street Pump station – 8.3 mgd capacity	298
	4600' of 30" force main – 16.7 mgd capacity	201
	9200' of 33" gravity sewer – 16.7 mgd capacity	418
	engineering, contingencies, etc.	275
	total cost	1192
1973	Eliminate King Salmon, Seaview Manor, and South Bay County Sanitation Districts facilities plus College of the Redwoods facilities – Connect to Murray Street pump station – 3.5 mgd capacity	155
	10,500' of 21" gravity sewer – 5.1 mgd capacity	252
	6,000' of 21" gravity sewer – 5.1 mgd capacity	190
	Pump station – 5.9 mgd capacity	205
	5,000' of 21" force main – 6.7 mgd capacity	260
	4,000' of 30" gravity sewer – 9.6 mgd capacity	167
	Pump Station – 11.6 mgd capacity	290
	5,000' of 24" force main – 11.6 mgd capacity	185
	Pump Station – 13.5 mgd capacity	262
	2,500' of 24" force main – 13.5 mgd capacity	93
	5,000' of 33" gravity sewer – 13.5 mgd capacity	227
	engineering, contingencies, etc.	807
	total cost	3253
1974	Eliminate Eureka's Murray Street's discharge to the Bay	
	Pump Station – 56 mgd capacity	560
	3500' of 42" force main – 56 mgd capacity	1416
	Pump Station – 58.5 mgd capacity	665
	10,000' of 48" force main – 58.5 mgd capacity	720
	7,000' of 66" gravity sewer – 58.5 mgd capacity	720
	Pump Station – 61 mgd capacity	680
	15,000' of 48" force main – 61 mgd capacity	1080
	engineering, contingencies, etc.	2928
	total cost	8769

Table D-2 (continued)

1974	Eliminate Arcata's discharge to the Bay	
	Pump Station – 32 mgd capacity	417
	16,000' of 36" force main – 32 mgd capacity	840
	engineering, contingencies, etc.	419
	total cost	1676
1974	Construct combined Eureka-Arcata outfall	
	60" outfall to 2000' offshore – 122 mgd capacity	1855
	engineering, contingencies, etc.	615
	total cost	2470
	Total Cost to Eliminate all discharges to Bay	$17,861