

STATE CONTROL OF WATER POLLUTION: THE CALIFORNIA MODEL

I. A SURVEY OF WATER POLLUTION IN CALIFORNIA

California is currently faced with five main pollution problems:¹ pollution from agriculture, industry, domestic and municipal sewage, saltwater intrusion, and atomic waste.²

Agricultural pollution³ in California arises from four primary sources including salinity (or dissolved minerals), siltation, nutrients, and pesticides. Approximately two-thirds of the water applied to agriculture is consumed by evaporation and transpiration (a process technically referred to as "evapotranspiration"⁴). "As the irrigation waters are consumed in the process of 'evapotranspiration' only a small portion of the waters' mineral content [is] utilized by the plants. This results in a considerable concentration of dissolved mineral salts in the remaining water."⁵ In the Sacramento-San Joaquin Delta, for example, there is rarely, if ever, a water shortage; yet, primarily because of upstream agricultural use, the water often is of low quality.⁶ Since most of the water in this region consists of return flows from prior use, there is frequently a high concentration of dissolved salts, borons, and pesticides.⁷ The proposed San Luis Drain will compound problems in the Delta. The drain, designed to remove agricultural waste water from the San Joaquin Valley, has caused considerable public controversy because as yet there has been no concrete assurance that the plan will include a treatment facility.

¹ The classes designated do not include all the pollution problems in California. The major problems have been categorized to facilitate discussion.

² Sources of pollution such as natural siltation, natural organic wastes, and natural petroleum seepage have been intentionally excluded. These types of pollution problems are generally confined to finding a solution which is feasible from an engineering standpoint. They do not involve the political and economic factors associated with man-made pollution.

The ultimate effect of each pollutant within the designated classes will depend on many variables including "the nature of land and water use in the immediate area, the degree of treatment which may be in use, the variations in types of land and receiving waters, seasonal variations of flows, and many other factors." STATE OF CALIFORNIA, ASSEMBLY, REPORT OF THE INTERIM FACT-FINDING COMMITTEE ON WATER POLLUTION 30 (1949) [hereinafter cited as 1949 REPORT]; see J. MCKEE & H. WOLF, WATER QUALITY CRITERIA 9 (California State Water Quality Control Board Pub. No. 3-A, 1963) [hereinafter cited as MCKEE & WOLF].

³ For a full discussion of the problems of agricultural pollution, see page 116 *infra*.

⁴ UNIVERSITY OF CALIFORNIA, WATER RESOURCES CENTER, PROCEEDINGS: SYMPOSIUM ON AGRICULTURAL WASTE WATERS 1 (Report No. 10, 1966) [hereinafter cited as AGRICULTURAL WASTE WATERS]. "Evapotranspiration" is defined as "the quantity of water transpired by plants during their growth or retained in the plant tissue plus the moisture evaporated from the surface of the soil and vegetation, expressed in feet or inches of depth of water lost or used in a specified time." *Id.*

⁵ *Id.*

⁶ J. BAIN, R. CAVES & J. MARGOLIS, NORTHERN CALIFORNIA'S WATER INDUSTRY 521 (1966) [hereinafter cited as BAIN]. For a full discussion of the problems in the Delta, see page 209 *infra*.

⁷ See BAIN 171-72.

Without such a facility, the drain will discharge great quantities of dissolved minerals, organic nutrients, and pesticides that cannot be assimilated by the bay waters.⁸ Increased salinity in the Delta and elsewhere restricts further use of the water by agriculture and endangers marine life in the receiving waters.⁹

Siltation is caused primarily by erosion of agricultural lands through the misuse of land and water.¹⁰ The processes of erosion, resulting from the removal of vegetation from the topsoil, are accelerated by wildfires, soil removal, cropping practices, construction, urban development, and altered drainage patterns.¹¹

Fertilizers, containing concentrations of nutrients,¹² cause degradation of water quality through "eutrophication."¹³ This process is characterized by a "bloom" of biological productivity (mostly the growth of algae and bacteria) as a result of an increase in nitrogen phosphate.¹⁴ The fertilizers find their way into the waters either by runoff from neighboring agricultural land or from soil leachings.¹⁵

The agricultural pollutant receiving the most notoriety, however, has been pesticides. In 1964 approximately 13 million acres in California were treated with pesticides; 72 percent of this land was in the central and southern desert valleys.¹⁶ Pesticides may enter the water by direct application, by drifting in from adjacent areas, or by runoff from sprayed land.¹⁷ If highly poisonous or sufficiently concentrated, these chemicals threaten plants and wildlife in adjacent waterways with serious damage. Dramatic fish kills usually result from improper or illegal¹⁸ use of chemicals, although minor damage undoubtedly results even from the routine use of pesticides.¹⁹

⁸ *Hearings on Water Pollution—Central and Northern California Before a Subcomm. of the House Comm. on Government Operations, 90th Cong., 1st Sess. 112–13 (1967); see California Assembly Interim Comm. on Water, Subcomm. on Water Pollution, Reports, in 2 ASSEMBLY JOURNAL APPENDIX vol. 26, No. 11, at 13–18 (Reg. Sess. 1965).* For a full report of the Federal Water Pollution Control Administration's study of the drain, see SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMM., POLLUTION—WATER POLLUTION AND SAN FRANCISCO BAY 18–22 (1967) [hereinafter cited as S.F. BAY POLLUTION].

⁹ Recent studies have found, for example, that "the rising salinity and nutrient levels in Salton Sea would ultimately destroy the sea's valuable sport fishery." CALIFORNIA STATE WATER QUALITY CONTROL BOARD, FINAL REPORT: USEFUL WATERS FOR CALIFORNIA 62 (1967).

¹⁰ AGRICULTURAL WASTE WATERS 2.

¹¹ *Id.*

¹² *Id.* at 3, 15.

¹³ *Id.* at 3.

¹⁴ See *Hearings on Water Pollution—Central and Northern California, supra* note 8, at 53.

¹⁵ AGRICULTURAL WASTE WATERS 3.

¹⁶ *Id.* at 10.

¹⁷ *Id.* at 3.

¹⁸ The Director of Agriculture is granted authority to adopt all necessary regulations for the use and sale of pesticides. CAL. AGRIC. CODE § 12781 (West 1968). More directly, however, CAL. FISH & GAME CODE § 5650 (West 1958) makes it unlawful to "deposit in, permit to pass into, or place where it can pass into the waters of this State . . . any substance or material deleterious to fish, plant life, or bird life."

¹⁹ AGRICULTURAL WASTE WATERS 3.

The effects of these pollutants on agricultural water are primarily seen in "the physical condition of the soil, . . . salt accumulation in the root zone, and the combined influence of these on plant growth . . ." ²⁰ Depending on the degree of concentration, the pollutants may be toxic to plants on contact or they may create a slow poisoning over the years. ²¹ All these deficiencies in water quality, in varying degrees, cause clogging and lack of oxygen in the soil and bacterial pollution of edible plants. ²² "These [pollutants] could impose limiting conditions on the type of crop and in certain situations, such as when herbicide wastes are present, could be catastrophic to plant life." ²³

The discharge of wastes by industry constitutes the second source of pollution in California. ²⁴ On the average, industries discharge at least twice as much organic material as the sewage of all municipalities combined. ²⁵ There are six categories of industrial wastes existing in California, including floating matter, dissolved solids, settleable solids, colloidal matter, toxic substances, and sludge. ²⁶ Floating matter is composed of such substances as froth from detergent cleaning, oil, and floating solids such as pulp, sawdust, and fine coke. The dissolved solids are primarily mineral salts and dissolved organic matter. Settleable solids are made up of such substances as metal filings and turnings, dust, mineral tailings, and cement. Colloidal matter includes substances that do not settle within a reasonable time such as precipitates from chemical manufacturing and food processing wastes. The toxic substances consist of such chemicals as cyanides, sulfides, phenols, herbicides, heavy metal salts, and organic wastes. Sludges are concentrations of solids, usually minerals and organic material. In addition to these forms of discharge, waste heat or thermal pollution has become a growing problem, particularly where water is used for industrial cooling ²⁷ and in steam power generation. ²⁸ Relatively slight variations in water temperature have had a calamitous effect on the yield of some crops and on the ability of fish to spawn. ²⁹

The problem of primary concern, however, has been the agricultural processing industries such as fruit and vegetable canning, meat and fish packing, milk processing, sugar refining, and lumber ³⁰ and paper manufacturing. ³¹

²⁰ 1949 REPORT 134.

²¹ BAIN 171-72.

²² UNIVERSITY OF CALIFORNIA, WATER RESOURCES CENTER, PROCEEDINGS: CONFERENCE ON QUALITY OF WATER FOR IRRIGATION 124 (Report No. 14, 1958) [hereinafter cited as WATER FOR IRRIGATION].

²³ *Id.*

²⁴ For a full discussion of industrial pollution, see page 107 *infra*.

²⁵ *Industrial Water Pollution Control: Special Report*, 79 MILL & FACTORY 58-66 (No. 5, Nov. 1966).

²⁶ *Id.*

²⁷ 38 THE REFERENCE SHELF, THE WATER CRISIS 50-51 (No. 6, 1967).

²⁸ See UNIVERSITY OF CALIFORNIA, COMM. ON RESEARCH IN WATER RESOURCES, PROCEEDINGS: CONFERENCE ON INDUSTRIAL USES OF WATER IN CALIFORNIA 71 (1956).

²⁹ CALIFORNIA STATE WATER QUALITY CONTROL BOARD, *supra* note 9, at 57.

³⁰ "The effects of irresponsible logging practices on fish life are innumerable. Abnormally high water flows result in gravel shifting which may kill up to ninety-five percent of a fish's eggs before they hatch. Cutting of streamside vegetation tends to exaggerate temperature extremes in the water. Winter flows become abnormally cold, lengthening the incubation period of fertilized eggs; in the summer the water tempera-

Since local governments are often unable to provide for the added disposal demand created by the seasonal industries, it is not uncommon for a city sewer system to be flooded by the discharge, resulting ultimately in damage to the beneficial uses of downstream waters.³² The problem of industrial pollution cannot be solved merely by establishing standards of treatment and then closing all industries which fail to meet them. Any regulation of industrial waste discharge must necessarily involve a balance between the need for pure water in California and California's need for industry. Failure adequately to allow for the requirements of industry—both for water and for the disposal of waste water—could have harmful effects on California's economy.³³

Perhaps of more direct economic and personal concern to the general public is the problem of domestic and municipal sewage disposal. The problems in this area are divided between the basic mechanics and the cost of sewage disposal. Cesspools and septic tanks have been the most common disposal systems used by the average private discharger who has not had access to municipal sewers.³⁴ These methods are in wide use throughout California even though they often threaten public health by placement near a well or watercourse. The use of sewage wells, whether dug specifically for the purpose of sewage disposal or dug originally for water but subsequently abandoned, creates an even greater menace since sewage is placed directly into the underground strata.³⁵ In some of the more remote reaches of the state, one still finds the use of privies.³⁶ Regulation of this primitive disposal system is extremely difficult since the discharger's economic status often affords him no better method of waste disposal.

Although the adverse effects of improper sewage disposal are felt in many places, the quality of the groundwater is often the most seriously affected.³⁷

ture will rise well above normal, decreasing the oxygen supply to fingerlings and making the stream a paradise for salmonid-killing bacteria. Finally, and most crucially, winter storms often turn a stream in a logged-over watershed into a river of mud. The author has seen dying salmon, heavy with roe, gasping in stagnant, muddy waters, hundreds of feet away from the stream channel they desperately sought. Often, fish finding themselves blinded by silt would be diverted into the smallest of clear-running tributaries. As the rains ended, the tributaries began to dry, and the stench of stranded and dying fish filled the air. The few eggs that were laid were smothered by thick layers of gummy silt." Comment, *Trees, Earth, Water, and Ecological Upheaval: Logging Practices and Watershed Protection in California*, 54 CALIF. L. REV. 1117, 1123 (1966).

³¹ 1949 REPORT 71.

³² *Id.* at 58. For example, the city of Davis, California, received a warning from the Central Valley Regional Water Quality Control Board that the city's sewage treatment facility was not meeting state requirements. During the canning season the treatment plant receives approximately four million gallons of sewage per day. 25 percent is domestic sewage, 75 percent is industrial. The high industrial percentage clearly reflects the food processing operations of a local canner. A state inspector noted that the industrial sewage entering the treatment facility was a rust color and that on discharge from the facility it was substantially the same. *Daily Democrat* (Davis ed.), Sept. 6, 1968, at 1, col. 2.

³³ See 1949 REPORT 69.

³⁴ *Id.* at 40-42.

³⁵ *Id.* at 42-44.

³⁶ *Id.* at 39.

³⁷ For a full discussion of groundwater pollution, see page 141 *infra*.

Pollution of the underground basins, which contain 50 percent of the state's water supply,³⁸ could have serious, long-range consequences. "Contaminants entering the groundwater supply through improperly constructed wells have been major factors in outbreaks of water-borne diseases in parts of the United States."³⁹ Because groundwater moves very slowly, it may take years for pure water filtering into the basin to flush out the harmful pollutants.⁴⁰ Improper sewage disposal has also had harmful effects on the state's surface waters. Both Lake Tahoe and San Francisco Bay have suffered reduced water quality primarily because of sewage outflow.⁴¹ In San Francisco Bay, for example, a 1967 study showed that 203 municipal and 103 industrial dischargers⁴² pour an estimated 400 million gallons of treated sewage into the bay each day.⁴³ The immediate consequence of sewage disposal, both in San Francisco Bay and Lake Tahoe, has been an increase in "eutrophication" which gradually turns clear waters green.⁴⁴ The beauty of Lake Tahoe will only be preserved by transporting all sewage out of the Tahoe basin. Leakage from domestic sewage tanks must be eliminated and a comprehensive basin-wide export system must be established.⁴⁵

Aside from the mechanics of disposal, there are formidable cost problems. The failure of the state and federal governments to keep pace with the rising costs of constructing sewage treatment facilities has forced local governments to fund programs during a period when such costs exceed local resources.⁴⁶

³⁸ See CALIFORNIA ASSEMBLY INTERIM COMM. ON WATER, STATE AND LOCAL RESPONSIBILITIES FOR WATER RESOURCES 14 (1966).

³⁹ *Id.*

⁴⁰ 1949 REPORT 24.

⁴¹ Sewage outflow has not been the only factor contributing to pollution in San Francisco Bay. There has been a significant reduction of freshwater flows into the bay causing a reduced flushing action and oxygen replenishment. *Hearings on Water Pollution—Central and Northern California*, *supra* note 8, at 64. In addition, waste capacity has been greatly reduced by the gradual fill and diking being carried on throughout the bay region. This process causes reduced tidal action, thereby restricting the flushing action in the upper reaches of the bay. Also, with reduced size, there is less surface area for the oxygen exchange needed to break down waste products. *Id.* at 10.

⁴² S.F. BAY POLLUTION 12.

⁴³ *Id.* at 1.

⁴⁴ *Hearings on Water Pollution—Central and Northern California*, *supra* note 8, at 53.

⁴⁵ Comment, *Lake Tahoe: The Future of a National Asset—Land Use, Water, and Pollution*, 52 CALIF. L. REV. 563, 620 (1964). It has been estimated that it will cost \$132 million to completely sewer the Tahoe basin. *Hearings on Water Pollution—Central and Northern California*, *supra* note 8, at 54.

⁴⁶ 1949 REPORT 8. Randal F. Dickey, Chairman of the Assembly Interim Committee on Water Pollution stated, "In spite of its highly complex nature we can all agree that water pollution exists for one simple reason—the extreme cost of the works necessary to restore water quality. In fact, however, those costs are not actually excessive. In terms of added cost for disposal—and the cost of water must be considered as the cost of getting it plus the cost of getting rid of it—an added average cost of a few cents per thousand gallons cannot be considered as excessive. And yet, in spite of this, the costs are *extreme*—simply for the reason that both communities and industries, which in most cases do not themselves enjoy the benefits of corrective measures, tend to allow the problem to accumulate over the years until it becomes a real financial burden. When that occurs the difficulties of financing increase to the point where proposals for correction are often unsuccessful . . ." *Id.* at 47.

Compounding the problem is the fact that a treatment facility is usually not a profitable venture.⁴⁷ Only in a very few cases can water be reused for agriculture or other uses not involving human consumption. Local government in California has spent about \$150 million in the past five years for sewage operations; of this, \$32 million came from the federal government.⁴⁸

Saltwater intrusion, the fourth source of water pollution in California, is a problem affecting most coastal surface and underground water supplies. Surface saltwater intrusion is caused primarily by a lack of freshwater flow to restrain saltwater flow landward.⁴⁹ Groundwater salt intrusion is usually the result of lowering the freshwater table below sea level, creating a saline flow inland. The greatest intrusion occurs during the dry periods or when the groundwater supplies are overused.⁵⁰ The Sacramento-San Joaquin Delta and the Orange County-San Ana Gap regions have encountered severe intrusion problems. The Santa Ana Gap, for example, has been affected by intrusion since the early 1930's.⁵¹ In 1963, saline waters had intruded nearly four miles inland, contaminating nearly 5,100 acres of groundwater.⁵²

The final class of pollution problems has come with the advancement in the technology and use of atomic power.⁵³ There are five basic sources of radioactive pollutants:⁵⁴ naturally occurring radioisotopes (of little concern); artificially concentrated or produced radioactive isotopes whose release is controlled (also of relatively little concern); release of material directly into the water either by accident or by waste discharge;⁵⁵ fallout from nuclear weapons tests; and wartime nuclear explosions. The greatest threat, however, seems to be accidental discharge⁵⁶ and the use of water for atomic waste disposal. The principal difference between this type of pollution and the usual more stable form is that with atomic waste the discharge

⁴⁷ *Id.* at 46.

⁴⁸ *Hearings on Water Pollution—Central and Northern California*, *supra* note 8, at 2. Capital outlay needed to obtain adequate municipal waste treatment for the urban population in California by 1973 is estimated at \$645.2 million. 1 U.S. DEP'T OF THE INTERIOR, FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, COST OF CLEAN WATER 10 (1968).

⁴⁹ See BAIN 521.

⁵⁰ STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES, SANTA ANA GAP SALINITY BARRIER, ORANGE COUNTY 34 (No. 147-1, 1966).

⁵¹ *Id.* at 1.

⁵² *Id.* at 115.

⁵³ For a discussion of the problems of atomic waste disposal with respect to the marine environment, see page 183 *infra*.

⁵⁴ MCKEE & WOLF 343.

⁵⁵ "Before the last war the disposal of radioactive waste was a small problem which presented no great difficulty. The position has, of course, altered very materially since radioactive substances have been produced artificially and in relatively enormous quantities in the atomic reactors built throughout the world. The problem will become increasingly important as the development of power from nuclear energy proceeds." Burns, *The Legal Aspects of Atomic Waste Disposal and Transport of Radioactive Materials* in ATOMIC ENERGY WASTE 187 (E. Glueckauf ed. 1961); see INTERNATIONAL ATOMIC ENERGY AGENCY, RADIOACTIVE-WASTE DISPOSAL INTO THE SEA 22-23 (Safety Series No. 5, 1961).

⁵⁶ See WATER FOR IRRIGATION 127-28; Dietz & Harris, *How Shall California Government Meet the Challenge of Atomic Energy?*, 8 HASTINGS L. J. 119, 126 (1957).

need only be a very small amount to be dangerous.⁵⁷ Radioactive wastes cannot be neutralized quickly by conventional chemical or physical methods. Control of these pollutants is achieved only by dilution with water or stable isotopes, or concentration and storage, allowing natural decay to reduce radioactivity.⁵⁸ It is clear, therefore, that an after-the-fact approach to the problem will not only be very dangerous, but difficult and impractical, particularly under emergency conditions. Thus the best protection consists of preventive measures: the “establishment of permissible limits, legislation to enforce these limits, instrumentation and techniques to measure the level of activity, a national sampling and monitoring program, and plans to stop the flow of water or warn the population if permissible levels should be exceeded.”⁵⁹

II. LEGAL SOLUTIONS TO POLLUTION BEFORE 1949

Before the adoption of the Water Pollution Control Act in 1949 (commonly known as the Dickey Act),⁶⁰ the State Department of Public Health had primary responsibility for correction and control of pollution in California.⁶¹ The Health Department’s operations, based entirely on a permit system for approving the discharge of waste into any water supply,⁶² focused primarily on the construction and operation of disposal works.⁶³ The Department was required to investigate all existing and future disposal facilities to determine their adequacy. If the operations were found inadequate in any way, the Department could order any necessary changes in the location, design, or method of operation.⁶⁴ For all proposed treatment plants, the Department required a disposal system that would operate at 100 percent effectiveness for 20 years.⁶⁵ Moreover, if there was any danger to public health or if a nuisance would be created by the facility, the permit was to be denied.⁶⁶ If a discharger failed either to obtain a permit or comply with disposal requirements, the Department could obtain an injunction requiring the adoption of an adequate method of sewage disposal.⁶⁷

The Health Department argued that the permit system accomplished three objectives: it protected the public from hazards to health and from nuisances; it provided a means of preventing pollution before it occurred; and it protected municipalities from bad investments in treatment facilities that were

⁵⁷ Dietz, *supra* note 56, at 126.

⁵⁸ MCKEE & WOLF 343.

⁵⁹ WATER FOR IRRIGATION 132.

⁶⁰ Cal. Stat. 1949, ch. 1549 § 1, at 2782.

⁶¹ See Cal Stat. 1939, ch. 60, § 1, at 611–15. The Department of Health focused on discharges by industries and municipalities and problems affecting domestic water supply. They did not become involved in natural sources of water quality degradation or agricultural pollution.

⁶² Moskowitz, *Quality Control and Re-use of Water in California*, 45 CALIF. L. REV. 586, 587 (1957).

⁶³ See 1949 REPORT 37.

⁶⁴ Moskowitz, *supra* note 62, at 587.

⁶⁵ 1949 REPORT 55.

⁶⁶ Moskowitz, *supra* note 62, at 587.

⁶⁷ *People v. City of Los Angeles*, 83 Cal. App. 2d 627, 189 P.2d 489 (1948).

inadequate.⁶⁸ It was clear, however, that the claims of the Department were unrealistic.⁶⁹ Literal enforcement of the Department's impractical requirements proved difficult or impossible.⁷⁰ Because the Department required all proposed treatment plants to operate at 100 percent effectiveness for 20 years, a city was denied a permit if it was only able to fund a facility that would operate at 80 percent effectiveness.⁷¹ In addition, neither a public health hazard nor a nuisance was tolerated.⁷² Ostensibly the elimination of a health hazard should be of primary importance, with consideration of co-existing nuisances being clearly secondary. Yet under the permit system, if even a slight nuisance was either created by the treatment process or left uncorrected, the permit was denied.⁷³ The definition of nuisance compounded the problem. Originally nuisance meant "actual annoyance resulting from a disposal operation through creation of odors and unsightliness"⁷⁴ By 1949, however, the definition had been broadened to include *any* deterioration of water quality.⁷⁵ The use of this strict and unbalanced approach forced the cities and industries into an all or nothing position: either build the treatment facility or discharge raw sewage. All too often the latter choice was made.⁷⁶

One of the primary responsibilities of an agency dealing with pollution should be aiding the discharger in the construction of treatment facilities. The agency's accumulated knowledge could be of invaluable assistance to the discharger in the initial planning phases. It was evident, however, that the Department of Health acted merely as a veto mechanism, giving no positive or constructive help.⁷⁷ The dischargers often found that soon after the completion of a treatment facility, the Department would alter its requirements, necessitating new and costly improvements that could have been avoided through foresight and prior consultation.⁷⁸

⁶⁸ 1949 REPORT 50.

⁶⁹ *Id.*

⁷⁰ See Comment, *California's Water Pollution Problem*, 3 STAN. L. REV. 649, 650 (1951).

⁷¹ 1949 REPORT 55.

⁷² *Id.* at 50.

⁷³ *Id.* "Probably the major reason for the excessive pollution of California waters today may be found in the failure of either the law or the administrators of the law to properly take into account the relative importance of those effects which are an actual threat to health, and those which constitute only an economic impairment of water-quality, or create a nuisance. Failure to properly weigh these three distinct factors in relation to the immediate and actual conditions surrounding each particular disposal, contributes to the excessive cost of corrective measures and thereby delays effective progress, or makes impossible the simple steps which might otherwise be taken." *Id.* at 38.

⁷⁴ *Id.* at 51.

⁷⁵ *Id.*

⁷⁶ *Id.* at 50.

⁷⁷ "Undoubtedly the most valuable assistance which the State can render to communities in their disposal problems is to provide sound advice in planning and programming, based upon the experience of the many communities which have undertaken such projects in prior years. Unfortunately this type of positive assistance is not forthcoming and actually cannot be efficiently provided under the restrictions of the present permit law." *Id.* at 53.

⁷⁸ *Id.*

Another failing of the permit system was the inability of the Health Department to coordinate the various agencies involved in pollution activities.⁷⁹ By 1949 there were 84 state and federal agencies, along with 28 types of local agencies that had some connection with the problems of pollution.⁸⁰ Of these, 16 federal, 27 state, and all the local agencies had a direct concern in controlling pollution.⁸¹ With such a profusion of agencies, the inevitable result was considerable confusion through overlapping authority and conflicting requirements.⁸² At the local level there was an extremely wide range of law concerning water pollution. In most counties, there were practically no ordinances specifically dealing with pollution, and the laws that were enacted were primarily directed toward abating specific pollution problems.⁸³

The 1949 Assembly Interim Committee on Water Pollution proposed a new and radically different attack on water pollution in California. To rectify the inadequacies of the permit law, the committee first recommended that the problems of pollution constituting a menace to health be separated from those creating economic damage.⁸⁴ The elimination of a threat to the public health was not to be restricted by less important considerations such as pollution or nuisance. The committee also felt that the state should not set both the requirements of a discharge and the means of meeting them.⁸⁵ Where these responsibilities were commingled, there was a tendency for the agency granting approval to allow only very conservative systems of treatment, which often resulted in overdesign and higher costs.⁸⁶ By allowing communities freedom in meeting the requirements in any legal way they desired, newer, more efficient operations could be developed. To solve the extreme decentralization of pollution activities, the committee recommended that the control of the economic problems of pollution be coordinated at all levels, with the primary power at the local level where most of the problems and interests lay.⁸⁷ The committee suggested a system of regional boards with jurisdiction corresponding to the major watershed regions of the state, each board having primary responsibility for pollution efforts within its region. A state board was necessary to coordinate the activities of the regional boards and the statewide agencies.⁸⁸

The assembly committee further recommended a program of financial assistance to help communities to construct treatment facilities.⁸⁹ Funds would be allocated on the basis of urgency, with deferred repayment where

⁷⁹ *Id.* at 107.

⁸⁰ *Id.* at 32.

⁸¹ *Id.* Among the agencies involved in the control of pollution were the Departments of Fish and Game, Public Works, Agriculture, and Industrial Relations, and the divisions of Architecture, Real Estate, and Oil and Gas. Comment, *supra* note 70, at 651.

⁸² 1949 REPORT 8.

⁸³ *Id.* at 35.

⁸⁴ *Id.* at 108.

⁸⁵ *See id.* at 56, 105.

⁸⁶ *Id.* at 56.

⁸⁷ *Id.* at 108.

⁸⁸ *Id.*

⁸⁹ *Id.*

the cost was greater than the local government could currently afford. Finally, the committee proposed a comprehensive study that would develop better means of sewage treatment and pollution control for all waters of the state.⁹⁰ The research was to be directed by the Division of Water Resources.

III. CURRENT CALIFORNIA LAW

Following the recommendations of the Assembly Interim Committee on Water Pollution, the 1949 legislature enacted a radically different water pollution control law. The present California system is divided into two broad jurisdictions. The Department of Public Health has responsibility for all actual hazards to the public health, while the state and regional water quality control boards have responsibility for all economic damage to the state. This division of authority is delineated in the definitions of "contamination," "pollution," and "nuisance." "Contamination" is confined to discharges of waste which actually create a public health hazard.⁹¹ "Pollution" exists if the water is adversely and unreasonably affected by a discharge of waste⁹² which creates no hazard to the public health.⁹³ "Nuisance" refers to damage to a community through unsightliness or odors caused by the unreasonable disposal of waste.⁹⁴ These definitions "delineate the separate and mutually exclusive regulatory responsibilities of the health authorities and the water pollution

⁹⁰ *Id.*

⁹¹ "Contamination" means an impairment of the quality of the waters of the state by sewage or other waste to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease. "Contamination" shall include any equivalent effect resulting from the disposal of sewage or other waste, whether or not waters of the state are affected." CAL. WATER CODE § 13005 (West Supp. 1968).

⁹² There is no clear definition of "adverse and unreasonable" conditions. As yet the failure to provide such a definition has not created any serious problems, but it has made it difficult at times to prove the existence of "statutory" pollution. Interview with Richard A. Bueerman, Executive Officer of The Santa Ana Regional Water Quality Control Board, in Riverside, California, June 20, 1968.

⁹³ "Pollution" means an impairment of the quality of the waters of the state by sewage or other waste to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic, industrial, agricultural, navigational, recreational or other beneficial use, or which does adversely and unreasonably affect the ocean waters and bays of the state devoted to public recreation." CAL. WATER CODE § 13005 (West Supp. 1968).

⁹⁴ "Nuisance" means damage to any community by odors or unsightliness resulting from unreasonable practices in the disposal of sewage or other wastes." CAL. WATER CODE § 13005 (West Supp. 1968). Paul R. Bonderson, Chief of the Division of Water Quality Control of the State Water Resources Control Board, has stated that the definition of nuisance is somewhat a mystery. He felt that it served no valid function other than further defining "pollution." Interview with Paul R. Bonderson, Chief of Div. of Water Quality, State Water Resources Control Board, in Sacramento, California, February 16, 1968. Initially there was some confusion about the extent of the definition of nuisance—particularly with respect to air pollution and nuisance created by land dumps. The State Attorney General held:

Without prolonging this discussion, it seems to us that the evidences of the legislative intent overwhelmingly establish a purpose to confine the control functions of the regional water pollution control boards to waste disposals into, upon or affecting water. For this reason, we conclude that the definition of "nuisance," properly construed in relation to the larger enactment of which it forms a part, does not invest

control boards over the effects of water quality impairment”⁹⁵ However, a condition of contamination and pollution could exist simultaneously, giving both agencies jurisdiction.⁹⁶ Despite this potential conflict and overlap of authority, both the Health Department and the water quality control boards have generally expressed satisfaction with the definitions contained in section 13005.⁹⁷ When both contamination and pollution exist, it has been customary for the two agencies informally to determine which is best equipped to deal with the particular problem.⁹⁸ As yet, there has been no instance of serious conflict over jurisdiction.⁹⁹

In addition to the water quality control boards and the Department of Public Health, the Department of Fish and Game plays a role in the prevention of harmful effects resulting from the discharge of waste. Since this department derives its authority from the duty to protect the fish and wildlife of the state, it is not restricted by the definitions of pollution and contamination. There are also numerous miscellaneous provisions and agencies designed to deal with specific pollution problems.

A. The Regional Water Quality Control Boards

1. Structure of the Regional Boards

California Water Code § 13000 provides in part:

The Legislature . . . declares that it is necessary to provide means for the regional control of water pollution since problems of water pollution in this state are primarily regional and dependent upon factors of precipitation, topography, population, and recreational, agricultural and industrial development which vary greatly from region to region.

This regional concept forms the foundation of the California system of pollution control. The regions correspond to the seven main watershed basins of the state,¹⁰⁰ thus giving one agency complete jurisdiction over a stream or river from beginning to end. The only exception to the region-basin structure is the coastal metropolitan area of Southern California where demographic

the regional boards with authority over garbage disposals which do not affect the waters of the State. 16 OP. CAL. ATT'Y GEN. 125, 130 (1950).

Despite this ruling, however, the Santa Ana Regional Board has used its power to control “nuisances” to abate odors coming from a treatment facility. Since these odors do not come from the receiving waters themselves, the regional boards are technically without jurisdiction to abate them. Interview with Richard A. Bueerman, *supra* note 92.

⁹⁵ 26 OP. CAL. ATT'Y GEN. 253, 254 (1955).

⁹⁶ *Id.* at 254, 255.

⁹⁷ Interview with Paul R. Bonderson, *supra* note 94; Interview with Herbert B. Foster, Chief, Bureau of Sanitary Engineering, Department of Public Health, in Berkeley, California, February 21, 1968.

⁹⁸ Interview with Herbert B. Foster, *supra* note 97.

⁹⁹ *Id.*

¹⁰⁰ CAL. WATER CODE § 13040 (West Supp. 1968). Examples of the regions are the San Francisco Bay region, covering all the bay area and the lower part of the Sacramento-San Joaquin River Delta; the Central Valley region, covering the Great Valley from Bakersfield to the Oregon border; and the Lahontan region which extends from San Bernardino, along the east side of the Sierra Nevada mountains, to the Oregon border.

and political considerations required the division of the southern coast into three small regions.¹⁰¹

Each board consists of seven members appointed by the governor¹⁰² to a term of four years.¹⁰³ To assure adequate representation of all interest groups in each region, the governor is required to appoint a member from each of the following classes: water supply, conservation, or production; irrigated agriculture; industrial management; municipal government; county government; recreation and wildlife; and the general public.¹⁰⁴ In addition to the statutory requirements (the composition of the board and the appointment of an executive officer),¹⁰⁵ each board is free to staff and structure its organization according to the needs of the particular region. The internal structure may be influenced by such factors as the geographical, demographic, and hydrographic nature of the region or by the preference of the executive officer and the board.¹⁰⁶ The board meets at least once each calendar quarter, but additional meetings may be called by the chairman or two members.¹⁰⁷

2. Formulation of Regional Water Policy

The major activities of the regional boards, as outlined in California Water Code § 13052,¹⁰⁸ include coordinating water quality activities within the region;¹⁰⁹ assisting dischargers in waste disposal programs;¹¹⁰ requesting enforcement of laws relating to pollution and nuisance;¹¹¹ formulating and

¹⁰¹ See WATER RESOURCES ENGINEERS, INC., AN INTERAGENCY SYSTEM FOR WATER QUALITY MANAGEMENT 31 (1962). The political and hydrographic boundaries are quite similar, but since some of the hydrographic boundaries are blurred, political lines were found more useful. Interview with Richard A. Bueerman, *supra* note 92.

¹⁰² CAL. WATER CODE § 13041 (West Supp. 1968).

¹⁰³ CAL. WATER CODE § 13042 (West Supp. 1968).

¹⁰⁴ CAL. WATER CODE § 13041 (West Supp. 1968).

¹⁰⁵ CAL. WATER CODE § 13050(c) (West Supp. 1968).

¹⁰⁶ See WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 35.

¹⁰⁷ CAL. WATER CODE § 13043 (West 1956).

¹⁰⁸ Activities of the regional boards in terms of expenditures (roughly corresponding to manpower allocations): Monitoring and compliance checking, 31.9%; Establishing discharge requirements, 28.0%; Meetings, hearings and public relations, 9.3%; Long range policy development, 9.1%; Enforcement actions, 6.9%; Financial assistance programs, 1.8%; Well drillers report filing, 1.1%; General administration, 11.9%. WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 33.

¹⁰⁹ The task of coordinating pollution control activities is usually done at the regional level through regular meetings of an inter-agency coordination committee. In addition, interested agencies such as the Health Department and the Department of Fish and Game regularly attend regional meetings and are consulted for their opinions on regional policy and particular pollution problems. Interview with John B. Harrison, Executive Officer of the San Francisco Bay Regional Water Quality Control Board, in Oakland, California, February 10, 1968; interview with Richard A. Harris, Chief Engineer, Los Angeles Regional Water Quality Control Board, in Los Angeles, California, July 20, 1968; interview with Richard A. Bueerman, *supra* note 92.

¹¹⁰ Moskovitz, *supra* note 62, at 593.

¹¹¹ This provision is rarely used by the San Francisco regional board, although there are times when the board will ask the Fish and Game Department to help in gathering evidence. Interview with John B. Harrison, *supra* note 109. The Los Angeles Regional Board, however, makes extensive use of an administrative agreement between the board and the City and County of Los Angeles and the City of Glendale. The local governments have agreed to issue waste discharge permits which conform to the board's pol-

adopting long-range plans and policies for water pollution and quality control in the region; recommending projects to the state board considered eligible for any financial assistance available from the state or federal governments;¹¹² and reporting to the state board and the appropriate local health officer any case of contamination in the region which is not being corrected. By far the most important duty of the regional boards is the establishment of regional policies for water pollution and quality control¹¹³ and the establishment of waste discharge requirements.¹¹⁴ The regional boards distinguish between policies for the control of pollution and policies for the control of water quality. As noted previously, pollution control relates simply to waste discharges that unreasonably degrade the water.¹¹⁵ Water quality control, on the other hand, may encompass any factor that unreasonably impairs beneficial use of the water.¹¹⁶ This means that in formulating water quality policy, the boards are to consider such factors as "saline intrusion, the reduction of waste assimilative capacity caused by a reduction of the quantity of water, and watershed management projects as they may affect water quality."¹¹⁷

An important characteristic of the California system is that it is based on a case-by-case analysis, "a feature that militates against typical or model solutions."¹¹⁸ There is, however, a recognized need for some consistency of control within each region.

The purpose of . . . regional water quality control policies is to provide the basis for maintaining water quality sufficient to protect designated beneficial uses in a given basin, stream, or reach and to assure the high-

lution control policy and requirements. After the permit is issued the board adopts it as the requirement for the particular discharger. The agreement has made the local authority primarily responsible for enforcing the permits, the regional board having only ultimate responsibility. Interview with Richard A. Harris, *supra* note 109.

The Attorney General has ruled that under CAL. WATER CODE § 13050(d) (West Supp. 1968), the regional board may request a local district attorney or county counsel to give legal advice or assistance at board meetings. 15 OP. CAL. ATT'Y GEN. 113 (1950).

¹¹² "The key to effectiveness of any water pollution control program is the ability to provide physical facilities to treat wastes. Regulations, policies, and enforcement of requirements are not enough if municipalities and industries do not construct adequate treatment facilities." Assembly Interim Comm. on Water, *New Horizons in California Water Development*, in CALIFORNIA ASSEMBLY JOURNAL APPENDIX SUPP. 40 (Reg. & 1st & 2d Extra. Sess. 1967).

The regional boards have tried to gain the confidence of municipalities in the pollution abatement program, and have helped local authorities in passing bonds for financing the construction of treatment facilities. CALIFORNIA ASSEMBLY INTERIM COMM. ON WATER, A PROPOSED WATER RESOURCES CONTROL BOARD FOR CALIFORNIA—A STAFF STUDY 15 n.1 (1966) [hereinafter cited as STAFF STUDY].

¹¹³ CAL. WATER CODE § 13052(e) (West Supp. 1968). The Statewide Policy for the Control of Water Pollution may be found in 23 CAL. ADMIN. CODE §§ 2150-71 (1967).

¹¹⁴ CAL. WATER CODE § 13053 (West 1956): "Each regional board shall prescribe requirements relative to any particular condition of pollution or nuisance, existing or threatened, in the region."

¹¹⁵ CAL. WATER CODE § 13005 (West Supp. 1968).

¹¹⁶ CAL. WATER CODE § 13005 (West Supp. 1968).

¹¹⁷ 44 OP. CAL. ATT'Y GEN. 126, 128 (1964).

¹¹⁸ MCKEE & WOLF 34.

est water quality consistent with maximum benefit to the people of the state. They will also provide guidance to all persons whose actions may affect the quality of the water and will provide a basis for establishing surveillance and enforcement programs, and for directing coordinated efforts in water quality control by federal, state and local public agencies and private industry.¹¹⁹

Besides serving as a guide for the regional boards, the regional policy must also be taken into consideration by all state agencies in their water-related activities in the region.¹²⁰ The policy must include a delineation of the water to which it applies, the beneficial uses to be protected, water quality indicators¹²¹ to be employed to measure and define water quality, water quality objectives¹²² to protect the designated beneficial uses, and the practicability and means of achieving the objectives.¹²³

Establishment of the beneficial uses of water is perhaps the most significant task of the regional boards.¹²⁴ A central concept in California pollu-

¹¹⁹ California State Water Resources Control Board, Statewide Policy for the Control of Water Quality, Dec. 18, 1967, art. II, § C1 [hereinafter cited as Water Quality Policy]. As a practical matter, the regional policies serve best as a guide and check on the actions of the boards; the board is kept in touch with its responsibilities. Interview with John B. Harrison, *supra* note 109. The Los Angeles Board has found the policy formulation process an effective means of gathering data, particularly on groundwater. Interview with Richard A. Harris, *supra* note 109.

¹²⁰ CAL. WATER CODE § 13052.3 (West Supp. 1968).

¹²¹ "Water quality indicators are constituents or characteristics which serve to measure water quality. Examples of indicators are:

temperature, dissolved oxygen (DO), biochemical oxygen demand (BOD), hydrogen ion activity (pH), chloride, bacterial appearance"

Water Quality Policy, art. I, § B.

¹²² "Water quality objectives shall:

a. protect all designated beneficial uses and assure the suitability of the water for these uses;

b. provide protection for each beneficial use designated for protection to the greatest extent practical and consistent with the maximum benefit to the people of the state;

c. be compatible with the environment, i.e., include a realistic appraisal of the effect of the natural water quality factors existing in the zone under consideration; and

d. consider any identifiable water quality factors that do or may adversely affect water quality." Water Quality Policy, art. II, § C6.

¹²³ Water Quality Policy, art. II, § C4.

¹²⁴ Water Quality Policy, art. I, § E, defines "beneficial uses" as "that use of water that is, in general, productive of public benefit, which promotes the peace, health, safety, and welfare of the people of the state.

"1. Beneficial uses of the waters of the state that may be protected against damage resulting from quality degradation include but are not necessarily limited to:

a. domestic and municipal supply;

b. agricultural supply;

c. industrial supply (including power generation);

d. propagation, sustenance and harvest of fish, aquatic life (including shellfish) and wildlife;

e. recreation;

f. esthetic enjoyment;

g. navigation.

"2. Waste disposal, dispersion and assimilation are economic beneficial uses of water but shall be regulated as required to protect other beneficial uses. These economic beneficial uses shall be considered in the process of establishing a water quality control policy."

tion law is “unreasonable use.”¹²⁵ All adverse effects on the beneficial uses of the waters are not prohibited, only those which are unreasonable.¹²⁶ These two factors, “adverse effects” and “unreasonableness,” underlie the entire system of pollution control in California.¹²⁷ The law recognizes that water has a basic absorption capacity—even for raw sewage.¹²⁸ Only when the degradation of water quality becomes “unreasonable” does the statutory machinery force abatement. “Reasonableness” is determined through the establishment of the beneficial uses of the waters.¹²⁹ The regional boards do not “set” the uses of water, but merely “recognize” its actual existing uses.¹³⁰ This involves consideration of the land and water resources of the region,¹³¹ the statewide water plans affecting the region,¹³² and any present and future uses of the water. For example, the “beneficial use” of water along a city waterfront will most likely be shipping and navigation, while water in a mountain stream will be used for recreation or fish propagation. The regional boards must then adopt and enforce water standards consistent with the designated beneficial use.

Since the boards must hold public hearings before adopting any regional policy,¹³³ interest groups within the community may express their opinions

¹²⁵ CALIFORNIA STATE WATER QUALITY CONTROL BOARD, NO MORE WATER . . . SO WHAT? 14 (no date).

¹²⁶ WATER FOR IRRIGATION 12. The concept of reasonableness is derived from the California Constitution which provides in part that: “It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented”

CAL. CONST. art. 14, § 3 (West 1954). See also CAL. WATER CODE § 100 (West 1956) for a similar provision.

¹²⁷ “It has already been pointed out that pollution consists of an adverse and unreasonable effect on beneficial water uses, and that nuisance consists of damage caused by unreasonable practices in waste disposal. These two elements of *adverse effect or damage* and of *unreasonableness* are of central importance in understanding the present law. The mere fact that there is a discharge of waste does not automatically mean that there is a pollution or nuisance.” (emphasis supplied) UNIVERSITY OF CALIFORNIA, COMMITTEE ON RESEARCH IN WATER RESOURCES, CONFERENCE ON LEGAL PROBLEMS IN WATER RESOURCES 18 (1957).

¹²⁸ Moskovitz, *supra* note 62, at 591.

¹²⁹ UNIVERSITY OF CALIFORNIA, *supra* note 127, at 19.

¹³⁰ Interview with John B. Harrison, *supra* note 109.

¹³¹ 23 CAL. ADMIN. CODE § 2162 (1967).

¹³² CAL. WATER CODE § 13052.1 (West Supp. 1968). Although the state and regional boards must “take cognizance of” the major California water plans, there has yet to be an incidence of serious conflict. However, there has been some indication of potential conflict in the recent decision of the state board to drop the salinity standards from the policies of the San Francisco and Central Valley regions. Salinity control in the Sacramento-San Joaquin Delta is beyond the scope of this chapter, but water quantity in the Delta is an important factor in reducing the harmful effects of saltwater intrusion. These considerations have presented substantial problems with respect to the California Water Plan, which will significantly reduce the amount of fresh water flow into the Delta. For the present, the two regions concerned will not involve themselves with salinity, at least until the existing conflicts are resolved. Interview with Paul R. Bonderson, *supra* note 94.

¹³³ CAL. WATER CODE § 13052.2 (West Supp. 1968).

about the uses of particular water.¹³⁴ In addition, each board makes its own observations to determine the current uses of water within its region.¹³⁵ If more than one beneficial use exists, the boards are required to adopt the higher use.¹³⁶ If, therefore, the board finds that certain water is being used both as a domestic and industrial water supply, the "beneficial use" must be designated as domestic supply. Such a designation would require a higher water quality standard than would be necessary for water used only for industrial supply. Priorities of "beneficial uses" are not rigidly fixed by law, but rather are determined after considering all the factors noted above. Merely because a few boys swim off a pier used by a steamship company does not mean that the regional board must recognize a "recreational" beneficial use.

Once a water quality control policy is agreed on, the regional board must file the policy with the state board. The policy becomes effective in 60 days unless the state board specifically disapproves it.¹³⁷ Water pollution policies, on the other hand, need be sent to the state board only if requested.¹³⁸ As a matter of practice, the state board has interfered rarely with the judgment of the regional boards.¹³⁹ Only if interstate waters are involved does the state board regularly exercise its approval power.¹⁴⁰ In those cases, the state board is concerned with presenting a unified state water policy to the Federal Water Pollution Control Administration in compliance with the Federal Water Pollution Control Act.¹⁴¹

3. Jurisdiction

The regional board system has jurisdiction over all waters of the state¹⁴²

¹³⁴ The Santa Ana region, for example, maintains a list of some 125 persons or agencies who are regularly notified about policy hearings. Interview with Richard A. Bueerman, *supra* note 92.

¹³⁵ The San Francisco board, for example, makes extensive use of a patrol boat, both for finding violators and for surveying existing uses of the water in the bay area. Interview with John B. Harrison, *supra* note 109.

¹³⁶ Water Quality Policy, art. II, § C11.

¹³⁷ CAL. WATER CODE § 13052.2 (West Supp. 1968). If the state board rejects a particular section of the regional policy, the problems are sent to a joint meeting of the state and regional boards to be resolved. Interview with Richard A. Bueerman, *supra* note 92.

¹³⁸ CAL. WATER CODE § 13052(h) (West Supp. 1968). The state board usually does not review local pollution policy unless it affects the statewide policy or has statewide implications. Interview with Richard A. Bueerman, *supra* note 92.

¹³⁹ Interview with Paul R. Bonderson, *supra* note 94.

¹⁴⁰ *Id.*

¹⁴¹ If the states submit water quality criteria applicable to interstate waters within the state, and a plan for their implementation and enforcement, the Federal Government will adopt the criteria as its standard. If the states do not act, the Secretary of the Interior, acting through the Federal Water Pollution Control Administration, is required to promulgate the appropriate standards. Federal Water Pollution Control Act, 33 U.S.C.A. § 466g(c) (Supp III, 1968).

¹⁴² See CAL. WATER CODE § 13005 (West Supp. 1968). "All waters, surface or underground, fresh or saline, within the boundaries of the state are under the protection of these statutes. The ocean to a distance of three nautical miles out from the outermost islands adjacent to the coast and all bays, harbors, inlets, and estuaries are within the boundaries of the state for this purpose. And all streams, lakes, reservoirs, and ponds within the state, whether publicly or privately owned, are likewise included." Moskowitz, *supra* note 62, at 589.

and over all persons¹⁴³ in the state who are either proposing to discharge or who are presently discharging waste.¹⁴⁴ With respect to jurisdiction, however, two problems arose soon after adoption of the new act. These problems involved the meaning of "industrial waste" and jurisdiction over indirect discharge not directly affecting the waters of the state.¹⁴⁵ In regard to the first, the original act defined pollution to include degradation of water by sewage and industrial waste.¹⁴⁶ The term "industrial waste" proved somewhat ambiguous, requiring several opinions from the state attorney general to define its scope. It was held to include construction wastes,¹⁴⁷ drainage from inoperative mines,¹⁴⁸ debris from mining operations,¹⁴⁹ siltation caused by extraction of minerals from stream beds,¹⁵⁰ overflows of waste waters,¹⁵¹ and temperature increases due to hydroelectric operations.¹⁵² In 1967, however, the legislature changed the definition of pollution by substituting "other wastes" for "industrial waste."¹⁵³ "Other wastes" are now defined as "any and all liquid or solid waste substance, not sewage, from any producing, manufacturing or processing operation of whatever nature."¹⁵⁴

The second problem, indirect discharges, arose in the context of sewer wells and discharges from residential cesspools and septic tanks. Although there was authority to the contrary,¹⁵⁵ the State Attorney General held that under the original act the regional boards did not have any jurisdiction over "indirect" discharges.¹⁵⁶

Discharges from individual waste disposal systems located beneath the ground, such as septic tank systems in which waste effluents are bacteriologically treated and then dispersed through connecting leaching fields, are 'indirect' discharges, and as such are beyond the prohibitory powers of regional boards.¹⁵⁷

¹⁴³ "Person" as defined by CAL. WATER CODE § 13005 (West Supp. 1968), includes "any city, county, district, the state or any department or agency thereof." The section does not include any facilities operated by the federal government. *See* OP. CAL. ATT'Y GEN. 317, 319 (1964).

¹⁴⁴ CAL. WATER CODE §§ 13054-54.1 (West Supp. 1968).

¹⁴⁵ A "direct" discharge has been interpreted to mean "one which goes 'from the final control of the discharger immediately into either surface or underground waters without an intervening natural filtration or evaporation process.'" 48 OP. CAL. ATT'Y GEN. 85, 87 (1966). An "indirect" discharge is defined as "one in which there is a 'disposal of sewage on land with a possible subsequent movement by evaporation or percolation into surface or underground waters.'" *Id.*

¹⁴⁶ CAL. WATER CODE § 13005 (West 1956), as added by Cal Stat. 1949, ch. 1549, § 1, at 2783.

¹⁴⁷ 16 OP. CAL. ATT'Y GEN. 125, 131 (1950).

¹⁴⁸ 26 OP. CAL. ATT'Y GEN. 88 (1955).

¹⁴⁹ 27 OP. CAL. ATT'Y GEN. 182 (1956).

¹⁵⁰ 32 OP. CAL. ATT'Y GEN. 139, 140 (1958).

¹⁵¹ 37 OP. CAL. ATT'Y GEN. 163 (1961).

¹⁵² 43 OP. CAL. ATT'Y GEN. 302 (1964).

¹⁵³ Cal. Stat. 1967, ch. 1447, § 6, at 3375-76.

¹⁵⁴ CAL. WATER CODE § 13005 (West Supp. 1968).

¹⁵⁵ Legislative Counsel, *Opinion*, in CALIFORNIA ASSEMBLY JOURNAL 6115 (Reg. Sess. 1967).

¹⁵⁶ "Under section 13054.3 of the Water Code, a regional quality control board does not have the authority to prohibit the discharge of sewage or industrial waste into underground areas or strata, unless the discharge is made directly into underground waters." 48 OP. CAL. ATT'Y GEN. 85, 86 (1966).

¹⁵⁷ 48 OP. CAL. ATT'Y GEN. 85, 87 (1966).

This controversy has been resolved, largely by a 1967 amendment to Water Code § 13054.3¹⁵⁸ which permits the regional boards to regulate indirect means of discharging waste.¹⁵⁹ The problem has not been solved entirely, however, for under § 13054.3 the regional boards are given only the power to “regulate” the indirect discharge of waste, not the power to “prohibit” it. This distinction, for example, has blocked the San Francisco board’s attempts to prohibit the use of septic tanks when there is an overflow of sewage into the bay.¹⁶⁰ The mere ability to “regulate” the use of septic tanks has thus far proved largely illusory since individual violations are extremely difficult to detect and correct. The board would prefer the police power of prohibition, as with direct discharges,¹⁶¹ to prevent damage to waters due to sewage overflow.¹⁶²

4. Waste Discharge Requirements

Regional policy is enforced primarily by a two-step procedure. The regional boards first establish waste discharge requirements for each discharger consistent with the recognized beneficial uses of the water affected. If the discharger fails to conform with the established requirements, the boards may then issue a cease and desist order formally demanding compliance. Each board is required to set discharge requirements for “any particular condition of pollution or nuisance, existing or threatened, in the region.”¹⁶³ The boards generally use several methods for learning of conditions of pollution or waste discharge in addition to the general power to investigate any source of water pollution or nuisance within the region.¹⁶⁴ All persons proposing a discharge must file a report with the regional board.¹⁶⁵ A discharger must also report any “material change” in the nature of the discharge (the character, location, or volume) to enable the board to make any appropriate ad-

¹⁵⁸ Cal. Stat. 1967, ch. 1447, § 11, at 3377.

¹⁵⁹ CAL. WATER CODE § 13054.3(b) (West Supp. 1968): “Each regional board, within its region, may prescribe requirements of the type specified in Section 13054, which shall be applicable to all indirect discharges of sewage from family dwellings within a designated area Upon adoption, such requirements shall be enforceable, jointly and severally, against any discharger within the area designated who is in violation thereof.”

¹⁶⁰ Interview with John B. Harrison, *supra* note 109.

¹⁶¹ CAL. WATER CODE § 13054.3(a) (West Supp. 1968)

¹⁶² Interview with John B. Harrison, *supra* note 109. It would seem, however, that the desired results could be reached by making the discharge requirements so stringent that the use of septic tanks would effectively be stopped.

¹⁶³ CAL. WATER CODE § 13053 (West 1956). “Threatened” is defined as “a reasonable probability that the act or event will occur.” CAL. WATER CODE § 13006 (West 1956). Note also that § 13053 refers only to conditions of pollution within the board’s region. The Attorney General has inferred from this that the regional boards have no jurisdiction to set requirements in regard to pollution originating outside their region. *See* 43 OP. CAL. ATT’Y GEN. 317, 318 (1964).

¹⁶⁴ CAL. WATER CODE § 13055 (West Supp. 1968).

¹⁶⁵ CAL. WATER CODE § 13054 (West Supp. 1968). This section is applicable only to those who discharge waste other than into a community sewer system. When discharge is into such a system, ultimately the city will be regulated through its treatment operations. The regional boards are only interested in the quality of the effluent being discharged into the open waters. The boards are also given the power to require any discharger existing at the enactment of the pollution law in 1949 to file a report of the discharge for the purpose of setting requirements. *Id.*

justments in the requirements.¹⁶⁶ Failure to file a required report constitutes a misdemeanor.¹⁶⁷ The board may also request the local district attorney to institute proceedings to halt the discharge of waste and require the filing of a requested report.¹⁶⁸ Should the discharger feel that the report requirements are too stringent, he may appeal to the state board for relief.¹⁶⁹

In addition to the reports required by statute, the regional boards may compel other state or local agencies to investigate and report on the technical aspects of a specified condition of pollution.¹⁷⁰ This is particularly valuable because the boards may thereby use the aid of experts and the experience of other agencies.¹⁷¹ The boards also rely on the information given by interested persons in the community.¹⁷² Finally, the boards learn of pollution through referrals from other state agencies, particularly the Department of Health and the Department of Fish and Game.¹⁷³

¹⁶⁶ CAL. WATER CODE § 13054.1 (West Supp. 1968).

¹⁶⁷ CAL. WATER CODE § 13054.4 (West Supp. 1968). Each day following the failure to file the requested report constitutes a separate offense. *Id.*; see CAL. WATER CODE § 13055.1 (West Supp. 1968) which makes it a misdemeanor to fail or refuse to furnish any technical reports requested. These penalty sections are rarely used, primarily because it is easier to achieve cooperation informally. Interview with Richard A. Harris, *supra* note 109.

¹⁶⁸ CAL. WATER CODE § 13054.5 (West Supp. 1968): "Upon failure of any person or persons to file a report as required by Sections 13054 and 13054.1, a regional board may certify the facts to the district attorney for the county in which the discharge or proposed discharge does or will occur, and the district attorney shall petition the superior court in and for that county for the issuance of an injunction requiring such person or persons to file the required report and restraining such person or persons from discharging sewage or other waste within the region until the required report has been filed. In any such suit, the court shall have jurisdiction to grant, without requiring bond or other undertaking, such prohibitory and mandatory injunction, either preliminary or final, as the facts may warrant."

¹⁶⁹ CAL. WATER CODE § 13055 (West Supp. 1968): "Any person who has been required to make such reports entailing a substantial expenditure of time or funds which are not directly related to the appraisal of the existence or threat of pollution may, within 30 days of the determination of the regional board in the matter, appeal such determination to the state board. The state board shall determine the reasonableness and relationships of burdens and costs to benefit of such report and, within 60 days, shall affirm, modify, or annul the determination of the regional board. Pending such determination by the state board, the requirement to furnish the reports shall not be effective."

¹⁷⁰ CAL. WATER CODE § 13052(c) (West Supp. 1968). Note, however, that the penalty provisions (§§ 13054.4-54.5, 13055.1) are not applicable to the state or any department, agency, officer, or employee of the state. CAL. WATER CODE § 13057 (West Supp. 1968). Nevertheless, this section specifically permits the use of other legal remedies such as mandamus.

¹⁷¹ Moskowitz, *supra* note 62, at 593.

¹⁷² John B. Harrison, Executive Officer of the San Francisco Board, noted that the board makes extensive use of a patrol boat to find dischargers. Harrison also indicated that a great percentage of the reports of pollution came from interested persons or groups within the community, particularly such groups as sportsmen and conservationists. Interview with John B. Harrison, *supra* note 109.

¹⁷³ Such referrals are required by law when the agencies discover a condition of pollution or nuisance. CAL. HEALTH & SAFETY CODE § 5413 (West 1955) and CAL. FISH & GAME CODE § 5651 (West 1958). Fish & Game Code § 5651 requires the Fish and Game Department to report only "continuing and chronic" conditions of pollution. As a matter of practice, however, the department regularly reports all conditions of pollution. Interview with Jack C. Fraser, Chief of the Water Projects Branch, Depart-

The regional boards are given wide discretion to determine the extent of the preliminary investigations before setting discharge requirements.¹⁷⁴ Investigations vary from formal hearings for large treatment facilities to informal meetings for small dischargers. A hearing is mandatory only when the board sets requirements for indirect discharges from family dwellings.¹⁷⁵

The regional boards are obligated to achieve the "highest water quality consistent with the maximum benefit to the people of the state"¹⁷⁶ The requirements, therefore, are to be no stricter than needed to protect the beneficial use designated.¹⁷⁷

The formulation of waste discharge requirements should be so designed as to (1) secure that degree of care in the planning and operation of works for the treatment and disposal of sewage and other wastes as will adequately protect the public health and the beneficial uses of waters of the State and (2) at the same time permit the legitimate planned usage of those waters for receiving suitably prepared wastes so that an orderly growth and expansion of cities and industries may be possible.¹⁷⁸

Basically, then, the boards must weigh the "relative economic and social values of the disposal of the wastes against the beneficial uses of the water affected by such disposal."¹⁷⁹

Two aspects of the discharge requirements are notable. First, the requirements may only be phrased in terms of the standard of water quality desired.¹⁸⁰ The requirements may not specify the means or processes by which the water standard will be achieved or maintained. This means that the regional boards may not become involved with the location, construction, or operation of the treatment facility. Thus, for example, a sewage or waste disposal site may not be rejected by a board merely because of a threatened nuisance or potential depreciation of neighboring property values.¹⁸¹ The 1949 Assembly Interim Committee on Water Pollution, in proposing new pollution legislation, felt that the individual discharger was in the best posi-

ment of Fish and Game, in Sacramento, California, February 20, 1968. The Santa Ana Regional Board has found that apart from its own observations, the Health Department has reported most of the cases of pollution in the region. Interview with Richard A. Bueerman, *supra* note 92.

¹⁷⁴ 16 OP. CAL. ATT'Y GEN. 112, 114 (1950).

¹⁷⁵ CAL. WATER CODE § 13054.3(b) (West Supp. 1968). The Attorney General has ruled that the regional boards may set discharge requirements for family dwellings in advance and, where adequate, local health ordinances may be adopted as the requirements. 16 OP. CAL. ATT'Y GEN. 112 (1950).

¹⁷⁶ CAL. WATER CODE § 13000.2 (West Supp. 1968).

¹⁷⁷ Moskovitz, *supra* note 62, at 593. Should the requirements be set too high, the discharger may appeal the decision to the state board for review. The appeal procedures are discussed in text accompanying notes 241-48 *infra*.

¹⁷⁸ 23 CAL. ADMIN. CODE, § 2161(d).

¹⁷⁹ WATER FOR IRRIGATION 13.

¹⁸⁰ CAL. WATER CODE § 13064 (West 1956): "No order issued under the provisions of this article shall specify the design, location, type of construction or particular manner in which an operation causing or threatening to cause a condition of pollution or nuisance is to be corrected, and the person so ordered shall be permitted to correct the condition in any lawful manner."

¹⁸¹ 16 OP. CAL. ATT'Y GEN. 200, 201-02 (1950).

tion to design the most efficient means of treating his effluent.¹⁸² However, the boards are not powerless to prevent a nuisance, since the disposal requirements for the facility may be stringent enough to bar such an occurrence.¹⁸³

Second, the discharge requirements may reflect several systems of regulation. McKee and Wolf state that water quality criteria should have three essential characteristics to be of maximum usefulness:

[A] criterion should be capable of quantitative evaluation by acceptable analytical procedures. Without numerical criteria, vague descriptive qualitative terms are subject to legal interpretation or administrative decisions. A criterion should also be capable of definitive resolution, i.e., unaffected insofar as possible by synergism, antagonism, or other complicating factors.

There is a tendency, which should be avoided assiduously, to let criteria become rigid and perhaps ripen into standards. For this reason, every criterion should be regarded as flexible information to be kept constantly under surveillance.¹⁸⁴

The State Attorney General has ruled that the regional boards may set the requirements by describing the characteristics of the discharge (effluent standard), or the characteristics of the water into which the waste is being deposited (receiving water standard), or by a combination of both.¹⁸⁵ The effluent standard may restrict either the strength or the amount of wastes that can be discharged, or specify the degree of treatment or percent removal of a specific pollutant.¹⁸⁶

The receiving water standard expresses the quality of the receiving water to be maintained. The primary advantage of the receiving water standard is that dilution and the assimilative capacity of the water may be considered.¹⁸⁷ This standard permits "stream zoning" so that regulations may be tailored to an entire stream or designated section.¹⁸⁸ The receiving water standard used alone, however, may raise administrative problems since it does not tell the discharger the extent to which he can increase his discharge.¹⁸⁹ In addition it may be difficult to allocate the water's assimilative capacity among the dischargers.¹⁹⁰ As a matter of practice, therefore, the California regional boards favor a combination of both standards, depending on the conditions of the waters to be regulated and the nature of the effluent.¹⁹¹ Some pollutants such as oil, for example, are adequately controlled only by controlling discharge, while others may be handled in terms of what they do to the receiving waters.

¹⁸² See 1949 REPORT 54.

¹⁸³ 16 OP. CAL. ATT'Y GEN. 200, 201-02 (1950).

¹⁸⁴ MCKEE & WOLF 5.

¹⁸⁵ 16 OP. CAL. ATT'Y GEN. 203 (1950).

¹⁸⁶ MCKEE & WOLF 30.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ Gindler, *Water Pollution and Quality Controls*, in 3 WATERS AND WATER RIGHTS 236 (R. Clark ed. 1967).

¹⁹⁰ *Id.* at 235.

¹⁹¹ Interview with Paul R. Bonderson, *supra* note 94.

The procedure for enforcing the discharge requirements is based on a system of monitoring by both the discharger and the regional boards.¹⁹² The boards require the discharger to establish a monitoring system at his own expense¹⁹³ and make regular data reports.¹⁹⁴ Some of the smaller boards merely require that the results be available for inspection.¹⁹⁵ Depending on the nature of the discharge and the discharger, the boards may either dictate formal monitoring requirements or make flexible, informal agreements.¹⁹⁶ The boards make spot-checks, comparing the results with the monitoring reports from the discharger. If there is a serious discrepancy, the board contacts the discharger informally and asks him to correct the defect.¹⁹⁷ Should this administrative approach fail, the matter is brought before the regional board in a formal hearing. After the board has gathered all the relevant facts, it may issue a cease and desist order containing a timetable for the correction of the problem.¹⁹⁸ If the discharger continues to act in violation of the requirements, the regional board may certify the facts to the district attorney,¹⁹⁹ who then has the duty to seek an injunction against

¹⁹² S.F. BAY POLLUTION 27.

¹⁹³ The costs of monitoring are fairly high, particularly in relation to the size and economic position of some of the dischargers. The cost of sample collection and routine analysis performed by the discharger may be expected to range from \$100 to \$200 per day, per discharger. The total annual cost of continuous self-monitoring was estimated by one discharger to be approximately \$40,000. WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 42.

¹⁹⁴ The frequency of the reports varies depending on the nature of the receiving water and the discharge. In the Santa Ana Region, for example, the most frequent is weekly, the least frequent is annually. Most dischargers are required to report every two months. Interview with Richard A. Bueerman, *supra* note 92.

¹⁹⁵ WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 40.

¹⁹⁶ John B. Harrison, Executive Officer of the San Francisco board, indicated that if the discharger readily agrees to monitor, the board merely makes an informal agreement with him. But if there is resistance to such a system, the board usually formalizes the monitoring program, prescribing exactly what the discharger is required to do. The advantage of the informal approach is that it is considerably more flexible and is easily altered to meet changing circumstances. Interview with John B. Harrison, *supra* note 109.

¹⁹⁷ All regional boards surveyed stressed the use of informal contacts when trying to resolve a pollution problem. Only as a last resort was the problem referred to the full board.

¹⁹⁸ "When a regional board finds that the discharge of sewage or other waste within its region is taking place contrary to any requirements prescribed by the regional board . . . and that such discharge is threatening to cause or is causing pollution or a nuisance, the board may issue an order to cease and desist and direct that those persons, firms, or corporations not complying with the requirements, comply forthwith." CAL. WATER CODE § 13060 (West Supp. 1968). Between 1959 and September 30, 1966, the regional boards issued 190 cease and desist orders. Comment, *Regional Control of Air and Water Pollution in the San Francisco Bay Area*, 55 CALIF. L. REV. 702, 715 n.123 (1967).

¹⁹⁹ CAL. WATER CODE § 13063 (West Supp. 1968). John B. Harrison, Executive Officer of the San Francisco board, stated that most of the cases are cleared up merely by referring the problem to the district attorney. Once the discharger realizes that the board is serious, he usually complies voluntarily. Harrison feels that the threat of prosecution is one of the best methods of forcing cooperation. Interview with John B. Harrison, *supra* note 109. It should be noted that these sections are not applicable to the

the violator.²⁰⁰ Should the district attorney decline to act, the regional board may refer the case to the Attorney General for action.²⁰¹ If the pollution is transitory, short, or periodic, the regional boards may request the district attorney to bring an immediate action for summary abatement.²⁰²

The regional boards have also been included in a new system for regulating the construction, use, and abandonment of water wells and cathodic protection wells.²⁰³ Any person who intends to construct, deepen, or abandon a well must file a report of his intention with the Department of Water Resources.²⁰⁴ A similar report must be filed on the completion of the intended work.²⁰⁵ If, after the reports are submitted and independent investigations are made, the Department feels that well standards are needed to protect the quality of the affected water, it must refer the matter to the appropriate regional board and the Health Department.²⁰⁶ The regional

state, or any of its agencies or officers. See CAL. WATER CODE § 13057 (West Supp. 1968). The fact that they are not, however, does not seem to have raised any significant problems. Most state agencies are willing to cooperate so long as their programs are not jeopardized. Even where there is conflict, informal discussion has successfully resolved problems thus far. Interview with Paul R. Bonderson, *supra* note 94.

²⁰⁰ CAL. WATER CODE § 13063 (West Supp. 1968): "Upon failure of any person or persons to comply with any such cease and desist order of the board, the board issuing the order may certify the facts to the district attorney for the county in which the discharge originates or to the Attorney General if the district attorney declines to act. The district attorney or Attorney General, as the case may be, shall petition the superior court in and for that county for the issuance of an injunction restraining such person or persons from continuing the discharge in violation of the requirements. The court shall thereupon issue an order directing the person to appear before the court and show cause why the injunction should not be issued. Thereafter the court shall have jurisdiction of the matter, and proceedings thereon shall be conducted in the same manner as in any other action brought for an injunction"

"The court shall receive in evidence the order of the board, evidence as to the validity and reasonableness of the board's requirements as previously established, and such further evidence as the court in its discretion deems proper." Twenty cease and desist orders have been referred to the local district attorneys since 1959. In only two of these cases was the state's request for a court order denied. Comment, *supra* note 198, at 715 n.124. Several officials in the water pollution program have admitted that the boards have been setting standards higher than might be allowed by the courts should the reasonableness of the standards be litigated. Interviews with Paul R. Bonderson, *supra* note 94; Richard A. Bueerman, *supra* note 92; and Richard A. Harris, *supra* note 109.

²⁰¹ CAL. WATER CODE § 13063 (West Supp. 1968). Thus far, recourse to the Attorney General has only been a theoretical problem since the boards have never had to bypass the local district attorney. Interview with Paul R. Bonderson, *supra* note 94. The San Francisco board, for example has found that although the district attorney may be slow in acting, he has usually been very cooperative. Interview with John B. Harrison, *supra* note 109.

²⁰² CAL. WATER CODE § 13080 (West Supp. 1968).

²⁰³ CAL. WATER CODE §§ 13700-806 (West Supp. 1968). "Water Well" includes "any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground." CAL. WATER CODE § 13710 (West Supp. 1968).

A "cathodic protection well" is an "artificial excavation in excess of 50 feet constructed by any method for the purpose of installing equipment or facilities for the protection electrically of metallic equipment in contact with the ground" CAL. WATER CODE § 13711 (West Supp. 1968).

²⁰⁴ CAL. WATER CODE § 13750 (West Supp. 1968).

²⁰⁵ CAL. WATER CODE § 13751 (West Supp. 1968).

²⁰⁶ CAL. WATER CODE § 13800 (West Supp. 1968).

board must, after a public hearing, determine what safeguards are necessary and then transmit its recommendations to all affected city and county governments.²⁰⁷ The local governments are required to adopt ordinances within 120 days specifying the standards for well construction, abandonment, destruction, and maintenance.²⁰⁸ The regional board may review the ordinances and if they are found inadequate, or if the local government refuses to modify or adopt appropriate ordinances, the board may establish the necessary standards.²⁰⁹ These standards have the same effect as an ordinance.²¹⁰ All actions of the regional board under this new act are subject to review by the state board.²¹¹

The regional boards are not exclusively involved in the regulation and abatement of pollution and nuisance.²¹²

[I]t was not the legislative intent to place in the State Water Pollution Control Board or in any of its regional boards the exclusive power to determine whether a nuisance exists and to abate a nuisance created by the pollution of waters of this state.²¹³

The Attorney General has held, for example, that a county board of supervisors may designate themselves a county water quality control board and may adopt procedures for its operation.²¹⁴ The power to regulate sewage discharge would be most useful when the county wanted higher standards than those set by the regional board. The Attorney General has ruled that a county board of supervisors may prohibit the discharge of wastes in any designated area within the county, even though the regional board has permitted it.²¹⁵

²⁰⁷ CAL. WATER CODE § 13802 (West Supp. 1968).

²⁰⁸ CAL. WATER CODE § 13803 (West Supp. 1968).

²⁰⁹ CAL. WATER CODE § 13805 (West Supp. 1968).

²¹⁰ CAL. WATER CODE § 13805 (West Supp. 1968).

²¹¹ CAL. WATER CODE § 13806 (West Supp. 1968).

²¹² CAL. WATER CODE § 13001 (West Supp. 1968): "No provision of this division or any ruling of the State Water Resources Control Board or a regional water quality control board is a limitation:

(a) On the power of a city or county to adopt and enforce additional regulations not in conflict therewith imposing further conditions, restrictions, or limitations with respect to the disposal of sewage or other waste or any other activity which might result in the pollution of water.

(b) On the power of any city or county to declare, prohibit, and abate nuisances.

(c) On the power of a state agency in the enforcement or administration of any provision of law which it is specifically permitted or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in the Civil Code or for relief against any contamination or pollution."

²¹³ *People v. City of Los Angeles*, 160 Cal. App. 2d 494, 501, 325 P. 2d 639, 642 (1958).

²¹⁴ 47 OP. CAL. ATT'Y GEN. 40 (1966).

²¹⁵ 47 OP. CAL. ATT'Y GEN. 40 (1966). As a practical matter, however, county and local governments have accepted the regional board's standards as the maximum requirement. The only notable exception has been with respect to the regulation of septic tanks; the counties will frequently require a higher standard than required by the regional boards. Interview with Paul R. Bonderson, *supra* note 94.

B. State Water Resources Control Board²¹⁶

Pursuant to the recommendations of the Assembly Interim Committee on Water Pollution, the legislature created the State Water Pollution Control Board in 1949.²¹⁷ Stated simply, the board was created to “review matters affecting the total interest of [the] State, and to establish state-wide policy and planning, and administer programs for research.”²¹⁸ The board existed with no substantial change until the 1967 legislative session. As a part of the legislative program in that year, the legislature formally recognized that the quality of water is directly related to its quantity. The degree of pollution in any given area has always been dependent on the amount of diluting water available.²¹⁹

The emphasis in new state and federal legislation on establishing water quality policy and objectives can be expected to demonstrate a more direct relationship between waste discharges and water rights. Increasingly the emphasis will be placed upon broad policy considerations which will relate the quality of water and waste dischargers to the purposes being served by the receiving waters including the vested rights to use such receiving waters.²²⁰

As a result of this policy determination, the State Water Rights Board was combined with the State Water Quality Control Board to form the new State Water Resources Control Board.²²¹ This change should revitalize state pollution control activities and give the protection of the state’s water resources a new breadth and effectiveness.²²² Although the functions of the state board with respect to pollution control have not been substantially altered, the board must now consider factors of water quantity when dealing with water quality.

To ease the transition between the old and new systems, the legislature created as a part of the new board the Water Quality Advisory Committee.²²³ Under the prior law, the State Water Quality Control Board consisted of five *ex-officio* members: the State Directors of Water Resources, Public Health, Conservation, Agriculture, and Fish and Game.²²⁴ Also included were nine members appointed by the governor.²²⁵ There was, however, a

²¹⁶ This section will be limited primarily to a discussion of the statutory structure and functions of the state board. The new board has not been in operation long enough for practical comment or critical evaluation.

²¹⁷ 1949 REPORT 108.

²¹⁸ *Id.*

²¹⁹ MCKEE & WOLF, *supra* note 2, at 9.

²²⁰ STAFF STUDY, *supra* note 112, at 26.

²²¹ Cal. Stat. 1967, ch. 284, § 1, at 1441.

²²² See STAFF STUDY 34–35.

²²³ *Id.* at 3. CAL. WATER CODE § 13019 (West Supp. 1968): “The state board shall consult with and seek the advice of the committee with regard to its responsibilities relating to water quality and water pollution control and prior to adopting water pollution or water quality control policy pursuant to this division. The committee members shall advise the board on such matters. The advisory committee may express its advice by resolution when appropriate.”

²²⁴ Cal. Stat. 1953, ch. 1067, § 1, at 2549.

²²⁵ *Id.*

dissatisfaction with ex-officio boards from both an organizational and an operational standpoint.²²⁶ The board frequently was "too exclusively oriented towards specific and limited fields of action."²²⁷ No ex-officio members, therefore, are included in the new advisory committee. Rather, it consists of the chairmen of the regional boards and nine citizen members appointed by the governor.²²⁸ The appointed members serve a term of four years,²²⁹ one coming from each of the following fields: production and supply of domestic water, irrigated agriculture, industrial water use, production of other wastes, public sewage disposal, city government, county government, recreation and wildlife, and the general public.²³⁰ Like the regional boards, the committee must meet once each calendar quarter.²³¹

The state board, assigned all budgetary responsibilities for the state water quality program, makes the primary allocation of funds which have been designated for water pollution activities.²³² More important is the board's role as administrator of state and federal funds made available to local governments for construction of waste treatment facilities.²³³ The board is also given responsibility for administering all statewide research programs delegated to it.²³⁴ It may either do the research independently or may contract it to other persons or agencies in the state. Currently all research programs under the direction of the state board have been contracted out, most projects going to universities.²³⁵

The state board is also required to formulate a statewide policy for pollution control²³⁶ and water quality.²³⁷ In forming these policies, the state board must consult with the affected regional boards and must seek the advice of the advisory committee.²³⁸ In addition, the board is to hold public hearings before adopting any policy, giving the regional boards the oppor-

²²⁶ STAFF STUDY 31.

²²⁷ *Id.* at 30.

²²⁸ CAL. WATER CODE § 13015 (West Supp. 1968).

²²⁹ CAL. WATER CODE § 13015 (West Supp. 1968).

²³⁰ *Id.*

²³¹ CAL. WATER CODE § 13016 (West Supp. 1968).

²³² CAL. WATER CODE § 13020 (West Supp. 1968). The state board uses four main categories for allocation: state board funds, regional board funds, research funds, and field and laboratory services. In addition, contributions are made to the State Employees Retirement Fund (SERF) and the State Employees Health and Welfare Fund (SEHWF). Expenditures from 1961 to 1962 were \$8,129,345 of which \$785,796 came from federal sources. The distribution was as follows:

Regional Boards, \$4,154,798 or 51.1%; Research, \$1,403,110 or 17.3%; Field and Lab, \$1,366,092 or 16.8%; State Board, \$930,853 or 11.4%; SERF & SEHWF, \$274,492 or 3.4%.

WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 15-16.

²³³ CAL. WATER CODE § 13023 (West Supp. 1968). Most of the funds made available for use by the local governments have been from federal sources. State funds have been inadequate for most municipal needs. Interview with John B. Harrison, *supra* note 109.

²³⁴ CAL. WATER CODE § 13024 (West Supp. 1968).

²³⁵ Interview with Paul R. Bonderson, *supra* note 94.

²³⁶ CAL. WATER CODE § 13022 (West Supp. 1968).

²³⁷ CAL. WATER CODE § 13022.1 (West Supp. 1968).

²³⁸ CAL. WATER CODE § 13022.3 (West Supp. 1968).

tunity to submit recommendations.²³⁹ The "Statewide Policy for the Control of Water Quality," for example, contains definitions of water quality terms and guidelines for formulating and implementing regional policies. The policy is to serve as a guide for both the state and the regional boards in meeting their statutory obligations under the Water Quality Control Act.²⁴⁰

One of the most important roles of the state board is its power to review regional board action.²⁴¹ The relative positions of the state and regional boards in this respect are best summarized in an opinion by the State Attorney General:

Regional water pollution control boards have the primary responsibility to take or obtain appropriate action to correct particular existing or threatened conditions of pollution. If, in the judgment of the [State Water Resources Control Board], a regional board has failed to take or obtain appropriate action, the State board is required to do so. Review of the appropriateness of regional board action as a basis for possible State board action may be made by the State board on its own motion whenever and by whatever procedure in its judgment appears desirable, and it may decide to review because of an outside request to do so or because of knowledge acquired from other sources. If the State board concludes that appropriate action has not been taken or obtained, it may direct that corrective action be taken by any state agency having jurisdiction or it may take action itself, using the powers and procedures of regional boards.²⁴²

Questions of "appropriate action" may also involve the strictness of the discharge requirements set by the regional boards. If the requirements are too high, the burden is on the discharger to show that it is reasonable and proper to lower them.²⁴³ Although review was confined under the old law to questions involving pollution,²⁴⁴ the new board may consider questions

²³⁹ CAL. WATER CODE § 13022.4 (West Supp. 1968): "The state board shall not adopt water pollution or water quality control policy unless a public hearing is first held respecting the adoption of such policy. At least 60 days in advance of such hearing, the state board shall notify any affected regional board or boards. The affected regional board or boards shall submit written recommendations to the state board at least 20 days in advance of the hearing."

²⁴⁰ Water Quality Policy, Preamble.

²⁴¹ CAL. WATER CODE § 13025 (West Supp. 1968): "Any action of a regional board pursuant to Section 13053, 13054, 13054.1, or 13054.3, or the failure of a regional board to act may be reviewed by the state board and upon finding that the regional board's action or inaction based upon the evidence before the state board appears to have been inappropriate or improper may direct that appropriate action be taken by the regional board or any other state agency having jurisdiction or may, itself, take such action.

"In taking such action the state board is vested with the powers granted to the regional boards. . . .

"The state board upon finding that a contamination exists and is not being corrected, shall refer the condition to any state agency having jurisdiction."

²⁴² 24 OP. CAL. ATT'Y GEN. 266-67 (1954).

²⁴³ MCKEE & WOLF 3.

²⁴⁴ 24 OP. CAL. ATT'Y GEN. 266, 267 (1954).

pertaining to nuisance as well.²⁴⁵ There were eight discharge requirements appealed to the state board during the period 1950 to 1966,²⁴⁶ but only once did the state board find the regional board's actions inappropriate.²⁴⁷ The board also may intervene if there is conflict between two regions respecting requirements to be set for a discharge affecting both regions.²⁴⁸ Conflict is most likely to arise when a river runs through two regions. The upstream regional board may not set discharge requirements stringent enough to protect the water in the lower region. Since each regional board is relatively autonomous, the state board is a logical mediator.

The state board has generally been most successful in problems involving the whole state.²⁴⁹ Recognizing the regional nature of pollution, the state board rarely becomes involved in specific problems within a region. It has provided a forum at which the regional boards may gather to discuss general matters of interest to all. In addition, it has worked fairly effectively with other state agencies to coordinate statewide water quality policy.²⁵⁰ Owing, however, to the newness of the board, it is difficult to determine how effectively it will operate in the future.

C. State Department of Public Health

In addition to the State Water Resources Control Board and the regional water quality control boards, the Department of Public Health also plays a role in the control of pollution in California. As explained previously,²⁵¹ the California system is divided into two broad jurisdictions: pollution and nuisance, on the one hand, and contamination on the other.²⁵² The Health Department has jurisdiction over "contamination," which is defined in the water code as an "impairment of the quality of the waters of the state by sewage or other waste to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease."²⁵³ Should

²⁴⁵ CAL. WATER CODE § 13025 (West Supp. 1968).

²⁴⁶ Comment, *supra* note 198, at 715, n.122. Most appeals to the state board involve a request for a higher standard, rather than a discharger's request for a lower standard. Interview with Paul R. Bonderson, *supra* note 94.

²⁴⁷ Comment, *supra* note 198, at 715, n.122.

²⁴⁸ CAL. WATER CODE § 13025.5 (West Supp. 1968): "In the event a waste discharge in one region affects the waters in another region and there is any disagreement between the regional boards involved as to the requirements which should be established, either regional board may submit the disagreement to the state board which shall determine the applicable requirements. The power conferred upon the state board herein does not limit the powers conferred in Section 13025 [the power of the state board to review the actions of the regional boards]." As yet there has been no use of this section.

²⁴⁹ Interview with John B. Harrison, *supra* note 109.

²⁵⁰ Interview with Paul R. Bonderson, *supra* note 94.

²⁵¹ See text accompanying notes 91-99, *supra*.

²⁵² See 1949 REPORT 108.

²⁵³ CAL. WATER CODE § 13005 (West Supp. 1968). Although there is general satisfaction with the definition of "contamination," the Department would prefer the power to abate a dangerous situation before a "contamination" is actually created. The Department conceded, however, that were such authority granted, it would increase the possibility of conflict with the regional water quality control boards since the condition would still technically be "pollution" until public health was actually endangered. Interview with Herbert B. Foster, *supra* note 97.

the Department encounter a condition of pollution or nuisance, it must refer the problem immediately to the appropriate regional water quality control board.²⁵⁴ Although it does not have authority to ameliorate the problem, it may recommend to the appropriate board any corrective measures which it deems necessary.²⁵⁵

The Department learns of conditions of contamination (as well as pollution) through public complaints²⁵⁶ and through the use of a broad investigatory system. The Department continuously checks the operating conditions of public water systems²⁵⁷ and maintains a program of surveillance of waste treatment facilities and disposal areas.²⁵⁸ For example, the Department inspects the devices designed to protect domestic water supplies from contamination, the disinfection of effluents, and the areas where effluents are used for irrigating crops, golf courses, and parks.²⁵⁹ The Department also makes laboratory and field studies of the quality of the receiving waters affected by sewage discharge.²⁶⁰

Upon discovery of a condition of contamination, the Department is required to order its immediate abatement.²⁶¹ In lieu of immediate court action, the Department often makes extensive use of informal administrative channels to encourage voluntary abatement.²⁶² Occasionally it will issue a peremptory order formally requiring the abatement of the contamination.²⁶³ It will then work with the violator to correct the problem in conformity with the order.²⁶⁴ Concurrently with the issuance of the peremptory order (or if it is subsequently violated)²⁶⁵ the Department may institute proceedings for an injunction.²⁶⁶ If the threat to the public is critical, the State Board of Public Health may issue a quarantine order, limiting access to the contaminated area.²⁶⁷ Upon the issuance of a quarantine order, the Department of Public Health loses jurisdiction over the problem. Although the quality of the water has not been improved, the actual threat to the public health has been elimi-

²⁵⁴ CAL. HEALTH & SAFETY CODE § 5413 (West 1955).

²⁵⁵ CAL. HEALTH & SAFETY CODE § 5413 (West 1955).

²⁵⁶ Interview with Herbert B. Foster, *supra* note 97.

²⁵⁷ CALIFORNIA DEP'T OF PUBLIC HEALTH, BUREAU OF SANITARY ENGINEERING, PROGRAM PLANNING: FISCAL YEAR 1967-1968, at 18 (1967).

²⁵⁸ *Id.* at 26.

²⁵⁹ *Id.*

²⁶⁰ *Id.* at 27, 29, 31.

²⁶¹ CAL. HEALTH & SAFETY CODE § 5412 (West 1955).

²⁶² Interview with Herbert B. Foster, *supra* note 97.

²⁶³ CAL. HEALTH & SAFETY CODE § 5460 (West Supp. 1968): "The state department or local health officer may issue a peremptory order requiring the abatement of a contamination, and shall immediately furnish to the proper regional board a report of information and data relating thereto."

²⁶⁴ Interview with Herbert B. Foster, *supra* note 97.

²⁶⁵ Usually the subsequent violations are not intentional but rather are a result of careless operation of treatment facilities. Rarely will a discharger willfully disregard the requirements of the Department. Interview with Herbert B. Foster, *supra* note 97.

²⁶⁶ CAL. HEALTH & SAFETY CODE § 5460 (West Supp. 1968).

²⁶⁷ Interview with Herbert B. Foster, *supra* note 97. Sometimes the quarantine will be issued simultaneously with a cease and desist order. This frequently will cause enough pressure to force correction of the problem. *Id.*

nated, removing the Department's jurisdiction.²⁶⁸ The Department's loss of jurisdiction, however does not mean that there is no longer any agency to correct the problem. Without the actual threat to the public health, the problem falls within the statutory definition of pollution which gives the regional boards jurisdiction.²⁶⁹

In addition to the powers exercised in conjunction with the state and regional water quality control boards, the Health Department is given responsibility for the maintenance of pure water for domestic use.²⁷⁰ A permit, required for any person supplying water for domestic use,²⁷¹ may be revoked at any time the water becomes impure or dangerous to the public health.²⁷² The Department is given broad investigatory²⁷³ and injunctive²⁷⁴ powers to enforce the provisions of this law.

The Health Department also has the authority to regulate the disposal of many wastes.²⁷⁵ This authority includes the regulation of the disposal of animal carcasses,²⁷⁶ the keeping of livestock near water used for domestic supply,²⁷⁷ the use of sewage wells,²⁷⁸ and the disposal of atomic waste.²⁷⁹ Violation of any of these provisions may be enjoined²⁸⁰ or summarily abated.²⁸¹

²⁶⁸ 26 OP. CAL. ATT'Y GEN. 253, 256 (1955).

²⁶⁹ CAL. WATER CODE § 13005 (West Supp. 1968).

²⁷⁰ See CAL. HEALTH & SAFETY CODE § 203 (West 1955).

²⁷¹ CAL. HEALTH & SAFETY CODE § 4011 (West 1955). The provisions of the Pure Water Law, CAL. HEALTH AND SAFETY CODE §§ 4010-35 (West 1955), are applicable to mutual water companies and chartered cities operating a public water system. 26 OP. CAL. ATT'Y GEN. 7 (1955).

²⁷² CAL. HEALTH & SAFETY CODE §§ 4016, 4022 (West 1955).

²⁷³ CAL. HEALTH & SAFETY CODE § 4030 (West 1955).

²⁷⁴ "Anything done, maintained, or suffered in violation of any of the provisions of this chapter is a public nuisance dangerous to health, and may be enjoined or summarily abated in the manner provided by law. Every public officer or body lawfully empowered so to do shall abate the nuisance immediately." CAL. HEALTH & SAFETY CODE § 4034 (West 1955).

²⁷⁵ CAL. HEALTH & SAFETY CODE § 4401 (West 1955). "Garbage" includes swill, refuse, cans, bottles, paper, vegetable matter, the carcass of any dead animal, offal from any slaughter pen or butcher shop, trash, rubbish, and radioactive waste materials. CAL. HEALTH & SAFETY CODE § 4400 (West Supp. 1968).

²⁷⁶ CAL. HEALTH & SAFETY CODE § 4450 (West 1955).

²⁷⁷ CAL. HEALTH & SAFETY CODE § 4453 (West 1955).

²⁷⁸ "No person shall construct, maintain or use any sewer well extending to or into a subterranean water-bearing stratum that is used or intended to be used as, or is suitable for, a source of water supply for domestic purposes, except that where a regional water pollution control board finds that water quality considerations do not preclude controlled recharge of such stratum by direct injection, water reclaimed from sewage may be injected by a well into such stratum after a public hearing and a finding by the State Board of Public Health that the proposed recharge will not impair the quality of water in the receiving aquifer as a source of water supply for domestic purposes. Said board may make and enforce such regulations pertaining thereto as it deems proper." CAL. HEALTH & SAFETY CODE § 4458 (West Supp. 1968).

²⁷⁹ "No person shall bury, throw away, or in any manner dispose of radioactive wastes within the State except in such a manner and at such locations as will result in no significant radioactive contamination of the environment." CAL. HEALTH & SAFETY CODE § 25601 (West 1967). The disposal of atomic waste is also subject to control by the Atomic Energy Commission. See 10 C.F.R. §§ 20.301-601 (1968).

²⁸⁰ CAL. HEALTH & SAFETY CODE § 4460 (West 1955), § 25605 (West 1967).

²⁸¹ CAL. HEALTH & SAFETY CODE § 4461 (West 1955).

D. State Department of Fish and Game

The Department of Fish and Game maintains an extensive water quality program independent of the water quality control boards and the Department of Public Health.

Broadly speaking the Department is responsible for the protection, maintenance, enhancement and management of the fish and wildlife resources of the State. In effect, [it has] a custodial responsibility for these resources on behalf of the people of California. In exercising this responsibility [it becomes] directly involved in the uses of the land and water resources of the State upon which the fish and wildlife resources are completely dependent for survival.²⁸²

With respect to the problems of pollution and water quality, the Department is primarily²⁸³ concerned with many specific pollutants affecting fish and wildlife,²⁸⁴ the disposal of garbage and rubbish in or adjacent to the state waters,²⁸⁵ and the protection of fish spawning areas.²⁸⁶

The procedures for implementing these responsibilities are divided between technical and enforcement activities.²⁸⁷ The technical program is concerned with accumulating and evaluating biological and ecological data. The Department makes on-site investigations of both existing and threatened pollution problems and studies the adverse effects of specific discharges on the environment.²⁸⁸ In addition, the Department makes statewide studies to determine the general sources and effects of various pollutants.²⁸⁹ The information accumulated through these research programs is made available to the water quality control boards and other government agencies involved in the allocation and protection of water.²⁹⁰ The Department also contracts to perform water quality services for other state agencies (including the regional water quality control boards). These are generally special studies of the "ecological characteristics of specific water bodies and the effects of wastes on the ecology."²⁹¹

The enforcement activities involve primarily the issuance of citations for violations of those provisions of the Fish and Game Code which prohibit pollution.²⁹² The Department learns of conditions of pollution by investiga-

²⁸² W. T. Shannon, Director, Dept. of Fish & Game, Presentation to California Assembly Comm. on Water 1 (1957).

²⁸³ The Department also regulates the use of vacuum dredge equipment, CAL. FISH & GAME CODE § 5653 (West Supp. 1968), and the control of water flow diversion projects, CAL. FISH & GAME CODE §§ 1601-02 (West Supp. 1968).

²⁸⁴ CAL. FISH & GAME CODE § 5650 (West 1958).

²⁸⁵ CAL. FISH & GAME CODE § 5652 (West Supp. 1968).

²⁸⁶ CAL. FISH & GAME CODE § 1505 (West Supp. 1968).

²⁸⁷ Shannon, *supra* note 282, at 4.

²⁸⁸ *Id.* at 4-5.

²⁸⁹ *Id.* at 5.

²⁹⁰ *Id.*

²⁹¹ *Id.* at 7.

²⁹² During the 1966 calendar year, 607 arrests were made for violations of the following sections:

Litter (§ 5652) 507 cases

Pollution (§ 5650) 97 cases

Vacuum Mining Dredging (§ 5653) 3 cases

Id. at 8.

tions and through reports of its field biologists and wardens.²⁹³ Many reports, however, come from the public and from other state agencies, including the regional boards.²⁹⁴ The Department distinguishes between acute pollution which is short term and chronic pollution which is likely to continue for an extended time.²⁹⁵ The Department must report all "continuing and chronic condition[s] of pollution" to the appropriate regional board, and must cooperate and act through it in the correction of the problem.²⁹⁶ Although it is not required by law to do so, the Department regularly reports acute conditions of pollution to enhance coordination between the two agencies.²⁹⁷ Despite the statutory referral requirements, the Attorney General has ruled that the Department is not prohibited from acting on a chronic condition of pollution without authority from the regional board.²⁹⁸ In practice the Department refers the chronic condition of pollution to the regional board and requests that the board enforce or set appropriate discharge requirements.²⁹⁹ Only if the board fails to act in a way which protects wildlife does the Department assert its responsibility for the protection of fish and wildlife.³⁰⁰ Recently in Southern California, for example, the Los Angeles regional board decided not to include the protection of fish as a "beneficial use" of the waters of Los Angeles Harbor.³⁰¹ This decision conflicted with the objectives of the Fish and Game Department, and thus the Department is taking independent action under the Fish and Game Code.

The provision most used by the Department in its enforcement actions is Fish and Game Code section 5650 which prohibits the deposit in any state waters of certain enumerated substances or any material deleterious to fish, plant, or bird life.³⁰² While this section has been labeled by some as discrim-

²⁹³ Interview with Jack C. Fraser, *supra* note 173.

²⁹⁴ *Id.*

²⁹⁵ *Id.*

²⁹⁶ CAL. FISH & GAME CODE § 5651 (West 1958).

²⁹⁷ Interview with Jack C. Fraser, *supra* note 173.

²⁹⁸ 33 OP. CAL. ATT'Y GEN. 77 (1959); 42 OP. CAL. ATT'Y GEN. 53 (1963); 48 OP. CAL. ATT'Y GEN. 23 (1966); *see* Gindler, *supra* note 189, at 297 n.9.

²⁹⁹ Interview with Jack C. Fraser, *supra* note 173.

³⁰⁰ *Id.* As a rule the regional boards have acted appropriately in correcting the problem. Only occasionally have the boards been reluctant to act, forcing the Department to resort to its other remedies under the provisions of the code. *Id.*

³⁰¹ *Id.*

³⁰² CAL. FISH & GAME CODE § 5650 (West 1958): "It is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this State any of the following:

(a) Any petroleum, acid, coal or oil tar, lampblack, aniline, asphalt, bitumen, or residuary product of petroleum, or carbonaceous material or substance.

(b) Any refuse, liquid, or solid, from any refinery, gas house, tannery, distillery, chemical works, mill or factory of any kind.

(c) Any sawdust, shavings, slabs, edgings.

(d) Any factory refuse, lime, or slag.

(e) Any *cocculus indicus* [fish berry].

(f) Any substance or material deleterious to fish, plant life, or bird life."

The minimum penalty for violating this section is \$100 fine or 25 days in the county jail. CAL. FISH & GAME CODE § 12010 (West Supp. 1968). The maximum punishment is a \$500 fine or six months in the county jail, or both. CAL. FISH & GAME CODE § 12002 (West 1958).

inatory and practically unenforceable,³⁰³ the Department has found it a relatively effective weapon in the protection of fish and wildlife.³⁰⁴ The Department may also file a civil action against any person who either unlawfully or negligently destroys any wildlife protected by state law.³⁰⁵ Such an action often proves difficult, however, for the state must show the actual loss to recover damages.³⁰⁶ Apart from these formal statutory procedures for abatement, the Department makes extensive use of informal consultations with violators.³⁰⁷ Such informal procedures are frequently used if the violators are federal, state or local government projects or agencies.³⁰⁸

In addition to imposing any penal sanctions, the Department may require a discharger convicted of polluting waters to remove any substances that can be removed or to pay the costs of the removal by the Department.³⁰⁹ As a matter of practice, this authority is rarely exercised since dischargers, once known, generally clean up the problem voluntarily.³¹⁰

To avoid duplication of pollution control activities, the Department of Fish and Game tries to coordinate its activities with the regional water quality control boards. The coordination is achieved primarily through mutual assistance in solving particular problems. To the extent of available funds, the Department investigates water quality and the quality of waste effluents to help the boards set and monitor discharge requirements.³¹¹ The Department has also provided expert testimony for the state on behalf of the regional boards when formal legal action has been taken.³¹² In addition, the Department works closely with the boards to establish regional water quality policies by reporting on the extent of aquatic and wildlife resources of the area, the use of these resources by the public, and the water quality necessary to maintain these resources.³¹³ The Department also coordinates its activities with the Department of Water Resources, the Department of Forestry, the Department of Agriculture, the Department of Public Health (particularly in the protection of shellfish),³¹⁴ and the Division of Highways (to minimize the adverse effects of road projects on wildlife).³¹⁵

³⁰³ WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 60.

³⁰⁴ Interview with Jack C. Fraser, *supra* note 173. The only problem has been the fact that the section does not allow preventive measures by the Department. *Id.*

³⁰⁵ CAL. FISH & GAME CODE § 2014 (West 1958): "The State may recover damages in a civil action against any person who unlawfully or negligently takes or destroys any bird, mammal, fish, or amphibian protected by the laws of this State.

The measure of damages is the amount which will compensate for all the detriment proximately caused by the destruction of such birds, mammals, fish, or amphibia." However, the section does not apply to those engaged in agricultural pest control, to the destruction of fish in irrigation canals or drains, or to birds or mammals killed while damaging crops as provided by law.

³⁰⁶ Interview with Jack C. Fraser, *supra* note 173.

³⁰⁷ *Id.*

³⁰⁸ *Id.*

³⁰⁹ CAL. FISH & GAME CODE § 12015 (West 1958).

³¹⁰ Interview with Jack C. Fraser, *supra* note 173.

³¹¹ Shannon, *supra* note 282, at 5.

³¹² *Id.* at 8-9.

³¹³ *Id.* at 9.

³¹⁴ *Id.*

³¹⁵ *Id.*; WATER RESOURCES ENGINEERS, INC., *supra* note 101, at 57.

E. The Common Law

1. The Common-Law Rights

A discussion of the California common law³¹⁶ of water pollution necessarily involves a basic understanding of the doctrines of riparian and appropriative rights. The English doctrine of riparian rights was judicially incorporated into California law in 1884.³¹⁷ Although today the doctrine has been severely limited by restrictions by all branches of the state government, riparian rights have remained a viable and recognized property right.³¹⁸ “Riparian rights are private real property rights to the beneficial use of water from a natural watercourse³¹⁹ or stream contiguous to the land to which the rights attach.”³²⁰ Because the rights in a particular watercourse are common to all riparians, every person through whose land the water flows has an equal right to its benefits.³²¹ The California riparian has a right to the flow of the water only limited by upstream claims and the requirement that water used be put to a reasonable and beneficial use.³²² Although there is a right to unpolluted water,³²³ actual pollution must be proved before judicial remedies become available.³²⁴ Generally a person may make reasonable use of the water even though there is some reduction in quality. But the upstream user “cannot exercise his right in such manner as to injure those below him maliciously or unnecessarily.”³²⁵ among riparians, each is entitled to the water reasonably necessary for useful and beneficial riparian purposes.³²⁶

“Reasonableness,” both as to use and misuse, is a question of fact to be determined on a case-by-case basis.³²⁷ While the question cannot be solved

³¹⁶ For a fuller discussion of the common law of water pollution, see Gindler, *supra* note 189, at 37–196; Hines, *Nor Any Drop To Drink: Public Regulation of Water Quality*, 52 IOWA L. REV. 186, 196–201 (1966).

³¹⁷ *Lux v. Haggin*, 69 Cal. 255, 4 P. 919 (1886).

³¹⁸ 1 H. ROGERS & A. NICHOLS, *WATER FOR CALIFORNIA* 216 (1967) [hereinafter cited as *ROGERS & NICHOLS*].

³¹⁹ The California courts have made extensive refinements in the definition of “watercourse”: “There must be a stream usually flowing in a particular direction, though it need not flow continually. It may sometimes be dry. It must flow in a definite channel, having a bed or banks, and usually discharge itself into some other stream or body of water. It must be something more than a mere surface drainage over the entire face of the tract of land, occasioned by unusual freshets or other extraordinary causes. It does not include the water flowing in the hallows or ravines in land, which is mere surface water from rain or melting snow, . . . and is discharged through them from a higher to a lower level, but which at other times are destitute of water.” *Sanguinetti v. Pock*, 136 Cal. 466, 471–72, 69 P. 98, 100 (1902).

³²⁰ *ROGERS & NICHOLS* 217; see *Chowchilla Farms, Inc. v. Martin*, 219 Cal. 1, 19, 25 P.2d 435, 442 (1933).

³²¹ See *Seneca Consol. Gold Mines Co. v. Great Western Power Co.*, 209 Cal. 206, 219–21, 287 P. 93, 98–99, 70 A.L.R. 210 (1930); *Herminghaus v. Southern Cal. Edison Co.*, 200 Cal. 81, 94–97, 252 P. 607, 612–13 (1926).

³²² CAL. CONST. art. XIV, § 3 (West 1954).

³²³ See *Joerger v. Pacific Gas & Elec. Co.*, 207 Cal. 8, 25–26, 276 P. 1017, 1025–26 (1929).

³²⁴ See *Meridian, Ltd. v. City & County of San Francisco*, 13 Cal. 2d 424, 451–52, 90 P.2d 537, 550–51 (1939).

³²⁵ *Holmes v. Nay*, 186 Cal. 231, 241, 199 P. 325, 330 (1921).

³²⁶ *Gin Chow v. Santa Barbara*, 217 Cal. 673, 695, 22 P.2d 5, 13–14 (1933).

³²⁷ *ROGERS & NICHOLS* 236.

by mathematical formulae,³²⁸ there are several established guidelines used by the courts. The upper riparian has first use of the water, but he may not injure the lower riparian.³²⁹ Thus, for example, substantial diversion of water, causing pollution of a downstream pond due to stagnation and lack of freshening waters, has been held to be an unreasonable exercise of riparian rights.³³⁰ Another important guide is the use for which the water is needed. California favors the "natural uses" of water which include domestic uses such as drinking, household conveniences, and washing.³³¹ Such uses are reasonable even though the lower riparians receive no water.³³² If there is an "artificial" or nondomestic use upstream, it is unreasonable per se if it harms a "natural" use below.³³³

Like riparian rights, the appropriative rights are also property interests.³³⁴ The rights consist of the ability to divert a specified quantity of water, undiminished materially in quality or quantity, for beneficial uses.³³⁵ The doctrine is based on the concept of first in time, first in right, although it is limited to the water actually used.³³⁶ A subsequent appropriator may not pollute the water supply of a prior appropriator if it will "destroy or substantially injure the latter's superior rights."³³⁷

While there is some authority indicating that the prior appropriator has a right to water in a natural state of purity,³³⁸ the quality is actually governed by the use to which the prior appropriation is put.³³⁹ Therefore, if the prior appropriator is using water for irrigation, he is not entitled to a quality consistent with domestic use.³⁴⁰ Further, there must be substantial harm to the prior rights, a deterioration within reasonable limits not being actionable.³⁴¹ The prior appropriator is protected only against harm he cannot practicably avoid.³⁴² Thus, for example, the court may hold that the expense to the plaintiff of installing a filter to exclude the pollutants would be slight and, therefore, the appropriative rights have suffered no unreasonable harm.³⁴³ Before adoption of the Dickey Act in 1949, the California Supreme Court

³²⁸ *Prather v. Hoberg*, 24 Cal. 2d 549, 560, 150 P.2d 405, 414 (1944).

³²⁹ *Pabst v. Finmand*, 190 Cal. 124, 128-29, 211 P. 11, 13 (1922).

³³⁰ *Albaugh v. Mt. Shasta Power Corp.*, 9 Cal. 2d 751, 73 P.2d 217 (1937).

³³¹ *See Cowell v. Armstrong*, 210 Cal. 218, 224-25, 290 P. 1036, 1038-39 (1930).

³³² *See Duckworth v. Watsonville Water & Light Co.*, 150 Cal. 520, 526, 89 P. 338, 341 (1907); *cf. Deetz v. Carter*, 232 Cal. App. 2d 851, 854, 43 Cal. Rptr. 321, 323 (1965).

³³³ *Deetz v. Carter*, 232 Cal. App. 2d 851, 43 Cal. Rptr. 321 (1965).

³³⁴ *See Wright v. Best*, 19 Cal. 2d 368, 381-82, 121 P.2d 702, 710 (1942).

³³⁵ *Joerger v. Pacific Gas & Elec. Co.*, 207 Cal. 8, 276 P. 1017 (1929); *see Arizona v. California*, 283 U.S. 423 (1931).

³³⁶ *See Albaugh Irrig. Dist. v. Kern County*, 113 Cal. App. 2d 286, 292, 248 P.2d 117, 120 (1952).

³³⁷ *Dripps v. Allison's Mines Co.*, 45 Cal. App. 95, 99, 187 P. 448, 450 (1919).

³³⁸ *Wright v. Best*, 19 Cal. 2d 368, 378, 121 P.2d 702, 709 (1942).

³³⁹ *Gindler*, *supra* note 189, at 98.

³⁴⁰ *Joerger v. Pacific Gas & Elec. Co.*, 207 Cal. 8, 26, 276 P. 1017, 1026 (1929).

³⁴¹ *Dripps v. Allison's Mines Co.*, 45 Cal. App. 95, 99, 187 P. 448, 450 (1919).

³⁴² *Joerger v. Pacific Gas & Elec. Co.*, 207 Cal. 8, 27-28, 276 P. 1017, 1026-27 (1929).

³⁴³ *Id.*

held that a subsequent appropriator has no cause of action against a prior appropriator for harm done by pollution, even if such pollution completely destroyed the use of the water by the subsequent appropriator.³⁴⁴

In addition to the basic rights embodied in the riparian and appropriation doctrines, there are two other broad causes of action which may arise when wastes are discharged into the water: trespass and nuisance³⁴⁵ (public or private) for interference with the enjoyment of the land, and nuisance (public or private) for interference with the use of the water.³⁴⁶ The theory of trespass is that since the defendant would be liable in trespass if he were to discharge waste directly on the plaintiff's land, the defendant should also be liable if he discharges into a stream which he knows will carry the wastes onto plaintiff's land.³⁴⁷ "Water rights are irrelevant; the defendant is liable even though he is a prior appropriator."³⁴⁸ If wastes are washed up on the plaintiff's land or if they cause odors, two causes of action may exist: trespass and nuisance for interference with the use and enjoyment of the land.³⁴⁹

Actions based on private nuisance for interference with the enjoyment of either land or water involve the issue: "Is the invasion reasonable or unreasonable under all the circumstances of the case?"³⁵⁰ The potential plaintiff must first determine whether the defendant has caused substantial harm.³⁵¹ If the plaintiff is not using the water, or if the water is still suitable for the current use, the plaintiff has not suffered substantial injury and cannot sustain a cause of action in nuisance for interference with the use of the water.³⁵² Once substantial harm has been established, the plaintiff must determine whether the invasion was intentional or unintentional. If the defendant intentionally causes a nuisance, or if he knows or is substantially certain that one will result, liability will follow.³⁵³ All other acts by the defendant are "unintentional," subjecting him to liability only if "his conduct was negligent, reckless, or ultrahazardous."³⁵⁴ Other factors affecting reasonableness are the nature and relationship of the water rights of the parties (junior or senior);³⁵⁵ whether the defendant has impaired water quality without the "use" of water (as with oil spills on land which flow into the water);³⁵⁶ relative positions of the parties on the stream;³⁵⁷ and whether the defendant has wasted water.³⁵⁸

³⁴⁴ *Conrad v. Arrowhead Hot Springs Hotel Co.*, 103 Cal. 399, 402, 403, 37 P. 386, 387 (1894).

³⁴⁵ See CAL. CIV. PROC. CODE § 731 (West 1955).

³⁴⁶ Gindler, *supra* note 189, at 45.

³⁴⁷ See *Robinson v. Black Diamond Coal Co.*, 57 Cal. 412, 413-14 (1881).

³⁴⁸ Gindler, *supra* note 189, at 41-42; see *Pacific Gas & Elec. Co. v. Scott*, 10 Cal. 2d 581, 75 P.2d 1054 (1938).

³⁴⁹ Gindler, *supra* note 189, at 42-43.

³⁵⁰ *Id.* at 46.

³⁵¹ W. PROSSER, TORTS, 598-601 (3d ed. 1964).

³⁵² *Meridian, Ltd. v. City & County of San Francisco*, 13 Cal. 2d 424, 451, 90 P.2d 537, 550 (1939).

³⁵³ See Gindler, *supra* note 189, at 49.

³⁵⁴ *Id.*

³⁵⁵ *Id.* at 50.

³⁵⁶ *Id.* at 50-51.

³⁵⁷ *Id.* at 51-52.

³⁵⁸ *Id.* at 52-53.

Water pollution may also be a public nuisance or a statutory public offense. In California, a public nuisance may exist in three ways. First, the pollution may affect "any considerable number of persons."³⁵⁹ Second, the pollution may affect a state resource, such as fish and wildlife whether the water is public or private.³⁶⁰ Third, the discharge of wastes may be specifically prohibited by statute.³⁶¹

A 1968 addition to the Harbors and Navigation Code makes any person civilly liable if he "intentionally or negligently causes or permits any oil to be deposited in the waters of the state."³⁶² The person is civilly liable for up to \$6,000, and, in addition, actual damages and reasonable costs incurred in cleaning up or abating the pollution. The civil penalty is to be assessed according to the amount of oil discharged and the likelihood of permanent injury. The action allowed by these provisions may be brought by the government agency having responsibility for abating and cleaning up oil pollution.

2. Common-Law Remedies

Once an actionable injury has been sustained, a wide variety of remedies is available to the injured party. If the plaintiff seeks damages, he must prove substantial and actual injury,³⁶³ and damages must be reasonably certain.³⁶⁴ Thus if an upper riparian were to divert water and cause a reduction in downstream quality below, an action for damages would lie.³⁶⁵ A more popular remedy, however, has been the injunction. This remedy is most often used if there is a threat of continued injury.³⁶⁶ Generally, however, injunctive relief will be granted only if there is "an immediate danger of substantial irreparable injury."³⁶⁷ The courts have held that the right of the State Attorney General to bring an injunctive action in the name of the people is limited by the Water Quality Control Act.³⁶⁸

The Legislature intended the Dickey Act to provide the exclusive means and procedure by which agencies of the state government, including

³⁵⁹ "A public nuisance is one which affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal." CAL. CIV. CODE § 3480 (West 1954).

³⁶⁰ *People v. Truckee Lumber Co.*, 116 Cal. 397, 48 P. 374 (1897).

³⁶¹ *See, e.g.*, CAL. FISH & GAME CODE § 5650 (West 1958); CAL. CIV. CODE § 3479 (West 1954).

³⁶² CAL. HARB. & NAV. CODE § 151 (West Supp. 1968). The provisions of the new law do not apply to discharges authorized by the regional water quality control boards. *Id.*

³⁶³ *Moore v. California Ore. Power Co.*, 22 Cal. 2d 725, 738-39, 140 P.2d 798, 806, (1943).

³⁶⁴ *See Cheda v. Bodkin*, 173 Cal. 7, 158 P. 1025 (1916); *cf. Trussell v. San Diego*, 172 Cal. App. 2d 593, 605-06, 343 P.2d 65, 72 (1959) (absolute accuracy in damages is not essential).

³⁶⁵ *McArthur v. Mt. Shasta Power Corp.*, 3 Cal. 2d 704, 45 P.2d 807 (1935).

³⁶⁶ *See People v. Los Angeles*, 160 Cal. App. 2d 494, 509-10, 325 P.2d 639, 647-48 (1958).

³⁶⁷ ROGERS & NICHOLS 539; *People ex rel. Rickwater Co. v. Elk River Mill & Lumber Co.*, 107 C. 221, 40 P. 531 (1895) (discharges of refuse from kitchen did not materially affect the water).

³⁶⁸ *People v. New Pen Mines, Inc.*, 212 Cal. App. 2d 667, 28 Cal. Rptr. 337 (1963).

the Attorney General, are to control water pollution and nuisance. The Legislature did not establish a hierarchy of administrative agencies, a carefully conceived group of artificial definitions, a deliberately designed distribution of powers and a set of administrative procedures with the notion that any branch of the state government—armed only with loosely defined traditional functions—might bypass these elaborate arrangements through the device of an injunctive suit. Such a notion would be quite inconsistent with the act's expressed design to achieve "coordination" and "regional control" of water pollution.³⁶⁹

In California, as a matter of practice, there have been few actions brought by private individuals. There is an initial difficulty in proving damages or unreasonable use.³⁷⁰ Moreover, "pollution damages are often spread so thinly that human indifference makes it unlikely that anyone will sue. Suit by a private person is expensive, and he may find several large companies with expert counsel opposing him."³⁷¹ It would seem, therefore, that the fate of the quality of California waters cannot be left to private initiative, but rather the protection of water quality must rest with the state administrative agencies.

IV. CONCLUSION

There can be little doubt that the current statutory water quality program is a significant improvement over the pre-1949 law. The duties of the water quality boards, the Department of Public Health and the Department of Fish and Game encompass all major interests in water quality and quantity in the state. Administrators within the water quality control program claim significant progress in many parts of the state where water quality has been greatly improved.³⁷² In 1950, 134 communities comprising 20 percent of California's population were discharging raw sewage.³⁷³ Currently seven communities, representing less than one-tenth of one percent of the state's population, discharge untreated sewage and they discharge into the ocean.³⁷⁴ Since 1950, industry in California has constructed 2,794 major waste treatment facilities at a cost of over \$335 million.³⁷⁵

[T]he water quality control agencies and the waste dischargers in California can point to an impressive record of cooperative progress. Through administrative action, coordination, and enforcement, the Boards have, in nearly all areas, maintained or improved water quality since 1950. This record has been achieved while the State was faced with almost a 100 percent increase in population and a comparable expansion of industry. It is a record not equalled by any other State.³⁷⁶

³⁶⁹ *Id.* at 675, 28 Cal. Rptr. at 341.

³⁷⁰ 1949 REPORT 31.

³⁷¹ Comment, *supra* note 70, at 649.

³⁷² Interview with John B. Harrison, *supra* note 109.

³⁷³ CALIFORNIA STATE WATER POLLUTION CONTROL BOARD, NO MORE WATER . . . SO WHAT? 39 (no date).

³⁷⁴ *Id.*

³⁷⁵ *Id.*

³⁷⁶ *Id.*

The current law, however, is not without its problems and weaknesses. There appears to be a theoretical fallacy in the basic approach taken by the water quality boards in establishing water quality policy and discharge requirements. The entire system is predicated upon "recognition" of the "beneficial uses" of water.³⁷⁷ While this procedure permits evaluation and balancing of economic, health, and conservation interests with other needs and pressures of the community, it tends to perpetuate the status quo. Although the regional boards are to consider the future beneficial uses of water in setting water pollution policy,³⁷⁸ without an improvement in water quality now, the boards will never be able to foresee a "higher" use later. What results is a vicious cycle that prevents the development of any long-range plans for improving water quality.

In Los Angeles Harbor, for example, the regional board has recognized industry and shipping as the highest beneficial use of the water and has thus excluded the protection of any other beneficial use such as propagation of fish or plant life. While such a water quality standard may meet the current needs of Los Angeles, particularly those of industry, it is evident that there is little chance of significantly improving water quality. It is possible to argue that the regional boards are empowered merely to resolve the competing interests in a particular section of water, their decision representing the desires and conscience of the neighboring community. Nevertheless, with a rapid expansion of population and industry, California's water quality system ought not to reflect only current demands of the public or industry. Such short-sightedness may lead to a steady degradation of water quality caused by the steady increase in industry, population, agriculture, and navigation. Rather than preserve existing uses of water, the system should affirmatively seek long-range improvement of water quality. This approach is possible through legislative directives to the water quality boards and by a system of fines and tax incentives for the elimination of unabated pollution.³⁷⁹

It has been argued that the composition of the boards has been a leading factor contributing to complacency and inaction.³⁸⁰ Critics maintain that "some of the boards are dominated by representatives of the very industries they are supposed to regulate."³⁸¹ Concomitant with this fact is the relative independence of the regional boards from higher governmental supervision outside the water quality system.³⁸² Because regulation of regional board activity is confined largely to the water quality system, there is little power to offset the desire of the regional boards to foster local economic and political interests at the expense of water quality. The state board, through greater involvement at the regional level, could serve as a means of securing

³⁷⁷ See text accompanying notes 121-136, *supra*.

³⁷⁸ 23 CAL. ADMIN. CODE § 2162 (1967).

³⁷⁹ See BAIN, *supra* note 6, at 668-69.

³⁸⁰ Interview with Jack C. Fraser, *supra* note 173.

³⁸¹ Reich, *Politics Hamper Efforts To Control Water Pollution*, L.A. Times, Feb. 26, 1968, pt. II, at 1, col. 2.

³⁸² Interview with Jack C. Fraser, *supra* note 173.

an improved minimum standard of water quality without impairing the regional board's ability to deal with local problems.

The major difficulties of the current statutory law relate to the enforcement of water pollution policy and discharge requirements. One of the most frequently criticized aspects of the system is the occurrence of "legalized" pollution. Because pollution occurs only when the beneficial uses of the water are adversely and unreasonably affected, it is possible for the regional boards to set the beneficial uses in such a way as to permit significant degradation of water quality without ever encountering an "illegal" pollution.³⁸³ Thus, for example, when the Union Oil Company discharged oil into the waters of Los Angeles Harbor, no statutory "pollution" occurred because the established beneficial uses in the harbor were unaffected by the discharge.³⁸⁴ Even if the boards had the power and duty to act, the present administrative machinery would cause considerable delay before actual abatement.³⁸⁵ Although the law does allow an action in summary abatement under specified circumstances,³⁸⁶ the boards are largely impotent to respond quickly to an acute pollution problem. Only if there is an actual danger to public health or fish and wildlife can the discharge be abated without the administrative delay occasioned by the cease and desist order used by the boards.

Once a cease and desist order has been issued and contested by the discharger, the law permits the regional board to institute injunctive proceedings.³⁸⁷ During litigation, however, the "validity and reasonableness" of the discharge requirements become issues in the action.³⁸⁸ The reasonableness of the requirements, therefore, may be challenged both during their establishment (through appeal to the state board) and after the commencement of waste discharge following treatment plant construction.³⁸⁹ The latter situation differs considerably from the former in that the discharger has already made a considerable investment in treatment facilities and any alterations could create an unreasonable financial burden. It is possible that a discharger may pay little attention to the establishment of the discharge requirements and refuse compliance once they are established. The courts would be reluctant to overturn the investment made by the discharger even though beneficial uses of the water were being harmed.³⁹⁰ The discharger should be given an opportunity to appeal within a reasonable time to the state board and then to the courts, after which the validity of the requirements should be incontestable.

³⁸³ Reich, *supra* note 381, at 8, col. 1.

³⁸⁴ *Id.*, col. 2.

³⁸⁵ California Assembly Interim Comm. on Fish & Game, *Report*, in 1 ASSEMBLY JOURNAL APPENDIX vol. 5, No. 6, at 37 (Reg. Sess. 1959).

³⁸⁶ CAL. WATER CODE § 13080 (West Supp. 1968).

³⁸⁷ CAL. WATER CODE § 13063 (West Supp. 1968).

³⁸⁸ CAL. WATER CODE § 13063 (West Supp. 1968) provides in part: "The court shall receive in evidence the order of the board, evidence as to the validity and reasonableness of the board's requirements as previously established, and such further evidence as the court in its discretion deems proper."

³⁸⁹ Fraser, *Legalized Pollution*, OUTDOOR CALIFORNIA, Jan.-Feb. 1967, at 16.

³⁹⁰ *Id.* at 23.

The statutory enforcement procedures available to the regional boards are currently limited to establishing discharge requirements which curb the adverse effects of pollution and nuisance. Although water quality has been expressly included in the jurisdiction of the boards, no enforcement procedure for its protection exists beyond limited regional policy formulations. Factors such as saltwater intrusion and temperature control cannot be regulated by the existing administrative machinery.³⁹¹ Perhaps the new Water Resources Control Board will be able to minimize the harm done by sea water intrusion through strict control of water appropriation in such critical areas as the Sacramento-San Joaquin Delta and the Santa Ana Gap.³⁹² The regional boards, however, should have more direct control over factors affecting general water quality not encompassed by the definitions of pollution and nuisance. Such an extension of regulatory power would make the California water quality control program far more viable and realistic than is now the case.

J. Richard Couzens

³⁹¹ STAFF STUDY, *supra* note 112, at 8.

³⁹² See text accompanying notes 51-52, *supra*.

