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The Role of Environmental Law in the California Water Allocation and Use System: An Overview

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Gregory S. Weber*

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I. INTRODUCTION

In the nearly century and a half since the Gold Rush era miners began making California water law, four main doctrinal turning points have shaped the broad contours of the law governing water allocation and use in California. First, based on mining custom, the courts articulated the prior appropriation doctrine. Second, the courts announced that riparianism also existed in California, and worked out the interrelationship of the two doctrines. Third, in response to judicial decisions addressing this interrelationship, the people of the state adopted by ballot initiative a constitutional amendment that subjected all water rights to a standard of reasonable, nonwasteful use. The courts are still articulating the scope and effect of this authorization of police power regulation of private water

1. An alternative sketch of California water allocation history might focus on the identity and the purposes of the parties seeking to allocate water. The formative years, roughly until the beginning of this century, would have focused on individual water users, first miners, later irrigators. The second major era, beginning in the first part of this century, and reaching a peak in the 1960's, would be the era of the large water projects. This era started with large transbasin diversions by cities such as Los Angeles and San Francisco, and culminated with the 40 odd year development of the massive state and federal water projects. The third era, which is still unfolding, is the era of water reallocation. As major stream sites have either been dammed or placed off limits, water allocation has increasingly become a zero sum game. Ultimately, with the water "pie" no longer growing, one water user can only increase its share of the pie by a transfer from, or curtailment of, some other user's share. This era has seen the rise of both public agencies, and nongovernmental organizations, which have sought to protect public rights to nonconsumptive water uses. As this Article will discuss, in this new era, the collection of "environmental law" has been the vehicle by which these public rights have been asserted. In this era of reallocation, economics, particularly the growing pressures from urban water users to claim a larger share of water heretofore devoted to agricultural uses, also plays a major role in shaping evolving water doctrine and policy. These economic considerations are most apparent in the emerging statutory law governing voluntary water transfers. Nevertheless, environmental law currently displays the greatest immediate potential for forcing large scale involuntary reallocations of water from consumptive uses under private water rights to nonconsumptive, public uses.

2. See, e.g., Irwin v. Phillips, 5 Cal. 140 (1855). For a brief discussion of the prior appropriation doctrine, see infra notes 43-50 and accompanying text.

3. See Lux v. Haggin, 69 Cal. 255, 10 P. 674 (1886). For a brief discussion of the riparian doctrine, see infra notes 39-60 and accompanying text.

4. CAL. CONST., art. X, § 2. For a brief discussion of Herminghaus v. Southern Cal. Edison Co., 200 Cal. 81, 252 P. 607 (1926), and the 1928 amendment, see infra notes 76-95 and accompanying text.
Fourth, a series of statutes, and administrative and judicial decisions forced the water allocation system to confront and include what this Article will call "environmental values." Like the "reasonable use" doctrine, the impact of these environmental values upon water allocation and use in California is still evolving rapidly.

Broadly defined, these "environmental values" include protection of a range of public, generally nonconsumptive water uses. These uses include public recreation, aesthetic enjoyment, fishing, and ecosystem preservation. Although partial protection to fish has been part of California law for well over a century, the evolution of the legal recognition and protection of these values has occurred primarily over the last forty years, and most substantially over the last twenty-five years.

Today, two broad sets of laws addressing these values are relevant to issues of water allocation. First, legislation and case law mandate consideration and accommodation of these values within the laws directly governing water allocation itself. Second, broader legislation generally aimed at environmental matters beyond water allocation itself also impacts substantially on the water allocation system.

This Article sketches the broad contours of the intersection of environmental and water rights law in California. Part II of this Article outlines the role that environmental considerations play within the statutes and case law directly governing the acquisition and use of private rights to water in California. It summarizes the limited role that environmental considerations historically played in the judicial development of the appropriation and riparian doctrines. It then outlines the impacts of the 1928 amendment, implementing statutes, and judicial articulation of the

5. See e.g., Imperial Irrigation Dist. v. State Water Resources Control Bd., 225 Cal. App. 3d 548, 572-73, 275 Cal. Rptr. 250, 267 (1990) (holding that pre-1914 irrigators are subject to the State Water Resources Control Board's jurisdiction to enforce the 1928 amendment).


8. Starting in the 1950's, the legislature began directing the State Water Resources Control Board to consider public trust protected values in the water appropriation process. National Audubon Soc'y, 33 Cal. 3d at 443-44, 658 P.2d at 726, 189 Cal. Rptr. at 362.

9. Between 1968 and 1973, the state and federal governments mandated: 1) Environmental review legislation, see infra notes 176-195 and accompanying text; 2) endangered species protection, see infra notes 196-216 and accompanying text; and 3) tougher water quality regulation, see infra notes 224-309 and accompanying text.

10. See infra notes 15-135 and accompanying text.
11. See infra notes 136-337 and accompanying text.
12. See infra notes 15-135 and accompanying text.
public trust doctrine upon the water rights system. Part III of this Article considers the impact of general environmental laws on that same water allocation system. It outlines the effects of five sets of statutes upon the acquisition and use of water in California: 1) Fish protection; 2) environmental review requirements; 3) endangered species protection; 4) water quality protection; and 5) wilderness preservation. Part IV of this Article makes five broad observations. First, in many respects, water law in California today is primarily environmental law. Second, California water allocation has become increasingly federalized by the impacts of federal environmental regulation. Third, environmental considerations are a major driving force in the current era of water reallocation. Fourth, the laws governing the California water allocation system are fragmentary and lack cohesion. Fifth, the implementation of these laws is further clouded by an almost bewildering array of governmental bodies with some jurisdiction over, or interest in, water use in California.

II. ENVIRONMENTAL CONSIDERATIONS INTERNAL TO THE WATER ALLOCATION AND USE SYSTEM

A. Historical Development to 1928

1. Introduction

The legal structure for allocating private rights to water in California evolved in an era when public policy encouraged the almost unfettered...
diversion and extraction of water for human use. Developed first in conflicts among miners, later in conflicts between irrigators, and finally in conflicts between hydropower developers and irrigators, the appropriation and riparian doctrines addressed relative priorities among water diverters competing to use a limited supply. Judicial decisions spoke repeatedly of water rights as “vested property” rights. Centralized public participation in the allocation system was virtually nonexistent until the early part of the twentieth century. As they remain today, riparian rights attach to riparian land and receive no central administration in the initial allocation decision. Until 1914, appropriative rights were largely

17. E.g., Irwin v. Phillips, 5 Cal. 140 (1855) (applying the appropriative rights doctrine to a dispute between two miners).
18. See, e.g., Lux v. Haggins, 69 Cal. 255, 10 P. 674 (1886) (reaffirming the applicability of riparian law to a dispute between irrigators).
20. E.g., Hutchins, supra note 15, at 55-56 (discussing relative priorities between appropriators and riparians).
22. See Archibald, supra note 15, at 5-7 (noting that not until 1872 did California even establish a provision allowing appropriators to record their appropriations in the local county recorder’s office). The early recording provisions, however, were not mandatory. Id. at 7. Not until 1914 did the state legislature create and empower the State Water Commission to administer centrally the appropriation of water for all purposes. Id. at 11.

The late 19th century and the early 20th century saw the creation of local public agencies authorized to operate and construct water projects, and the interest of growing municipalities in developing water projects beyond their borders. See, e.g., Turlock Irrigation Dist. v. Williams, 76 Cal. 360, 368-72, 18 P. 379, 379-81 (1888) (upholding the Wright Act, codified at 1887 California Statutes 29). These developments allowed limited, local “public” participation in the water allocation process. The reclamation and irrigation districts are best considered as extensions of private rights holders. The big municipal water projects similarly acted on behalf solely of their own constituents, with no concerns to the overall state development of water. See Norris Hundley, Jr., The Great Thirst 121-200 (1992) (describing the efforts of San Francisco and Los Angeles to develop water for their own interests, despite impacts on the areas where the water originated).
self-initiated.\textsuperscript{24} The courts represented the principal public supervisor of these largely self-administered water development decisions, and they intervened primarily when one rights holder sued another.\textsuperscript{25} Indeed, the acquisition of groundwater rights remains largely unregulated even today.\textsuperscript{26}

In addition to being underrepresented in terms of the identity of the water allocation players, the public was also largely underrepresented in terms of the range of values that governed the allocation decisions. Given the strong public policy in favor of water development for consumptive uses, public and private use values overlapped substantially during California's first century.\textsuperscript{27} Until the middle of the twentieth century, however, protection of nonconsumptive, public water uses remained minimal.\textsuperscript{28} The public nuisance doctrine,\textsuperscript{29} reinforced narrowly by the earliest articulations of the public trust doctrine, provided the principal means by which public concerns over public access to water, maintenance of a fishery, and water quality concerns could be raised.\textsuperscript{30} Again, as with

\begin{itemize}
\item \textsuperscript{24} See ARCHIBALD, supra note 15, at 11 (describing limited public involvement in appropriations prior to 1914).
\item \textsuperscript{25} See HUTCHINS, supra note 15, at 44-53 (discussing the role of the courts in developing California water law). The legislature's limited early water law efforts included its 1872 effort to establish a water rights recording system. See ARCHIBALD, supra note 15, at 5-7. In addition, the legislature addressed conflicts between fishers and other watercourse users. As early as 1852, the legislature enacted the first of several Penal Code provisions addressing fish passage problems. Joel C. Baiocchi, Comment, \textit{Use It or Lose It: California Fish and Game Code Section 5937 and Instream Fishery Resources}, 14 U.C. DAVIS L. REV. 431, 433-34 (1980). Additional legislation addressed fish passage in 1870 and 1915. \textit{Id}.
\item \textsuperscript{26} See infra notes 61-70 and accompanying text (discussing the common law dominated development, and current exercise, of groundwater law).
\item \textsuperscript{27} See infra notes 39-60 and accompanying text (describing how judicially developed elements of water law system encouraged water resource development).
\item \textsuperscript{28} ARCHIBALD, supra note 15, at 12 (noting that, initially, the Water Commission's powers to evaluate the benefits of an appropriation were limited). It took an additional decade after the enactment of the Water Commission Act before the legislature authorized the Water Commission to consider "the public interest" in its decision to grant water rights. \textit{Id}. The Water Commission interpreted these powers narrowly, at least when an applicant sought to appropriate water for "domestic uses." National Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 427, 658 P.2d 709, 713, 189 Cal. Rptr. 346, 350 (1983). Not until the 1950's, when the legislature enacted the first of several statutes directing the Water Board to consider instream values, did the Board begin to condition applications. \textit{Id} at 444, 658 P.2d at 726, 189 Cal. Rptr. at 363.
\item \textsuperscript{29} See infra notes 170-175 and accompanying text (discussing role of public nuisance in fish protection).
\item \textsuperscript{30} The common law granted both riparians and appropriators a right to receive water of suitable quality, \textit{E.g.}, HUTCHINS, supra note 15, at 122 (describing appropriators' rights to water of adequate quality); \textit{Id} at 184 (describing riparians' rights to water of adequate quality). \textit{See generally} ANDERSON, supra note 15, at 67-71 (discussing appropriators' rights to water of adequate quality); Marcia J. Steinberg & Michael Schoenleber, \textit{Salinity Control and the Riparian Right}, 19 PAC. L.J. 1143, 1145-54 (1988) (discussing riparians' rights to water of adequate quality). Thus, a water rights holder affected by an upstream diversion could maintain a nuisance action. United States v. State Water Resources Control Bd., 182 Cal. App. 3d 82, 116-17, 227 Cal. Rptr. 161, 178 (1986); \textit{cf.} Wright v. Best, 19 Cal. 2d 368, 379, 121 P.2d 702, 709 (1942) (stating that easements to pollute are enforceable as between rights holders).
the allocation system, the courts were the governmental branch responsible for resolving disputes among these various nonconsumptive or instream use values.31

2. Appropriate Surface Rights, Riparian Rights, Groundwater Rights, and Environmental Values

Historically, the legal doctrines governing the allocation and use of surface and subsurface rights to water in California32 all encouraged water development at the expense of environmental values. Although the appropriative and riparian rights doctrines applicable to surface waters differed in their relative impacts on instream values,33 both ultimately provided little protection to water quality, and none to fish, wildlife, and instream, nonconsumptive uses.34 While the connection between groundwater pumping and “instream” values is often unapparent,35 pumping may cause such environmental problems as water quality

In addition to these actions between private rights holders, the courts also recognized the public’s ability to sue under public nuisance to prevent water quality degradation. See, e.g., People v. Truckee Lumber Co., 116 Cal. 397, 397-400, 48 P. 374, 374-75 (1897) (upholding nuisance claim against lumbermill discharges that harmed public fishery); cf. People v. Stafford Packing Co., 193 Cal. 719, 728-30, 227 P. 485, 489-90 (1924) (concluding that public ownership of fish supported a nuisance action for wasteful conversion of edible fish into inedible byproducts).


31. Given the absence of any substantial administrative machinery over water rights until the enactment of the Water Commission Act in 1913, no entity other than the courts could exercise any direct control over water disputes. See ARCHIBALD, supra note 15, at 9-11 (discussing the enactment of Water Commission Act of 1913); cf. 1913 Cal. Stats. ch. 586, secs. 1-46, at 1012-33 (enacting the Water Commission Act); HUTCHINS, supra note 15, at 94-96 (discussing the Water Commission Act).

32. See supra note 15 (identifying the main elements of California law on the acquisition of private rights to use water).

33. See infra notes 53-60 and accompanying text (discussing the two systems’ individual impacts on environmental values).

34. See supra note 30 and accompanying text (noting limited common law rights of appropriators and riparians to water of adequate quality).

35. In many basins, aquifer outflow provides the base flows for interconnected stream systems. W.P. Balleau, Water Appropriation and Transfer in a General Hydrogeological System, 28 NAT. RESOURCES J. 269, 274-78 (1988). Thus, pumping that intercepts outflow may lead to a reduction of surface water available for diversion or instream uses. For a discussion of the legal doctrines governing interconnected water systems in California, see HUTCHINS, supra note 15, at 515-19.
deterioration, surface subsidence, and surface vegetation losses. The law governing private rights to groundwater in California, developed by analogy to surface rights, also encouraged overdevelopment at the expense of environmental values.

Drawing on ancient tradition, the California courts early on labelled all water rights “usufructs.” Water rights holders received only the right to use water; the ownership of the “corpus,” i.e., physical particles, remained in the public. At first glance, this distinction between private use rights and public corpus rights might have supported a strong public ownership claim to retention of public rights of access to or use of water for nonconsumptive, instream uses. Nevertheless, the courts determined early on that the usufructuary nature of the water right came not from a dedication of rights to retained public ownership interests, but rather from the user’s lack of possession prior to appropriation. In other areas, the sovereign ownership theory has also been largely discredited as a source of public dominion over private water rights.

The elements of the appropriation system, as interpreted by the courts, all encouraged water development at the expense of instream uses. Noted California water law scholar Wells Hutchins summarized the three principal requirements necessary to perfect an appropriation as: 1) An intent to apply water to an existing or contemplated beneficial use; 2) an actual diversion from the natural channel; and 3) a diligence requirement — an application of water within a reasonable time. As a matter of semantics alone, the first requirement’s “beneficial use” condition was broad enough to support nonconsumptive, instream uses such as navigation, hydropower generation, fishery habitat, wildlife habitat,

36. E.g., CALIFORNIA DEPARTMENT OF WATER RESOURCES, GROUNDWATER BASINS IN CALIFORNIA BULLETIN NO. 18-80, 10 (1980).
37. E.g., HUTCHINS, supra note 15, at 452-54 (discussing analogous doctrines of correlative rights to groundwater and riparian rights, and noting that “appropriation” describes any non-riparian, non-overlying water use).
38. See infra notes 61-70 and accompanying text (outlining interaction of groundwater law and encouragement of development).
39. E.g., Schulz & Weber, supra note 21, at 1038-42, 1102-05.
40. Id.
41. E.g., HUTCHINS, supra note 15, at 36-37; Palmer v. Railroad Comm’n, 167 Cal. 163, 167-68, 138 P. 997, 998-99 (1914) (stating that water in a nonnavigable watercourse is not “public water” in the sense of being publicly owned; rather, it is simply not yet reduced to possession).
42. E.g., Sporhase v. Nebraska, 458 U.S. 941, 959-60 (1982) (concluding that state ownership of water is simply a metaphor for state police power to regulate water in the public interest). See also Schulz & Weber, supra note 21, at 1094-95, n.271 (noting the interplay of state “ownership” theory and public trust doctrine).
43. HUTCHINS, supra note 15, at 108.
recreation, and aesthetic enjoyment.\(^{44}\) Nevertheless, the requirement that water be “applied” suggested that a legally successful appropriation needs some human effort or activity beyond the passive dedication of water to an instream use. Moreover, in practice, the cases construing “beneficial uses” generally spoke of some human economic activity, such as mining, irrigation, or domestic or municipal uses.\(^{45}\) The second requirement — an actual diversion — reinforced the appropriation system’s emphasis on human activity and physical control. Water had to be removed from the stream system in order for the user to obtain an appropriative right.\(^{46}\) Finally, the diligence requirement, and its accompanying “use it or lose it” philosophy, made sure that water did not get “locked up” by someone who was not prepared to divert and use it promptly.\(^{47}\)

In addition to these three principal requirements for a successful appropriation, other features of the California appropriation system also encouraged water development at the expense of instream values. For example, the appropriative right’s lack of appurtenance to the land both supported transferability of water rights apart from land transfers, and allowed water to be transported and used outside of the watershed of origin.\(^{48}\) In addition, appropriators could take the full flow of a watercourse.\(^{49}\) Finally, domestic and irrigation uses were recognized as the most preferred uses.\(^{50}\)

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\(^{44}\) See, e.g., CAL. WATER CODE §§ 1243, 1243.5 (West 1971 & Supp. 1994) (legislating that certain instream uses are beneficial); cf. ANNE I. SCHNEIDER, Legal Aspects of Instream Water Uses in California, GOVERNOR’S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW 1 (Staff Paper No. 6, 1977) (listing beneficial instream uses) [hereinafter, SCHNEIDER, Instream Uses].

\(^{45}\) HUTCHINS, supra note 15, at 145-50 (summarizing beneficial use cases).

\(^{46}\) See Fullerton v. California State Water Resources Control Bd., 90 Cal. App. 3d 590, 600-02, 153 Cal. Rptr. 518, 525-27 (1979) (holding that physical control over water was needed to perfect appropriative right).

\(^{47}\) See HUTCHINS, supra note 15, at 88 (discussing diligence requirement under common law); id. at 94 (stating “diligence is of the essence of priority” under the 1872 Civil Code’s water appropriation system); id. at 116-18 (considering the diligence requirement); id. at 285-98 (discussing loss of appropriative rights through abandonment and forfeiture); cf. ARCHIBALD, supra note 15, at 27-29 (tracing diligence requirement to miners’ customs and noting its scope under contemporary permit system).

\(^{48}\) HUTCHINS, supra note 15, at 105 (noting that appropriator need not own title to land); id. at 125 (noting separability of title to water and land); id. at 142-43 (noting appropriator’s rights to divert water from one watershed to another).

\(^{49}\) Id. at 134-35.

\(^{50}\) Id. at 105. The Water Code continues to elevate these two uses over all others. CAL. WATER CODE §§ 105, 1254 (West 1971). Contemporary courts have not interpreted those priorities as absolute guarantors of rights to divert for human consumption at the expense of fish. See, e.g., California Trout, Inc. v. State Water Resources Control Bd., 207 Cal. App. 3d 585, 622-24, 255 Cal. Rptr. 184, 206-08 (1989) (finding ironic the City of Los Angeles’ interpretation of a statutory prioritization of water uses in the case before it, especially when contrasted to National Audubon Soc’y v. Superior Court).
The riparian system also encouraged water development at the expense of instream values. Like the appropriation system, the riparian system established a private party's rights to divert water for beneficial uses. No riparian owner had the right to demand undiminished streamflow simply to satisfy aesthetic concerns. Nevertheless, six differences from the appropriation doctrine reduced the potential environmental impact of riparian diversions upon surface watercourses. First, except for temporary storage for power generation or mill equipment propulsion, the riparian right generally did not encompass storage of water in reservoirs behind dams. Second, except in limited instances, no one riparian right holder could likely divert the full flow of the stream. In combination, these two requirements effectively forced proponents of large water development projects to appropriate water for their projects. Third, unlike the appropriation doctrine, the riparian doctrine did not include a “use it or lose it” philosophy; unexercised riparian rights remained potent though dormant. This difference alleviated the pressure on riparian owner to irrigate or otherwise develop as quickly and as extensively as possible. Fourth, the riparian right remained tied to the land, thereby reducing the transferability of the right and restricting the ability to use water out of the watershed of diversion. Fifth, as the right was correlative and unquantified, it provided less certainty than an appropriative right. Everything else being equal, lack of certainty would tend to discourage risky or expensive development projects. Finally, the courts have indirectly

52. Id. at 245.
53. ANDERSON, supra note 15, at 21-22.
54. HUTCHINS, supra note 15, at 228; cf. id. at 236 (noting that upper riparian may divert full stream flow for specified "natural" uses).
56. See HUTCHINS, supra note 15, at 187-203 (discussing incidence of riparian right as "part and parcel" of the riparian land, and describing the place of use restrictions); CLIFFORD T. LEE, The Transfer of Water Rights in California, GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW 24-25 (Staff Paper No. 5, 1977). In practice, riparians can "transfer" their water rights to nonriparian uses by executing a covenant not to sue an appropriator who diverts water otherwise within the riparian right. Lee, supra, at 25-26.
57. ANDERSON, supra note 15, at 29 (describing "correlative" rights as "measured by the equal rights of the other riparian owners along the stream"). In times of shortage, all riparian owners must reduce their water use. Id.
59. Id. at 12-14.
recognized some watercourse preservation interests as valuable “beneficial uses” protected by the riparian doctrine.\textsuperscript{60}

The law governing groundwater rights in California developed by analogy to surface water rights.\textsuperscript{61} Owners of land overlying a groundwater basin have correlative rights analogous to riparian rights.\textsuperscript{62} Nonoverlying owners may obtain appropriative rights to the water surplus to the overlying owners’ needs.\textsuperscript{63} When overpumping occurs, prescriptive rights may arise.\textsuperscript{64}

To the extent that the broad contours of groundwater law mirror surface water law, similar pro-development biases resulted as the doctrines evolved. In two ways, however, these biases became even more pronounced with groundwater. First, much of the common law inadvertently encouraged a “race to the pumphouse,”\textsuperscript{65} with the consequence of overpumping in many basins.\textsuperscript{66} Second, unlike the appropriative rights system, there remains even today no centralized administration of groundwater rights and use in California.\textsuperscript{67} Although the State Water Board has authority to protect groundwater quality,\textsuperscript{68} common law adjudications between private rights holders represent the

\begin{itemize}
  \item \textsuperscript{60} City of Los Angeles v. Aitken, 10 Cal. App. 2d 460, 474-75, 52 P.2d 585, 592 (1935) (holding that lakeshore property owners were entitled to just compensation for diminution of littoral rights resulting from the lowering of Mono Lake’s level by water diversions); see City of Elsinore v. Temescal Water Co., 36 Cal. App. 2d 116, 129-30, 97 P.2d 274, 280-81 (1939) (stating that recreational uses were beneficial under the state constitution, and concluding, under the circumstances, that lakeshore community could enjoin diversions that lowered lake’s level); cf. Prather v. Hoberg, 24 Cal. 2d 549, 561-62, 150 P.2d 405, 412 (1944) (concluding that water used by resort for “swimming pools . . . and boating” was within the riparian right, even if not entitled to the domestic use priority).
  \item \textsuperscript{61} E.g., HUTCHINS, supra note 15, at 452-54 (discussing analogous doctrines of correlative rights to groundwater and riparian rights, and noting that “appropriation” describes any non-riparian, non-overlying water use). See generally id. at 418-514 (tracing contours of groundwater law); SCHNEIDER, Groundwater Rights, supra note 15 (summarizing California groundwater law).
  \item \textsuperscript{62} SCHNEIDER, Groundwater Rights, supra note 15, at 5-6.
  \item \textsuperscript{63} Id. at 14-16.
  \item \textsuperscript{64} Id. at 19-22.
  \item \textsuperscript{65} See City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 267, 537 P.2d 1250, 1299, 123 Cal. Rptr. 1, 50 (1975) (noting that by concluding that each pumper who pumps more than his or her share in an overdrafted basin obtains prescriptive rights against all other pumpers, the California Supreme Court had inadvertently encouraged each pumper to pump as much as possible in order to maximize his or her prescriptive rights).
  \item \textsuperscript{66} E.g., SCHNEIDER, Groundwater Rights, supra note 15, at 36 (discussing the “mutual prescription doctrine”).
  \item \textsuperscript{67} Id. at 1-3.
  \item \textsuperscript{68} CAL. WATER CODE §§ 2100-2101 (West 1971) (authorizing State Water Board to initiate adjudications to preserve water quality); see also id. § 13050(e),(j) (West Supp. 1994); id. § 13806 (West 1992) (including groundwater within the Porter-Cologne Act’s water quality planning process).
\end{itemize}
main arena for public involvement in groundwater allocation. While groundwater rights law is articulated in a manner that would include environmental constraints as a potential limitation on private rights to pump, the case law has not developed yet in this area.

B. Three Landmark Developments Allow Greater Public Control and Consideration of Environmental Values in the Water Allocation Process

If the first seventy-five years of development of California water law represented minimal state involvement in the water allocation process and maximum encouragement of private development of water resources, three developments in the last sixty-five years have substantially changed both the public’s role and the consideration of environmental values in the water allocation and use system. In tandem, the 1928 addition of article X, section 2, to the California Constitution, and the 1983 articulation, in National Audubon Society v. Superior Court, of the relationship of the public trust doctrine to the appropriation system, have changed water resources playing field. A third development — the rise of the big

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70. According to the California Supreme Court, a groundwater basin is overdrafted when the extractions from it exceed its "safe yield plus any . . . temporary surplus." City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 280, 537 P.2d 1250, 1309, 123 Cal. Rptr. 1, 60 (1975). "'Safe yield' is defined as 'the maximum quantity of water which can be withdrawn annually from a ground water supply without causing an undesirable result.' The phrase 'undesirable result' is understood to refer to a gradual lowering of the ground water levels resulting eventually in depletion of the supply. [Citation omitted.]" Id. at 278, 537 P.2d at 1308, 123 Cal. Rptr. at 59. These definitions are couched primarily in terms of supply for rights holders' extraction. See id. at 277, 537 P.2d at 1307, 123 Cal. Rptr. at 58. Nevertheless, at least as a matter of semantics, nothing in this formulation of "safe yield" would preclude an environmental "undesirable result" from triggering an overdraft.

Such an environmental trigger might include surface subsidence or surface vegetative losses. By including undesirable "environmental" results as a threshold for triggering overdraft, a sufficiently motivated private groundwater rights holder could sue to adjudicate basin pumping and cut off the acquisition of prescriptive rights. The complexity, expense, and uncertainty of groundwater adjudications are a likely disincentive to any rights holder's initiation of such a suit. GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, FINAL REPORT 158-61 (1978). It is uncertain whether a citizen who was not a rights holder could sue to prevent environmentally triggered overdraft on anything other than a public nuisance theory. Even that doctrine might pose standing problems. See Institoris v. City of Los Angeles, 210 Cal. App. 3d 10, 20, 258 Cal. Rptr. 418, 424 (1989) (restating the traditional rule that, to have standing to raise public nuisance, private citizens must also show that the acts complained of are also a private nuisance to them).

71. CAL. CONST. art. X, § 2. The amendment was originally enacted as Article XIV, section 3. Schultz & Weber, supra note 21, at 1065-66 n.167. Except for renumbering in 1976 and changes in several gender preferences, the current version of the amendment is identical to the version passed in 1928. Id.


73. E.g., Schultz & Weber, supra note 21, at 1065 (noting the role of 1928 amendment and the public trust doctrine in reshaping California water law).
federal and state water projects — has also changed the water allocation and use dynamics. As public demands for increased consideration of environmental concerns have grown in the last twenty-five years, the increased power of the public over even past water allocation decisions has virtually halted further development of water supplies and begun to shift water from consumptive to environmental uses.

The passage, in 1928, of the constitutional amendment now known as article X, section 2, exemplified the first major paradigm shift away from unfettered common law rights. In its historical context, the amendment's additions to California water law initially seemed modest. By evaluating all water rights under criteria of "reasonableness" and "wastefulness," the amendment overturned the California Supreme Court's 1926 decision in Herminghaus v. Southern California Edison Co. In Herminghaus, the court had allowed downstream riparian flood irrigators to demand that the San Joaquin River's peak flows reach their lands virtually unimpeded, even though only a tiny fraction of the streamflow would actually overflow the river banks and flood irrigate the field. The 1928 amendment expressly restricted riparian rights to "no more than so much of the flow thereof as may be required or used consistently with [this amendment]."


75. For example, the 15-year dispute over the City of Los Angeles' diversions from the Mono Lake basin — the diversions at issue in National Audubon Society — has recently resulted in the City's decision to reduce its diversions permanently in exchange for state assistance in constructing waste water reclamation facilities. Marla Cone, Pact To Cut Diversions From Mono Lake, THE SACRAMENTO BEE, Dec. 14, 1993, at B5.

76. See Schulz & Weber, supra note 21, at 1065-71 (discussing circumstances accompanying the amendment's enactment). The legislature had begun the process of exercising public control over water rights 15 years earlier, with the passage of the Water Commission Act. 1913 Cal. Stat. ch. 586, secs. 1-46, at 1012-33 (enacting the Water Commission Act). That Act took effect in December 1914, after a public referendum. Hutchins, supra note 15, at 94-96 (discussing the Water Commission Act). The 1928 amendment continued the process of public control over water in two prominent ways. First, unlike the Water Commission Act, which applied only to appropriations initiated after its effective date, the 1928 amendment applied a general reasonableness criteria to all water users, regardless of the date of the right's inception. See Archibald, supra note 15, at 17 (noting inapplicability of permit system to pre-1914 appropriators); Hutchins, supra note 15, at 16-19 (discussing amendment's application to all water rights). Second, it elevated the state's police power concerns over water development and use to constitutional stature.

77. The amendment requires that water uses, methods of use, and methods of diversion, all meet the reasonableness criteria. CAL. CONST. art. X, § 2, cl. 2.

78. 200 Cal. 81, 252 P. 607 (1926).

79. Herminghaus v. Southern Cal. Edison, 200 Cal. 81, 93-97, 252 P. 607, 612-13 (1926). The court found that, between the riparian irrigators and a prospective upstream appropriator, no reasonable use rule restricted the riparian use. Id.

Although undoubtedly unintentional,\textsuperscript{81} \textit{Herminghaus} had the effect of preserving large quantities of water in a major portion of the San Joaquin River.\textsuperscript{82} By elevating downstream riparians' rights over those of upstream appropriators, both \textit{Herminghaus} and \textit{Fall River Valley Irrigation District v. Mount Shasta Power Corp.},\textsuperscript{83} a case decided a few months after \textit{Herminghaus}, preserved water within upper portions of a watercourse.\textsuperscript{84}

Initially, judicial interpretations of the 1928 amendment encouraged water development at the expense of instream values.\textsuperscript{85} For example, the application of the amendment to the circumstances of the \textit{Herminghaus} case itself demonstrated the pro-development effect of the amendment.

\begin{itemize}
\item \textsuperscript{81} Both the majority and the dissenting opinions in \textit{Herminghaus} frame their arguments in terms of the relative rights and consumptive use values of the riparians and would-be appropriators. \textit{See Herminghaus, 200 Cal. at 100-05, 252 P. at 615-17 (majority opinion); id. at 122-27, 252 P. at 624-26 (dissenting opinion). Neither opinion discusses the relative values of keeping the water instream, or of the environmental consequences of the appropriators' intended dam.}

\item \textsuperscript{82} The dam proposed in \textit{Herminghaus} does not appear to have been tied into an irrigation works; thus, the project would not necessarily have reduced total annual waterflows in the river. Nevertheless, the dam would have greatly reduced the spring peak flows. In recent years, state policy makers have emphasized the role that such peak flows play in the ecosystem. \textit{See CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER RIGHTS DECISION 1630 at 33-34 (Draft Nov. 17, 1992) [hereinafter, D-1630 (DRAFT)](setting pulse flows); id. at 37-38 (setting attraction flows); CALIFORNIA STATE LANDS COMMISSION, DELTA-ESTUARY: CALIFORNIA’S INLAND COAST 38-43, 78, 91-92 (1991) (noting in passim relationships between flow rates and times, and fishery needs) [hereinafter STATE LANDS COMM’N, DELTA-ESTUARY].}

Even if the particular dam involved in \textit{Herminghaus} merely regulated streamflows, the result in \textit{Herminghaus} would have allowed downstream riparians to block upstream consumptive diversions. Thus, in either scenario, \textit{Herminghaus} would have preserved instream flows at least until riparian irrigators made their own diversions.

\item \textsuperscript{83} \textit{202 Cal. 56, 259 P. 444 (1927). In Fall River Valley, the court upheld the rights of downstream riparian hydroelectricity developers to call streamflow at the expense of upstream appropriator irrigators. Id. at 58-65, 259 P. at 445-48.}

\item \textsuperscript{84} The unintended consequence of preserving instream flows for downstream users as against upstream hydropower projects could well have been simply an accident of land settlement patterns. As between riparians and appropriators, seniority generally depends upon the dates that the two rights arose. \textit{See Hutchins, supra note 15, at 61-62 (discussing relative priorities). Riparians who trace their title to Mexican land grants have an effective date of 1850; riparians who trace their title to a federal land patent look to the date of the original patentee's actual settlement with an intent to acquire title by patent. \textit{See Anderson, supra note 15, at 46-47. Pre-1914 appropriative rights date to the time that water was first diverted and applied to a beneficial use. Id. at 46. Post-1914 appropriations date to the time that the appropriator applied for a permit to appropriate water. Id. Thus, where central valley or Sierra foothill farmers could trace their land titles to a 19th century federal patent or even a Mexican land grant, their riparian rights would have priority over those upstream appropriators whose diversions for hydropower generation were not begun until the early twentieth century brought demands for electric power.}

For a detailed discussion of the history of California water development, and accompanying land use consequences, in the latter half of the nineteenth century, see \textit{NORRIS HUNDLEY, JR., THE GREAT THIRST 64-117 (1992).}

\item \textsuperscript{85} \textit{See, e.g., Chow v. City of Santa Barbara, 217 Cal. 673, 700, 22 P.2d 5, 16 (1933) (decriing the wasteful practice of allowing water to waste into the sea, unused). But see City of Los Angeles v. Aitken, 10 Cal. App. 2d 460, 474-75, 52 P.2d 585, 592 (1935) (concluding that maintenance of lake's level "in its natural condition" is "reasonably beneficial").}

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After the passage of the 1928 amendment, the downstream riparian irrigators in *Herminghaus* would have had no right to command one-hundred percent of the San Joaquin River flows in order to use one percent on their lands. Since downstream riparians no longer had an absolute right to block upstream appropriators, those appropriators could build their dams with greater impunity.

*Chow v. City of Santa Barbara*, decided shortly after the 1928 amendment’s enactment, demonstrated that the amendment was designed to facilitate development of water projects. In *Chow*, the California Supreme Court decried the wasteful practice of allowing water to waste “into the sea . . . lost to any beneficial use.” The court left no doubt that the amendment exemplified the strength of the state’s police power to help develop the waters of the state, “the very life blood of its existence.”

Until recently, the cases construing the 1928 amendment have generally involved challenges by one water user or developer to another water developer’s use. More recently, cases have begun to develop two often-interrelated propositions. First, the courts have begun to recognize that the 1928 amendment may support reservation of water for instream or other...

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86. See *Herminghaus* v. Southern Cal. Edison, 200 Cal. 81, 128, 252 P. 607, 626 (1926) (Shenk, J., dissenting) (noting the relative proportion of San Joaquin River underflow necessary to lift small fraction of water over river banks for actual irrigation of riparian’s lands).

The 1928 amendment would not likely have impacted *Fall River Valley*, since that case did not involve “greedy or selfish” riparian owners who were attempting to call the entire streamflow to provide hydraulic lift. *Fall River Valley Irrigation Dist. v. Mount Shasta Power Corp.*, 202 Cal. 56, 64, 259 P. 444, 448 (1927); see Schulz & Weber, supra note 21, at 1060 n.142.

87. 217 Cal. 673, 22 P.2d 5 (1933).

88. *Chow*, 217 Cal. at 700, 22 P.2d at 16 (1933). In *Peabody v. City of Vallejo*, the court tempered its “wastefulness” evaluation. *Peabody v. City of Vallejo*, 2 Cal. 2d 351, 40 P.2d 486 (1935). It noted that “reasonableness” and “waste” depended on the circumstances of a given case. Id. at 368, 40 P.2d at 492. It further recognized that in areas of relative water abundance conservation was unnecessary, and implied that water there could properly flow “freely to the sea.” Id. However, the court pointed out that these water rich areas of the state were “few in number.” Id. By implication, in less water rich areas, the flowing of water to the sea unused by humans was wasteful. In neither circumstance did the court consider the environmental consequences of water development. *Cf. Meridian, Ltd. v. City and County of San Francisco*, 13 Cal. 2d 424, 448, 90 P.2d 537, 548-49 (1939) (stating that allowing water to flow to the sea was not wasteful until need developed for it).

89. *Chow*, 217 Cal. at 702, 22 P.2d at 16.

environmental uses. For example, in *United States v. State Water Resources Control Board (Delta Water Cases)*, the court cited the amendment to support the State Water Board's power to reconsider prior water allocation decisions in order to prevent impairment of water quality. Similarly, in *California Trout, Inc. v. State Water Resources Control Board (Cal. Trout I)*, the court upheld, under the 1928 amendment, a construction of Fish and Game Code section 5946 that required minimum instream flows for preservation of fish in certain streams in the Mono Lake basin. Second, as demonstrated by the *Delta Water Cases*, the courts have used the 1928 amendment to support greater public control over water allocation decisions.

91. 182 Cal. App. 3d 82, 227 Cal. Rptr. 161 (1986). Some commentators, including the author, have referred to this case as "Racanelli," after its author. Schulz & Weber, supra note 21, at 1091 n.257. Upon further reflection, "Delta Water Cases" provides a more descriptive name that avoids personifying the case through its author. See Gray, supra note 21, at 234 n.41 (recommending the name Delta Water Cases).

92. United States v. Water Resources Control Bd. ("Delta Water Cases"), 182 Cal. App. 3d 82, 129, 227 Cal. Rptr. 161, 187 (1986). The record before the court, however, precluded its consideration of the validity of the particular conditions to protect water quality the Board had placed upon permit holders. Id. at 130, n.24, 227 Cal. Rptr. at 188 n.24.

The Board had conditioned the junior appropriators' rights in order to protect senior rights holders from impairments of their water rights from increased salinity. Id. at 130, 227 Cal. Rptr. at 187-88. The appellate court's opinion, however, did not limit the Board's power, under article X, section 2, to protect water quality to only those occasions when a senior rights holder is threatened. Rather, the court's language sweeps much more broadly. The court concluded: "The Board's power to prevent unreasonable methods of use should be broadly interpreted to enable the Board to strike the proper balance between the interests in water quality and project activities in order to objectively determine whether a reasonable method of use is manifested." Id.

93. 207 Cal. App. 3d 585, 255 Cal. Rptr. 184 (1989). This case, known as "Cal. Trout I," was the first of two cases involving the impact of the California Fish and Game Code upon the City of Los Angeles' diversions in the Mono Lake basin. The second case was California Trout, Inc. v. State Water Resources Control Bd. (Cal. Trout II), 218 Cal. App. 3d 187, 266 Cal. Rptr. 788 (1990).

94. *Cal. Trout I*, 207 Cal. App. 3d at 622-25, 255 Cal. Rptr. at 206-08. Section 5946 forbids the State Water Rights Board to issue any permit or license for water appropriation in the Mono Lake basin after September 9, 1953, unless the applicant has fully complied with Fish and Game Code § 5937. CAL. FISH & GAME CODE § 5946 (West 1984). Section 5937, in turn, requires dam owners to pass sufficient water "to keep in good condition any fish that may be planted or exist below the dam." Id. § 5937; see infra notes 144-160 and accompanying text (discussing the Fish and Game Code provisions).

The second main paradigm shift of the twentieth century occurred with the 1983 decision in *National Audubon Society v. Superior Court*. In that case, the California Supreme Court integrated the public trust doctrine with the appropriative rights system. Prior to that case, California courts had articulated and applied the public trust doctrine largely in the context of tidelands ownership and access to navigable waterways. Those cases spoke of the state's limited ability to alienate trust-bound tidelands, and the public's broad access to navigable waters for fishing, boating, hunting, commerce, recreation, and ecological concerns. A decade after the court decided *National Audubon Society*, the precise contours of the integration of the public trust and California water allocation system remain as uncertain as they did when originally decided. Nevertheless, the doctrine's twin broad assertions of manifest and continuing public control over water allocation, and mandatory consideration, and reconsideration, of trust uses in water allocation decisions, now seem well entrenched in California water law. Although these trust uses are not without

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98. E.g., Schulz & Weber, supra note 21, at 1095-97.


100. In the 1988 *Pacific Law Journal* California Water Law Symposium, this author described three of the questions left open by *National Audubon Society*. Schulz & Weber, supra note 21, at 1098. These included: 1) The doctrine's impact on other water rights within the state, such as riparian or groundwater rights; 2) the doctrine's lack of criteria for allocating the burden of diversion reductions or other operational changes among multiple water rights holders on a watercourse; and 3) the doctrine's lack of criteria for triggering a judicial or administrative reevaluation of a prior public trust determination. *Id.* To date, no reported case has addressed any of these issues.

In *Golden Feather Community Ass’n v. Thermalito Irrigation Dist.*, 209 Cal. App. 3d 1276, 257 Cal. Rptr. 836 (1989), the court addressed the doctrine’s applicability to one question left open by *National Audubon Society*. In *National Audubon Society*, the court did not address the doctrine’s applicability to nonnavigable bodies of water that do not themselves affect navigable waters. *National Audubon Soc’y*, 33 Cal. 3d 419, 437 n.19, 658 P.2d 709, 721 n.19, 189 Cal. Rptr. 346, 357 n.19. In *Golden Feather*, the court concluded that, unless the nonnavigable waters are affected by the tide, the doctrine does not apply to nonnavigable streams that do not themselves affect navigable waterways. *Golden Feather*, 209 Cal. App. 3d at 1283-86, 257 Cal. Rptr. at 840-43. The court refused to allow plaintiffs to raise the doctrine to compel an appropriator to continue diversions into storage so that the public could use the reservoir for recreation. *Id.*

101. Under *National Audubon*, the courts and the State Water Board share concurrent jurisdiction over public trust issues. *National Audubon*, 33 Cal. 3d at 448-51, 658 P.2d at 729-32, 189 Cal. Rptr. at 366-68. In making an initial decision to allocate water, the State Water Board has an affirmative fiduciary duty to take public trust values into consideration "and to preserve, so far as consistent with the public interest, the uses protected by the trust." *Id.* at 446, 658 P.2d at 728, 189 Cal. Rptr. at 364. While the State Water Board may "have to approve appropriations despite foreseeable harm to public trust uses," no private rights holder can
ambiguity, they include such instream values as promotion of navigation, fishing, hunting, commerce, aesthetics, recreation, and preservation of ecosystems in their natural state. While no drop of water as yet appears to have been permanently reallocated by judicial or administrative application of the doctrine, it has prompted extensive reviews of water practices throughout the state.

The third major development in California water allocation and use over the last three quarters of a century has been the rise of the large federal Central Valley Project (CVP) and the State Water Project (SWP). Collectively, these two projects can divert nearly 10 million acre feet per year. Total federal and state diversions represent over forty percent of annual surface water diversions in California. As water development

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obtain a vested right to "appropriate water in a manner harmful to the interests protected by the trust." Id. at 445-46, 658 P.2d at 727-28, 189 Cal. Rptr. at 364-65. Thus, the state "retains continuing supervisory control" over its navigable waters and the lands beneath those waters." Id.

102. See, e.g., Colberg, Inc. v. State, 67 Cal. 2d 408, 421-22, 432 P.2d 3, 12-13, 62 Cal. Rptr. 401, 410-11 (1967) (holding that the state had power to promote one trust use-commerce over another trust use-navigability; a bridge was permitted to obstruct a waterway). Cf. National Audubon Soc'y, 33 Cal. 3d at 439 n.21, 658 P.2d at 722 n.21, 189 Cal. Rptr. at 359 n.21 (discussing Colberg).


104. To date, no water appears to have been permanently reallocated under the public trust doctrine. The State Water Board has cited the public trust doctrine to justify some of its actions. See, e.g., D-1630 (DRAFT), supra note 82, at 1 (stating that public trust doctrine authorizes imposition of ecological impact fees and justifies diversion reductions); see 3 CAL. WATER L. & POL'Y RPR. 170-171 (June 1993) (discussing the final version of order). It has not yet, however, finally implemented any decision that reduces diversions or orders water releases from storage in order to protect trust uses. Cf. CAL. CODE REGS. tit 23, § 780(a) (1993) (reserving State Water Resources Control Board jurisdiction, pursuant to public trust power, in appropriation permits and licenses).

The Mono Lake processes appear to be closest to an actual permanent water rights change on trust grounds. A preliminary injunction has been in place for several years now, requiring the City of Los Angeles to allow enough water to enter the lake to maintain its level at 6377 feet above sea level. 1 CAL. WATER L. & POL'Y RPR. 116 (Mar. 1991). The State Water Board has been reviewing the Mono Lake basin for several years now, and has released a draft Environmental Impact Report on water diversions from that basin. Hearings on Mono Basin Water Reallocation Begin, 4 CAL. WATER L. & POLICY RPR. 39, 39-40 (Dec. 1993). It is unclear how the recent agreement by the City to permanently reduce its diversions from the basin will impact the 15-year legal proceedings. See Marla Cone, Pact To Cut Diversions From Mono Lake, THE SACRAMENTO BEE, Dec. 14, 1993, at B5 (reporting recent agreement).

In addition to these developments, the public trust doctrine has prompted numerous administrative challenges to dams and diversions on a variety of streams throughout the state. See, e.g., 4 CAL. WATER L. & POL'Y RPR. 9 (Oct. 1993) (noting that State Water Board is considering public trust values in fishery below Big Bear Lake); 3 CAL. WATER L. & POL'Y RPR. 91 (Feb. 1993) (noting that State Water Board is conducting public trust hearings on Mokelumne River fishery); 2 CAL. WATER L. & POL'Y RPR. 31 (Nov. 1991) (citing inter alia limited powers and resources for protecting the public trust, State Board dismissed public trust complaint on Alameda Creek).

105. BULLETIN 160-87, supra note 74, at 40. Additional federal sources total 1.3 million acre-feet per year. Id. The combined federal and state projects supplied over 30 percent of the state's annual water needs as of 1985 and formed over 40 percent of total surface water diversions as of that year. Id.

106. Id.
projects of almost unparalleled dimension, they have had an enormous and largely detrimental impact on the environment.\textsuperscript{107} Nevertheless, as government operations, at least in theory, these two projects can respond more directly to state or national political considerations than private or locally owned projects. These broad based political factors can include public calls for greater environmental protection.\textsuperscript{108}

C. \textit{Consideration of Environmental Values Within the Contemporary Surface Water Rights Allocation System}

In combination, the 1928 amendment and the public trust doctrine sketch the general backdrop for consideration of environmental values within the contemporary water rights allocation system. Against this backdrop, the Legislature has detailed specific "public interest" matters that the State Water Resources Control Board (State Water Board) must consider when reviewing applications to appropriate water.\textsuperscript{109} The


\textsuperscript{108} For example, the 1992 passage of the Central Valley Project Improvement Act (CVPIA) has greatly changed the operational criteria for the Bureau of Reclamation's Central Valley Project. See Central Valley Project Improvement Act of 1992, Pub. Law No. 102-575, § 3406(a), 106 Stats. 4714 (1992). For the first time, that act has added fishery and wildlife protection to the stated project goals, placing those two goals in the same tier of importance as irrigation and domestic uses. \textit{Id}. In addition, the CVPIA has added restoration and mitigation of fish and wildlife as additional project goals, albeit at a lower tier of importance. \textit{Id}. The CVPIA also seeks to double anadromous fish runs by 2002 and dedicates 800,000 acre feet per year for fish and wildlife purposes. \textit{Id}. §§ 3406(g), 3406(b), 106 Stats. 4725, 4715. See generally Dunning, supra note 107, at 960-63 (discussing the CVPIA).

In addition, those who deal with these projects may be on greater notice of possible regulatory changes to water allocation and use than purely private projects. See, e.g., Madera Irrigation Dist. v. Hancock, 985 F.2d 1397, 1405-06 (9th Cir. 1993) (holding that the CVP contract renewal provisions requiring review under National Environmental Policy Act (NEPA) interfered with no vested rights); Peterson v. United States, 899 F.2d 799, 810-11 (9th Cir. 1990) (holding that Reclamation Reform Act "hammer clause," forcing contract amendments, interfered with no vested rights to subsidized water for leased land), \textit{cert. denied}, 498 U.S. 1003 (1990); Barcellos & Wolfsen v. Westlands Water Dist., 899 F.2d 814, 815 (9th Cir. 1990) (overruling similar challenge to portions of Reclamation Reform Act limiting water deliveries to "excess lands"), \textit{cert. denied sub nom}; Boston Ranch Co. v. Department of Interior, 498 U.S. 998 (1990); \textit{cf. Federal Court Decides Reclamation Cases}, 2 CAL. WATER L. & POL'Y RPTR. 6 (Oct. 1991) (discussing Madera Irrigation Dist. v. Hancock, No. CIV S-91-242 LKK (E.D. Cal., June 14, 1991)); Natural Resources Defense Council v. Duvall, No. CIV S-88-375 LKK (E.D. Cal., July 26, 1991) (concluding that Reclamation Reform Act regulations required review under NEPA).

Of course, political control over a large water project does not necessarily equate with operational criteria that elevate environmental or instream values. The environmental impact depends upon how that control is exercised.

\textsuperscript{109} See infra notes 111-123 and accompanying text (discussing "public interest" criteria in water appropriations).
Legislature has adopted similar criteria for the State Water Board's consideration of water transfers. 110

Eight Water Code sections direct the State Water Board to consider a range of public interest criteria when reviewing an application for a permit to appropriate water. 111 Section 1255 broadly states the Board's duty to "reject an application when in its judgment the proposed application would not best conserve the public interest." 112 Similarly, section 1253 requires the Board to condition an appropriative right to "best develop, conserve, and utilize in the public interest the water sought to be appropriated." 113 Both of these sections date back to the first quarter of this century, when, as described above, the "public interest" was largely synonymous with water development. 114 For thirty years after the Legislature granted the Board this authority, the Board believed it lacked power to reject applications to appropriate water on general public interest grounds if unappropriated water existed. 115 With the passage of supplemental legislation beginning in the 1950's, the Legislature clarified the Board's

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110. See infra notes 124-129 and accompanying text (discussing "public interest" criteria in water transfers).

111. CAL. WATER CODE §§ 1242.5, 1243, 1243.5, 1253, 1255, 1257, 1257.5, 1258 (West 1971 & Supp. 1994). See generally SCHNEIDER, Instream Uses, supra note 44, at 30-38 (discussing these statutes); Douglas L. Grant, Public Interest Review of Water Right Allocation and Transfer in the West: Recognition of Public Values, 19 ARIZ. ST. L.J. 683 (1987) (discussing similar statutes in other western states). In addition to these statutes, § 1228.3(a)(7) requires applicants for "small domestic use" appropriations to obtain Department of Fish & Game approval of their proposed diversions. CAL. WATER CODE § 1228.3(a)(7) (West Supp. 1994). The legislature defined a "small domestic use" as a domestic use, as further defined by Board rule, and involving less than 4500 gallons per day of direct diversion or 10 acre feet per year of diversion by storage. Id. § 1228.1. In addition, § 1425(b) authorizes the State Water Board to issue temporary permits to meet urgent water needs if the diversion will not harm fish, wildlife, or other beneficial instream uses. Id. § 1425(b).

112. CAL. WATER CODE § 1255 (West 1971).

113. Id. § 1253 (West 1971).

114. 1913 Cal. Stats. ch. 586, sec. 15, at 1021 (enacting original Water Commission Act); id. (authorizing appropriations); 1917 Cal. Stats. ch. 133, sec. 1, at 194 (amending 1913 Cal. Stats. ch. 586, sec. 15, at 1021); id. (adding "beneficial purposes" criteria to State Water Commission review of applications to appropriate); 1921 Cal. Stats. ch. 329, sec. 1, at 443 (amending 1913 Cal. Stats. ch. 586, sec. 15, at 1021, as amended); id. (adding "best develop, conserve, and utilize in the public interest" criteria to State Water Commission review of applications to appropriate); see supra notes 15-31 and accompanying text (discussing how elements of common law legal doctrine encouraged water development).

115. National Audubon Soc'y v. Superior Court, 33 Cal. 3d 419, 428 & n.7, 658 P.2d 709, 714 & n.7, 189 Cal. Rptr. 346, 351 & n.7 (1983); see supra note 28 (discussing how predecessors to the State Water Board perceived the limited role that "public interest" played in appropriations decisions).
power.\textsuperscript{116} Today, the Board's discretion to determine "the public interest" is virtually unlimited.\textsuperscript{117}

The "public interest" provides a general vehicle for consideration of public uses of water and environmental considerations.\textsuperscript{118} Six additional Water Code provisions describe specific constituents of the "public interest." Section 1243 expressly defines "beneficial uses" to include recreation, as well as fish and wildlife preservation and enhancement.\textsuperscript{119} Section 1243 further directs the Board to "take into account, whenever it is in the public interest, the amounts of water required for" these beneficial uses.\textsuperscript{120} Section 1257 directs the Board to consider the relative benefits of all beneficial uses, including recreation, fish and wildlife protection and enhancement.\textsuperscript{121} Sections 1243.5 and 1257.5 allow the Board to consider the amount of water necessary to remain within a stream for protection of

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116. \textit{NationalAudubon Soc'y}, 33 Cal. 3d at 444, 658 P.2d at 726, 189 Cal. Rptr. at 363; \textit{see infra} notes 119-123 and accompanying text (describing the specific legislation enacted to clarify "public interest" criteria).

117. \textit{See Bank of America Nat'l Trust \& Sav. Ass'n v. State Water Resources Control Bd.}, 42 Cal. App. 3d 198, 204-07, 116 Cal. Rptr. 770, 773-75 (1974) (stating that State Water Board's determination of "public interest" will be upheld if supported by substantial evidence); \textit{cf. United States v. State Water Resources Control Bd. (Delta Water Cases)}, 182 Cal. App. 3d 82, 130, 227 Cal. Rptr. 161, 188 (1986) (stating that the accommodation of "major public interests" in balancing water rights and water quality matters is "essentially a policy judgment requiring a balancing of the competing public interests, one the Board is uniquely qualified to make in view of its special knowledge and expertise and its combined statewide responsibility to allocate the rights to, and to control the quality of, state water resources").

Schneider noted that a dispute remained over the State Water Board's authority to reject a permit entirely. \textit{Schneider, Instream Uses}, \textit{supra} note 44, at 38 (noting an unpublished trial court case that required the State Water Board to issue a conditional permit rather than reject an application out of hand). Given the continued expansion of the State Water Board's authority through decisions such as the \textit{Delta Water Cases}, \textit{supra}, it seems unlikely that a court today would either overturn a State Water Board determination of the public interest, or qualify a Board decision to deny outright on public interest grounds an application to appropriate water.

118. \textit{See Attwater \& Markle}, \textit{supra} note 15, at 980 (noting principal public uses of water considered under "public interest" criteria include fishing, wildlife susstenance, and recreation).


120. \textit{CAL. WATER CODE} § 1243 (West Supp. 1994). Nothing within section 1243 describes how the State Water Board "takes into account" the listed values. In particular, the statute appears to leave solely for the Board's discretion the weight to give to the instream uses. Moreover, the statute's ambiguous punctuation suggests that the State Water Board need not even take those instream uses "into account" if it is not in the public interest to do so.

121. \textit{id.} § 1257 (West 1971). Again, as with § 1243, nothing in § 1257 defines how the State Water Board is to "consider" all the relative benefits. Must it weight them equally? Must the State Water Board use some quantified cost/benefit analysis? May it just mention them in passing, to show that it has not ignored them entirely?

Regulations promulgated in furtherance of § 1250.5, while not addressing the relative weights of values, do demonstrate the range of information that the State Water Board wishes to have in order to "consider" the possible instream uses of the water sought to be appropriated. \textit{CAL. CODE REGS.}, tit. 23, § 709 (1993).
beneficial uses.\textsuperscript{122} Finally, sections 1242.5 and 1258 direct the Board to consider water quality plans in the appropriation process, and to allow appropriation by storage for later release for water quality protection or enhancement.\textsuperscript{123}

In matters involving water transfers or changes in uses, the Legislature has also required consideration of impacts on fish, wildlife, and instream values.\textsuperscript{124} Section 1707 allows any water rights holder to change a water use in order to preserve or enhance “wetlands habitat, fish and wildlife resources, or recreation in, or on, the water.”\textsuperscript{125} In effect, this statute authorizes a water user to dedicate water for such purposes, “whether or not the proposed use involves a diversion of water.”\textsuperscript{126} Specific statutes expressly require such consideration for “temporary urgency changes,”\textsuperscript{127} “temporary changes,”\textsuperscript{128} and “long term transfers.”\textsuperscript{129}

\textsuperscript{122} CAL. WATER CODE §§ 1243.5, 1257.5 (West 1971 & Supp. 1994). Section 1243.5 requires a “public interest” finding. Id. § 1243.5.

Schneider noted the Department of Fish and Game’s (DFG) three criticisms of the applicant-by-applicant approach to instream flow reservations. \textsc{Schneider, Instream Uses, supra} note 44, at 44. These included: 1) The water project’s momentum prior to DFG’s involvement cast DFG as a spoiler; 2) the application of the streamflows to the Central Valley Project was uncertain; and 3) water bypassed by one project was subject to appropriation downstream, requiring DFG to fight its battle all over again. \textit{Id.} The passage of the CVPIA has likely ameliorated any lingering doubts about DFG’s second concern. The other two concerns have been slightly tempered by the passage of Public Resources Code § 10002, which authorizes the Department to set minimum stream flows. CAL. PUB. RES. CODE § 10002 (West Supp. 1994).

\textsuperscript{123} CAL. WATER CODE §§ 1242.5, 1258 (West 1971). Section 1242.5 also requires a “public interest” finding. Id. § 1242.5; cf. CAL. CODE REGS., tit. 23, § 670 (1993) (defining “water quality use”).

\textsuperscript{124} CAL. WATER CODE § 1435(b) (West Supp. 1994) (addressing temporary urgency changes); id. §§ 1725, 1727 (addressing temporary changes); id. § 1735 (addressing long term transfers). For general discussions of water transfers or changes in California, see Brian E. Gray, \textit{A Primer on California Water Transfer Law}, 31 ARIZ. L. REV. 745 (1989) [hereinafter, Gray, Water Transfer Primer] and Kevin M. O’Brien, \textit{Water Marketing in California}, 19 PAC. L.J. 1165 (1988).

\textsuperscript{125} CAL. WATER CODE § 1707 (West Supp. 1994). The statute specifically includes holders of “riparian, or other right[s],” within its scope. Id. The rights holder may make its change under either the general change provisions, the urgency change provisions, the temporary change provisions, or the long term transfers. Id.

\textsuperscript{126} Id. § 1707(b) (West Supp. 1994) (authorizing use for such purposes, even if it involves a diversion, only under specified conditions).

\textsuperscript{127} Id. § 1435(a) (West Supp. 1994) (describing “temporary urgency changes” as those involving “an urgent need to change a point of diversion, place of use, or purpose of use from that specified in [a] permit or license”). The statute vests broad discretion with the State Water Board to determine if the change will fulfill the 1928 amendment’s mandate. Id. § 1435(c) (West Supp. 1994). Section 1435(b)(3) requires the Board to find that the “proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses.” Id. § 1435(b)(3) (West Supp. 1994). Section 1435(b)(4) further requires the Board to find that the proposed change “is in the public interest” and requires additional findings to support any conditions imposed to meet fish, wildlife, or other instream beneficial use concerns. Id. § 1435(b)(4) (West Supp. 1994).

\textsuperscript{128} Id. § 1725 (West Supp. 1994) (describing “temporary changes” of points of diversion or use, or purpose of use, as involving a transfer or exchange of one year or less). Section 1725 authorizes such changes if “it would not unreasonably affect fish, wildlife, or other instream beneficial uses.” Id. § 1725. Section 1727 requires the Board to make express findings to support its conclusion of no unreasonable affect. Id. § 1727(a)(2) (West Supp. 1994). In addition, § 1725 requires the Board to make specific findings that no “legal water user”
In addition to these specific sections, two other provisions provide a general framework for changes in purpose or place of use, or place of diversion. Section 1702 and companion provisions address changes of rights acquired after the 1914 effective date of the Water Commission Act. That section authorizes the State Water Board to approve such changes if it finds “that the change will not operate to the injury of any legal user of the water involved.” Section 1706 applies to pre-1914 appropriations. Section 1706, which does not expressly require State Water Board approval, authorizes a change if “others are not injured by such changes.” At the very least, these two provisions would seem to protect another water rights holder from any impairment of water quality as a result of a change. It remains uncertain, however, whether these two provisions also protect public water uses, if such uses might be harmed or injured by a proposed change.

would suffer any impairment of water quality as a result of the temporary change. \textit{Id.} § 1725(a)(1) (West Supp. 1994).

129. \textit{See id.} § 1735 (West Supp. 1993) (describing “long term transfers” as involving changes intended to endure longer than a year). Section 1736 requires the Board to notify the Department of Fish and Game prior to approving a long term transfer. \textit{Id.} § 1736 (West Supp. 1993). Section 1736 also requires the Board to determine that the transfer would not “unreasonably affect fish, wildlife, or other instream beneficial uses.” \textit{Id.}


131. \textit{Id.} § 1702 (West 1971).

132. \textit{Id.} § 1706 (West 1971).

133. \textit{Id.}

134. The right to receive water of reasonable quality is part of both the appropriative and riparian rights. \textit{See supra} note 30 (discussing the right of both appropriative and riparian rights holders to receive water of reasonable quality); \textit{cf.} CAL. WATER CODE § 1727(a)(1) (West Supp. 1993) (stating that temporary changes may not impair another legal water user’s water quality).

135. On the one hand, a member of the public, appropriately licensed by the Department of Fish and Game, who has access to a fishery is arguably a “legal user” of that fishery. As such, arguably that fisher should have standing under § 1702 to claim injury if the fishery is adversely affected by the change in a post-1914 appropriation. CAL. WATER CODE § 1702 (West 1971). At least as a matter of semantics, such standing would seem even easier to establish under § 1706 for changes in pre-1914 rights. Section 1706 does not require a finding of impairment to a “legal user” of water; it simply states that the change may not affect “others.” CAL. WATER CODE § 1706 (West 1971).

On the other hand, in historical context, both sections arguably limit standing to water rights holders. These sections codify the common law restrictions on water use changes. \textit{See HUTCHINS, supra} note 15, at 175-178 (discussing common law restrictions). All of the common law cases involve water rights holders. \textit{See id.} (discussing cases involving water rights holders); \textit{cf.} Gray, \textit{Water Transfer Primer, supra} note 124, at 767-768 (stating that changes of use are permissible if no harm to other water rights holders). Moreover, more recently enacted provisions contrast “legal users of water” with public water uses. \textit{See CAL. WATER CODE} §§ 1725, 1727(a)(1), 1727(a)(2), 1736 (West Supp. 1994).
III. EXTERNALLY IMPOSED ENVIRONMENTAL CONSIDERATIONS

In addition to the environmental considerations inherent in the water allocation system itself, numerous other federal and state environmental statutes impact the allocation and use of private rights to divert and use water in California. These statutes represent exercises of the police power to accomplish broad goals other than the allocation of water rights. Nevertheless, in recent years water allocation issues have increasingly been determined by these external environmental regulations.

A. State Fish Protection Statutes: Fish and Game Code and Penal Code Provisions

Given the Water Code's repeated direction to consider fish and wildlife values in the water allocation process, and the partial integration of the Department of Fish and Game into the water allocation process, it is

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136. One additional element of the water allocation system itself potentially implicates environmental considerations. The reserved rights doctrine holds that the United States, in withdrawing or reserving land from occupation under the various public lands statutes, also reserved from appropriation enough water to accomplish the primary purposes of the reservation. E.g., United States v. New Mexico, 438 U.S. 696, 698-700 (1978). In that case, the United States Supreme Court rejected the National Forest Service’s attempt to reserve sufficient water for wildlife purposes. Id. at 705-15. The Court concluded that the National Forest at issue had been reserved primarily for timber production and watershed protection. Id. at 706-09.

Since New Mexico, the Forest Service has attempted in Colorado to claim that the “watershed protection” purpose was sufficient to withdraw from appropriation large flows seasonally necessary to flush out the streambed. See United States v. Jesse, 744 P.2d 491, 504 (Colo. 1987) (granting the United States the opportunity to make its case before the Colorado water court). On remand, the trial court ultimately rejected the claims of the United States. In re Application of the United States, Colorado Dist. Ct. No. 2-8439-76, Memorandum of Decision & Order, slip op. at 20 (Feb. 12, 1993) (holding that channel maintenance should be achieved through intelligent administrative regulation, and not reserved water rights).

To date, this author is unaware of any attempt by the United States in California to assert reserved rights for instream flows in the National Forests in California. Cf. In re Water of Hallett Creek Stream Systems, which arose out of a stream adjudication, where the United States successfully established its right to riparian rights on its National Forest lands. In re Water of Hallett Creek Stream Sys., 44 Cal. 3d 448, 470, 749 P.2d 324, 336, 243 Cal. Rptr. 887, 900 (1988), cert. denied, 488 U.S. 824 (1988). At the administrative level in Halte Creek, the United States sought to establish a riparian right to use water for “wildlife enhancement.” Id. at 455, 749 P.2d at 326, 243 Cal. Rptr. at 889. The case does not discuss the kinds of “wildlife enhancement” uses for which the United States intended to use its riparian rights.

137. The two most prominent examples have been the impact of the Endangered Species Act, infra notes 196-216 and accompanying text, and the Clean Water Act, infra notes 217-309 and accompanying text.

138. See supra notes 111-123 and accompanying text (describing the Water Code’s inclusion of fish and wildlife in the appropriation context).

139. See CAL. WATER CODE § 1260 (j) (West 1971) (requiring a water right applicant to furnish the State Water Board with information provided by the Department of Fish and Game (DFG) regarding proposed diversion’s impact, if any, on fish); cf. id. § 6500 (West 1971) (requiring an applicant who seeks permission to build or enlarge certain dams to submit copies of its application to the DFG); CAL. FISH & GAME CODE §§ 1600-1607 (West 1984 & Supp. 1993) (requiring the proponents of new water diversions with substantial impact
somewhat arbitrary to discuss the state fish protection statutes as “external” to the water allocation process. Indeed, the argument has been made that many of the state’s fish protection statutes did represent a legislative determination to reserve sufficient water for fish. Their position here as an “external” environmental consideration is arguably as much a result of history and bureaucratic division of labor as of coherent policy formulation. Because of both their close connection to the water allocation system, and their current prominence in water allocation disputes, this Article will describe them, and their Penal Code cousins, as the first of the external environmental considerations.

The state fish protection statutes fall into three groups: 1) Fish passage, flow bypass, and fish screen provisions; 2) streambed alteration agreements; and 3) nuisance statutes. The Fish and Game Code on a fishery to reach agreement with the DFG over project modifications or mitigation).

141. Many of the current Fish and Game Code water project operation provisions were originally part of the Penal Code, enforced by the criminal law. See, e.g., CAL. FISH & GAME CODE § 5935, historical note (West 1984) (tracing statute’s origin to former California Penal Code § 637). The Fish and Game provisions developed along a separate track from the water appropriation statutes. The Legislature enacted the Water Commission Act in 1913. 1913 Cal. Stats. ch. 586, secs. 1-46, at 1012. Constitutional authorization for fish and game management by district was enacted in 1902. See former CAL. CONST., art. IV, § 25%, now CAL. CONST., art. IV, § 20. Statutes implementing the 1902 amendment, as well as pre-1902 legislation, were first codified together in 1933 — a decade before the Water Code was enacted. 1933 Cal. Stats. ch. 73, at 394 (enacting California Fish and Game Code); 1943 Cal. Stats. ch. 368, at 1604 (enacting the California Water Code).

Because the Legislature has historically separated the water allocation statutes and administrative agency from the fish protection statutes and administrative agency, this Article will observe the same distinction. The Fish and Game Code provisions play a major role in the operation of water projects otherwise allowed to divert water under the State Water Board’s mandate. See, e.g., Janet K. Goldsmith, Crimes and Misdemeanors: Good Cinema, Bad Water Policy, 1 CAL. WATER L. & POL’Y RPR. 47 (Dec. 1990); Harold M. Thomas, Fish, Lies and Videotape: The Morality of Fisheries Protection, 1 CAL. WATER L. & POL’Y RPR. 69 (Jan. 1991). Nevertheless, under the Water Code, the state board is only required to consider impacts on fish and wildlife as one of a multitude of water uses. See CAL. WATER CODE § 1240 (allowing appropriation for “some useful or beneficial purpose”); id. § 1243.5 (requiring the State Water Board, when “determining the amount of water available for appropriation” to consider instream beneficial uses). As such, any additional restrictions on the operations of a project otherwise approved by the State Water Board is best viewed, in the context of this article, as an externally imposed environmental constraint on the water allocation process.

142. See Goldsmith, supra note 141, at 47; Thomas, supra note 141, at 69-71.
devotes five articles to dams, obstructions, conduits, and screens. Two statutes directly address fish passage barriers. Section 5901, applicable in ten of the state’s fish and game districts, bars, “except as otherwise provided in this code,” the construction or maintenance of “any device or contrivance which prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream.” The “exceptions” appear to require either the construction of a fishway, a fish hatchery, or a

147. CAL. FISH & GAME CODE §§ 5900-6100 (West 1984) (containing Articles 1 through 5 of Fish and Game Code division 6, part 1, chapter 3). Section 5900(a) broadly defines “dam” for purposes of chapter 3 as “all artificial obstructions.” Id. § 5900(a) (West 1984).

148. Id. § 5901 (West 1984). The 10 districts are Districts 1, 1/2, 2, 2/4, 2, 3, 4, 4/2, 23 & 25. Id. By implication, the statute is not applicable in the 27 other districts established by the Fish and Game Code. See id. §§ 11001-11039 (West 1984 & Supp. 1994) (defining 37 fish and game districts within California).

149. Id. § 5931 (West 1984). The state Fish and Game Commission determines if “there is not free passage for fish over or around any dam.” Id.; see id. § 101 (West 1984) (recognizing the creation of the Fish and Game Commission by Section 20, art. IV of the California Constitution). Upon such a finding, the Commission directs the Department of Fish and Game (DFG) to prepare plans for a fishway. Id. § 5931 (West 1984). If the Commission orders a fishway, the dam operator must complete it to DFG’s satisfaction within a specified time. Id.

One of the open questions about the fishway process involves the circumstances giving a dam operator “closure,” i.e., assurances that they have complied with the law and are not liable for additional, potentially expensive construction. Section 5930 requires the DFG to “examine all dams in all rivers and streams in this State naturally frequented by fish.” Id. § 5930 (West 1984). The department must make its examinations “from time to time.” Id. This statute probably imposes a continuing duty upon the DFG to inspect, and reinspect, dams within the state. Alternatively, it could simply be an open ended mandate to survey the state’s stream system once, whenever DFG had available resources. Such a narrow reading makes little sense, particularly given the acknowledgement in § 5932 of changed conditions. See id. § 5932 (West 1984) (allowing DFG to respond to changed conditions). As a result of such a survey, the DFG can go to the Commission for a finding of impaired fish passage and an order to construct a fishway. Id. § 5931 (West 1984). Section 5932 states that if the dam operator has complied with “all of the provisions of this article,” and changed conditions require additional structures for fish passage, then DFG may build such structures and expend the necessary funds. Id. § 5932 (West 1984). Assuming the dam operator has built the initially ordered fishway to DFG’s satisfaction, and keeps the fishway “in repair and open and free from obstructions to the passage of fish at all times.” See id. § 5935 (West 1984) (requiring dam operator to keep fishway repaired). It appears that DFG has the duty to make, and pay for, further additional structures required by “changed conditions.” The meaning of “changed conditions” is unclear. In particular, does it include lack of adequate knowledge about a project’s impact on a fishery? In addition, the statutory scheme leaves unaddressed the duty of a project owner, if any, to pay for further construction in the event that the fishway ordered by DFG does not work. Is “dysfunctionality” a “changed condition”? Cf. id. § 5989 (West 1984) (stating that if a fish screen is dysfunctional as designed, then a project owner “shall not be required to install a new screen.”). Issues involving these statutes have arisen in a longstanding dispute over the County of Sonoma’s operation of a summer recreational dam on the Russian River at Healdsburg. See United Anglers v. County of Sonoma, Super. Ct. No. 340184 (Sacramento County), appeal pending, No. 3 Civ. 3802 (3d Dist., Cal. Ct. App.).

150. CAL. FISH & GAME CODE § 5938 (West 1984) (authorizing the commission to order a dam owner to build a fish hatchery in lieu of a fishway if the commission deems a fishway impracticable). Section 5942 authorizes fish plants in lieu of either a fishway or a hatchery. Id. § 5942 (West 1984).
fish screen.\textsuperscript{151} Section 5948 bars fish passage obstruction by log jams, debris accumulation or other artificial barriers, other than lawful dams, bridge abutments, and other permitted structures.\textsuperscript{152}

In addition to these fish passage barrier statutes, the Fish and Game Code contains a general flow bypass provision. Section 5937 requires the owner of any dam to “allow sufficient water . . . to pass through a fishway, or [absent] a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam.”\textsuperscript{153} This statute has been the subject of several recent lawsuits, including litigation over the operation of the federal Central Valley Project’s Friant Dam on the San Joaquin River.\textsuperscript{154} In the

\textsuperscript{151} CAL. FISH \& GAME CODE §§ 5980-5993, 6020-6028 (West 1984). Sections 5980-5993 address “conduits,” defined in section 5900(b), either used for hydropower generation, or having flow capacities greater than 250 cubic feet per second (cfs). Id. § 5980 (West 1984). Section 5900(b) defines a “conduit” as “pipe, millrace, ditch, flume, siphon, tunnel, canal, and any other conduit or diversion used for the purpose of taking or receiving water from any river, creek, stream or lake.” Id. § 5900(b) (West 1984). Sections 5981-5987 set up a cost sharing system whereby, nonhydropower conduit owners and DFG split screening costs equally. Id. §§ 5981-5987 (West 1984). Sections 6020-6028 apply to all other conduits. See id. § 6020 (West 1984). In addition to screening these smaller diversions, section 6021 authorizes the imposition of flow bypasses to “carry fish stopped by the screen . . . back to the channel from which they were diverted . . . .” Id. § 6021 (West 1984). Section 6022 then sets forth maximum required bypass rates. Id. § 6022 (West 1984).

The fish screen requirements, and liability for fish screen failure, have been central issues in the ongoing litigation between Glenn-Colusa Irrigation District (GCID) and DFG over GCID’s Sacramento River diversions. See United States v. Glenn Colusa Irrigation Dist., 788 F. Supp. 1126, 1135 (E.D. Cal. 1992) (holding that fish killed by screen were “taken” under the Endangered Species Act).

Section 6100 adds additional screening requirements for post-1971 new water diversions that may be “deleterious to salmon and steelhead.” CAL. FISH \& GAME CODE § 6100 (West 1984). Where applicable, this section supersedes sections 5980-5993 and 6020-6028. Id. The statute makes the fish screen mandatory, and places the screen’s entire cost on the water diverter. Id.

\textsuperscript{152} Id. § 5948 (West 1984). Unlike § 5901, § 5948 contains no restriction to specified fish and game districts. See id. § 5901 (West 1984) (restricting statute’s operation to enumerated districts); id. § 5948 (West 1984) (lacking any such restriction). Section 5948 also appears to bar the obstruction of fish passage by mining debris, although it does so a bit ambiguously. See id. § 5948 (West 1984) (describing permitted “artificial barrier” with list of lawful permanent transport and commercial facilities). Section 5948 applies even if fish passage is not effected if the prohibited items otherwise are “deleterious to fish as determined by the [Fish and Game] commission . . . .” Id.

\textsuperscript{153} Id. § 5937 (West 1984). Section 5946 makes § 5937 applicable to any appropriative permit or license issued after September 9, 1953, in District 4(b). Id. § 5946. The City of Los Angeles’ Mono basin diversions fell within the scope of sections 5946 and 5937. California Trout, Inc. v. State Water Resources Control Bd. (Cal. Trout I), 207 Cal. App. 3d 585, 631-33, 255 Cal. Rptr. 184, 212-13 (1989); see also California Trout, Inc. v. State Water Resources Control Bd. (Cal. Trout II), 218 Cal. App. 3d 187, 212-13, 266 Cal. Rptr. 788, 803-04 (1990) (holding that the City of Los Angeles had to comply immediately with section 5937). For a general discussion of section 5937, see SCHNEIDER, Instream Uses, supra note 44, at 55-56; Baiocchi, supra note 25, at 433-460.

\textsuperscript{154} See National Resources Defense Council v. Pattersen, 791 F. Supp. 1425, 1435 (E.D. Cal. 1992) (finding claim stated against United States under § 5937). In that case, United States District Court Judge Karlton ruled that § 5937 applied to the operation of the Central Valley Project’s Friant Dam. Id. §§ 1433-35. Other lawsuits involving § 5937 have included the Healdsburg Dam litigation, United Anglers v. County of Sonoma, Super. Ct. No. 340184 (Sacramento County), appeal pending, No. 3 Civ. 3802 (3d Dist., Cal. Ct. App.),
early 1950's, as Friant Dam was ready for operation, the California Attorney General opined that section 5937 did not reserve water for fish if such water was needed for domestic uses or irrigation.\textsuperscript{155} The California Court of Appeals implicitly rejected this interpretation in \textit{Cal. Trout I}.\textsuperscript{156} In a series of recent rulings, a United States District Court judge has found that section 5937 does indeed apply to the Friant Dam operations.\textsuperscript{157} Other recent disputes have involved questions of standing to raise fish passage issues,\textsuperscript{158} the existence of private rights of
action,\textsuperscript{159} and the dam operator’s duty, if any, to release flows from storage that would have exceeded natural flows.\textsuperscript{160}

The second group of fish and wildlife protection statutes that impact water allocation involves streambed alteration agreements.\textsuperscript{161} In general, the proponent of any public or private water project or other activity that will divert, obstruct, or change a watercourse’s “natural flow,” channels or banks, must first notify the Department of Fish and Game (DFG).\textsuperscript{162} After receiving notice, the DFG determines “if an existing fish or wildlife resource will be \textit{substantially} adversely affected” by the project.\textsuperscript{163} If it finds such impact, the DFG has thirty days to propose modifications.\textsuperscript{164} If the parties are unable to agree over the proposed modifications, binding arbitration ensues.\textsuperscript{165} No project may begin diversion or streambed alteration until either the proponent and the DFG agree to modifications, or an arbitrator issues an award.\textsuperscript{166} The statutes expressly exempt routine maintenance and operations\textsuperscript{167} and emergency work.\textsuperscript{168} Little reported litigation has resulted from the streambed alteration scheme.\textsuperscript{169}

\textsuperscript{159} See Private Right of Action Exists Under § 5937 of Fish and Game Code, 4 CAL. WATER L. & POL’L Rptr. 13, 13 (Oct. 1993) (summarizing the trial court ruling in the Putah Creek Water Cases that a private right of action exists under California Fish and Game Code § 5937).

\textsuperscript{160} See Amended Complaint Filed in Putah Creek Adjudication, 2 CAL. WATER L. & POL’L Rptr. 164, 164-65 (May 1992) (summarizing the release requirement issues raised in the Putah Creek Water Cases by the Solano Irrigation District’s amended complaint).

\textsuperscript{161} CAL. FISH & GAME CODE §§ 1600-1604, 1607 (West 1984 & Supp. 1994).

\textsuperscript{162} Id. Section 1601 applies to projects undertaken by governmental bodies or public utilities. Id. § 1601 (West Supp. 1993). Section 1603 applies to projects undertaken by all “persons,” presumably, not including the governmental or utilities addressed by § 1601. Id. § 1603 (West 1984). The two schemes are substantially similar. Both require the project proponent to notify the DFG before diverting water, or altering a watercourse’s channel or bank, if the DFG has designated that watercourse as a fishery. Id. §§ 1601(a), 1603 (West 1984 & Supp. 1994). Section 1601 requires such notice before the public agency or utility makes any diversion or alteration; § 1603, however, requires all other persons to notify the DFG only if the diversion or alteration is “substantial.” Id. § 1603 (West 1984). Similarly, both require notification if a project proponent plans to use any material from the streambeds. Id. § 1601(a) (West Supp. 1994). In addition, § 1601 specifically requires public agencies or utilities to notify the DFG before depositing any “crumbled, flaked or ground pavement where it can pass into any [designated watercourse].” Id. § 1601(a) (West Supp. 1994).

\textsuperscript{163} Id. §§ 1601(a), 1603 (West 1984 & Supp. 1994) (emphasis added).

\textsuperscript{164} Id. §§ 1601, 1603 (West 1984 & Supp. 1994).

\textsuperscript{165} Id. §§ 1601(b), 1603 (West 1984 & Supp. 1994).

\textsuperscript{166} Id. §§ 1601(c), 1603 (West 1984 & Supp. 1994).

\textsuperscript{167} Id. §§ 1601(e), 1603 (West 1984 & Supp. 1994). Section 1601(d) authorizes the DFG to exempt additional activities by regulation. Id. § 1601(d) (West Supp. 1994). Routine exemptions end if the existing operations or fish and wildlife conditions substantially change \textit{and} the fish or wildlife resources are adversely affected by the project. Id. §§ 1601(e), 1603 (West 1984 & Supp. 1994).

\textsuperscript{168} Id. §§ 1601(f), 1603 (West 1984 & Supp. 1994). Project operators must notify DFG within 14 days of commencing any emergency work. Id. at § 1601(f) (West Supp. 1994).

\textsuperscript{169} The one reported case is Mega Renewables v. Shasta County, 644 F. Supp. 491, 499 (E.D. Cal. 1986) (holding that federal law does not preempt the application of § 1603 to hydroelectric project).
The third set of fish and wildlife protection statutes that impacts water allocation include criminal and civil nuisance provisions. Fish and Game Code section 5650(f) makes it illegal 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." Penal Code section 370, the general criminal nuisance statute, defines a "public nuisance" as "anything which . . . unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin . . . ." Civil Code section 3479 similarly defines "public nuisance." These statutes enjoy a long history of use for environmental protection; as noted above, nuisance actions were the principal common law remedy either for the public in general or a water rights holder in particular impacted by releases into a watercourse. Recently, they have been "rediscovered" and used in criminal prosecutions of reservoir operators whose releases have been linked to fish kills.

B. Environmental Review Statutes: The California Environmental Quality Act and the National Environmental Policy Act

Two environmental review statutes, one state and one federal, broadly mandate consideration of environmental impacts before public agencies approve discretionary "projects." Unlike the other environmental


173. CAL. CIVIL CODE §§ 3479-80 (West 1970). Section 3479 defines "nuisance" in terms virtually identical to Penal Code § 370. Id. § 3479 (West 1970). Section 3480 then adds: "A public nuisance is one which affects at the same time an entire community or neighborhood, or any considerable number of persons . . . ." Id. § 3480 (West 1970).

174. See supra note 30 and accompanying text (discussing the public nuisance doctrine). Indeed, public nuisance was the vehicle used to end the gold dredging era. People v. Gold Run Ditch & Mining Co., 66 Cal. 138, 150-52, 4 P. 1152, 1158-60 (1884); see Gray, In Search of Bigfoot, supra note 21, at 243-45 (discussing the Gold Run Ditch case).

175. See generally Goldsmith, supra note 141; Thomas, supra note 141 (presenting the opposing views on propriety of using criminal prosecutions for harm to fish).

176. The National Environmental Policy Act's (NEPA) review and reporting requirements apply to "proposals for . . . major Federal actions significantly affecting the quality of the human environment . . . ." 42 U.S.C.A. § 4332(C) (West 1977). This includes the permitting of private conduct. E.g., Colorado River Indian Tribes v. Marsh, 605 F. Supp. 1425, 1433 (C.D. Cal. 1985) (holding the Army Corps of Engineers permit requirement triggered an obligation to review the entire project's impact); see contra Winnebago Tribe v. Ray,
statutes considered here, these statutes ultimately may require little more than consideration of a water project’s impact on the environment. Nevertheless, they provide substantial procedural hurdles to many project proponents, and important vehicles to focus public attention on water issues.

The California Environmental Quality Act (CEQA) requires public agencies to assess, consider, and mitigate where feasible, a proposed discretionary action’s environmental impacts before approving such an action. CEQA requires the “lead agency” to prepare and circulate

621 F.2d 269, 272-73 (8th Cir. 1980) (holding that the need for a federal river crossing permit was insufficient federal action to trigger NEPA review of the entire 67 mile long power line project), cert. denied, 449 U.S. 836. It likely does not, however, apply if the federal agency has no discretion to deny a permit. E.g., South Dakota v. Andrus, 614 F.2d 1190, 1193-94 (8th Cir. 1980) (concluding that the ministerial act of the issuance of a mineral patent triggered no NEPA review requirements), cert. denied, 449 U.S. 822. See contra Scenic Rivers Ass’n v. Lynn, 520 F.2d 240, 245 (10th Cir. 1976) (holding that a ministerial act could trigger NEPA requirements) rev’d on other grounds sub nom. Flint Ridge Dev. Co. v. Scenic Rivers Ass’n, 426 U.S. 776, 791-93 (1976). The California Environmental Quality Act (CEQA) expressly applies to “projects to be carried out by public agencies.” CAL. PUB. RES. CODE § 21001.1 (West 1986). Section 20165 defines “project” to include actions undertaken, supported, or permitted by public agencies. Id. § 21065. It does not include “ministerial acts.” See CAL. CODE RES. tit. 14, § 15002(i) (1993) (noting the applicability of CEQA to discretionary acts).

The United States Supreme Court has repeatedly affirmed that the National Environmental Policy Act (NEPA), 42 U.S.C.A. §§ 4321-4335 (West 1977), merely dictates consideration of a project’s environmental consequences; NEPA does not itself limit a federal agency’s discretion to approve a project with known environmental harms. E.g., Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989); Strycker’s Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 227-28 (1980) (holding that NEPA is purely procedural); see also MICHAEL H. REMY, ET AL., GUIDE TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) 10-11 (5th ed. 1991) (summarizing the case law on NEPA requirements).

The California Environmental Quality Act (CEQA), CAL. PUB. RES. CODE §§ 21000-21177 (West 1986 & Supp. 1994), has more substance than NEPA. REMY, supra, at 10-15. In many circumstances, CEQA mandates mitigation of environmental harms where feasible. CAL. PUB. RES. CODE § 21081(a) (West 1986). Ultimately, however, CEQA allows the agency responsible for preparing the environmental impact report (EIR) to make a finding that “[s]pecific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the [EIR].” Id. § 21081(c).

Legions of cases under both NEPA and CEQA have found projects enjoined for improper environmental review. See, e.g., Seattle Audubon Soc’y v. Moseley, 798 F. Supp. 1484, 1490-92 (W.D. Wash. 1992) (enjoining logging in spotted owl habitat pending NEPA compliance); Laurel Heights Improvement Ass’n v. Regents of the Univ. of Cal., 47 Cal. 3d 376, 427-28, 764 P.2d 278, 306-07, 253 Cal. Rptr. 426, 454-55 (1988) (enjoining the University of California from expanding the School of Pharmacy facility until it had fully complied with CEQA).

See, e.g., Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) (stating that NEPA’s twin purposes include provision of information to decision maker and dissemination of information to the public).

CAL. PUB. RES. CODE §§ 21000-177 (West 1986 & Supp. 1994). See generally REMY, supra note 177 (summarizing and analyzing the extensive statutory, regulatory, and common law CEQA requirements).

See CAL. PUB. RES. CODE § 21067 (West 1986) (defining “lead agency” as “the public agency which has principal responsibility for carrying out or approving a project which may have significant effect upon the environment”).
for public comment either a "negative declaration" or an "environmental impact report." Normally, CEQA applies to State Water Board review of water appropriation and transfer applications. State Water Board promulgated water quality control plans are "certified regulatory programs" not subject to separate environmental review and documentation under CEQA. Implementation of a water quality plan by a water rights decision, however, may not be exempt from CEQA. Beyond the appropriation context, CEQA also applies to construction activities on water development projects, whether conducted by the state Department of Water Resources (DWR), or by other public agencies.

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182. See id. § 21064 (West 1986) (defining "negative declaration"); id. § 21080.1 (West Supp. 1994) (requiring the lead agency to prepare either a negative declaration or an environmental impact report) (West 1986). A "negative declaration" is "a written statement briefly describing the reasons that a proposed project will not have a significant effect on the environment . . . ." Id. § 21064 (West 1986); see REMY, supra note 177, at 105-30 (discussing negative declarations).

183. See CAL. PUB. RES. CODE § 21061 (West 1986) (describing requirements for an environmental impact report); id. § 21081 (West 1986) (requiring the lead agency to prepare an EIR if necessary). An "environmental impact report (EIR)" is a "detailed statement" addressing a proposed project's significant environmental effects, including a half dozen specific criteria included by statute. Id. § 21100. See generally REMY, supra note 177, at 131-257 (describing the EIR process and contents).


186. The applicability of CEQA to the State Water Board's draft D-1630 was disputed. In its proposed decision, the State Water Board issued an "interim decision" addressing public trust values in the San Francisco Bay/Sacramento-San Joaquin Delta estuary (Bay/Delta estuary). D-1630, supra note 82, at 1-4. The decision establishes certain flow standards for the Bay/Delta estuary. Id. The Board acknowledged that its decision was one attempt to implement the water quality plan for salinity it had previously adopted. Id. at 6 n.1. Nevertheless, claiming it was merely "enforcing" the public trust and reasonableness doctrines, the State Board claimed it was categorically exempt from CEQA compliance. Id. at 90-92 (citing California Code of Regulations title 14, secs. 15321(a), 15307, 15308, 15301 (1993) which contain categorical exemptions for enforcement of rules, environmental enhancement, and ongoing operations). The Board further claimed that it was not within the exemption from the exemption for projects whose unusual circumstances might significantly and adversely affect the environment. D-1630, supra note 82, at 92-98 (citing California Code of Regulations title 14, sec. 15303.2(c) (1993)). But cf. KEVIN M. O'BRIEN, STATE WATER RESOURCES CONTROL BOARD DRAFT DECISION 1630: A CRITIQUE, 3 CAL. WATER L. & POL'Y RPR. 101, 104 (Mar. 1993) (criticizing the State Board and concluding that the proposed decision was not exempt). As noted previously, the State Water Board ultimately declined to adopt the decision. See 59 Fed. Reg. 810, 812 (1994) (to be codified at 40 C.F.R. pt. 131) (noting that the State Water Board acted in response to directions from California Governor Wilson).

On the federal side, the National Environmental Policy Act (NEPA) similarly requires federal agencies to conduct an environmental assessment prior to approving projects.\(^8\) NEPA applies to Bureau of Reclamation water projects,\(^9\) Federal Energy Regulatory Commission hydropower permits,\(^9\) and Army Corps of Engineers wetlands permits.\(^9\) NEPA has been the subject of repeated litigation in California in water rights matters.\(^9\) Most recently, litigation over Reclamation Reform Act regulations,\(^1\) and Central Valley Project contract renewals has involved NEPA compliance.\(^1\) Congress recently mandated preparation of a new programmatic environmental impact statement to assess the environmental consequences of the Central Valley Project.\(^\)  

**C. Endangered Species Protection**

Both state\(^1\) and federal\(^\) laws protecting endangered and threatened species have recently emerged at the forefront of disputes

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189. *See*, e.g., Madera Irrigation Dist. v. Hancock, 985 F.2d 1397, 1404-06 (9th Cir.) (holding that the CVP contract renewals triggered NEPA review), *cert. denied*, 114 S. Ct. 59 (1993). Courts have not, however, required the NEPA review of ongoing operations of reservoirs, absent changes in operating regimes. *See infra* note 192.


191. *See*, e.g., Friends of the Payette v. Horseshoe Bend Hydroelectric Co., 988 F.2d 989, 992 (9th Cir. 1993) (noting that after NEPA review, the Army Corps imposed 14 conditions on wetlands permit to mitigate environmental harm).

192. *See*, e.g., County of Del Norte v. United States, 732 F.2d 1462, 1467-68 (9th Cir. 1984) (upholding the designation of 5 North Coast rivers as components of the Wild and Scenic River system upheld despite trivial noncompliance with NEPA); County of Trinity v. Andrus, 438 F. Supp. 1368, 1388-1389 (E.D. Cal., 1977) (holding that absent changes in operating regime, ongoing dam operations are not subject to NEPA review); Columbia Canal Co. v. United States, No. CIV S-91-769-WBS/JFM (E.D. Cal., Motion to Dismiss, Nov. 19, 1991), in 2 CAL. WATER L. & POL’Y RPTR. 69, 70 (Jan. 1992) (concluding that NEPA was inapplicable to an agreement to wheel water from Mendota pool).


194. *See* Madera Irrigation Dist. v. Hancock, 985 F.2d 1397, 1406 (9th Cir. 1993) (holding that the CVP contract renewal provisions requiring review under NEPA interfered with no vested rights); Natural Res. Defense Council v. Patterson, No. CIV S-88-1658 LKK, 9-11 (E.D. Cal., 1993) (holding that NEPA challenges to the validity of pre-CVP Act contracts were not rendered moot by passage of CVP Act).


involving major California water diverters. Collectively, the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA) have led to actual or threatened changes of diversions and reservoir operations in the Sacramento River and Delta in order to protect the dwindling stocks of Sacramento River winter-run chinook salmon and delta smelt. Additional listings may further restrict water operations in California.


199. The state Fish and Game Commission listed the Sacramento River winter-run chinook salmon (winter run salmon) as an endangered species under the act in 1989. CAL. CODE REGS. tit. 14, § 670.5(a)(2)(M) (1993). The United States Fish and Wildlife Service (USFWS) listed the winter run salmon as a threatened species under the federal act in 1990. 55 FED. REG. 49623-01 (1990). The USFWS later changed the designation to endangered. See 59 FED. REG. 440-01 (1994). Both of these listing decisions have led to injunctions against large Sacramento River diverters. See United States v. Glenn-Colusa Irrigation Dist., 788 F. Supp. 1126, 1135-36 (N.D. Cal. 1992) (finding a similar result under the Federal Endangered Species Act); Department of Fish and Game, 8 Cal. App. 4th at 1568-69, 11 Cal. Rptr. 2d 222, 230-31 (holding that the Sacramento River winter run chinook salmon are protected by the state act). In addition to the restrictions placed by the courts in the two cited cases, the State Water Board ordered operational changes in the Central Valley Project to provide more favorable temperature conditions for salmon. SWRCB, Order No. 90-5 (1990) (concluding that public trust, waste prevention and water quality enforcement powers supported operational changes to protect salmon); see Lawsuits Challenge Water Board Amendments to Lake Shasta Water Right Permits, 1 CAL. WATER L. & POL’Y RPR. 14, 14 (Oct. 1990) (discussing the legal challenges to Order No. 90-5).

200. Prodded in part by a lawsuit, the USFWS listed the Delta Smelt as a threatened species in 1993. 58 FED. REG. 12854 (1993); see Environmental Organizations Sue to Force Listing of Delta Smelt, 3 CAL. WATER L. & POL’Y RPR. 115, 115 (Mar. 1993) (discussing the suit against the USFWS). The combined effect of this listing and the winter run salmon on water diversions is still developing. Early in 1993, prior to the substantial precipitation, the state Department of Water Resources had estimated that as much as 1 million acre-feet of water might be lost to the state and federal water projects in order to protect winter run salmon and delta smelt. See Wet Year, Lower Demands Combine to Reduce Impacts of Fish Protection Measures on SWP and CVP Water Supplies, 4 CAL. WATER L. & POL’Y RPR. 10, 10 (Oct. 1993).

201. See, e.g., United States Fish and Wildlife Service, Notice of I-Year Finding on a Petition to List to Longfin Smelt, 59 FED. REG. 869 (1994) (proposing not to list longfin smelt at this time); United States Fish and Wildlife Service, Proposed Determination of Threatened Status for the Sacramento Splittail, 59 FED. REG. 862 (1994) (proposing to list fish native to Bay/Delta estuary); United States Fish and Wildlife Service, Determination of Threatened Status for the Giant Garter Snake, 58 FED. REG. 54039-01 (1993) (listing the Sacramento Valley snake as threatened); see also Settlement Reached on ESA Suit: 400 Species to be Listed, 3 CAL. WATER L. & POL’Y RPR. 113, 113 (Mar. 1993) (noting that 6 California species, including Mono Lake brine shrimp, may be listed); Species Protection Actions: Applications to List Delta Fish and a Court Order Requiring USFWS to Designate the Colorado River as Critical Habitat, 3 CAL. WATER L. & POL’Y RPR. 93,
The structure of the two acts is very similar. Both define “endangered,” “threatened,” and “species” similarly. Both involve a listing process which may be initiated by public petition. Both prohibit their respective coordinate agencies from undertaking any project which might “jeopardize” a listed species. Finally, both broadly prohibit any person

93-94 (Feb. 1993) (stating that the Sacramento splittail, longfin smelt, spring run salmon and green sturgeon, all present in Delta, face “imminent” listings under the ESA).

202. 16 U.S.C.A. § 1532(6) (West 1985); CAL. FISH & GAME CODE § 2062 (West Supp. 1994). The CESA defines an “endangered species” as a “native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.” CAL. FISH & GAME CODE § 2062 (West Supp. 1994). The ESA defines an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range other than [certain insect pests].” 16 U.S.C.A. § 1532(6) (West 1985). The ESA further defines “species” to include “any subspecies of fish or wildlife or plants, and any distinct population segment of any vertebrate species or wildlife which interbreeds when mature.” Id. § 1532(16) (West 1985).

Three principal differences between the two definitions exist. First, the CESA applies only to “native species;” the ESA contains no such express limitation. Thus, the CESA would likely not protect the Striped Bass, as that fish is not native to California. Second, the CESA qualifies “danger of extinction” with “serious;” again, the ESA imposes no such qualification. Finally, while both definitions include “subspecies,” the ESA “species” definition also includes “distinct population segment” of interbreeding vertebrates. The applicability of the ESA to subspecies has been the subject of some controversy recently. See generally Kevin W. Grierson, Note, The Concept of Species and the Endangered Species Act, 11 VA. ENVTL. L.J. 463 (1992) (discussing the problems of hybrids). In all three instances, at least on its surface, the ESA definitions sweep slightly more broadly than the CESA.

The two acts also define “threatened” species similarly. The CESA defines a “threatened species” as one that “is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by [the CESA].” CAL. FISH & GAME CODE § 2067 (West Supp. 1994). The ESA defines “threatened species” as one “which is likely to become an endangered species within the foreseeable future. . . .” 16 U.S.C.A. § 1532(20) (West 1985). Under the CESA, little practical difference ensues from the designation as “threatened” as opposed to “endangered.” The CESA’s “taking” provisions apply equally to endangered and threatened species. CAL. FISH & GAME CODE § 2080 (West Supp. 1994). Under the ESA, the “taking” proscriptions expressly apply only to “endangered species.” 16 U.S.C. § 1538(a)(1) (1985). Nevertheless, the ESA gives the United States Fish and Wildlife Service the authority, at the time of listing, to extend by regulation the taking proscriptions to threatened species. 16 U.S.C.A. §§ 1533(d), 1538(a)(1)(G) (West 1985).


Under the ESA, after listing a new species, the USFWS must also designate “critical habitat” for the newly listed species. Unlike the initial species designation determination, the critical habitat designation may include a comparison of the costs and benefits of such habitat designation, unless a cost based habitat exclusion would result in the species' extinction. Id.

from "taking" a listed species.\textsuperscript{205} Criminal sanctions exist for violations of the respective acts.\textsuperscript{206}

Despite the structural similarities between the two provisions, the ESA likely provides the stronger theoretical protection to listed species. The criminal fines available under the ESA may reach $50,000 for each violation.\textsuperscript{207} In contrast, criminal fines for CESA violations have a $5,000 ceiling per violation.\textsuperscript{208} Moreover, the state legislature added a "feasibility" qualification to the CESA’s "anti-jeopardy" provision.\textsuperscript{209} This qualification allows a state agency to approve a project which might jeopardize a listed species if that agency both requires "reasonable" mitigation measures to "minimize" the project’s impact, and finds that the project’s benefits outweigh its impacts.\textsuperscript{210} In contrast, the ESA contains only the cumbersome and rarely used "God Committee" exemption process to exempt a species from the ESA "anti-jeopardy" provisions."\textsuperscript{211}

The two acts’ potential impact on water appropriations and diversions is substantial. Nothing in either act acknowledges expressly any exemption

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\item \textsuperscript{205} 16 U.S.C.A. § 1538(A)(1)(B) (West 1985); CAL. FISH & GAME CODE § 2080 (West Supp. 1994). The ESA expressly defines "take" broadly to include: "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C.A. § 1532(19) (West 1985). Although the CESA contains no such express definition, the agency in charge of CESA implementation has broadly applied "take." For example, the California Court of Appeal upheld the California Department of Fish and Game’s construction of "take [or] possess" to include non-hunting or fishing activities, such as entrainment of fish in diversion pumps. Department of Fish & Game v. Anderson-Cottonwood Irrigation Dist., 8 Cal. App. 4th 1554, 1558, 11 Cal. Rptr. 2d 222, 224 (1992). The USFWS has also broadly applied the ESA "take" definition. See, e.g., Palila v. Hawaii Dep’t of Land & Natural Resources, 639 F.2d 495, 497 (9th Cir. 1981) (holding that maintenance of nonprotected competitor species in protected species’ critical habitat area was "take" under the USFWS regulations defining "harm" and "harassment").
\item \textsuperscript{207} 16 U.S.C.A. § 1540(a)(1) (West Supp. 1993). In addition, civil penalties may reach $25,000 per violation. Id. § 1540(a)(1) (West Supp. 1985).
\item \textsuperscript{208} CAL. FISH & GAME CODE § 12008 (West Supp. 1994).
\item \textsuperscript{209} Id. § 2092 (West Supp. 1994). Section 2063 defines "feasible" by reference to CEQA’s definition. \textit{Id.} § 2063 (West Supp. 1994) (citing California Public Resources Code sec. 21061.1 (West 1986)). CEQA defines "feasible" as: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." \textit{CAL. PUB. RES. CODE} § 21061.1 (West 1986).
\item \textsuperscript{210} CAL. FISH & GAME CODE § 2092(b) (West Supp. 1994). In addition, the agency must find that the project proponent did not irreversibly commit resources to the project after it began the consultation process with DFG. \textit{Id.} § 2092(b)(2) (West Supp. 1994). In no event can the "feasibility" exemption allow an agency to approve a project "which would likely result in [a listed species’] extinction ...." \textit{Id.} § 2092(c) (West Supp. 1994).
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for existing water rights holders. Similarly, the acts make no distinction between the type of water right involved; thus, riparians, pre-1914 appropriators, and even groundwater pumpers may face pumping or diversion restrictions. Where a “taking” under either act involves the specific conduct of an identifiable pumper, such as entrainment of fish in an irrigation district’s pumps, that pumper faces liability. Where the potential “taking” involves reductions by diversion of streamflow necessary for a listed species’ protection, however, apportionment of the burden of pumping curtailment is unclear. Neither act speaks of the relative priorities of rights holders. Arguably, under each act, if additional flows are necessary to ensure a species’ survival, then all diverters might be jointly liable for the “take” and thus responsible to reduce their diversions pro rata. Alternatively, and perhaps more consistently with western water law’s history of rights’ prioritization, more recent rights’ holders might bear a higher proportion of reductions.

212. See United States v. Glenn-Colusa Irrigation Dist., 788 F. Supp. 1126, 1134 (E.D. Cal. 1992) (ruling that state water rights are no exception to ESA “take” proscriptions). In that case, the court concluded that the ESA affected only the exercise of the district’s appropriative rights, not the existence of the rights themselves. Id.; see also Estes, supra note 198, at 1061-66 (concluding that overappropriation of water is a “taking” under the ESA).


214. See Department of Fish and Game v. Anderson-Cottonwood Irrigation Dist., 8 Cal. App. 4th 1554, 1568-69, 11 Cal. Rptr. 2d 222, 230-31 (1992) (holding that the CESA supported an injunction against irrigation district’s diversions); Glenn-Colusa Irrigation Dist., 788 F. Supp. at 1135-36 (reaching a similar result under the ESA).


216. In times of shortage, no junior appropriator on a watercourse may take any water until any senior appropriator on that watercourse has had its rights satisfied. Hutchins, supra note 15, at 131. In contrast, in times of shortage, riparians generally share losses equally. Id. at 218-24. In an adjudication of an overappropriated groundwater basin, however, the court has apportioned overall pumping reductions by reference to the “equitable apportionment” factors used by the United States Supreme Court in interstate water allocation disputes. City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 265 n.61, 537 P.2d 1250, 1298 n.61, 123 Cal. Rptr. 1, 49 n.61 (1975) (citing Nebraska v. Wyoming, 325 U.S. 589, 618 (1945)). Under these factors, while temporal priority is important, it is only one of a multitude of equitable matters for the court to consider. Id.
D. Water Quality Legislation

State and federal water quality legislation\(^{217}\) interacts with the water allocation system in four primary ways. First, the water quality permit processes limit the ability of a water diverter to return flows to the watercourse.\(^{218}\) Absent an approved permit to discharge, a permit to appropriate may be practically useless. Second, the water quality planning processes may further limit diversions from a watercourse, if the permit system is inadequate to meet desired water quality goals.\(^{219}\) The impact of the water planning process on diversions from the Delta River system has become a crucial battleground in the effort to strike some balance between state water development and environmental protection goals.\(^{220}\) Third, the federal Clean Water Act requires certain federal projects to obtain water quality certifications from the State Water Board.\(^{221}\) In particular, questions have arisen surrounding the ability of the state to qualify federally licensed hydropower projects with instream flow protections to meet fish, wildlife, or other water quality goals. Finally, the federal Clean Water Act also requires a permit before an appropriator can dredge or fill wetlands.\(^{222}\) Controversies over the applicability of the wetlands regulations have impacted many water diverters, and have led, in two other states, to federal vetoes of planned dam and reservoir projects.\(^{223}\)

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\(^{218}\) See infra notes 224-238 and accompanying text (describing the water quality permit system and its impact on water diversions).

\(^{219}\) See infra notes 239-279 and accompanying text (describing the water quality planning process and its impact on water diversions).


\(^{221}\) See infra notes 280-299 and accompanying text.

\(^{222}\) See infra notes 300-309 and accompanying text.

1. Discharge Permits

Both California and federal law protect water quality from harmful discharges into a watercourse through a permit system.\(^{224}\) The state Porter-Cologne Water Quality Control Act\(^ {225}\) establishes a system whereby a designated regional water quality control board issues “waste discharge requirements” that limit permissible discharges of waste that “could affect the quality of the waters of the state.”\(^ {226}\) The regional board may waive such requirements if “such waiver is not against the public interest.”\(^ {227}\) An applicant for waste discharge requirements may also have to undertake CEQA review, if the project meets the definition of a “new source” for purposes of the federal Clean Water Act.\(^ {228}\) The issuance of waste discharge requirements does not create vested rights to discharge.\(^ {229}\) Moreover, nothing requires the appropriate regional board to allocate a watercourse’s entire waste assimilative capacity.\(^ {230}\)

The federal Environmental Protection Agency (US-EPA) has certified the state’s waste discharge requirement system as meeting the requirements of the Clean Water Act’s National Pollution Discharge Elimination System (NPDES) permits.\(^ {231}\) The Clean Water Act requires an NPDES permit before a “point source” can “discharge” a “pollutant” into “waters of the

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\(^{225}\) CAL. WATER CODE § 13020 (West 1992) (designating the state water quality control legislation as the Porter-Cologne Water Quality Control Act).

\(^{226}\) Id. § 13260(a)(1) (West Supp. 1994); see also id. §§ 13050(d) (West Supp. 1994) (defining “waste”); id. § 13050(g) (defining “quality of the water”). The act sets up nine regional water quality control boards charged with the act’s initial implementation. Id. §§ 13200-13247 (West 1992 & Supp. 1994).

\(^{227}\) Id. § 13269 (West 1992). The regional board may grant the waiver conditionally and may terminate the waiver at any time. Id.

\(^{228}\) Id. § 13389 (West 1992); see also CAL. CODE REGS. tit. 23, §§ 3733-3741 (1993) (describing CEQA compliance and exemptions for waste discharge requirements). Under the Federal Clean Water Act, a “new source” is any source constructed after the issuance of proposed regulations that impose heightened performance standards for that type of source. 33 U.S.C.A. § 1316(a)(2) (West 1986).

\(^{229}\) See CAL. WATER CODE § 13263(g) (West 1992).

\(^{230}\) Id. § 13263(b) (West 1992 & Supp. 1994). See Attwater & Markle, supra note 15, at 1002 (discussing the Board’s ability to preserve assimilative capacity).

\(^{231}\) See Attwater & Markle, supra note 15, at 997-98, 1001-005 (discussing the interaction of state and federal systems); see also 33 U.S.C.A. § 1342(b) (West 1986 & Supp. 1994) (stating requirements for EPA approval of state administration of NPDES system); CAL. WATER CODE §§ 13370-13389 (West 1992) (state compliance with federal permit law).
United States.232 The principal feature of the NPDES system is a set of technologically based limitations applicable to different classes of effluent dischargers.233 Given the federal certification of the California program, initial responsibility for enforcement of the federal permit system rests with the state.234 The US-EPA retains ultimate authority to enforce the federal requirements of the permit system.235

The waste discharge requirements system thus applies to any diverter who will return diverted water to the watercourse from which it was diverted. By definition, a water diverter who removes water from a watercourse without returning any portion of the water to a watercourse is not a “discharger.”236 Proponents of hydroelectric power plants may well have to apply for discharge requirements, although “run of the river” plants that return water to the watercourse from which it was removed may well qualify for a waiver.237 Because NPDES system grants no vested right

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232. See 33 U.S.C.A. § 1342(a)(1) (West 1986 & Supp. 1993) (requiring compliance with effluent limitations established by § 1311); id. §§ 1311(a), (e) (West 1986 & Supp. 1993) (prohibiting point sources from discharging of pollutants unless they are in accordance with effluent limitations); id. § 1362(11) (West 1986 & Supp. 1993) (defining “effluent limitations”). Section 1362 defines “point source” as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, . . . from which pollutants are or may be discharged.” Id. § 1362(14) (West 1986 & Supp. 1993). The definition expressly excludes “agricultural stormwater discharges and return flows from irrigated agriculture.” Id.; see Attwater & Markle, supra note 15, at 997 (noting that the Porter-Cologne Act’s waste discharge requirements apply to agricultural return flows); see also 33 U.S.C.A. §§ 1362(6) (West 1986) (defining “pollutant”); id. § 1326(7) (West 1986) (defining “navigable waters”); id. § 1326(12) (West 1986) (defining “discharge of a pollutant”).


234. See Attwater & Markle, supra note 15, at 1009-1012 (discussing the role of the state in enforcing federal permit requirements).


236. See CAL. WATER CODE § 13260(a)(1) (West 1992) (imposing filing requirements only upon “discharg[es] of waste . . . that could affect the quality of the waters of the state”). Of course, if construction of a water diversion project itself discharged waste into state waters, the project proponent would have to apply for waste discharge requirements or a waiver. See 16 Op. Cal. Att’y Gen. 125, 130-31 (1950) (discussing the authority of regional boards to impose waste discharge requirements on construction projects).


The Clean Water Act does not require a reservoir operator to get an NPDES permit, as ordinary releases from dams are not considered “point sources” that trigger the federal permit requirement. National Wildlife Fed’n
to discharge, the diverter remains subject to possible future reductions in diversions if necessary to reduce discharges. Recent litigation involving waste discharge requirements for water projects has arisen mainly in the context of water quality certifications for hydroelectric power projects licensed by the Federal Energy Regulatory Commission.238

2. Water Quality Planning Process

Both the Porter-Cologne Act and the Clean Water Act mandate comprehensive state planning to protect water quality goals.239 The application of these two acts' requirements in the linchpin Bay/Delta estuary has been the focus of nearly twenty years of administrative proceedings involving the State Water Resources Control Board, the EPA, and virtually every major water diverter and environmental organization in California.240

The Clean Water Act requires each state to adopt "water quality standards."241 Such standards contain two components: 1) Identification of "the designated uses of the navigable waters involved,"242 and 2) "the water quality criteria for such waters based upon such uses."243 "Designated uses" include drinking water, fish and wildlife purposes, recreational purposes, agricultural purposes, industrial purposes, and "other" purposes, including navigation.244 "Water quality criteria"
represent numerical or narrative descriptions of the levels of pollutants allowable while still protecting the designated uses.\textsuperscript{245} The Clean Water Act envisions that the states will undertake a continual process of water quality standard formulation, implementation, and reformulation.\textsuperscript{246}

As with implementation of the NPDES permits discussed above, the State Water Board has the initial responsibility in California to fulfill the water quality planning required under the Clean Water Act.\textsuperscript{247} In addition to the duty to promulgate “water quality standards” to meet Clean Water Act requirements, the Porter-Cologne Act requires the State Board to approve “water quality control plans.”\textsuperscript{248}

The Porter-Cologne Act articulates its water quality planning requirements somewhat differently from the Clean Water Act. Under the Porter-Cologne Act, a “water quality control plan” has three elements.\textsuperscript{249} Each plan must designate: 1) Beneficial uses to be protected; 2) water quality objectives; and 3) a program of implementation to achieve those objectives.\textsuperscript{250} Little difference appears between the Clean Water Act’s requirement of “designated uses” and the Porter-Cologne Act’s requirement of “designate[d] . . . beneficial uses.”\textsuperscript{251} Similarly, the Porter-Cologne Act’s express requirement for a “program of implementation” echoes many of the Clean Water Act’s required components of an approved “continuing

\textsuperscript{245} 40 C.F.R. § 131.3(b) (1992) (describing “criteria” as including “constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use.”). A “narrative description” might state: “no toxic pollutants will be allowed in any concentration” in a given watercourse. Certain listed toxics must have numerical criteria or biological monitoring or assessment criteria. 33 U.S.C. § 1313(c)(2)(B) (Supp. 1993).

\textsuperscript{246} 33 U.S.C. § 1313(e)(3) (1986). Among other items, the continuing planning process must contain plans for “effluent limitations and schedules of compliance . . . at least as stringent as any requirements contained in any applicable water quality standard” and “adequate implementation, including schedules of compliance, for revised or new water quality standards, under [§ 1313(e)].” Id. § 1313(e)(3)(A), (F) (1986).

\textsuperscript{247} See id. § 1313(c) (West 1986); CAL. WATER CODE § 13160 (West 1992) (designating the State Water Board as the agency responsible for fulfilling federal water quality requirements); id. § 13170 (West 1992) (authorizing the State Board to adopt water quality control plans to meet federal requirements).

\textsuperscript{248} CAL. WATER CODE § 13240 (West 1992). The regional boards develop the plans for State Water Board approval. Id. §§ 13245, 13246 (West 1992).

\textsuperscript{249} Id. § 13050(j) (West Supp. 1994).

\textsuperscript{250} Id. § 13050(j)(1)-(3) (West Supp. 1994).

planning process." Some room for difference, however, exists between the Porter-Cologne Act's formulation of "water quality objectives" and the Clean Water Act's formulation of "water quality standards."

As noted above, the Clean Water Act's "water quality standards" include a list of designated uses of a watercourse, and criteria to protect those beneficial uses. The Porter-Cologne Act generally directs the State Board to develop those "water quality objectives" that will "ensure the reasonable protection of beneficial uses and the prevention of nuisance." Nevertheless, the Porter-Cologne Act's "water quality objectives" require consideration of six specific factors. These factors include "environmental characteristics of the hydrographic unit under consideration," "economic considerations," and "the need for developing..."
housing within the region.”\textsuperscript{257} The consideration of these factors in a state water quality control plan might, in some cases, prevent a state water quality control plan from meeting the Clean Water Act “water quality standards.”\textsuperscript{258}

The application of the state and federal water quality statutes to the Bay/Delta estuary has raised numerous questions about the interaction of the two statutory schemes with the state water allocation system. The principal water quality concerns in the Bay/Delta estuary do not involve pollution in the conventional sense. Rather, both the instream and consumptive beneficial uses of Delta waters depend upon salinity issues.\textsuperscript{259} In addition, instream uses for fish raise questions about temperature, and the timing and direction of water flows.\textsuperscript{260} Given these types of quality concerns, the twin state and federal pollutant discharge permit systems are largely unavailable to protect the beneficial uses of the Bay/Delta estuary.\textsuperscript{261} Rather, to a large extent, the protection of

\textsuperscript{257} Id. § 13241(b), (d), (e) (West 1992). The other three factors are: (a) “[P]ast, present, and probably future beneficial uses of water”; (c) “[e]nvironmental conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area”; and (f) “[t]he need to develop and use recycled water.” Id. § 13241(a), (c), (f) (West 1992).

\textsuperscript{258} For example, the Porter-Cologne Act suggests that “it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses.” CAL. WATER CODE § 13241 (West 1992). Application of this clause might prevent a state water quality objective from meeting the Clean Water Act’s “anti-degradation” policies. See 33 U.S.C.A. § 1313(d)(4) (West Supp. 1993) (requiring standards to protect clean water from degradation due to increased use of assimilative capacity). Similarly, the inclusion of “economics” in the Porter-Cologne Act’s articulation of water quality objectives might preclude such an objective based-plan from meeting the Clean Water Act. See Wright Interview, supra note 220, at 43-44 (explaining that “[u]nder the federal Act, economics and other factors can be considered in designating uses, but not in developing the water quality criteria necessary to protect those uses .... [u]nder state law, economics can be considered throughout the process.”)

\textsuperscript{259} United States v. State Water Resources Control Bd. (\textit{Delta Water Cases}), 182 Cal. App. 3d 82, 107-08, 115-120, 227 Cal. Rptr. 161, 177-181 (1986); Lilly, supra note 240, at 22-12 to 22-13. See also D-1630, supra note 82, at 46-50 (imposing flow requirements for fish); see id., Table II (listing temperature & chloride requirements). Without fresh water to push back the brackish water pulled up the estuary by tidal actions, water in the delta may become too salty for domestic consumption and agricultural irrigation; Steinberg & Schoenleber, supra, note 30, at 1144-45 (describing the Delta briefly and the problems excess salinity poses for agricultural irrigation); see generally CALIFORNIA STATE LANDS COMMISSION, DELTA-ESTUARY: CALIFORNIA’S INLAND COAST 27, 36-43, 72-73, 91-92, 117 (1991) [hereinafter CALIFORNIA’S INLAND COAST] (describing Delta hydrology and the implications of water project activities on estuarine uses).

\textsuperscript{260} See, e.g., \textit{Delta Water Cases}, 182 Cal. App. 3d at 107-08, 115-120, 227 Cal. Rptr. at 172-73, 177-181; Lilly, supra note 240, at 22-12 to 22-13; D-1630, supra note 82, at 46-50 (noting flow requirements for fish) & Table II (illustrating temperature, chloride requirements).

\textsuperscript{261} See \textit{Delta Water Cases}, 182 Cal. App. 3d at 108, 227 Cal. Rptr. at 173 (stating that excess salinity due to tidal water intrusion is not a “pollutant” or a “discharge” within meaning of NPDES system). The water quality planning process operates as a backup to the permit system; if the effluent limitations established by the permit system fail to protect water quality, the water quality standards give a state, and the EPA, additional powers to assure water quality. Id.
beneficial uses depends upon control of timing, amount, and direction of flows entering the estuary.262
Ultimately, depending upon the level of protection required under the state and federal acts, these flow needs may only be met by the diversion restrictions, if any, that the State Water Board will put on water rights holders who divert above the Delta.

The ongoing controversy over the application of the two water quality acts to diversions above the estuary implicates four principal legal issues. First, ongoing litigation challenges the State Board’s failure to include flow requirements within its “water quality control plan for salinity and temperature.”263 Environmentalists have claimed that flows are required in the plans themselves under federal law; others, however, argue that flows are only implementation decisions.264

Second, unresolved by the 1986 Delta Water Cases is the scope of the State Board’s authority to implement its water quality powers through its water rights powers.265 Both that decision’s discussion of reprioritization of water rights266 and the subsequent State Water Board invocation of public trust authority in Decision 1630267 demonstrate the potentially broad sweep of the Board’s water rights authority. Nevertheless, issues involving apportionment of flow reductions among rights holders remain for judicial determination.268

Third, the EPA’s ability to enforce its own water quality standards remains uncertain. The EPA rejected the State Board’s 1991 water quality plan for salinity because it found that the plan inadequately protected the

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262. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, POLLUTANT POLICY DOCUMENT (1990).
263. CALIFORNIA’S INLAND COAST, supra note 259, at 38-43, 77-81, 91-92 (describing impacts of flows on fish and location of “null zone”).
266. Id. at 133, 227 Cal. Rptr. at 189.
267. D-1630, supra note 82, at 6 n.1.
estuary’s striped bass fishery. After two years of study, the EPA proposed its own water quality standards to protect the striped bass fishery in the fall of 1993. At least as a practical matter, its ultimate ability to enforce that standard is uncertain. The Clean Water Act allows the EPA broad latitude to enforce NPDES requirements. Since those permits are largely irrelevant to the Delta, the EPA may simply lack any ability to enforce its water quality standards.

Fourth, an additional question about EPA enforcement authority involves the Clean Water Act’s savings clause for state water rights. In 1977, Congress added a provision now known as the “Wallop Amendment” after its sponsor. That provision announces three congressional policies. First, Congress sought to avoid impairment of state authority to allocate water. Second, Congress sought to avoid or abrogate existing state created rights to water. Finally, Congress sought to encourage federal agencies to cooperate with state and local governments to “develop comprehensive solutions” that prevent pollution and manage water resources.

The meaning of this broad policy statement is disputed. On the one hand, the EPA and others read it quite narrowly. On the other hand, some project operators have argued that the amendment further constrains EPA’s ability to order flow reductions. Although the United States
Supreme Court has not addressed the matter, those courts that have, have upheld the EPA's interpretation of the amendment.279

3. Water Quality Certifications

Under the permit and planning processes, the EPA obtains ultimate authority to enforce water quality limitations over the objections, or inaction, of state agencies. In contrast, section 401 of the Clean Water Act purports to give a state an ability to restrain federal agencies whose actions may impact water quality in that state.280 That section requires federal permit applicants whose project may discharge into the waters of a particular state to obtain a “certification” from that state that “any such discharge will comply with [Clean Water Act water quality standards].”281 In addition, the section requires the federal permitting agency to include within the permit conditions “any other appropriate requirement of State law set forth in such certification.”282 The scope of a state’s ability to condition or restrict the issuance of such a certification has been the subject of much recent controversy in California involving federally licensed hydroelectric projects.283

In California v. Federal Energy Regulatory Commission (Rock Creek),284 the Supreme Court concluded that the Federal Power Act preempted California from imposing, in the water rights process, greater flow bypass requirements upon a hydropower project than required by the federal licensing agency. Rock Creek did not involve water quality certification issues. Following that decision, the State Water Board attempted to raise environmental considerations in the context of the section 401 certification process. In particular, the State Board has required

279. United States v. Akers, 785 F.2d 814, 820-21 (9th Cir. 1986); Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 513 (10th Cir. 1985).
281. Id. § 1341(a)(1) (West 1986).
282. Id. § 1341(d) (West 1986).
284. 495 U.S. 490 (1990). The name refers to the stream upon which the developers sought to build their hydroelectric project. Id. at 493.
applicants for a water quality certification to comply with CEQA and has attempted to condition streamflows. In two recent decisions, however, the Ninth Circuit has again addressed the State Board’s ability to condition federally licensed hydropower projects.

In *California v. Federal Energy Regulatory Commission (Dynamo Pond)*, the Ninth Circuit considered section 401’s requirement that state certification be issued within a year after receipt of request for certification. Prior to 1985, the Federal Energy Regulatory Commission (FERC) had interpreted the one year period to begin at the time that the certifying agency had found the application for certification “acceptable for processing.” Thus, if, for example, the State Board insisted that CEQA documentation accompany the certification request, the one year period would not run until such documentation was completed. Concerned over the potential for prolonged delay, the FERC changed its rule in 1987. Under the new rule, the one year period began running on the date the certifying agency received the certification request. In *Dynamo Pond*, the court upheld the new FERC interpretation.

In *Sayles Hydro Associates v. Maughan*, the Ninth Circuit further restricted the state’s ability to require compliance with environmental law. In that case, the Ninth Circuit concluded that “the state lacks the power to do anything but determine proprietary water rights.” The court implicitly ruled that the State Board could not condition certification upon CEQA compliance. Although not a section 401 case, the court’s broad preemption ruling, and its rejection of the state’s ability to order studies,

287. 966 F.2d 1541 (9th Cir. 1992).
289. *Id.* at 1552.
290. *Id.*
291. *Id.* at 1552-53.
292. *Id.* at 1556.
293. 985 F.2d 451 (9th Cir. 1993).
295. The court did not mention CEQA by name. Nevertheless, it discussed the State Board’s “shifting, expanding range of reports and studies . . . [involving] recreation, aesthetics, archaeology, sport fishing, and cultural resources.” *Id.* at 453. These resources would normally be part of the CEQA review process.
suggests the Ninth Circuit's unwillingness to read broadly "appropriate state laws" upon which the State Board may condition certification. 296

Any Ninth Circuit predisposition toward a narrow reading of state water quality certification powers may well soon be moot. The United States Supreme Court is currently reviewing a Washington State Supreme Court decision that broadly construed that State's water quality certifications authority over FERC licensed projects. 297 In Washington Dep't of Ecology v. Public Utility Dist. No. 1, the Washington Supreme Court distinguished Rock Creek as solely a water rights matter and concluded that the State's water quality certification power is not preempted by the federal power act. 298 The United States Supreme Court's decision will hopefully resolve many of the outstanding issues involving the extent of the state's power to condition a federally licensed hydropower project through the water quality certification process. 299

4. Wetlands Permits

The final major regulatory requirement placed upon water projects by the Clean Water Act is the wetlands permit program. 300 Section 404 of that Act requires a permit from the Army Corps of Engineers before any "discharge of dredged or fill materials into the navigable waters." 301 Under Corps regulations, upheld by the Supreme Court, "navigable waters"
include the freshwater wetlands “immediately adjacent” to “waters of the United States.”

Most water projects will need to obtain a section 404 permit. The permit applicant must comply with NEPA. In addition, it must mitigate the impact of its activities. Finally, it must satisfy any additional EPA concerns over a project’s effects on “municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas.”

The broad scope of the Corps’ definition has engendered enormous controversy. In particular, two issues present are of particular concern in the water allocation process. First, the EPA has asserted its ability to veto water projects under section 404. Indeed, since wetlands permits must be renewed at least every ten years, this EPA veto could give the Agency a “handle” in attempting to ensure that existing projects help meet flow related water quality standards. Second, the extent of potential restrictions on water dependent operations has led to loud claims of “takings” requiring compensation under the Fifth Amendment.

303. Somach, supra note 237, at 357-58. “General permits,” applicable to broad classes of permitted activities with minimal impacts on the environment, are available in certain instances. 5 WATERS & WATER RIGHTS, supra note 190, at 370-71.
304. 5 WATERS & WATER RIGHTS, supra note 190, at 567.
305. Id. at 564 (text accompanying note 108).
306. 33 U.S.C.A. § 1344(c) (West 1986); 5 WATERS & WATER RIGHTS, supra note 190, at 563-65.
307. James City County v. Environmental Protection Agency, 12 F.3d 1330, 1993 WL 539821 (4th Cir. Dec. 30, 1993) (reversing the trial court’s decision overturning EPA § 404 veto of Virginia Dam); 56 Fed. Reg. 76-02 (Jan. 2, 1991) (vetoing proposed Two Forks Dam in Colorado); see also Lilly, supra note 240, at 22-17 to 22-20, 22-24, and 22-26 (discussing the EPA’s veto authority under § 404).
308. 33 C.F.R. § 325.6(e).
309. See, e.g., Lilly, supra note 240, at 22-28 to 22-30 (discussing takings issues); see also Katherine E. Stone & Philip A. Seymour, Proposed Section 404 Amendments—A New “Taking” Clause for Wetlands (Why Stick to the Constitution?), 3 CAL. WATER L. & POL’Y RPTR. 219 (Aug. 1992).
E. Wilderness Preservation Laws

1. Wild, Scenic & Recreational Rivers

Both state and federal laws preserve designated wild, scenic, and recreational rivers and river segments from incompatible development. In general, both the California Wild and Scenic Rivers Act and the federal Wild and Scenic Rivers Act contain designated rivers and river segments, classified according to their particular use values.

Both the state and federal acts substantially restrict construction of dams and water diversion facilities on included river segments. The California act prohibits the construction of virtually any "dam, reservoir, diversion, or other water impoundment facility" on a designated stream segment. It does allow the Secretary of Resources to approve water

312. The two acts similarly define "wild," "scenic," and "recreational." Compare CAL. PUB. RES. CODE § 5093.53 (West 1984) with 16 U.S.C.A. § 1273(b) (West 1985). "Wild" river segments are those "free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted." CAL. PUB. RES. CODE § 5093.53(a) (West 1984); 16 U.S.C.A. § 1273(b)(1) (West 1985). "Scenic" river segments are "free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." CAL. PUB. RES. CODE § 5093.53(b) (West 1984); 16 U.S.C.A. § 1273(b)(2) (West 1985). "Recreational" river segments are "readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past." CAL. PUB. RES. CODE § 5093.53(c) (West 1984); 16 U.S.C.A. § 1273(b)(3) (West 1985).
316. The state act requires legislative designation of a component. CAL. PUB. RES. CODE § 5093.546 (West 1984). The federal act, however, also allows administrative inclusion of a river segment upon the recommendation of the governor of the state in which the river segment is located. 16 U.S.C.A. § 1273(a)(ii) (West 1985). If the Secretary agrees, the rivers are included within the federal system, although administered by the state. Id. This process led to the inclusion of five North Coast California rivers in the federal system in the waning hours of the Carter administration. See County of Del Norte v. United States, 732 F.2d 1462, 1467-68 (9th Cir. 1982).
diversion facilities on included segments where "the facility is needed to supply domestic water to the residents of the county or counties through which the river and segment flows . . . [if] the facility will not adversely affect the free-flowing condition and natural character of the river and segment."\(^{318}\) The federal act prohibits the Federal Energy Regulatory Commission from licensing any component of a hydropower project if such a project would directly affect a designated component.\(^{319}\) In addition to direct prohibitions on the construction of most water projects on included river segments, both acts restrict their respective government agencies from assisting others to construct most such projects on included river segments.\(^{320}\)

Collectively, the two acts have set substantial portions of California's presently undammed river segments off limits to further water development projects.\(^{321}\) In particular, both acts protect large segments of the largely undammed North Coast rivers.\(^{322}\) At one time, possible development of these rivers was a substantial portion of the California Water Plan.\(^{323}\) Against the possible charge that putting such substantial flows off limits

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318. *Id.* § 5093.55(a) (West Supp. 1994). Section 5093.52(d) defines "free-flowing" as "existing or flowing without artificial impoundment, diversion, or other modification of the river." *Id.* § 5093.52(d) (West 1984). The act authorizes the Secretary of Resources to make the determination. *Id.* §§ 5093.52, 5093.55(a) (West 1984 & Supp. 1994). The Secretary of Resources has delegated that decisionmaking power to the Department of Fish and Game. SCHNEIDER, *Instream Uses*, *supra* note 44, at 91.

319. 16 U.S.C.A. § 1278(a) (West Supp. 1993). The statute expressly includes as prohibited components "any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act . . . ." *Id.*

320. 16 U.S.C.A. § 1278(a) (West Supp. 1993) (barring any federal assistance to a project on an included river that "would have a direct and adverse effect on the values for which such river was established . . . "); *Cal. Pub. Res. Code* § 5093.56 (West Supp. 1994) (barring state assistance or cooperation "whether by loan, grant, license, or otherwise . . . "). The federal act also prevents a federal agency from recommending authorization of such a project without first notifying the Secretary of the Interior or Agriculture and reporting to Congress. 16 U.S.C.A. § 1278(a) (West Supp. 1993).


322. *See Cal. Pub. Res. Code* § 5093.54(a)-(c), (d) (West Supp. 1994) (protecting portions of the Klamath, Trinity, Smith and Eel rivers respectively); *see also* County of Del Norte v. United States, 732 F.2d 1462, 1467-68 (9th Cir. 1984) (upholding state requested, federal administrative inclusion of five North Coast California rivers within federal system).

might violate the 1928 constitutional amendment, the state legislature expressly determined that such preservation was a reasonable and beneficial use within the meaning of that amendment.\textsuperscript{324}

Little reported litigation to date has addressed the scope of water development projects that might be permissible under either the state or federal acts.\textsuperscript{325} In addition to its positive restrictions on incompatible water development projects, the Interior Department’s Solicitor has construed the federal act as having reserved sufficient water to accomplish the federal act’s purposes.\textsuperscript{326}

2. Wilderness Lands

In addition to the state and federal laws that directly preserve free-flowing rivers, both state\textsuperscript{327} and federal\textsuperscript{328} laws preserve wilderness lands. While the state has preserved a relatively small amount of land,\textsuperscript{329} substantial California lands have been preserved as components of the federal system.\textsuperscript{330} Unlike the federal Wild and Scenic Rivers Act, the National Wilderness Act does not necessarily bar development of dams and reservoirs within designated wilderness areas.\textsuperscript{331} To date, there have been no reported attempts to locate a major water project in a federally protected wilderness area in California.

\textsuperscript{324} CAL. PUB. RES. CODE § 5093.50 (West 1984).

\textsuperscript{325} The only case on point appears to be Swanson Mining Corp. v. Federal Energy Regulatory Comm., 790 F.2d 96, 104 (D.C. Cir. 1986) (holding that FERC is subject to federal Wild & Scenic Rivers Act). Cf. 60 Cal. Op. Att’y Gen. 4, 6 (1977) (opining that the Secretary of Resources has primary responsibility to determine the adverse effects on a river segment.)

\textsuperscript{326} 86 Interior Dec. 553, 607-609 (1979). For a brief discussion of the reserved rights doctrine, and its possible use for environmental purposes, see supra note 136.

\textsuperscript{327} CAL. PUB. RES. CODE §§ 5093.30-5093.40 (West 1984).


\textsuperscript{329} See CAL. PUB. RES. CODE § 5093.34 (West 1984).


\textsuperscript{331} See 16 U.S.C.A. § 1133(d)(4) (West 1985) (authorizing the President to allow water projects, including supporting infrastructure, within wilderness areas if “such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial . . .”). See generally COGGINS & GLICKSMAN, supra note 314, at 14-35 (noting that no U.S. president has ever authorized a water project in a protected wilderness area). The California act does not contain a similar exception. See CAL. PUB. RES. CODE § 5093.36 (West 1984).
The federal wilderness system may impact water allocation in another way. The effect of the reserved rights doctrine\textsuperscript{332} upon wilderness designation remains unclear. If Congress addresses the scope of additional rights reserved for wilderness purposes at the time of legislative designation, then Congress’ intent would govern the extent, if any, of such reserved rights. To date, Congress has only expressly adopted wilderness water rights reservation language in two statutes, neither of which involve California.\textsuperscript{333} Absent such express intent, a controversy has existed over the impact of wilderness legislation upon water rights.\textsuperscript{334} The congressional bills designating the National Forest wilderness areas in California did not mention water reservation.\textsuperscript{335} Litigation over the scope of reserved water rights for wilderness reservations reached an ambiguous conclusion in Colorado.\textsuperscript{336} To date, this issue has not yet arisen in California.\textsuperscript{337}

IV. CONCLUSIONS

The intersection of the water allocation system with environmental protection law prompts five broad, interrelated observations. First, it is only a slight exaggeration to assert that water allocation law is largely environmental law today. Parts II and III of this Article documented the

\textsuperscript{332} See supra note 136 (summarizing reserved rights doctrine).


\textsuperscript{334} E.g., COGGINS & GLICKSMAN, supra note 314, at 14-24 (discussing Colorado litigation over reserved water rights for wilderness areas).


\textsuperscript{336} Sierra Club v. Yeutter, 911 F.2d 1405 (10th Cir. 1990). In that case, the trial court had concluded that wilderness reservation did include water rights reservation. Sierra Club v. Block, 622 F. Supp. 842, 863 (D. Colo. 1985). See Sierra Club v. Lyng, 661 F. Supp. 1490, 1495-96 (D. Colo. 1987) (rejecting the United States’ showing of efforts to protect wilderness values). Ultimately, the Tenth Circuit reversed and concluded that the matters were not ripe for adjudication. Yeutter, 911 F.2d at 1415-21.

\textsuperscript{337} The pending California desert lands bill, which designates as wilderness certain portions of the southeastern California desert, expressly reserves water rights with a priority date as of the date of the bill’s enactment. S. 21, 103rd Cong., 1st Sess. § 607 (1993). Like the Nevada and Arizona bills, supra note 333, the California bill states that its reservation evinces no congressional intent either to reserve, or not to reserve, water in other wilderness areas. S. 21, 103rd Cong., 1st Sess. § 607 (1993). As most of the appropriable surface water has likely already been appropriated in this desert area, the only likely impact of this bill, if any, is on groundwater rights. Cf. Cappaert v. United States, 426 U.S. 128, 142-43 (1976) (holding that the reservation of Devil’s Hole National Monument in Death Valley reserved unappropriated groundwater).
magnitude of the role that environmental considerations play in both the initial decision to grant a water right, as well as the continued exercise of a water right. A review of the published decisions over the last twenty-five years demonstrates the impact of these laws in litigation involving the rights and use of California waters. About thirty percent of the California Supreme Court water cases over the last twenty-five years have had environmental considerations either at the core of the law in controversy, or as the instigation for the lawsuit. A review of the California Courts of Appeal finds environmental matters central to over half of the reported cases. An even higher percentage of published federal decisions have

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To the extent that the California Supreme Court cases have elevated the power of the state to declare certain water uses wasteful or unreasonable, or to give them a lower priority than might otherwise be their due, the Court has indirectly advanced similar declarations or reprioritizations based on environmental considerations. See *Joslin*, 67 Cal. 2d at 140, 429 P.2d at 894, 60 Cal. Rptr. at 382 (1968) (stating that reasonable use will be decided case by case by considering statewide matters of transcendent importance); *Long Valley*, 25 Cal. 3d at 358-60, 599 P.2d at 668-669, 158 Cal. Rptr. at 561-63 (upholding State Water Board’s powers to reprioritize dormant riparian rights in stream wide adjudications).

339. In the last 25 years, not counting those opinions superseded by California Supreme Court authority, and disputes over contractual entitlements to water, the intermediate appellate courts have published opinions in roughly a dozen and a half major water allocation disputes: 1) the “reservoir release” cases, Nacimiento Regional Water Mgt Advisory Comm. v. Monterey Cty Water Resources Agency, 15 Cal. App. 4th 200, 201-02, 19 Cal. Rptr. 2d 1, 1-2 (1993) (holding that annual reservoir operations are not subject to CEQA) and Leach v. City of San Diego, 220 Cal. App. 3d 389, 395, 269 Cal. Rptr. 328, 331 (1990) (holding that drafting of water from one reservoir to another was not subject to CEQA); 2) *Department of Fish & Game v. Anderson-Cottonwood Irrigation Dist.* (ACID), 8 Cal. App. 4th 1554, 1561-63, 11 Cal. Rptr. 2d 222, 226-27 (1992) (holding that provisions of the Endangered Species Act did not proscribe only hunting or fishing related activity); 3) the “IID Cases,” *Imperial Irrigation Dist. v. State Water Resources Control Bd.* (IID I), 225 Cal. App. 3d 548,
environmental matters at or near the core of the parties’ disputes.340


340. Since 1968, almost all of the federal cases involving California water rights or projects have involved environmental laws. Since 1978, there have been three United States Supreme Court cases: California v. F.E.R.C., 495 U.S. 490, 506 (1990) (holding that California’s requirements for minimum stream flow for a river on which a federally licensed hydroelectric project was located were preempted by the Federal Power Act); Arizona v. California, 460 U.S. 605, 620 (1983) (maintaining the “practicable irrigable acreage” standard to determine Indian water rights); and California v. United States, 438 U.S. 645, 667-669 (1978) (holding that under the Reclamation Act of 1902, a state may impose any condition on control, appropriation, use, or distribution of water in a federal reclamation project which is not inconsistent with congressional directives of the project). The first of these cases, California v. F.E.R.C., arose because of the state’s attempt to add instream
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More importantly, the qualitative impact of the various courts’ and administrative agencies’ decisions lies beyond the sheer number of published decisions involving environmental matters. The National Audubon Society’s “public trust” ruling articulated an entirely new set of largely environmental considerations applicable to all water rights in the state, and largely shielded from Fifth Amendment takings review.

Flow requirements largely for environmental concerns. F.E.R.C., 495 U.S. at 493-96. California v. United States involved the state’s attempt to keep New Melones reservoir from being filled before the Bureau of Reclamation had contracts to sell water from that reservoir. California v. United States, 438 U.S. 645, 651-52 (1978). The state’s decision to prevent the dam’s premature filling temporarily kept the river open for rafting. Id. at 651-53.

Since 1968, without considering cases involving the Reclamation Reform Act, the Ninth Circuit has decided nearly a dozen California water rights and hydropower cases: 1) Westlands Water Dist. v. Firebaugh Canal, 10 F.3d 667, 671 (9th Cir. 1993) (holding that the San Luis Act did not require that the Bureau of Reclamation satisfy water needs of San Luis water service contractors before diverting water to holders of downstream water rights); 2) Wackerman Dairy, Inc. v. Wilson, 7 F.3d 891, 896 (9th Cir. 1993) (finding that in adjudicating water rights, courts must look to state law unless it conflicts with explicit congressional directives); 3) Sayles Hydro Assocs. v. Maughan, 985 F.2d 451, 453 (9th Cir. 1993) (holding that the Federal Power Act preempted authority of the State Board to require a permit); 4) California v. Federal Energy Regulatory Comm. (“Dynamo Pond”), 966 F.2d 1541, 1552-54 (9th Cir. 1992) (holding that FERC regulations properly restricted time for water quality certification to one year from date of request); 5) National Audubon Soc’y v. Department of Water, 869 F.2d 1196, 1200 (9th Cir. 1989) (finding that Federal Water Pollution Control Act Amendments preempted any federal common-law claims); 6) La Flamme v. Federal Energy Regulatory Comm., 852 F.2d 389, 403 (9th Cir. 1988) (suspending construction of hydropower project pending completion of NEPA review); 7) South Delta Water Agency v. United States, 767 F.2d 531, 536 (9th Cir. 1985) (finding jurisdiction in water rights holders’ suit for violations of their rights by state and federal water projects); 8) County of Del Norte v. United States, 732 F.2d 1462, 1465-66 (9th Cir. 1984) (upholding designation of Wild and Scenic rivers despite trivial NEPA noncompliance); 9) Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1027 (9th Cir. 1980) (rejecting NEPA challenge to dam construction project); 10) May v. Nevada Irrigation Dist., 600 F.2d 1280, 1282 (9th Cir. 1979) (upholding finding that plaintiff’s right to irrigation water was severable from the rights of other landowners); and 11) Environmental Defense Fund v. Armstrong, 487 F.2d 814, 821-22 (9th Cir. 1973) (upholding finding that supplemental EIS for New Melones dam was adequate). As noted above, environmental considerations indirectly triggered the litigation in Sayles Hydro and Dynamo Pond. See supra notes 280-299 and accompanying text (discussing water quality certifications). The National Audubon case raised Clean Water Act issues and the following four cases raised NEPA challenges: La Flamme, County of Del Norte, Warm Springs Dam Task Force, and Armstrong.

Over the last 25 years, not counting decisions leading to full Ninth Circuit opinions, and acreage limitations decisions under the Reclamation Act, the District Court has also decided a half dozen water rights and project matters. Almost all of these have involved environmental considerations: 1) Natural Resources Defense Council v. Patterson, 791 F. Supp. 1425, 1431-32 (E.D. Cal. 1992) (finding that California law, determining the amount of water necessary for in-stream uses, was applicable to the Bureau of Reclamation under section 8 of the Reclamation Act); 2) United States v. California, 509 F. Supp. 867, 887 (E.D. Cal. 1981) (finding on remand from Supreme Court in New Melones litigation that conditions imposed on permits issued pursuant to application to operate reclamation projects were binding upon the United States and its agencies were consistent with congressional directives); 3) County of Trinity v. Andrus, 438 F. Supp. 1368, 1388-91 (E.D. Cal. 1977) (finding that ongoing reservoir operations required no NEPA review); 4) Homeowners, Emergency Life Protection Comm. v. Lynn, 432 F. Supp. 1334, 1338 (C.D. Cal. 1977) (upholding adequacy of EIS for proposed Los Angeles dam and reservoir); 5) Environmental Defense Fund v. Stamm, 430 F. Supp. 664, 668 (N.D. Cal. 1977) (upholding adequacy of EIS for San Felipe Division of Central Valley Project); and 6) Sierra Club v. Morton, 400 F. Supp. 610, 650-51 (N.D. Cal. 1975) (requiring NEPA and CEQA review for construction of major California water facilities).

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Similarly, the endangered species and water quality issues have impacted the delta water diversions — the hub of the California water wheel.\textsuperscript{341}

The second major observation from the above survey of environmental considerations in the water allocation and use system involves the federalization of California water allocation decisions. To an increasing extent, federal environmental law is determining water allocation in California. As a matter of substantive law, the federal Endangered Species Act and the federal Clean Water Act probably have the greatest overall potential to determine water allocation in the critical Bay/Delta estuary and river system. While the state's public trust doctrine and constitutional "reasonableness" requirement are powerful tools, both ultimately admit the possibility of a discretionary, multifaceted balancing among competing water use values.\textsuperscript{342} Similarly, as noted above, the state's Porter-Cologne Act arguably allows greater consideration of economics in its water quality planning process than the federal Clean Water Act.\textsuperscript{343} In contrast, neither the federal Endangered Species Act, nor the Clean Water Act, admit as much of a balance between, for example, fish and consumptive uses. The Endangered Species Act is the strongest example of a virtually unbending federal legislative prioritization of a water use. Absent a rare exemption from the Endangered Species Committee, both the anti-jeopardy and the anti-take provisions discussed above are virtually unbending in their application, regardless of the apparent impact on other resource users.

The administration of the state substantive laws, when compared to the federal laws, highlights an additional element in the federalization of California water allocation. For example, given the central role of the State Water Board in the initial discretionary application of the public trust doctrine, constitutional reasonableness, and the non-federally mandated elements of the Porter-Cologne Act, all three state laws are ultimately

\textsuperscript{341} See supra notes 196-216, 239-278 and accompanying text (discussing the endangered species and water quality acts).

\textsuperscript{342} National Audubon Soc'\textsuperscript{y}, 33 Cal. 3d at 445-47, 658 P.2d at 727-728, 189 Cal. Rptr. at 364-65 (holding that public trust needs to be considered and, to extent possible, accommodated, but harm to trust protected values may be inevitable); Delta Water Cases, 182 Cal. App. 3d at 129, 227 Cal. Rptr. at 187 (stating that State Board has authority to balance competing uses). Cf. Colberg, Inc. v. State, 67 Cal. 2d 408, 420-21, 432 P.2d 3, 11, 62 Cal. Rptr. 401, 409 (1967) (holding that in exercise of public trust authority, state has authority to promote one trust use—commerce—over another—navigation).

\textsuperscript{343} See supra note 258 (comparing the use of economic factors under both the state and federal statutory scheme).
constrained by statewide political considerations. In contrast, since federal agencies are ultimately responsible for the implementation of the federal Endangered Species and Clean Water Acts, the federal decision makers remain, at least in theory, more removed from statewide water politics. In short, given the greater importance of federal law in impacting water allocation, the identity of the critical decision makers has also shifted from the state towards the federal government.

The recent Central Valley Project Improvement Act (CVPIA) highlights both elements of the environmental federalization of California water allocation. True, the CVPIA commits the Bureau of Reclamation to operate the project in accordance with state law and the orders of the State Water Board. Nevertheless, the federal decision to comply fully with state law itself is but an additional instance of a federal decision maker choosing to impact the allocation of water in California in a manner not necessarily mandated otherwise by state law. Moreover, the substantive terms of the CVPIA demonstrate a profound federal commitment of water for environmental purposes. The CVPIA mandated a programmatic environmental impact statement that allows the federal government to consider the environmental consequences of the entire CVP operations. More specifically, the CVPIA dedicated 800,000 acre-feet of project water for environmental purposes. In addition, the CVPIA expressly authorizes operation of the project for the protection and enhancement of fish and wildlife. The elevation of these values, combined with the Bureau of Reclamation’s announced mission of reorientation from water development to resource management and

344. Of course, the state judiciary ultimately can review the State Water Board’s determination of reasonable use and public trust matters. E.g., National Audubon Soc’y, 33 Cal. 3d at 448-51, 658 P.2d at 729-32, 189 Cal. Rptr. at 366-68 (holding that courts have concurrent jurisdiction with State Water Board over public trust matters). Nevertheless, absent arbitrary State Board action, the courts will likely defer to the Board’s determination. See, e.g., Delta Water Cases, 182 Cal. App. at 129, 227 Cal. Rptr. at 187. Moreover, the appointment and retention of state judges is not entirely immune from state based political control, as state appellate judges are all appointed by the Governor, and all judges within the state need to sit for retention elections. CAL. CONST. art. VI, §§ 7, 16 (discussing the Commission on Judicial Appointments and election of judges respectively).

345. Central Valley Project Improvement Act (CVPIA), Pub. Law No. 102-575, § 3401-12, 106 Stat. 4706 (1992); see supra note 108 (outlining the CVPIA).

346. CVPIA § 3406(b), 106 STATS. at 4714.

347. See supra note 157 (discussing the Reclamation Act, § 8).

348. CVPIA § 3409, 106 STATS. at 4730.

349. Id. § 3406(b); 106 STATS. at 4714-21.

350. Id. § 3406(a), 106 STATS. at 4714.
environmental mitigation has led to what some have called “Club Fed.” Prior to these developments, the dambuilding mission of the Bureau of Reclamation was often at odds with the fish and wildlife protection missions of its Department of Interior compatriots at the United States Fish and Wildlife Service, and their compatriots at the Department of Commerce’s National Marine Fisheries Service. Today, a previously inconceivable alliance between those historical rivals, together with the federal Environmental Protection Agency, is emerging as an operational reality. While the alliance largely remains inchoate, its strategic implications may be profound. If it sticks, no longer will the large state and local projects necessarily have the powerful, and well funded Central Valley Project as their allies in disputes with the State Water Board and federal EPA, or the state and federal fish protection agencies.

The environmental federalization of California water law presents a mixed bag of benefits and detriments to both the environment and the water allocation process. On the one hand, to the extent that the state has been unwilling to restrike a balance between water development and environmental considerations, the federal government has the ability to strike that balance for the state. Both the CVPIA and the recent EPA Bay/Delta proposals demonstrate the federal government’s attempt to

351. UNITED STATES DEPARTMENT OF INTERIOR, BUREAU OF RECLAMATION, ASSESSMENT '87: A NEW DIRECTION FOR THE BUREAU OF RECLAMATION (Sept. 1987) (shifting Bureau from dam building to resource management, including mitigation of environmental impacts of Bureau projects).
352. The proposed federal Bay/Delta standards demonstrate this united federal front. United States Environmental Protection Agency, Proposed Rule on Bay/Delta Standards, 59 Fed. Reg. 810, 810 (1994) (to be codified at 40 C.F.R. § 131) (stating that the “EPA has worked closely with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the U.S. Bureau of Reclamation (USBR) [to produce] this interagency initiative . . . . ”).
353. To date, the Army Corps of Engineers apparently has not yet joined the “Club.”
354. Of course, to the extent the Bureau is willing to change its operations to meet State Water Board demands more readily than its state based counterparts, those state diverters may look to the Bureau to bear a greater share of environmentally necessitated operational changes.

The CVPIA may have had an additional impact on the environmental federalization of California water allocation. During the Bush administration, talk emerged over the possible transfer of the CVP operations to the State. State Takeover of the Central Valley Project: Three Perspectives, 2 CAL. WATER L. & POL’Y RPTR. 173, 175 (June 1992). Never very far advanced, those talks are now dead. See Michael Doyle & Pamela J. Podger, State Dealts Major Blow In Effort To Take Over CVP, THE SACRAMENTO BEE, Oct. 26, 1993, at A1. The end of the transfer discussions may have been due in part to the change of administration in Washington. The limitations on the CVP placed by the CVPIA, however, would likely have reduced greatly the operational flexibility that was one of the likely reasons California wished to take over the project. In any event, even were the current administration interested in reviving the transfer talks, it seems that Congress would so easily undo its CVPIA work by allowing a transfer without those or other restrictions in place. Moreover, even if a transfer law were enacted that mandated the same kinds of environmental considerations in CVP operations, Congress would likely view with some distress its inability to oversee the enforcement of those considerations under a federal agency.
restrike that balance in greater favor of environmental values than of consumptive values. On the other hand, at least for the Bay/Delta quagmire, the ultimate effect of the federal actions may simply mean more delay. The proposed EPA standards recognize that it is up to the state to implement the standards.\textsuperscript{355} Untold possible delay may well occur as the respective state and federal agencies, as well as other water interests, thrash out the mechanics of this implementation program. Of course, the state’s own track record on this matter is shoddy, as the State Water Board has dragged out the Bay/Delta water quality planning process for over seven years since the Court of Appeal’s 1986 decision in the \textit{Delta Water Cases}.\textsuperscript{356} Nevertheless, the now heightened federalization of the process has added an inauspicious political wrinkle to the process. Instead of facing the reallocation choices before it squarely and responsively, the state can pass the buck to the federal agencies. In so doing, the state not only may foster greater delay through interjurisdictional wrangling, but also may attempt to force the federal government to “play the heavy” and bear the political consequences of any reallocation decision.\textsuperscript{357} Such abdication of state responsibility trades possible progress on long term solutions to fundamental state infrastructural and quality of life problems for short term political gain.

The third broad observation acknowledges that the California water allocation system is primarily concerned with water reallocation,\textsuperscript{358} and that environmental concerns are a major impetus for those reallocations.\textsuperscript{359} Of course, the history of environmental opposition to

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\item Originally, the State Water Board contemplated a 1990 completion to a three year water quality and water rights process to protect the Bay/Delta. \textit{See CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WORKPLAN FOR THE HEARING PROCESS}, 34 (Feb. 1987). It is now seven years after the original workplan was released, and there is no scheduled date for completion of the water rights phase of the proceedings.
\item Governor Wilson’s April 1993 command to the State Water Board to stop its work on interim protection of the Delta provides direct evidence that at least some in his administration would rather the federal government take any heat for water reallocation issues. Letter from Pete Wilson, Governor of California, to John Caffrey, Member, State Water Resources Control Board, 3 CAL. WATER L. \\& POL’Y RPTR. 152 (May 1993). That letter expressly referenced the federal Endangered Species Act’s limitations on the SWP and CVP as a principal reason for the state to avoid additional standard setting efforts. \textit{Id.} Following the Governor’s letter, the State Board declined to adopt its final version of Decision 1630. United States Environmental Protection Agency, \textit{Proposed Rule on Bay/Delta Standards}, 59 Fed. Reg. 810, 812 (1994) (40 C.F.R. \textsection\textsection 131).
\item \textit{See}, e.g., CAL. WATER CODE \textsection\textsection 1205-1207 (West Supp. 1994) (listing streams that are fully appropriated); Paul R. Williams \\& Stephen J. McHugh, \textit{Water Marketing and Instream Flows}, 9 STAN. ENVTL. L.J. 132, 180 (1990) (discussing transferability of CVP water).
\item Schulz \\& Weber, \textit{supra} note 21. That article also acknowledges that some water reallocation might simply involve a shift from a lower valued to a higher valued consumptive use. \textit{Id.} at 1106-09.
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water projects goes back at least as far as the Hetch Hetchy controversy.\textsuperscript{360} It is perhaps not entirely coincidental that environmental laws first began impacting water allocation around the time that the major water projects had already been completed. As the white water resource was virtually eliminated by the more than 1300 dams in California, the few remaining undammed major streams in California became the focus of strong preservation drives.\textsuperscript{361} With the North Coast rivers now off limits to development, no large "on stream" storage sites are readily available for additional, large scale water development.\textsuperscript{362} Thus, the meeting of any additional demands for water, whether for environmental, urban, or agricultural use, will ultimately only come from some other user's loss or transfer of a right. The net effect of many of the environmental laws, in this zero sum water game, will be a legally mandated transfer of water from a prior agricultural or urban use.\textsuperscript{363} These mandated reallocations are only beginning to be seen, with the State Water Board's draft D-1630 decision but are the first of a likely series of changes occurring under the public trust doctrine. Other likely mandated environmental reallocations will occur in the Mono Lake basin, and the combined effect of the Clean Water Act and the federal Endangered Species Act may mandate additional reallocations in the Bay/Delta system.

The fourth broad observation involves the fragmentary system of substantive law. Two examples, drawn from the federal Endangered Species Act (ESA) and the Clean Water Act, demonstrate the incomplete,

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\textsuperscript{360} See, e.g., Harold Gilliam, The Sierra Club's First Century, S.F. CHRON., April 19, 1992, at Z1 (discussing John Muir's unsuccessful fight against Hetch Hetchy Dam); see also Rank v. Krug, 90 F. Supp. 773, 808-10 (S.D. Cal. 1950) (holding that commercial fishers lack standing under California Fish and Game Code § 5931 to challenge Friant Dam's effect on San Joaquin river fish).

\textsuperscript{361} The history of major dam construction in California shows that only 11 major reservoirs were completed in California after 1970. BULLETIN 160-87, supra note 74, at 22-23. Prior to 1970, 93 were completed. Id.; cf. County of Del Norte v. United States, 732 F.2d 1462, 1467-68 (9th Cir. 1982) (upholding five North Coast rivers' inclusion in federal Wild & Scenic Rivers system); Court Upholds State's Right To Control Water Resources, WASH. POST, July, 4, 1978, at A7 (stating that the United States Supreme Court upheld efforts of California state officials to impose conditions on the use of water in the federal government's New Melones Dam).

\textsuperscript{362} Even the "offstream" storage possibilities for increasing state water project yield face environmental obstacles. See Memorandum from Acting Field Supervisor, Ecological Services, United States Fish & Wildlife Service, to Regional Director, Bureau of Reclamation 1-2, 22-23 (Sept. 3, 1993) (copy on file with the Pacific Law Journal) (noting the presence of the endangered San Joaquin kit foxes on a proposed offstream storage reservoir site).

\textsuperscript{363} The recent agreement between the City of Los Angeles and various environmental and state groups may show that some water reallocations may not be zero sum games. In that agreement, construction of a waste water reclamation facility will produce "new" supplies to substitute at least partially for the reduction in Mono Basin diversions. See Marla Cone, Pact to Cut Diversions from Mono Lake, THE SACRAMENTO BEE, Dec. 14, 1993, at B5.
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and sometimes incoherent integration of environmental law and the water allocation system. The ESA demonstrates that conflicts may arise within the same statutory scheme. The ESA focuses its protection species by species. It gives absolutely no guidance for resolving potential conflicts among protection schemes for different species. One potential conflict of importance to California water planning involves the proposed listing of the Sacramento giant garter snake. That snake apparently prefers warm, slow moving water. Efforts to provide that species with the habitat it prefers may run afoul of efforts to provide the swifter, colder water preferred by endangered winter-run chinook salmon.

Even if interspecies conflicts can be resolved within the ESA's regulatory framework, other aspects of the Act mesh poorly with the

364. Additional examples might include the exalted role given to the Federal Energy Regulatory Commission (FERC) in the water allocation and use process, the calculation of "environmental water," and the problems of agricultural return flows in the San Joaquin Valley. As noted above, the Federal Power Act preempts a state from imposing in its water rights process any requirements on a federally licensed hydropower project. See supra notes 280-296 and accompanying text. Of course, FERC considers Department of Fish and Game and United States Fish and Wildlife Service recommendations during its licensing process. 16 U.S.C.A. § 662 (a) (West Supp. 1993); 4 WATERS & WATER RIGHTS, supra note 190, at 364. Nevertheless, it remains the ultimate decisionmaker. FERC's paramount role undercuts the ability of the State Water Board to rationally allocate water uses within a stream system, and elevates hydropower production to a preferred position over other competing instream values.

As for the calculation of "environmental water," it is unclear whether the water dedicated by the CVPIA to fish and wildlife purposes includes water otherwise required to be released to meet state and federal water quality or species laws, or is in addition to it. Similarly, recent water transfer legislation authorized transfers for instream purposes. CAL. WATER CODE § 1707 (West Supp. 1994). The statute does not, however, address how such dedicated water can be earmarked as additional water that would not otherwise be in the watercourse.

As for agricultural return flows in the San Joaquin Valley, the water development projects originally contemplated that a drain would take such flows from the Valley to the Delta for eventual flushing at sea. See Attwatter & Markle, supra note 15, at 1025-26. The expense and environmental impact of such a drain now make completion of such a project highly unlikely. Various proposals have been offered to address the problem, including sale of water rights accompanied by retirement from irrigated agricultural production of the most troublesome land. See generally GREGORY A. THOMAS & MICHELLE LEIGHTON-SCHWARTZ, LEGAL AND INSTITUTIONAL STRUCTURES FOR MANAGING AGRICULTURAL DRAINAGE IN THE SAN JOAQUIN VALLEY: DESIGNING A FUTURE, III-11, III-30, V-3 (San Joaquin Valley Drainage Program) (Sept. 30, 1990).

365. See United States Department of Interior, Fish & Wildlife Service, Proposed Rule, 56 Fed. Reg. 67046 (Dec. 27, 1991) (codified at 50 C.F.R. § 17) (noting that the giant garter snake likes sloughs, ponds, small lakes, and low gradient streams; all these water bodies would tend to have slower moving and warmer water than a fast moving stream).

366. Telephone Conference with G.R. Leidy, giant garter snake expert, Feb. 2, 1994, (notes on file with the Pacific Law Journal) (noting that there is the possibility of conflicts between the needs of the snake for water to remain in the rice fields favored by the snake, and the apparent needs of salmon and the delta smelt that waters remain flowing instream).

367. Recently, the notion of multi-species "biodiversity" protection, focusing on keeping ecosystems "healthy," has emerged as a popular concept. E.g., Craig Manson, Preserving Biodiversity through Ecosystem Conservation: California's Natural Community Conservation Approach, 3 CAL. WATER L. & POL'Y RPRTR. 165 (June 1993); Andrea Foster, House Expected To Approve Funding For Gnatcatcher, STATES NEWS SERV., July 14, 1993, available in LEXIS, Nexis Library, Currrnt file (discussing the unique approach that the Natural
water planning process. As noted above, the ESA sheds no light on the apportionment of diversion reductions or other operational changes among multiple water diverters on a watercourse. Moreover, the ESA requires its potentially expensive changes at a time when it may already be too late to help the species survive in any fashion other than in a minor ecosystem niche. The same funds or changes ordered prior to a species achieving the dubious distinction of threatened status could well return far more “bang” for the environmental buck.

A second example of the incoherent integration of environmental values and the water allocation process involves the uncertain enforcement of the Porter-Cologne and Clean Water Acts. As noted above, at least when applied to the Bay/Delta, the ability of the federal government to force changes in diversions or project operations remains unclear. Although the State Water Board’s broad powers under the 1928 amendment and the public trust doctrine give it apparent authority to adjust many diversions, it is unclear how the EPA could force a reluctant State Water Board to force such an adjustment.

Community Conservation Planning program has adopted which is designed to preserve parcels of sage scrub habitat to preserve the gnatcatcher rather than focusing on protecting just the individual species. These intriguing concepts have appeal both for environmental guardians, such as DFG General Counsel Manson, as well as water users. See Somach, The Endangered Species Act, supra note 198, at 156 (calling for a “holistic approach” to habitat designation). On the one hand, a concept so appealing to both development interests and environmentalists suggests a tremendous idea that should be pursued aggressively as a “win/win” solution. On the other hand, it is also possible that the different groups have fundamentally different notions of what “ecosystem” protection entails. Thus, development interests might believe that a less species by species focus might allow the “sacrifice” of a given individual species, so long as the ecosystem as a whole remained rich and healthy, under whatever appropriate definition of health. Environmental interests would likely believe that such an approach would provide more protection to all an ecosystem’s species, and protect more habitat than a species by species approach. In any event, much work needs to be done on defining the possibilities of such an approach, including work on its integration into the water allocation system.

See supra notes 215-216 and accompanying text.

Gregory S. Weber, The Endangered Species Act: New Weapon Enters Sixty-year Fish Fight, 3 RIVERS 276, 282-283 (Oct. 1992) (noting that millions of dollars may be spent on fish screen to save dwindling fish stocks; same funds spent earlier would have saved many more fish). The most famous example of “heroic” efforts to save a species is the California condor captive breeding program. See generally Keith Schneider, How To Map The Best Places For Rare Species, N.Y. TIMES, June 3, 1990, at § 4, at 3 (stating that it costs $1 million a year to save the California condor).

In fairness to the ESA, a rational water allocation system might well have a “fail safe” mechanism such as the ESA that attempted to correct for the consequences of otherwise well thought out but erroneous planning and allocation decisions. In addition, the very use of the powerful ESA mandates demonstrate that the other mechanisms within the water allocation system for protection of fish and wildlife values are not functioning adequately.

See supra notes 259-278 and accompanying text.

One EPA option involves decertification of the state NPDES authority. 33 U.S.C.A. § 1342(e) (West 1986). This would not solve the Delta salinity or temperature problems, and would force EPA to assume an expensive administrative chore for which it may not be adequately funded. Another EPA option might involve
The fifth broad observation follows inevitably from the fourth. The vast and often bewildering array of applicable laws are administered by an equally vast and bewildering array of often competing governmental agencies. For example, in its recent report on public trust matters arising out of California rivers, the State Public Lands Commission listed forty-five state and federal agencies that have something to do with the management or regulation of river resources in California. While many of the listed agencies have only minor or indirect roles to play in California water policy formation and implementation, the potential for interjurisdictional confusion and rivalry remains strong. Indeed, as evidence of the importance of the multijurisdictional nature of California water allocation, one need look no further than the still developing relationship of the federal EPA with the State Water Board as it comes to Bay/Delta water quality planning and implementation.

If the Bay/Delta is any example, it seems that the California water allocation system and environmental protection laws are not working in the place where they really matter most. Little concrete has changed in the fifteen years since the State Water Board issued its Water Rights Decision. By almost all accounts, estuary dependent fisheries have declined. Similarly, efforts to get additional water export capabilities have also been largely unsuccessful. The reluctant marriage of water allocation and environmental law has mostly produced water policy gridlock as its offspring. Efforts to break the gridlock range from, on the one hand, renewed litigation over the substantive law, to, on the other

rejection of § 404 wetlands permits on water quality grounds. Id. § 1344(c) (West 1986). Even if the EPA finds a legal "handle" to force compliance with its newly promulgated water quality standards, it will likely take years before the agency has a sufficiently informed staff to enforce its standards intelligently.

373. CALIFORNIA STATE LANDS COMMISSION, CALIFORNIA'S RIVERS: A PUBLIC TRUST REPORT 252-72 (1993). In addition, that report listed the roles of local and regional government agencies, and nongovernmental citizens groups. Id. at 272-85.

374. See, e.g., supra notes 355, 372 and accompanying text (discussing the impact of the EPA's role in the water allocation process).

375. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER RIGHTS DECISION 1485 (1978).


377. See, e.g., BULLETIN 160-87, supra note 74, 43-47 (listing efforts to augment SWP supplies). See also B.J. Miller, The Peripheral Canal as a Solution to Delta Problems, 1 CAL. WATER L. & POL'Y RPTR. 87 (Feb. 1991); Sunne W. McPeak, The "Repackaged" Peripheral Canal: Old Soap or New?, 1 CAL. WATER L. & POL'Y RPTR. 87 (Feb. 1991) (separate articles beginning on same page) (discussing the relative merits of "physical solutions" to the problem of augmenting water diversions while increasing environmental protection).

378. See, e.g., Furgans v. Babbott, Sacramento County Super. Ct. No. 537641 (complaint filed Dec. 7, 1993) (claiming that Department of Water Resources and Bureau of Reclamation have violated the requirements of their water permits).
hand, consensus building.\textsuperscript{379} Given the complexities of the problems and the enormity of the stakes, the only likely prediction is that the terms of the legal and political integration of the water allocation and environmental protection systems will continue to emerge slowly and fitfully as California approaches the twenty-first century.

\textsuperscript{379} EDMUND G. "PAT" BROWN INSTITUTE OF PUBLIC AFFAIRS & WATER EDUCATION FOUNDATION, ACHIEVING CONSENSUS ON WATER POLICY IN CALIFORNIA (1992).