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January 8, 2004

VIA FACSIMILE AND U.S. MAIL
(916) 341-5400

Gita Kapahi
Chief, Bay Delta/Special Projects Unit
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Re: Comments regarding SWRCB's Triennial Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Dear Mr. Kapahi:

In accordance with your Notice of Public Workshop, which I received late yesterday, I am submitting the following comments on behalf of the Golden Gate Audubon Society, Marin Audubon Society, San Joaquin Audubon Society, Committee to Save the Mokelumne, California Sport Fishing Protection Alliance and California Water Impact Network regarding the State Water Board's review of its 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("1995 Plan").

I INTRODUCTION

Although we have not been afforded a sufficient opportunity to respond to your Notice of Public Workshop, we have the following preliminary comments:

1. We take strong exception to the State Water Board's challenge, in its resolution adopting the 1995 Plan and in the Plan itself at pages 10-11, to the authority of the United States Environmental Protection Agency to adopt water quality standards that regulate salinity and indirectly affect the hydrologic regime, including fresh water flows, of the San Francisco Bay Delta. SWRCB Res. No. 95-24 at ¶ 13 ("In the view of the SWRCB, the objectives for flow and operations are not subject to U.S. EPA approval, although the SWRCB recognizes that the U.S. EPA may disagree." Under section 303(c) of the Clean Water Act, the State Water Board must provide a level of protection for designated water uses, including fish and wildlife, equivalent to EPA's Bay-Delta water quality standards.

The EPA's Bay-Delta water quality standards, which were promulgated pursuant to federal court order on January 24, 1995 (40 C.F.R. § 131.37), have never been withdrawn as mistakenly predicted by the 1995 Plan (1995 Plan at page 10). Therefore these adopted federal regulations establish the governing water quality standards for the Bay-Delta. According to the State Water Board, "[t]he U.S. EPA standards generally are more protective of fishlife and more costly in terms of water supply, than the objectives in the 1995 Bay-Delta Plan." (Declaration of Walter G. Pettit, Executive Director, State Water Resources Control Board, dated February 21, 1996, filed in the matter *Golden Gate Audubon Society v. State Water Resources Control Board*, Sacramento County Superior Court Civil No. 366984, copy attached as Exhibit 1 hereto.) Yet

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despite this acknowledgment that EPA's standards are "more protective of fishlife," the State Water Board has refused to implement them in violation of the Clean Water Act.

2. The 1995 Plan's protections for Suisun Marsh (Plan at 18) are marginal and problematic. Quantitative water quality protections for the unmanaged tidal marshes are omitted from the Plan despite a chorus of scientific opinion and agency critiques urging their adoption.

3. The 1995 Plan's narrative water quality objective for salmon protection, "a doubling of natural production of chinook salmon from the average production of 1967-1991" (Plan at 18 and 28), are less protective than, and therefore violate, the state and federal antidegradation policies. Those policies, as expressed in the State Water Board's Resolution No. 68-16 and 40 C.F.R. §§ 131.3(e) and 131.12, require restoration of fishery levels extant *as of 1968* (under Resolution No. 68-16) and *as of November 28, 1975* (under 40 C.F.R. §§ 131.3(e) and 131.12). Chinook salmon production was much higher between 1968 and 1975 than the average production of 1967-1991.

4. The 1995 Plan's export limit of 65 percent from July through January (Plan at 19) allows fresh water diversions to exceed by a substantial margin historic export levels during this period. The environmental impact of this potential increase in fresh water diversions has never been studied, and exposes designated uses to unacceptable harm.

5. The 1995 Plan's management regime for the San Joaquin River (Plan at 19) does not adequately protect its fish and wildlife beneficial uses. The Plan's level of diversion of 100 percent of Vernalis flow does not assure adequate fishery transport during the April - May period, and exposes fish to unacceptable levels of entrainment in the export pumps.

6. The 1995 Plan confuses salinity-based objectives with Delta outflow objectives (Plan at 16-18). The current scientific consensus is that salinity is a more accurate and dependable measure of estuarine habitat than is outflow alone; conversely, flow is a more accurate and dependable measure of salmon habitat.

7. The 1995 Plan does not address measures, such as temperature objectives, essential to protect salmon spawning and rearing.

These comments are explicated more fully below.

II. DESCRIPTION OF COMMENTERS

Golden Gate Audubon Society, Marin Audubon Society, San Joaquin Audubon Society, California Sportfishing Protection Alliance, Committee to Save the Mokelumne and California Water Impact Network are each represented by the undersigned counsel, and accordingly all correspondence relating to this comment should be directed to their counsel. Pursuant to Title 23, California Code of Regulations, section 769, subdivision (a)(1), these organizations' names and addresses are set forth below:

Golden Gate Audubon Society
c/o Arthur Feinstein, Conservation Director
2530 San Pablo Avenue, Suite G
Berkeley, CA 94702

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Marin Audubon Society
c/o Barbara Salzman, President
48 Ardmore Road
Larkspur, CA 94939

San Joaquin Audubon Society
c/o Waldo Holt, Conservation Director
3900 River Road
Stockton, CA 95204

California Sportfishing Protection Alliance
c/o James H. Crenshaw, President
c/o Delta Supply
1248 East Oak Avenue, #D
Woodland, CA 95776

Committee to Save the Mokelumne
c/o Bill Jennings, Chairman
3536 Rainer Avenue
Stockton, CA 95204

California Water Impact Network
c/o Carolee Krieger, President
P.O. Box 5462
Santa Barbara, CA 93150

III. LEGAL BACKGROUND

Under governing federal and state water quality law, the 1995 Plan must be consistent with Bay-Delta water quality standards adopted by the Environmental Protection Agency ("EPA"). Section 303(c) of the Clean Water Act requires the adoption by states of water quality standards "consist[ing] of the designated uses of the navigable waters involved and the water quality criteria for such waters *based upon such uses.*" 33 U.S.C. § 1313(c)(2), *emphasis added.* Thus, the designated uses govern the water quality criteria, rather than the other way around. Water management plans that do "not comply with the designated use of the water [do] not comply with applicable water quality standards." *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700, 114 S.Ct. 1900, 1910 (1994). Thus, the 1995 Plan must protect and restore the designated fish, wildlife and recreational uses of the Bay Delta. It fails to do so, as we explain below.

Where necessary to restore designated uses, water quality shall be enhanced. The water quality standards "shall be such as to protect the public health or welfare, *enhance the quality of water* and serve the purposes of this chapter." 33 U.S.C. §1313(c)(2), *emphasis added.* The latter mandate to "enhance" water quality implements the Act's primary "objective ... to *restore* ... the chemical, physical and biological integrity of the Nation's waters," and underscores Congress' intent that the Act not merely forbid degradation, but rather mandate restoration and enhancement of the Nation's waters wherever necessary to protect designated *uses.* 33 U.S.C. §1251(a), *emphasis added.*

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Among the potential designated uses enumerated in the Act, Congress placed the highest priority on "protection and propagation of fish, shellfish and wildlife and ... recreation in and on the water." 33 U.S.C. §1251(a)(2). Commonly referred to as the "fishable/swimmable" standard, this mandate is one of the two "national goals" identified by Congress in the Act. *Id.*¹

Consistent with Congress' remedial objectives, EPA's regulations implement this statutory command with a stringent directive that water quality standards assure protection of fish and wildlife and other designated uses:

[s]tates must adopt those water quality criteria that protect the designated use. Such criteria *must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use.* For waters with multiple use designations, *the criteria shall support the most sensitive use.*

40 C.F.R. §131.11(a), emphasis added. Thus, the Clean Water Act's standards are functional and intended to protect "designated uses," rather than merely replicate water quality conditions that may have existed at the time of the Act's adoption. A contrary construction of the Act would not only contravene EPA's authoritative regulations, but frustrate Congress' manifest intent to "restore" waterways whose severe degradation had preceded, and prompted, the Act's adoption.

EPA has specific statutory authority under section 303(c)(2) of the Clean Water Act to review state water quality standards at least every three years, and to disapprove and revise any that fail to protect beneficial uses, including "the protection and propagation of fish, shellfish and wildlife." 33 U.S.C. §§1313(c)(2), (3) and 1251(a)(2); 40 C.F.R. §131.5. Section 303(c)(3) of the Act requires EPA to determine that new or revised standards developed in the triennial review process are either consistent or inconsistent with the Act:

If the Administrator determines that any such revised or new standard is not consistent with the applicable requirements of this chapter, he shall not later than the ninetieth day after the date of submission of such standard notify the State and specify the changes to meet such requirements.

33 U.S.C. §1313(c)(3).

In accordance with this law, on September 3, 1991, EPA formally disapproved this Board's May 1991 Bay-Delta Water Quality Control Plan because the plan failed to protect the designated fish and wildlife uses of the Bay-Delta estuary, in violation of the Clean Water Act. *See* 60 Fed.Reg. 4663, 4666 (Jan. 24, 1995). As required by section 303(c)(3), EPA's disapproval letter proposed specific revisions to the plan to meet the requirements of the Clean Water Act. *Id.* This Board did not adopt the revisions requested by EPA in its September 3, 1991 letter. Instead, by letter dated February 10, 1992, this Board advised EPA that it refused to correct the deficiencies in its May 1991 Water Quality Control Plan.

In the face of this Board's refusal to comply with EPA's request, EPA had a nondiscretionary duty, under section 303(c)(4) of the Act, promptly to prepare adequate water quality standards for the Bay-Delta estuary. Section 303(c)(4) of the Act directs that if the

¹The other "national goal," elimination of the discharge of pollutants into navigable waters, undergirds the Act's National Pollutant Discharge Elimination System. 33 U.S.C. §1251(a)(2).

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requested revisions are not adopted by the state within ninety days after the date of notification, EPA "shall promptly prepare and publish" proposed new regulations. 33 U.S.C. 1313(c)(4); 40 C.F.R. §131.21. This Board's ninety-day promulgation period expired on December 2, 1991. EPA thereupon had a duty "promptly" to prepare and publish adequate standards. Because EPA failed to promulgate the required water quality standards "promptly," in violation of section 303(c)(4), on July 30, 1992 several of the undersigned organizations and others filed their 60-day notice of intent to sue the EPA Administrator under section 505(b)(2) of the Clean Water Act, 33 U.S.C. §1365(b)(2).

EPA's failure to enforce section 303(c) resulted in continuing severe harm to the fish and wildlife resources of the Bay-Delta estuary, contrary to the requirements of the Clean Water Act. Therefore on April 16, 1993, several of the undersigned organizations and others filed suit in federal court to compel EPA to adopt the water quality standards required by the Act. *Golden Gate Audubon Society, et al. v. Browner, et al.* (E.D. Calif. CIV-S-93 646 LKK PAN). That suit resulted in entry of a Partial Settlement and Consent Decree by the court on November 5, 1993. This Consent Decree required EPA to publish proposed water quality standards by December 15, 1993. See 60 Fed.Reg. 4666-69 (Jan. 24, 1995). In conformance with this mandate, on December 13, 1993 the EPA Administrator signed, and on January 6, 1994 the Federal Register published, proposed water quality standards (59 Fed.Reg. 809, et seq.). Several of the undersigned organizations and others submitted detailed comments on EPA's proposed water quality standards on March 11, 1994.

Further federal court proceedings resulted in the entry of a second Consent Decree by Federal District Judge Lawrence Karlton on May 3, 1994, requiring EPA to promulgate final federal standards by December 15, 1994. See 60 Fed.Reg. 466. Promulgation of those detailed standards, which occupy, together with agency commentary on related issues, 46 pages in the Federal Register, represented an historic turning point in efforts to restore and protect the endangered Bay-Delta estuary. *Id.* Codified in 40 C.F.R. §131.37, *EPA's Bay-Delta standards establish the governing law with which this Board's 1995 Plan must be consistent.* A copy of EPA's Bay-Delta standards is annexed as Exhibit 2 hereto.

This Board prepared the 1995 Bay-Delta Plan pursuant to Water Code section 13170, which authorizes this Board to adopt water quality control plans in accordance with the provisions of Water Code section 13240 *et seq.*, but subject to EPA's paramount authority to adopt more protective water quality standards under section 303(c)(3) of the Clean Water Act.

In addition to your duty to comply with the overarching requirements of federal law, the 1995 Plan must satisfy the statutory requirements of California law. Under the Porter-Cologne Act, Water Code section 13000 *et seq.*, a water quality control plan must identify and establish for waters within a specified area such as the Bay-Delta: (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation. Water Code §13050(j). When implemented, the water quality control plan must (1) carry out provisions of the reasonable use doctrine (California Constitution Article X, section 2; Water Code sections 100, 275 and 1050); (2) protect public trust resources as required under *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419 [189 Cal.Rptr. 346]; and (3) carry out statutory principles pertaining to water rights pursuant to Water Code sections 183, 1243, 1243.5, 451, 1253 and 1256-12568.

Water Code sections 1243 and 1243.5 require that "[i]n determining the amount of water available for appropriation, [this Board] shall take into account, whenever it is in the public interest, the amounts of water required for recreation and the preservation and enhancement of fish and wildlife resources." These provisions require further this Board's consideration of "the

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amounts of water needed to remain in the source for protection of beneficial uses, *including any uses specified to be protected in any relevant water quality control plan.*" Water Code §1243.5, emphasis added.

Water Code section 1257 likewise directs this Board, when acting upon applications to appropriate water, to consider the relative benefit to be derived from "any uses specified to be protected in any relevant water quality control plan." Water Code section 1258 similarly provides that in acting upon applications to appropriate water, this Board shall consider water quality control plans which have been established pursuant to [Water Code section 13000 *et seq.*] and may subject such appropriations to such terms and conditions as it finds are necessary to carry out such plans."

Thus, the 1995 Plan occupies a critical position to the state and federal water quality regulatory regime. Yet contrary to the foregoing statutory and regulatory direction, the 1995 Plan does not conform to and implement EPA's Bay-Delta water quality standards as the following discussion demonstrates.

IV. HISTORICAL BACKGROUND

The Bay-Delta is the West Coast's largest estuary, encompassing 1,600 square miles and draining more than 40 percent of the surface water in California. 60 Fed.Reg. 4664 (Jan. 24, 1995). The Bay-Delta estuary supports 108 known species of fish, birds, mammals, reptiles, amphibians, invertebrates and plants imperiled by habitat loss, including 25 species that are listed or are candidates for listing under the federal Endangered Species Act. *Id.* One of the key components of the Bay-Delta estuary is Suisun Bay and its associated wetlands. Because of its location within the vital mixing zone between fresh and saline waters, Suisun Bay provides critical nursery habitat for a number of fish and wildlife species, including the Delta smelt (a listed threatened species under the federal Endangered Species Act). The tidal wetlands bordering Suisun Bay are characterized as brackish marsh because of their unique combination of species typical of both freshwater wetlands and more saline wetlands. 60 Fed.Reg. 4698.

Suisun Marsh itself, bordering Suisun Bay on the north, is the *largest contiguous brackish water marsh in the United States.* *Id.* Its extensive tidal marshes are distinct from the approximately 44,000 acres of "managed" marshes in Suisun Bay, which are currently diked and managed for water fowl use and hunting. *Id.* Approximately 10,000 acres of marshes, both along channels within Suisun Marsh and bordering Suisun Bay, are still fully tidal. *Id.*

These natural tidal marshes provide habitat for a large, highly diverse, and increasingly rare ecological community. *Id.* According to the San Francisco Estuary Project, 154 wildlife species are associated with the brackish marshes surrounding Suisun Bay, including a number of candidates for listing under the Endangered Species Act. *Id.* These include animals such as the Suisun song sparrow, and the Suisun ornate shrew, as well as numerous rare plants such as the Suisun slough thistle, Suisun aster, delta tule, Mason's lilaeopsis, and the soft-haired bird's beak. *Id.* All of these rare species are found exclusively within tidally inundated marsh.

According to a comprehensive review conducted by EPA, recent studies indicate that increases in salinity caused by a combination of upstream diversions and drought have harmed these tidal marsh communities. *Id.* As salinity has intruded, brackish marsh plants which depend on soils low in salt content (such as the tules *Scirpus californicus* and *S.acutus*) have died back in both the shoreline marshes and in some interior marsh channel margins of the western half of Suisun Bay. *Id.* These brackish marsh plants have been supplanted by plants typically growing

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in saline soils, such as cord grass (*Spartina foliosa*). 60 Fed.Reg. 4699. Loss of these brackish marsh plant communities has been associated with erosion of the marsh margins, as tules in the upper inner tidal zone have been replaced by the smaller, more salt-tolerant alkali bulrush. *Id.*

These changes have significantly affected available habitat for a variety of wildlife that nest and feed in these areas, including the Suisun song sparrow, marsh wren, common yellowthroat, black-crowned night heron, and snowy egret. *Id.* The loss of habitat for the Suisun song sparrow is of particular concern, since individuals of this species (1) are found only in the already fragmented marshes bordering Suisun Bay, (2) occupy an established territory for their lifetime, and (3) depend on tall tules for successful reproduction and cover from predators. *Id.*

Because this Board's 1991 Bay-Delta Plan lacked any salinity criteria protecting the brackish tidal marshes of Suisun Bay, in September 1991 EPA disapproved this Board's water quality standards for Suisun Marsh, and directed this Board to immediately develop salinity objectives sufficient to protect aquatic life and the brackish tidal wetlands surrounding Suisun Marsh. *Id.* In promulgating federal water quality standards for the Bay-Delta in 1994, EPA adopted an interim narrative standard because at that time it lacked "a sufficient scientific basis... to support Federal promulgation of numeric criteria for these marshes." *Id.* Significantly, EPA noted its expectation that biological studies then underway at the request of this Board would "be completed soon, and that the State Board will expedite its review of this issue." *Id.* EPA's narrative standard, which was intended "to reflect conditions equaling the level of protection existing in the Suisun Marsh in the late 1960's to early 1970's," directed in pertinent part:

Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay *shall be maintained*. Water quality conditions *shall be maintained* so that none of the following occurs: Loss of diversity; conversion of brackish marsh to salt marsh; for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.

Id., emphasis added.

Consistent with applicable law, this Board incorporated EPA's narrative standard for Suisun Marsh into the 1995 Bay-Delta Plan. 1995 Plan at 18, 20 (fn. 10), 29.

Pursuant to its oversight authority under section 303(c) of the Clean Water Act, EPA emphasized that "[i]n implementing this narrative criterion, the State Board should take care to protect the specific classes and species of organisms that are vulnerable to increasing salinity in the Suisun Marsh." 60 Fed.Reg. 4699. So concerned was EPA that this Board assure protection of these species, that it specifically identified in its notice promulgating its final Bay-Delta water quality standards the most vulnerable plants and animals whose protection was mandated. 60 Fed.Reg. 4699-4700. *EPA made clear, further, that it expected this Board to take affirmative action to protect these species "in the event that continuing substantial adverse impacts on the brackish marsh habitat become evident" before the State's numeric salinity criteria for the Bay-Delta could be refined to curtail such impacts.* 60 Fed.Reg. 4700.

Contrary to the foregoing regulatory history, *this Board has failed to take affirmative action to assure protection of the brackish marsh plant and animal species whose decline*

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prompted EPA to adopt, and to require this Board to promulgate, the foregoing narrative water quality standard for Suisun Marsh. Rather, as shown in section V below, the Board has moved impermissibly in the other direction, affording less, rather than more, protection to these vulnerable brackish-marsh species.

The short history of Bay-Delta restoration efforts has also focused on recovery of its sharply declining salmon species. EPA's Bay-Delta water quality standards emphasize the importance of restoring adequate flows in the lower reaches of the Bay-Delta's primary tributaries, in order to attract and sustain salmonid populations on the brink of extinction. Restoring historic fresh water flows also serves to promote recovery of natural hydrodynamic, temperature, dissolved oxygen and salinity regimes within the Bay-Delta itself. EPA adopted water quality standards specifically designed to provide cold fresh-water habitat to sustain aquatic resources associated with a cold water environment, and fish migration habitat to provide a migration route and temporary aquatic environment for anadromous or other fish species. 60 Fed.Reg. 4681. The migratory fish species associated with the cold-water environment in the Bay-Delta are chinook salmon and steelhead trout. Accordingly, EPA's Bay-Delta standards adopted salmon smolt survival index criteria for the purpose of quantifying and predicting the survival of salmon smolts migrating through the Delta, based on models for both the Sacramento River and the San Joaquin River. 60 Fed.Reg. 4683-84. EPA's water quality standards specify minimum fish migration criteria values for the Sacramento and San Joaquin Rivers, based on flow and temperature measurements. 60 Fed.Reg. 4707-09; 40 C.F.R. §131.37(a)(2).

The 1995 Plan contains a simple narrative water quality objective requiring such measures as necessary "to achieve a doubling of natural production of chinook salmon." 1995 Plan at page 18. Contrary to this standard, this Board's primary implementation measures to date, the water rights decisions for the San Joaquin River, Decision 1641 and Resolution 99-117, fail to address the relationship between these mandatory federal requirements and the river flow and diversion requirements and restrictions adopted for specified watersheds. This omission is explicated further below.

V. THIS BOARD'S DEFICIENT IMPLEMENTATION
OF THE 1995 PLAN THROUGH D-1641 AND R 99-117
FAILS TO PROVIDE ADEQUATE PROTECTION TO
BAY-DELTA WATER QUALITY.

Commenters respectfully submit that this Board's adoption of D-1641 and R 99-117 is contrary to law and is not supported by substantial evidence because these decisions fail to address, and to conform to, the governing Bay-Delta water quality standards adopted by EPA and this Board. As explained previously, this Board's decisions respecting water rights must conform to the water quality objectives set forth in the 1995 Plan, under Water Code sections 1243, 1243.5, 1257 and 1258. The 1995 Plan, in turn, must conform to EPA's Bay-Delta standards codified at 40 C.F.R. section 131.37. Under settled principles of statutory construction, the 1995 Plan must be harmonized with the governing federal standards, and thus any ambiguities in the former must be resolved in a manner which implements the latter.

Contrary to this hierarchical regime, D-1641 and R 99-117 purport to authorize water rights inconsistent with applicable water quality objectives of the 1995 Plan, and omit altogether any consideration of the governing water quality standards promulgated by EPA. These omissions are pervasive, and require reexamination and substantial revision of D-1641 and R

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99-117. For the sake of illustration, petitioners identify below several examples of this systemic defect.

A. Suisun Marsh Is Not Adequately Protected.

As previously pointed out, the 1995 Bay-Delta Plan directs in pertinent part that "[w]ater quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters." 1995 Plan at page 20 fn. 10. This prohibition against further loss of brackish marsh habitat and plant and animal species dependent thereon was adopted in response to EPA's authoritative finding, based on undisputed evidence, that recent "increases in salinity caused by a combination of upstream diversions and drought have adversely affected the tidal marsh community" adjacent to Suisun Bay, resulting in loss of brackish marsh plants and their replacement by plants typically growing in saline soils, such as cord grass. 60 Fed.Reg. 4698-99. As EPA noted, "[t]hese changes have significantly affected available habitat for a variety of wildlife that nest and feed in these areas, including the Suisun song sparrow, marsh wren, common yellowthroat, black-crowned night heron, and snowy egret." 60 Fed.Reg. 6499.

This ongoing loss of brackish marsh habitat due to increasing salinity has not been curtailed as required under EPA's Bay-Delta Standards and the Board's own 1995 Plan. To the contrary, this Board's record confirms that the management regime "permanently in place may have suppressed the brackish marsh ecosystem and *will continue to do so if the status quo is maintained.*" D-1641 Administrative Record Reporter's Transcript at 2288.

D-1641 fails to address the 1995 Bay Delta Plan's narrative objectives for the unmanaged tidal marshlands, and deletes the two western salinity compliance stations, S-35 and S-97. These omissions directly contradict EPA's Bay-Delta standards codified at 40 C.F.R. section 131.37, and the 1995 Bay-Delta Plan's prohibition against the continued conversion of brackish marsh to salt marsh. EPA's narrative standard, incorporated into the 1995 Bay-Delta Plan, directs that "[w]ater quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained." (*Id.* at 18, 20 (fn. 10), 29.) Pursuant to its oversight authority under section 303(c) of the Clean Water Act, EPA emphasized that "[i]n implementing this narrative criterion, the State Board should take care to protect the specific classes and species of organisms that are vulnerable to increasing salinity in the Suisun Marsh." (60 Fed.Reg. 4699 (January 25, 1994).) Contrary to these requirements, D-1641 merely proposes acceptance of a stakeholder agreement, the third revision to the Suisun Marsh Preservation Agreement ("SMPA III"), which admittedly "does not address the narrative objectives for the unmanaged tidal marshlands." (1995 Plan at 56.)

D-1641's failure to implement the Suisun Marsh protections adopted by EPA and the 1995 Plan may also violate the Endangered Species Act. In concluding that the latter Plan would not cause jeopardy to endangered or threatened species in Suisun Marsh, the U.S. Fish and Wildlife service emphasized that this conclusion was based on the assumption that "a quantitative water quality standard for protection of tidal [i.e., unmanaged] marshes is developed and incorporated into the 1995 Bay-Delta Plan on or before the next triennial review of its objectives." (*Id.* at 54.)

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Although the deadline for the required triennial review passed six years ago, the required quantitative standard for the tidal marshes has not been adopted.

Additionally, SMPA III purports to reclassify the two westernmost compliance stations within the managed portion of the marsh, S-35 and S-97, as mere "monitoring stations," thus eliminating any effective means of preventing further salinity increases in the western managed marshes. (*Id.* at 55.) Elimination of these stations also forecloses their use as potential tools to implement salinity safeguards for the tidal marshes (if Suisun Slough were remanaged for this purpose).

Rather than attempt to conform to the foregoing narrative water quality objectives mandated by EPA and the 1995 Plan, D-1641 defers indefinitely adoption of any water rights restrictions to curtail the continuing loss of brackish marsh habitat and dependent species in Suisun Marsh. D-1641 at pages 50-56. Instead, D-1641 focuses exclusively on protecting the beneficial uses in the managed wetlands portion of Suisun Marsh, effectively relegating to oblivion the 10,000 acres of natural, unmanaged marsh whose protection is required under the 1995 Plan and EPA's water quality standards. *Id.* at pages 54-56. Indeed, by eliminating compliance with the two westernmost monitoring stations, S-35 and S-97, D-1641 removes a significant potential regulatory tool for restoring brackish water conditions within the unmanaged portion of Suisun Marsh. *Id.*, page 55.

In ignoring the habitat requirements of the brackish marsh-dependent species whose protection is specifically required under EPA's water quality standards, this Board failed to follow applicable law. For these reasons, commenters respectfully request that this Board *reconsider its decision to afford no protection for the unmanaged portion of Suisun Marsh, and to remove the only monitoring stations that could provide a mechanism for protecting the unmanaged marsh from further degradation.*

B. This Board's Approval of the Joint Settlement Agreement for the Mokelumne River Fails to Address Applicable Water Quality Objectives and Standards.

The 1995 Plan requires that "[w]ater quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law." 1995 Plan at page 18. Applicable EPA water standards additionally require compliance with salmon migration criteria, as noted above. 40 C.F.R. §131.37(a)(2).

Contrary to these requirements, D-1641 purports to approve "stakeholder" agreements that have little, if any, relationship to the 1995 Plan's narrative standard and EPA's salmon migration criteria. For example, D-1641 purports to authorize an agreement among stakeholders interested in Mokelumne River flows, known as the "Joint Settlement Agreement" ("JSA") without any consideration of the governing state and federal water quality objectives and standards. D-1641 at pages 57-65. Although this Board conceded, as the evidence required, that Alternative 5 advocated by the U.S. Fish and Wildlife Service "might provide more benefit for delta fish than the other alternative," and thus conform more closely to governing water quality objectives and standards, this Board instead adopted the JSA to assure that "consumptive uses nevertheless ... continue at a reasonable level." *Id.* at page 64. Because the latter rationale fails to address the reasons for and requirements of the 1995 Plan's water quality objectives and EPA's governing water quality standards, it represents a mistake warranting this Board's reconsideration.

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C. South Delta Channel Barriers Approved Despite Adverse Impacts on Delta Smelt and Sacramento Splittail.

D-1641 assumes, but does not require, construction of southern Delta channel barriers to reduce entrainment of emigrating juvenile San Joaquin fall-run chinook salmon and to improve water levels and circulation in the southern Delta channels. (D-1641 at 8-12.) Although D-1641 acknowledges evidence that the proposed temporary and permanent barrier programs "may have significant adverse impacts on delta smelt and Sacramento splittail (*id.* at 10), it denies responsibility for this potential environmental harm on the grounds that "[t]his decision does not require that the [barrier] measures be implemented since it does not require that the barriers be installed." This Board should fully explain the ecological consequences of its action, rather than repeatedly retreat into "plausible deniability."

D. The San Joaquin River Agreement ("SJRA") and the Vernalis Adaptive Management Plan ("VAMP") are Unlawful Because They Fail to Protect Bay Delta Flows and Ecology.

D-1641 accepts the San Joaquin River Agreement ("SJRA") as satisfying requirements of the 1995 Bay-Delta Plan based on the assumption that DWR and the USBR would provide "backstops" to assure satisfaction of Bay-Delta Plan objectives (*id.* at 22). The SJRA requires this Board's adoption of an order finding that the SJRA provides "environmental protection at a level of protection equivalent to the Vernalis flow objectives of [the 1995 Bay-Delta Plan] during the [April 15-May 15] Pulse Flow and implementation of the remaining San Joaquin River Portion of the [1995 Bay-Delta Plan] for the duration of this Agreement." (*Id.*) The SJRA also requires additional findings of this Board enforcing the obligations of the USBR and DWR to implement the SJRA and revising the permits held by the water diverters that belong to the San Joaquin River Group Authority and related contracting parties. (*Id.* at 18-23.)

D-1641 declines to find that the SJRA provides a level of protection equivalent to that required under the 1995 Bay-Delta Plan on the grounds that such a finding "would be premature at this time." (*Id.* at 23.) Instead, this Board substitutes a 12-year experimental program, known as the Vernalis Adaptive Management Plan ("VAMP") whose subsequent evaluation will determine whether the 1995 Bay-Delta Plan's objectives are being accomplished. (*Id.* at 23-24.) In defiance of applicable water quality laws, D-1641 "authorizes experimental operations in lieu of meeting the objectives [of the Bay-Delta Plan] during the [12-year] interim period." (*Id.* at 24.) Indeed, D-1641 admits that this Board "cannot predict, based on the existing record, that the SJRA will provide protection equivalent to the Vernalis flow objectives [of the 1995 Bay-Delta Plan]." (*Id.* at 24.)

D-1641 concedes a host of other shortcomings, including the fact that the SJRA would "result[] in lower flows at Vernalis" "in some winter months of wet and above normal year types." (*Id.* at 29.) D-1641 concedes that "the effects of exports [allowed under the SJRA's VAMP] on San Joaquin basin smolt survival remain unclear" and that the SJRA's VAMP merely provides a "framework to develop information on the effects of exports on smolt survival at various flow levels." D-1641 admits that "[m]eeting the flows specified in the VAMP will not meet the pulse flow objectives [of the 1995 Bay-Delta Plan]. Further, it is not certain that the VAMP will provide protection for the chinook salmon equivalent to that provided by the objectives [of the 1995 Bay-Delta Plan]." (*Id.* at 49.) These admissions and

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disclaimers fail to satisfy this Board's duty to implement the Bay-Delta Plan's water quality objectives. For these reasons, the Sacramento Superior Court has struck down the VAMP and the SJRA because "they do not satisfy at all times of the year the flow requirements of the 1995 Plan." Statement of Decision dated May 5, 2003 in *State Water Resources Control Board Cases*, Case No. JC 4118, at page 90. As Judge Candee ruled in striking down these unlawful implementation measures, "they can only be undertaken if all requirements of the 1995 Plan are legally satisfied or, in the alternative, the 1995 Plan's minimum flow objectives are modified through another noticed hearing process." *Id.*

E. D-1691 Purports to Adopt Stakeholder Watershed Agreements Despite Conflicts with Environmental Standards.

D-1641 proposes acceptance of stakeholder agreements for sharing responsibility for meeting water quality objectives for the Sacramento, Mokelumne, Calaveras, and Cosumnes River watersheds despite undisputed evidence confirming the inadequacy of such agreements to achieve the 1995 Bay-Delta Plan's requirements. For example, D-1641 purports to approve the Joint Settlement Agreement ("JSA") between East Bay MUD, the U.S. Fish and Wildlife Service and the California Department of Fish and Game establishing FERC license conditions for the lower Mokelumne River Project, and the subsequent memorandum of understanding between EBMUD and the California Urban Water Agencies export contractors and the agricultural export contractors (CUWA/AG) ("1996 MOU") confirming that the JSA satisfies all potential responsibilities of EBMUD to meet the flow-dependent objectives of the 1995 Bay-Delta Plan. (D-1641 at 57-65.) The JSA fails to address the applicable state and federal water quality standards set forth in 40 C.F.R. section 131.37(a)(2) and the 1995 Bay-Delta Plan at 18. Those criteria require achievement of "[w]ater quality conditions... sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991." Other alternative management regimes presented to this Board "might provide more benefit for delta fish" than D-1641. (*Id.* at 64.) D-1641's failure to assure that the JSA would conform to applicable water quality standards violates section 303 of the Clean Water Act and the 1995 Bay-Delta Plan.

D-1641's contemplated approval of the stakeholder agreements for the other listed watersheds likewise fails to address the governing water quality standards adopted by EPA and set forth in the 1995 Bay-Delta Plan. (D-1641 at 65-73.)

F. D-1641 Ignores San Joaquin River Dissolved Oxygen Violations.

D-1641 fails to take any action to implement the 1995 Bay-Delta Plan's dissolved oxygen ("DO") objective for the San Joaquin River between Stockton and Turner Cut. (D-1641 at 73-80.) DO levels below 5.0 mg/l create an "oxygen block" which impedes upstream salmon migration. (*Id.* at 74.) DO levels as low as 1.5 mg/l have been recorded in the lower San Joaquin River, and levels as low as 0 mg/l have been recorded in the Stockton ship turning basin. (*Id.*) DO conditions in the San Joaquin River typically deteriorate in the late spring, summer, and fall when river flow is low, water diversions and water temperatures high, and waste water discharges into the river from upstream sources increase the biochemical oxygen demand. (*Id.*) Consequently, the 1995 Bay-Delta Plan established a DO objective of 6.0 mg/l from September through November in the lower San Joaquin River between Stockton and Turner Cut to protect migrating fall-run chinook salmon. (*Id.* at 18.) D-1641 fails to recommend or adopt any implementation measures to assure achievement of this water quality objective.

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G. D-1641 Purports to Authorize the San Luis Drain to be Completed Although Selenium Impacts Remain Unresolved.

D-1641 requires USBR to meet the Vernalis salinity objective of the 1995 Bay-Delta Plan "using any measures available to it," and directs DWR and USBR to meet a salinity requirement of 1.0 mmhos/cm at the interior southern Delta stations." (D-1641 at 90.) This Board noted in passing that a federal district court had ordered USBR to "initiate activities to resolve the drainage problems in the San Joaquin Valley," and therefore USBR "should proceed promptly to initiate such activities." (D-1641 at 87.) The Ninth Circuit Court of Appeals affirmed this court order in *Firebaugh Canal Co. v. United States*, 203 F.3d 568, 578 (2000). D-1641 recognizes that the primary cause of increased salinity in the San Joaquin River is agricultural runoff, and therefore this decision encourages improved management of agricultural return flows tributary to the San Joaquin River. (*Id.* at 80-90.) But D-1641 fails to address the potential impacts of selenium contamination from these agricultural return flows, thus setting the stage for a replay of the Kesterson tragedy, an environmental train wreck of profound consequences to the future of agricultural uses in the San Joaquin Valley.

H. D-1641 Purports to Allow Joint Points of Diversion and Higher Instantaneous Rates of Pumping Despite Potential Harm to Bay Delta Water Quality and Fish Habitat.

D-1641 grants petitions filed by DWR and USBR in February, 1995 requesting authorization for joint points of diversion ("JPOD") by the CVP and the SWP at the SWP's Harvey O. Banks Pumping Plant and the CVP's Tracy Pumping Plant. These petitions were filed under Water Code sections 1700 through 1705, under which amendments to water rights may not "operate to the injury of any legal user of the water involved." (Water Code §1702.) Certain Delta water users, environmental groups and related interests opposed these petitions on the grounds that the higher instantaneous rates of diversion that would be possible if the points of diversion for the CVP and SWP were combined would harm water quality and fish habitat in the Delta. (D-1641 at 92-99.)

D-1641 admits that the X2 isohaline "may shift to the east" in certain water year types, such as 1937, 1947, 1954, 1959, 1961, 1976 and 1981, due to increased pumping under JPOD. In particular, D-1641 concedes that "[i]ncreased export pumping and changes in the timing of export pumping relative to the presence of certain fish species in the Delta from use of the JPOD may exacerbate... significant adverse effects [on fish and wildlife resources in the Delta, including listed spring-run and winter-run chinook salmon]... Potential adverse impacts to fish from export pumping include decreases in salmon smolt survival during outmigration from changes in hydrologic patterns in the Delta (increases in net river flows), entrainment at the export pumps, and increased predation at the pumps." (*Id.* at 111.) "In summary, increased export pumping from use of the JPOD may significantly impact survival of juvenile chinook salmon emigrating through the Delta, particularly in the November through January period." (*Id.* at 113.) D-1641 also admits that implementation of JPOD would result in lower striped bass abundance for the young-of-the-year class, but proposes no mitigation other than "additional stocking of striped bass." (*Id.* at 115.)

Notwithstanding these admitted impacts, D-1641 fails to adopt any specific mitigation measures that would assure these impacts are avoided. Instead, D-1641 defers identification and implementation of an appropriate mitigation measure to a future "operations plan" to be submitted by "[t]he state and federal agencies." (*Id.* at 113-116.) Deferring resolution of this key

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issue to vague future reviews by unidentified "state and federal agencies" abdicates this Board's statutory responsibility to address this problem now.

VI. CONCLUSION

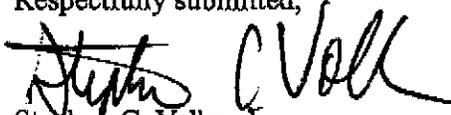
In conclusion, the 1995 Plan has failed to restore the Bay-Delta's ecological health. It has failed to achieve the governing EPA Bay-Delta water quality objectives, largely due to this Board's failure to implement the 1995 Plan's narrative objectives forbidding further degradation of brackish water habitat within the unmanaged portion of Suisun Marsh, and requiring a doubling of chinook salmon populations dependent on restoration of essential flows from principal tributaries such as the Mokelumne River.

The Clean Water Act requires this Board to address these water quality criteria in reviewing proposed amendments to water rights affecting the Bay Delta's flows. Yet this Board's implementation of the 1995 Plan, including this Board's adoption of D-1641 and R 99-117, fails to address, and to demonstrate compliance with, these applicable water quality objectives. For this reason, these latter decisions should be reexamined, and further proceedings conducted to assure appropriate consideration of these governing water quality criteria.

This Board's triennial review, although tardy, *can still save the Bay-Delta from ecologic collapse*. This Board should seize, rather than retreat from, this opportunity to address and rectify the significant omissions and conflicts with state and federal water quality standards identified above.

Thank you for considering our comments on this important matter.

Respectfully submitted,



Stephan C. Volker
Attorney for Golden Gate Audubon Society, Marin
Audubon Society, San Joaquin Audubon Society,
California Sportfishing Protection Alliance, the
Committee to Save the Mokelumne and California
Water Impact Network

SCV/taf

cc (by mail): Barbara J. Leidigh, Senior Staff Counsel
State Water Resources Control Board

Exhibit 1

MAR 13 1996

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 Resources Control Board
 8

9 SUPERIOR COURT OF CALIFORNIA

10 COUNTY OF SACRAMENTO

11 GOLDEN GATE AUDUBON SOCIETY,)
 ET AL.,)

CIV NO. 366984

12 Petitioners,)

DECLARATION OF WALTER G. PETTIT
 IN SUPPORT OF RESPONDENT'S
 OPPOSITION TO MOTION FOR
 ATTORNEY'S FEES

13 v.)

14 STATE WATER RESOURCES CONTROL)
 BOARD,)

HEARING

DATE: TBA

TIME: TBA

DEPT: 8

16 Respondent)

17
18 I, Walter G. Pettit, declare:

19 1. I am currently the Executive Director of the State Water
 20 Resources Control Board (SWRCB), and I have been the Executive
 21 Director since I was appointed by the SWRCB in April 1991.
 22 Previously, I was Chief of the Division of Water Rights of the SWRCB
 23 and in that capacity I managed the staff work in the SWRCB's
 24 proceedings to review the water right decision and the water quality
 25 control plan that were adopted for the Sacramento-San Joaquin Delta
 26 and Suisun Marsh in 1978. I have personal knowledge of the history of
 27 the Water Quality Control Plan for Salinity for the San Francisco
 28 Bay/Sacramento-San Joaquin Delta Estuary adopted by the SWRCB on

COPY

1 and the NMFS, immediately to operate consistently with the Delta
 2 Accord. (See Exhibits S and T.) Consequently, the objectives
 3 recommended in the Delta Accord were implemented immediately. The
 4 precise implementation was modified to conform to the SWRCB's draft
 5 1995 Bay-Delta Plan objectives when the ESA agencies issued new
 6 biological opinions on March 6, 1995 and May 17, 1995.

7 24. The objectives in the 1995 Bay-Delta Plan and in the
 8 Delta Accord differ from the standards adopted by U.S. EPA on
 9 December 14, 1994. The U.S. EPA standards generally are more
 10 protective of fishlife and more costly in terms of water supply than
 11 the objectives in the 1995 Bay-Delta Plan. They also differ in their
 12 approach to providing habitat protection in the Estuary.

13 I declare under penalty of perjury under the laws of the
 14 State of California that the foregoing is true and correct.

15 Dated: FEB 21 1996

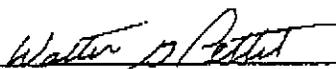
16
 17 
 18 _____
 19 WALTER G. PETTIT
 20 Executive Director
 21 State Water Resources Control Board
 22
 23
 24
 25
 26
 27
 28

Exhibit 2

40 CFR § 131.37
40 C.F.R. § 131.37

C
CODE OF FEDERAL REGULATIONS
TITLE 40-PROTECTION OF ENVIRONMENT
CHAPTER I-ENVIRONMENTAL
PROTECTION AGENCY
SUBCHAPTER D-WATER PROGRAMS
PART 131-WATER QUALITY STANDARDS
SUBPART D-FEDERALLY PROMULGATED
WATER QUALITY STANDARDS
Current through February 25, 2003; 68 FR 8726

Where the number of days computed in this equation in paragraph (a)(1)(i)(A) of this section shall be rounded to the nearest whole number of days. When the previous month's 8-River Index is less than 500,000 acre-feet, the number of days required for the current month shall be zero.

Table 1. Constants applicable to each of the monthly equations to determine monthly requirements described.

§ 131.37 California.

(a) Additional criteria. The following criteria are applicable to waters specified in the Water Quality Control Plan for Salinity for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, adopted by the California State Water Resources Control Board in State Board Resolution No. 91-34 on May 1, 1991:

(1) Estuarine habitat criteria.

(i) General rule.

(A) Salinity (measured at the surface) shall not exceed 2640 micromhos/centimeter specific conductance at 25 degreesC (measured as a 14-day moving average) at the Confluence of the Sacramento and San Joaquin Rivers throughout the period each year from February 1 through June 30, and shall not exceed 2640 micromhos/centimeter specific conductance at 25 degreesC (measured as a 14-day moving average) at the specific locations noted in Table 1 near Roe Island and Chipps Island for the number of days each month in the February 1 to June 30 period computed by reference to the following formula:

Number of days required in Month X = Total number of days in Month X * (1-1/ (1+e superK)

where K = A + (B*natural logarithm of the previous month's 8-River Index);

A and B are determined by reference to Table 1 for the Roe Island and Chipps Island locations;

x is the calendar month in the February 1 to June 30 period;

and e is the base of the natural (or Napierian) logarithm.

Month X	Chipps Island		Roe Island (if triggered)	
	A	B	A	B
Feb	- [FN1]	- [FN1]	-14.36	+2.068
Mar	-105.16	+15.943	-20.79	+2.741
Apr	-47.17	+6.441	-28.73	+3.783
May	-94.93	+13.662	-54.22	+6.571
June	-81.00	+9.961	-92.584	+10.699

FN1 Coefficients for A and B are not provided at Chipps Island for February, because the 2640 micromhos/cm specific conductance criteria must be maintained at Chipps Island throughout February under all historical 8-River Index values for January.

(B) The Roe Island criteria apply at the salinity measuring station maintained by the U.S. Bureau of Reclamation at Port Chicago (km 64). The Chipps Island criteria apply at the Mallard Slough Monitoring Site, Station D-10 (RKI RSAC-075) maintained by the California Department of Water Resources. The Confluence criteria apply at the Collinsville Continuous Monitoring Station C-2 (RKI RSAC-081) maintained by the California Department of Water Resources.

(ii) Exception. The criteria at Roe Island shall be required for any given month only if the 14-day moving average salinity at Roe Island falls below 2640 micromhos/centimeter specific conductance on any of the last 14 days of the previous month.

(2) Fish migration criteria.

(i) General rule.

(A) Sacramento River. Measured Fish Migration criteria values for the Sacramento River shall be at least the following:

At temperatures less than below 61degreesF: SRFMC = 1.35

At temperatures between 61degreesF and 72 degreesF: SRFMC = 6.96-.092 * Fahrenheit temperature

At temperatures greater than 72 degreesF: SRFMC = 0.34

where SRFMC is the Sacramento River Fish Migration criteria value. Temperature shall be the water temperature at release of tagged salmon smolts into the Sacramento River at Miller Park.

(B) San Joaquin River. Measured Fish Migration

criteria values on the San Joaquin River shall be at least the following:

For years in which the SJVIndex is <= 2.5: SJFMC = (-0.012) +0.184*SJVIndex

In other years: SJFMC = 0.205 + 0.0975*SJVIndex

where SJFMC is the San Joaquin River Fish Migration criteria value, and SJVIndex is the San Joaquin Valley Index in million acre feet (MAF)

(ii) Computing fish migration criteria values for Sacramento River. In order to assess fish migration criteria values for the Sacramento River, tagged fall-run salmon smolts will be released into the Sacramento River at Miller Park and captured at Chipps Island, or alternatively released at Miller Park and Port Chicago and recovered from the ocean fishery, using the methodology described in this paragraph (a)(2)(ii). An alternative methodology for computing fish migration criteria values can be used so long as the revised methodology is calibrated with the methodology described in this paragraph (a)(2)(ii) so as to maintain the validity of the relative index values. Sufficient releases shall be made each year to provide a statistically reliable verification of compliance with the criteria. These criteria will be considered attained when the sum of the differences between the measured experimental value and the stated criteria value (i.e., measured value minus stated value) for each experimental release conducted over a three year period (the current year and the previous two years) shall be greater than or equal to zero. Fish for release are to be tagged at the hatchery with coded-wire tags, and fin clipped. Approximately 50,000 to 100,000 fish of smolt size (size greater than 75 mm) are released for each survival index estimate, depending on expected mortality. As a control for the ocean recovery survival

index, one or two groups per season are released at Benecia or Pt. Chicago. From each upstream release of tagged fish, fish are to be caught over a period of one to two weeks at Chipps Island. Daylight sampling at Chipps Island with a 9.1 by 7.9 m, 3.2 mm cod end, midwater trawl is begun 2 to 3 days after release. When the first fish is caught, full-time trawling 7 days a week should begin. Each day's trawling consists of ten 20 minute tows generally made against the current, and distributed equally across the channel.

(A) The Chipps Island smolt survival index is calculated as:

$$SSI=R/MT(0.007692)$$

where R=number of recaptures of tagged fish

M=number of marked (tagged) fish released

T=proportion of time sampled vs total time tagged fish were passing the site (i.e. time between first and last tagged fish recovery)

Where the value 0.007692 is the proportion of the channel width fished by the trawl, and is calculated as trawl width/channel width.

(B) Recoveries of tagged fish from the ocean salmon fishery two to four years after release are also used to calculate a survival index for each release. Smolt survival indices from ocean recoveries are calculated as:

$$OSI=R_{sub1} / M_{sub1} / R_{sub2} / M_{sub2}$$

where R_{sub1} =number of tagged adults recovered from the upstream release

M_{sub1} =number released upstream

R_{sub2} =number of tagged adults recovered from the Port Chicago release

M_{sub2} =number released at Port Chicago

(1) The number of tagged adults recovered from the ocean fishery is provided by the Pacific States Marine Fisheries Commission, which maintains a port sampling program.

(2) [Reserved]

(iii) Computing fish migration criteria values for San Joaquin River. In order to assess annual fish migration

criteria values for the San Joaquin River, tagged salmon smolts will be released into the San Joaquin River at Mossdale and captured at Chipps Island, or alternatively released at Mossdale and Port Chicago and recovered from the ocean fishery, using the methodology described in paragraph (a)(2)(iii). An alternative methodology for computing fish migration criteria values can be used so long as the revised methodology is calibrated with the methodology described below so as to maintain the validity of the relative index values. Sufficient releases shall be made each year to provide a statistically reliable estimate of the SIFMC for the year. These criteria will be considered attained when the sum of the differences between the measured experimental value and the stated criteria value (i.e., measured value minus stated value) for each experimental release conducted over a three year period (the current year and the previous two years) shall be greater than or equal to zero.

(A) Fish for release are to be tagged at the hatchery with coded-wire tags, and fin clipped. Approximately 50,000 to 100,000 fish of smolt size (size greater than 75 mm) are released for each survival index estimate, depending on expected mortality. As a control for the ocean recovery survival index, one or two groups per season are released at Benecia or Pt. Chicago. From each upstream release of tagged fish, fish are to be caught over a period of one to two weeks at Chipps Island. Daylight sampling at Chipps Island with a 9.1 by 7.9 m, 3.2 mm cod end, midwater trawl is begun 2 to 3 days after release. When the first fish is caught, full-time trawling 7 days a week should begin. Each day's trawling consists of ten 20 minute tows generally made against the current, and distributed equally across the channel.

(B) The Chipps Island smolt survival index is calculated as:

$$SSI=R/MT(0.007692)$$

where R=number of recaptures of tagged fish

M=number of marked (tagged) fish released

T=proportion of time sampled vs total time tagged fish were passing the site (i.e. time between first and last tagged fish recovery)

Where the value 0.007692 is the proportion of the channel width fished by the trawl, and is calculated as trawl width/channel width.

(C) Recoveries of tagged fish from the ocean salmon

fishery two to four years after release are also used to calculate a survival index for each release. Smolt survival indices from ocean recoveries are calculated as:

$$OSI = R_{sub1} / M_{sub1} / R_{sub2} / M_{sub2}$$

where R sub1 =number of tagged adults recovered from the upstream release

M sub1 =number released upstream

R sub2 =number of tagged adults recovered from the Port Chicago release

M sub2 =number released at Port Chicago

(1) The number of tagged adults recovered from the ocean fishery is provided by the Pacific States Marine Fisheries Commission, which maintains a port sampling program.

(2) [Reserved]

(3) Suisun marsh criteria.

(i) Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: Loss of diversity; conversion of brackish marsh to salt marsh; for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.

(ii) [Reserved]

(b) Revised criteria. The following criteria are applicable to state waters specified in Table 1-1, at Section (C)(3) ("Striped Bass--Salinity : 3. Prisoners Point--Spawning) of the Water Quality Control Plan for Salinity for the San Francisco Bay--Sacramento/San Joaquin Delta Estuary, adopted by the California State Water Resources Control Board in State Board Resolution No. 91-34 on May 1, 1991:

[Note: The following TABLE/FORM is too wide to be displayed on one screen.

You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale following the tabular data displaying the character positions.]

40 CFR § 131.37
40 C.F.R. § 131.37

***** This is piece 1. -- It begins at character 1 of table line 1. *****

Location	Sampling site Nos (I--A/RKI)	Parameter	Description	Index type
San Joaquin River at Jersey Point, San Andreas Landing, Prisoners Point, Buckley Cove,	D15/RSAN018, C4/RSAN032, D29/RSAN038,	Specific Conductance (A) 25 degreesC	14-day running average of mean daily for the period not more than value shown, in mmhos	Not Applicable
Rough and Ready Island, Brandt Bridge, Mossdale, and Vernalis				
San Joaquin River at Jersey Point, San Andreas Landing and Prisoners Point	D15/RSAN018, C4/RSAN032, D29/RSAN038	Specific Conductance	14-day running average of mean daily for the period not more than value shown, in mmhos	Not Applicable

1...+...10...+...20...+...30...+...40...+...50...+...60...+...70

40 CFR § 131.37
40 C.F.R. § 131.37

***** This is piece 2. -- It begins at character 71 of table line 1. *****

San	Dates	Values
Joaquin Valley Index		
>2.5 MAF	April 1 to May 31	0.44 micro-mhos.

<=2.5 MAF	April 1 to May 31	0.44 micro-mhos.
-----------	----------------------------	---------------------

71...+...80...+...90...+...0....

40 CFR § 131.37
40 C.F.R. § 131.37

(c) Definitions. Terms used in paragraphs (a) and (b) of this section, shall be defined as follows:

(1) Water year. A water year is the twelve calendar months beginning October 1.

(2) 8-River Index. The flow determinations are made and are published by the California Department of Water Resources in Bulletin 120. The 8-River Index shall be computed as the sum of flows at the following stations:

- (i) Sacramento River at Band Bridge, near Red Bluff;
- (ii) Feather River, total inflow to Oroville Reservoir;
- (iii) Yuba River at Smartville;
- (iv) American River, total inflow to Folsom Reservoir;
- (v) Stanislaus River, total inflow to New Melones Reservoir;
- (vi) Tuolumne River, total inflow to Don Pedro Reservoir;
- (vii) Merced River, total inflow to Exchequer Reservoir; and
- (viii) San Joaquin River, total inflow to Millerton Lake.

(3) San Joaquin Valley Index.

(i) The San Joaquin Valley Index is computed according to the following formula:

$$I_{\text{subSJ}} = 0.6X + 0.2Y \text{ and } 0.2Z$$

where I_{subSJ} = San Joaquin Valley Index

X = Current year's April-July San Joaquin Valley unimpaired runoff

Y = Current year's October-March San Joaquin Valley unimpaired runoff

Z = Previous year's index in MAF, not to exceed 0.9 MAF

(ii) Measuring San Joaquin Valley unimpaired runoff. San Joaquin Valley unimpaired runoff for the current water year is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones

Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake.

(4) Salinity. Salinity is the total concentration of dissolved ions in water. It shall be measured by specific conductance in accordance with the procedures set forth in 40 CFR 136.3, Table 1B, Parameter 64.

[60 FR 4707, Jan. 24, 1995]

<General Materials (GM) - References, Annotations, or Tables>

40 C. F. R. § 131.37

40 CFR § 131.37

END OF DOCUMENT