ORIGINAL

NOSSAMAN LLP

ATTORNEYS AT LAW

18101 Von Karman Avenue
Suite 1800
Irvine, CA 92612
T 949.833.7800
F 949.833.7878

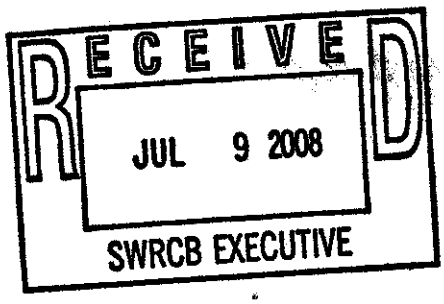
Paul S. Weiland
D 949.477.7644
pweiland@nossaman.com

Refer To File #: 300062-0001

Public Comment
Bay-Delta Strategic Workplan
Deadline: 7/9/08 by 12 p.m.

July 9, 2008

VIA EMAIL AND FEDEX



Jeanine Townsend, Clerk of the Board
State Water Resources Control Board
Cal/EPA Headquarters
1001 "I" Street
P.O. Box 100
Sacramento, CA 95814

Re: Comments on the Draft Strategic Workplan for the San Francisco Bay-San Joaquin Delta Estuary

Ms. Townsend and Members of the Board:

The Coalition for a Sustainable Delta ("Coalition") hereby submits its comments on the Draft Strategic Workplan for Activities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Draft Workplan") prepared by the State Water Resources Control Board ("State Board"), Central Valley Regional Water Quality Control Board ("Central Valley Board"), and San Francisco Bay Regional Water Quality Control Board ("San Francisco Board") (collectively, "Water Boards"). The Coalition is comprised of agricultural water users in the San Joaquin Valley. Coalition members depend on State Water Project ("SWP") deliveries from the Delta to the San Joaquin Valley for their water supply. The Coalition is very concerned about the health of the Sacramento-San Joaquin Delta ("Delta") ecosystem and endorses strong action by the Water Boards to address the major causes of ecosystem decline in the Delta in a comprehensive, strategic manner. The Coalition is pleased that the Water Boards have engaged in this strategic planning process and is hopeful that many of the measures identified in the Draft Workplan will be implemented expeditiously so as to improve the overall health of the Delta ecosystem. Additionally, the Coalition is pleased that the Water Boards have recognized the complexity of the issues in the Delta, and have identified many of the stressors on its ecosystem in the actions proposed as part of the Draft Workplan. The Coalition's comments do not cover the full array of issues identified and discussed in the Draft Workplan but are limited to a subset of those issues.

While the Water Boards have identified many objectives and actions that relate to the overall goal of protecting the beneficial uses of the Delta, it is unclear how the Water Boards prioritized the Draft Workplan elements. In a perfect world, the Water Boards would have the time and resources to fully implement every facet of the nine Workplan elements; however, we understand that the Water Boards' resources are limited and that it will be impossible to fully implement all of the Workplan elements. Thus, we recommend clearly prioritizing actions then

apportioning resources on the basis of the priorities set. To prioritize, we suggest that the Water Boards evaluate each potential action on the basis of: the costs of undertaking the action, the likelihood and magnitude of benefits, the timeframe for both taking the action and obtaining the benefits, and an assessment of whether some other entity may be able to take the action.

I. Cross-cutting Components of an Effective Regulatory Response to Delta Ecosystem Decline

There are two essential, overarching elements of an overall regulatory strategy that are discussed in the Draft Workplan and that must be more fully developed to effectively address ecosystem decline in the Delta: a comprehensive monitoring program and a robust enforcement scheme. Because these two elements are essential and cut across the various causes of ecosystem decline discussed in the Draft Workplan, we begin this comment letter with a discussion of these two elements.

A. *Comprehensive Monitoring*

We commend the Water Boards for identifying a comprehensive monitoring program as one of nine high priority Draft Workplan elements (State Water Resources Control Board et al. 2008, 59-61).[1] But we are concerned that the Water Boards and other regulatory agencies may have mistakenly concluded that standard measures obtained to meet pre-identified requirements (for example, to determine whether a water body is impaired for the purpose of section 303(d) of the Clean Water Act) are sufficient to generate data that allows scientists to answer critical questions about the causes of Delta ecosystem decline and allows resource managers to respond with directed actions that produce desired ecosystem responses. The decline of the Delta's pelagic fishes clearly indicates that management is failing; and the inability of ecosystem resource scientists and managers to identify the cause(s) of the declines indicates that they are failing to gather the data that is essential to inform the Water Boards' Draft Workplan and the broad diversity of state and federal conservation efforts identified in the document.

Monitoring is not systematic effort to measure myriad environmental variables of interest, but a distinctly scientific enterprise that is undertaken to link suspected system stressors to ecological outcomes of concern. Data must be collected in an experimental framework that is designed to provide specific answers to explicit hypotheses about how the ecosystem operates. This approach to problem solving has not been typical of past and ongoing monitoring efforts in the Delta. And the Draft Workplan does little to encourage future efforts to correct the pervasive shortcomings in the critical area of ecological monitoring.

The Draft Workplan supports the pervasive notion that ongoing monitoring is adequately informing scientists, managers, and policy makers in the Delta about the status and trends of key resources, including at-risk species and the environmental factors that may be causing the current ecological responses of concern. And, the Draft Workplan suggests that all that is necessary is to address "information gaps [that] may exist" and to deliver monitoring programs that "are well-

[1] A list of references cited herein in short form is attached to this letter as Exhibit A.

coordinated" (State Water Resources Control Board et al. 2008, 59) to allow system managers to explain the causes of the ongoing Delta species declines. That suggestion cannot be further from the truth. Eight years after its launch CALFED still grapples with producing even a rudimentary program to link management actions to outcomes using agreed upon performance measures. Data collection relating at-risk species' responses to contaminants has not occurred anywhere in the Delta. And, while the Delta's pelagic fishes are generally acknowledged to be declining, the population sizes of the pelagic organisms in decline are unknown, the spatial and temporal dynamics of those species are barely understood, and the likely causes of decline can be listed, but cannot be ranked for their contributions to the current state of affairs. When the Draft Workplan states that "scientists believe that direct entrainment of fish and larvae" at the export pumps "are contributing to adverse impacts on pelagic organisms and other species" (State Water Resources Control Board et al. 2008, 78), it should be noted that there is not agreement among scientists as to whether that contribution has had any role in the declines of those species. That is because Delta-wide monitoring data are unable to shed light on that critical issue in resource management.

So limited are data on the contaminants that cause mortality to and reproductive failure in fishes and are being delivered into the Delta each and every day, that no relationship can be inferred between the hundreds of toxic metals, chemicals, and compounds and the documented declines of native fishes and the food webs that support them. So little is understood about the roll of invasive species in the same fish declines that scientists are left to retrospectively link the Asian clam invasion described in the Draft Workplan to the apparent beginning of the most recent longer-term decline of the delta smelt, longfin smelt, and striped bass. And, this situation persists while contaminants and invasive species are more than sufficient to explain the collapse of the native fishery in the Delta, and decision-makers in all branches of government are left to speculate on the role of water exports in the decline of fishes native to the Delta. This is because regulatory authorities have failed to fully appreciate the fundamental limitations of ongoing monitoring programs, the need for better targeted data, and the requirement for a highly developed framework that links emerging CALFED conceptual models to a well-designed data collection effort.

The jumble of ongoing monitoring efforts and interagency efforts to meld those efforts has done astonishingly little to assist the Water Boards to meet their statutory mandate "to protect beneficial uses of water" (State Water Resources Control Board et al. 2008, 5) in the Delta. Analysis of time series data that might spatially and temporally link fish population data with water flows and temperature, salinity, invasive species, habitat conversion, in-Delta diversions, and contaminants has been stymied due to the absence of well-designed monitoring schemes. It is critical to acknowledge in the Draft Workplan, which invokes monitoring on virtually every page, that Delta monitoring to date has been wholly inadequate to guide policy and management to the planning solutions so immediately needed.

The Coalition fully supports the Water Boards' efforts to develop and implement a comprehensive monitoring program in coordination with other regulatory agencies. To do so, we believe it is critical to begin with an honest assessment of monitoring that has occurred to

date. Then the Water Boards and other regulatory agencies will be in a position to propose a monitoring program that will result in the collection of data to address the range of hypotheses advanced to date respecting the causes of Delta ecosystem decline. Such a program could, in turn, actually inform scientists, managers, and policy makers.

B. *Robust Enforcement*

The Draft Workplan recognizes the vigorous enforcement of water rights as a statutory responsibility of the State Board (State Water Resources Control Board et al. 2008, 80). Enforcement is an important component of any successful regulatory scheme. The Coalition believes that the Water Boards should commit to vigorous enforcement of all their statutory programs in an effort to advance those programs and their underlying purposes.

The current state of the Delta is attributable in large part to the failure of the regulatory agencies to properly enforce existing laws and regulations. For decades, regulatory authorities have allowed in-Delta interests to violate laws regulating water quality including point and non-point source discharges, take of endangered species, pesticide use, dredging and other forms of habitat modification or destruction, and apportionment of water rights. The government has, in large part, turned over responsibility for enforcement of existing state and federal laws to private parties, including the Coalition. This abdication of responsibility should not continue, as it will likely foreclose the possibility of developing and implementing long-term solutions to the problem of Delta ecosystem decline.

The Water Boards have significant enforcement authorities (State Water Resources Control Board 2002). These authorities extend to both water rights and water quality. With respect to water rights, the State Board has statutory authority, for example, to appropriate water and investigate appropriations (Cal. Water Code § 1250 et seq.). In the area of water quality, the Water Boards' enforcement authorities cover National Pollutant Discharge Elimination System ("NPDES") permits and section 401 Water Quality Certifications issued pursuant to the federal Clean Water Act and Waste Discharge Requirements ("WDRs") issued pursuant to the Porter-Cologne Water Quality Control Act, and include a variety of enforcement tools such as the issuance of cease and desist orders, time schedule orders, and notices of violation (Cal. Water Code, § 13300 et seq.). Additionally, the Water Boards have the ability to refer matters to the state Attorney General for civil enforcement actions or to the appropriate county District Attorney or City Attorney for criminal enforcement (State Water Resources Control Board 2002, 24). NPDES permits and WDRs issued by the Water Boards contain enforceable provisions related to protection of beneficial uses, which rarely are utilized by the Water Boards to bring an enforcement action against a discharger. Further, the Water Boards have the authority and administrative responsibility to implement and enforcement Total Maximum Daily Loads ("TMDLs") and other water quality standards in order to protect beneficial uses.

It is critical that the Water Boards devote significant resources to fully implementing and enforcing their water quality permits and programs. While enforcement is discussed in various sections of the Draft Workplan, it should be a key component of the Water Boards plan to protect

beneficial uses in the Delta. This should include undertaking efforts to detect discharges that are occurring without a proper permit in violation of federal and state water quality laws, increased enforcement of existing permit conditions, including permits issued for wastewater, stormwater and industrial discharges into the Delta, and utilizing all of the other enforcement tools available to the Water Boards to protect beneficial uses. Though there are certainly other areas that require work on the part of the Water Boards to protect beneficial uses in the Delta, effective implementation of the water quality control programs requires devotion of the Water Boards to fully implementing and enforcing these programs.

II. Stressor-based Components of an Effective Regulatory Response to Delta Ecosystem Decline

Most of the remaining seven elements of the Draft Workplan address particular causes of Delta ecosystem decline. Consistent with existing statutory mandates, we believe it is appropriate for the Water Boards to focus on water quality and water rights. Following is a discussion of a number of stressor-based Workplan elements.

A. *Contaminants*

The Workplan element pertaining to water quality and contaminants has a number of subcategories. Some contaminant-related causes of Delta ecosystem decline are addressed in one of these subcategories while other are addressed in two or more subcategories and still others are entirely unaddressed.

1. Total Maximum Daily Loads

The Coalition supports the Water Boards' efforts regarding the Total Maximum Daily Load ("TMDL") program as a critical element to protecting, and improving, water quality in the Delta. That is why we are particularly concerned that the Draft Workplan seems willing to accept that the Water Boards cannot fully implement existing TMDLs and develop additional TMDLs to address impairments in the Delta (State Water Resources Control Board et al. 2008, 41). As the Water Boards have identified in the Draft Workplan, water quality plays an important role in the overall health of the Delta ecosystem. While we understand the limited resources available to the Water Boards, we strongly encourage the Water Boards to consider how resources can be re-prioritized to ensure full implementation of existing TMDLs and development of additional TMDLs to address the most pressing impairments, which could include ammonia, pesticides, metals, pharmaceuticals, and blue-green algae, and to develop TMDLs that are applicable to stormwater runoff. As evidenced in the Draft Workplan, there are a large number of stressors on the Delta ecosystem and a host of potential actions to address those stressors have been identified, but it is critical, with the limited resources available to the Water Boards, that there be a focus on those implementable actions likely to result in significant improvements in the Delta ecosystem, and full and focused implementation of the TMDL program is one such program that should receive high priority from the Water Boards.

2. Ammonia

Ammonia occurs naturally in the environment and is a by-product of human activity. Sources of ammonia include natural organic plant and animal matter, municipal and industrial wastewaters, and runoff from animal feedlots. Two forms of Ammonia are found in water: NH3 (un-ionized) and NH4+ (ionized). The total amount of these two forms is commonly referred to as the "Total Ammonia Nitrogen." The un-ionized form (NH3) is toxic to fish and other aquatic life, while the ionized form (NH4+) is not. The percentage of un-ionized to ionized ammonia is a factor of water temperature and pH. This inter-relationship reaffirms the need for a comprehensive and coordinated monitoring program with standardized collection & analytical protocols to provide a reliable, spatial-temporal record of various water quality parameters (including, but not limited to, NH3, water temperature, and pH) along with the co-occurrence of species of concern and their primary food sources. Bioassays of ammonia undertaken as one component of a monitoring effort should be conducted using both continuous exposure and cyclical exposure.

Furthermore, while ammonia is discussed in the Workplan element regarding the characterization of discharges from Delta Islands (State Water Resources Control Board et al. 2008, 53), it is not discussed at all in the section dealing with development and enforcement of TMDLs. While we agree that additional information regarding and effects of the ammonia on beneficial uses would be helpful, currently there is enough information about the major sources of ammonia and the effects of the contaminant on fish species to move forward with actions to address ammonia concentrations within the Delta, which could include development of an ammonia TMDL for the Delta.

As noted in the Draft Workplan, ammonia is toxic to aquatic species and the effects of chronic exposure to lower concentrations of ammonia include decreased egg production, decreased egg viability, decreased growth, delayed spawning, gill hyperplasia (causing increased ventilation), and increased susceptibility to disease (State Water Resources Control Board et al. 2008, 53-54; Camargoa & Alonso 2006). Therefore, if ammonia concentrations in the Delta are not immediately addressed in a TMDL, we recommend that the Water Boards take a closer look in the context of its NPDES program permit issuance and enforcement at the major sources of ammonia discharges in the Delta, which include the major wastewater treatment plants and agricultural discharges. If such discharges of ammonia are impairing beneficial uses in the Delta, the Water Boards should take some action to prevent such impairment.

3. Pesticides

In the Central Valley of California, approximately 20 and 42 million pounds of pesticides were reported in the California Department of Pesticide Regulation's Pesticide Use Reporting database in 2006 for the Sacramento and San Joaquin River Watersheds, respectively. These numbers do not include residential consumer use. Pesticide loading in water bodies are generally highest precipitation that rain events, and frequently exceed water quality criteria established by the Department of Fish and Game to protect aquatic life (Menconi and Cox 1994; Menconi and

Paul 1994; Menconi and Gray 1992). And monitoring data from May 2004 to October 2006 for the Irrigated Lands Regulatory Program from the Coalition Group Monitoring, University of California and Surface Water Ambient Monitoring Program (SWAMP) exceeded the Central Valley Regional Board's triggers for pesticides at 57% of the sites tested on at least one occasion (Central Valley Regional Water Quality Control Board 2007). Thus, pesticides pose a substantial water quality problem in the Delta.

A number of federal, state, and local government agencies share responsibility for the regulation of pesticides. Coordination between such agencies is important in order to address the problems posed by pesticides in the Delta. But the Coalition believes that the scope of the existing Workplan element respecting coordination between the Water Boards, Department of Pesticide Regulation, and County Agricultural Commissioners is in need of revision. As drafted, the scope of this element is to determine "whether there is need for increased enforcement activities or restrictions on pesticide use" (State Water Resources Control Board et al. 2008, 58). But there is no question that there is a need for increased enforcement and additional restrictions on pesticide use beyond those restrictions actually imposed at this time.

The Coalition recommends focusing on a multi-prong enforcement strategy with respect to pesticides. The Water Boards should dedicate resources to: (1) enforcement of the Irrigated Lands Regulatory Program, (2) enforcement actions targeting improper and illegal use of pesticides, and (3) enforcement of the diazinon and chlorpyrifos TMDL for the Delta. The Irrigated Lands Regulatory Program is an important component of any plan to control pesticide discharges in the Delta since a large amount of pesticides are used in agricultural production in areas that drain into the Delta and its tributaries . While the Water Boards have taken significant steps towards implementation of the Irrigated Lands Regulatory Program in recent years, full implementation and enforcement has not yet been achieved. The Water Boards must undertake actions to ensure proper compliance with the regulatory requirements of the Irrigated Lands Regulatory Program to ensure its success in protecting Delta waterways from pesticide pollution. In addition, the Water Boards must place greater emphasis on preventing the improper and illegal use of pesticides, both in agricultural operations and for residential uses. Action should include incorporation of this as an objective in the Water Boards' enforcement programs, and inclusion of detailed educational and prevention requirements in the municipal stormwater permits issued by the Regional Boards. Finally, as will be discussed below, the Water Boards must fully implement the existing Delta TMDLs for diazinon and chlorpyrifos. These pollutants were used heavily for long periods of time and thus are still prevalent in the environment. Adoption of the TMDL was an important first step, but the Water Boards must undertake efforts to fully implement and enforce the limits established by the TMDL.

Furthermore, the Coalition urges the Water Boards to dedicate sufficient resources to expedite completion of a pyrethroid monitoring study (State Water Resources Control Board et al. 2008, 52) and the development of regulatory measures in response to that study and other available data, which could include development of one or more pyrethroid TMDLs. This is necessary in light of the fact that pyrethroids have replaced organophosphate insecticides in recent years both for agriculture and residential use, and thus are becoming much more prevalent

in the environment. Pyrethroids have been shown to be toxic to aquatic species, and at lower levels result in decreased growth and impaired swimming performance, increased susceptibility to viral infection, and impacts to olfactory response (Haya 1989; Clifford et al. 2005; Sandahl et al. 2004). Pyrethroid use in the Delta system nearly quadrupled from 1990 to 2006 from approximately 59,525 to 222,667 lbs/year (California Department of Pesticide Regulation). In addition, there has been a shift in recent years from permethrin, one type of synthetic pyrethroid, to more toxic forms, such as bifenthrin and cypermethrin, which are 21 and 29 times more toxic, respectively, to aquatic life compared with permethrin (Amweg et al. 2005).

4. Metals

A diverse array of metals – aluminum, arsenic, cadmium, copper, chromium, lead, mercury, nickel, silver, vanadium, and zinc – have been detected in the Sacramento and San Joaquin rivers and Delta and downstream from Stockton. Exposure to metals, even at low concentrations often measured in the environment, can exert toxic effects, such as changes in feeding, growth, and swimming behavior on aquatic organisms, especially on sensitive early life stages. While enforcement of the mercury TMDL for the San Francisco Bay is important to water quality in the region, it is critical that the Central Valley Regional Board move forward with approval of the mercury TMDL for the Delta. In development of that TMDL, while we acknowledge that certain dischargers will have a difficult time meeting the anticipated TMDL targets for mercury, we are concerned about the potential off-set program. Any such program needs to be temporary, while technology can be developed and implemented to meet the TMDL targets, and must be shown to be fully protective of beneficial uses in the Delta. Because these metal contaminants, particularly copper, aluminum and mercury, have been shown to exert toxic effects on Delta fish species, the enforcement and development of TMDLs for these contaminants should be a focus of the Water Boards' efforts to protect beneficial uses of the Delta.

5. Pharmaceuticals

Pharmaceuticals enter the watershed by treated wastewater containing drug residues, septic tanks, and waste from livestock treated with veterinary pharmaceuticals, such as anabolic steroids, hormones for increased milk production, and antibiotics (Sedlak and Schlenk 2007). The presence of human and veterinary pharmaceuticals in U.S. watersheds likely has adverse effects on human health and the environment, including effects on zooplankton and fish. The number of U.S. human prescriptions rose to a record 3.7 billion in the past five years, with another 3.3 billion in nonprescription drug purchases (IMS Health 2006; The Nielsen Co. 2007).

Among the pharmaceuticals detected in the Delta are endocrine disrupting compounds—synthetic chemicals that mimic or block hormones and disrupt physiological functions (Holtz 2006). There appears to be no limit to the impact of this class of contaminants, as there are no federally established permit levels or testing requirements for them, and the number of prescription and nonprescription drug purchases continue to rise.

Because of the likely prevalence of pharmaceuticals in the Delta and the unknown effects of such contaminants on species, we recommend the Water Boards include such pollutants in its planned comprehensive monitoring program for the Delta. In addition, the Water Boards should include monitoring for pharmaceuticals in NPDES permits issued to wastewater treatment plants and other discharges likely to contain such pollutants. Finally, the Water Boards should – in collaboration with EPA and other agency partners – work toward the establishment of effluent standards for this class of pollutants.

6. Blue-Green Algae

Given the limited resources of the Water Boards, it is unclear why monitoring for blue-green algae is identified as a high priority activity (State Water Resources Control Board et al. 2008, 49-51) although pharmaceuticals are unaddressed in the Draft Workplan. The Coalition does not believe that this issue should be identified as high priority, particularly because there is no record of cyanobacteria blooms causing fish kills or adverse effects on human health though it must be acknowledged that they may have indirect effects on aquatic species by reducing dissolved oxygen.

B. *Invasive Species*

The Coalition supports the Water Boards' identification of invasive species as a high priority because of the adverse effects such species have on the Delta ecosystem, but we believe that the Water Boards can do more than is contemplated in the Draft Workplan to address invasive species within the Delta.

The Delta is considered one of the most "invaded" estuaries in the world (Cohen and Carlton 1998). At the same time, a substantial portion of the area's native plant and animal diversity has declined, and a number of native species are threatened with extinction (POD Panel Review 2007). The addition of invasive species and contemporaneous loss of native species have been so extensive that restoration of the Delta ecosystem to a pre-settlement condition is infeasible. Furthermore, the extent of the invasive species crisis in the Delta is so immense that even without the addition of any other invasive species, it will be very difficult to maintain what is left of the system's already compromised native biotic diversity.

Invasive fish species including the largemouth bass (*Micropterus salmoides*), striped bass (*Morone saxatilis*), and inland silverside (*Menidia beryllina*) threaten native fishes directly through predation. Invasive sports fishes intentionally introduced into the Delta – large mouth bass and striped bass – pose a significant threat to the recovery of native species including delta smelt and juvenile salmon (IEP 2008; U.S. Dept. of the Interior 1996). The Department of Fish and Game has estimated that striped bass can consume as much as six percent of the population of certain federally-listed native fish species annually (California Department of Fish and Game 1999). Predation on native fish such as delta smelt and longfin smelt by invasive invertebrate species is also likely. Predatory copepods have been noted to feed on larval fishes in other systems (Garcia and Alejandre 1995).

A variety of other invasive species have direct effects on the Delta foodweb and likely have significant indirect effects on native fishes. The invasive species that may have had the most dramatic impact on the Delta ecosystem over the past decade is the overbite clam (*Corbula [Potamocorbula] amurensis*). Overbite clams filter huge amounts of water, taking from it algae, zooplankton, and other minute organisms upon which other biotic components of the food web, including native fishes, feed. It has been estimated that the overbite clam population can filter the entire water column over Delta channels more than once per day and over the shallows almost 13 times per day. This rate of filtration may exceed specific growth rate of some phytoplankton (Feyrer et al 2003). Further, the clam feeds at multiple levels in the food chain, consuming bacterioplankton, phytoplankton, and zooplankton (e.g. copepods), and this may substantially reduce copepod populations both by depletion of the copepods' phytoplankton food source and by direct predation. Additionally even in areas where the overbite clam has not become dominant, IEP monitoring data show declines in several native zooplankton species that serve as important food sources for native fishes; two calanoid copepods, *Eurytemora affinis* and *Pseudodiapomus forbesi*. These two copepods have suffered particularly steep declines concomitant with increases of an invasive copepod, *Limnosthona tetraspina*, which apparently is not a comparable food source for native fishes and, unfortunately, is a predator on native copepods (Bouley and Kimmerer 2006).

Inclusion of invasive species in the Water Boards' ongoing regulatory and grant programs, including the Clean Water Act section 401 water quality certification process should remain one of the actions to address invasive species. We also recommend that the Water Boards consider undertaking an effort to coordinate with the other regulatory agencies with oversight responsibilities over invasive species issues to develop an entity to coordinate agency responses to invasive species in the Delta. Such an approach might entail empowering the CALFED Non-Native Invasive Species Advisory Committee with such authority and assigning Water Boards' staff to assist with those efforts. That oversight entity would then be responsible for identifying information gaps on invasive species, and the management actions and programs necessary to support a comprehensive aquatic invasive species response plan that could be, at least partially, implemented by the Water Boards. Furthermore, we recommend that the Water Boards consider adopting their own mandatory, enhanced techniques for ballast water treatment, either in the form of a state-wide ballast water discharge policy or through issuance of a general permit that would cover all ballast water discharges within the State.

In addition to the above-mentioned activities, we believe it is critical for the Water Boards to actively pursue measures to address those invasive species already embedded in the Delta in order to reduce the potential for catastrophic loss of the balance of species native to the Delta including its native fishes. Specifically, the Water Boards should implement pilot projects to control invasive species through mechanical or other means in the context of an adaptive management framework that allows for the project evaluation and refinement.

C. *In-Delta Diversions*

1. Power Plants and Once-Through Cooling

We agree with the Water Boards that addressing the existing power plants in the Delta that utilize once-through cooling is important to protect beneficial uses in the Delta, but it is unclear what "short-term" actions may be implemented to ensure that the two power plants currently operating within the Delta do not continue to impact pelagic organisms because no such actions have been identified in the Draft Workplan (State Water Resources Control Board et al. 2008, 44-45). If there are certain short-term actions that are contemplated by the Water Boards, they should be identified in the Draft Workplan. Further, we are concerned that although the Draft Workplan contains a detailed, ambitious schedule for adoption of a statewide Clean Water Act section 316(b) policy, it does not contain any timelines for reissuance of the NPDES permits for the Contra Costa and Pittsburg Power Plants ("Power Plants"). The Draft Workplan should identify the timelines for reissuance of these permits, the resources that will be utilized for that action, and the potential significant revisions contemplated for those permits. Given that the Pittsburg Power Plant is presently operating under a permit that expired over a year ago, an express timeline is appropriate and necessary.

We strongly agree with the position of the Water Boards that, although the Power Plants have reduced operations in recent years, there are still potentially significant intake and discharge impacts associated with operation of the Power Plants (State Water Resources Control Board et al. 2008, 43). Importantly, Mirant is under no legal obligation to continue to operate at the reduced levels seen in recent years. And according to documentation submitted by Mirant Delta to the participants in the BDCP process, the maximum design flow of the power plant systems is over 1,000,000,000 gallons per day (Mirant Delta, LLC 2007, 2-3).

Potential effects of the Power Plants on beneficial uses, including effects on at-risk, native fish species, are significant. For example, in a major report on the Delta, the Public Policy Institute of California indicated that "entrainment of fish at the power plants at Pittsburg and Antioch is potentially a major source of mortality, especially of larval fish, that could significantly contribute to the pelagic organism decline" (PPIC 2007, 222). In November 2007, after the Coalition filed a notice of intent to sue Mirant and for the first time in many years, Mirant Delta began to implement a monitoring program at the Power Plants. Unfortunately, that program is woefully inadequate and includes monitoring for periods as brief as three minutes and not greater than four hours every two weeks. Despite the infrequency of the monitoring, Mirant Delta has recorded the take of a variety of delta fishes, including delta smelt and longfin smelt (Tenera 2008a; Tenera 2008b). This suggests the need for a more intensive monitoring effort.

While development of a statewide policy to implement Clean Water Act section 316(b) may be necessary to address the impacts of once-through cooling throughout the State, what is critical for the protection of beneficial uses and fish species within the Delta is that the impacts from the Power Plants currently operating within the Delta are eliminated, and the reissuance of the NPDES permits is a critical element of accomplishing that objective.

2. Unscreened Diversions

There are an unknown number of diversions in the Delta and along its tributaries. Several sources have attempted to estimate the number of in-delta agricultural diversions, all converging on a number around 2,000. A California Department of Fish and Game survey counted 2,294 diversions. Of these diversions, only 216, or 9%, are screened, with only 0.6% of the diversions being screened for small fish species, such as delta smelt and longfin smelt. A paper by Herren and Kawasaki (2001) reported 2,209 water diversions within the delta during 1991-1997, only 17 of which were screened (0.007%). Another calculation estimated 1,800 surface agricultural diversions within the Sacramento-San Joaquin Delta (Department of Water Resources 2005).

When agricultural diversions are at their peak, delta agricultural diversions may collectively divert water at an estimated mean rate of over 4,000 cfs (Department of Water Resources 2005). Approximately 1.3 million acre-feet annually is diverted to support delta agriculture (California Water Plan 2005). State Water Resources Control Board staff testified before the Governor's Blue Ribbon Task Force on the Delta that they believe this estimate is about half of the actual amount diverted (Blue Ribbon Task Force Delta Vision Final Report 2007).

The magnitude of effects of unscreened diversions on fish species, including the delta smelt, is uncertain. To date, two studies evaluated entrainment by in-delta diversions. Cook and Buffaloe (1998) evaluated five sites in the west and south delta. They found that a large diversity of fish species can be entrained by small agricultural diversions, especially young-of-year fish present from May through August. Catch per unit effort (CPUE) for delta smelt suggested that relatively lower densities of these were entrained compared to other fishes; however, at one site a CPUE of 5.0 was calculated for early-life stage delta smelt, indicating five delta smelt entrained for each acre-foot of water sampled.

Nobriga et al. (2004) evaluated entrainment in one screened and one unscreened diversion in the vicinity of Decker Island. No delta smelt were found in the screened diversion, whereas diversion losses were detected in the unscreened diversion. Specifically, 43 delta smelt were entrained during 69 hours of unscreened sampling of 170,839 m3 of water. There was even greater entrainment of other ecologically similar, open-water species, such as striped bass.

This is an issue that must be addressed to protect beneficial uses in the Delta. While this objective is mentioned at the end of the Draft Workplan (State Water Resources Control Board et al. 2008, 91), it is not an objective that is given much attention or resources for implementation. In fact, there is no discussion of a timeline for implementation of any actions or resource that will be devoted to this actions associated with addressing this issue. We strongly encourage the Water Boards to consider devoting significant resources to the activities identified to address unscreened diversions within the Delta and consider implementing regulations requiring all such diversions minimize and mitigation adverse effects on beneficial uses including but not limited to screening, operational limitations, monitoring, and mitigation or offsets. Particular attention

should be paid to diversions that are large enough to result in the take of delta smelt, longfin smelt, and juvenile salmonids.

D. *Habitat Restoration*

The Water Boards correctly note that Suisun Marsh is the largest brackish wetland in the western United States. Historically, Suisun Marsh has provided valuable habitat for many aquatic species native to the Delta including certain salmon species, the delta smelt, and longfin smelt. The Suisun Marsh Salinity Control Gate (SMSCG) is located on Montezuma Slough about 2 miles downstream from the confluence of the Sacramento and San Joaquin Rivers. The California Department of Water Resources operates the SMSCG to decrease the salinity of the water in Montezuma Slough. The SMSCG controls salinity by restricting the flow of higher salinity water from Grizzly Bay into Montezuma Slough during incoming tides and retaining lower salinity Sacramento River water from the previous ebb tide. Operation of the SMSCG in this fashion lowers salinity in Suisun Marsh channels and results in a net movement of water from east to west.

The Water Boards indicate that the State Board adopted a salinity objective for Suisun Marsh in 1978 to protection beneficial uses of the Marsh from elevated salinity due to reduced water outflow from the Delta (State Water Resources Control Board et al. 2008, 70). The SMSCG were put in place, in part, in an effort to meet the State Board salinity objective. The salinity objective and SMSCG have benefited water fowl and hunters. Unfortunately, the SMSCG reduce tidal action in and limit access to Suisun Marsh thereby foreclosing use of the Marsh by a number of native fishes including the delta smelt and longfin smelt. The Marsh represents a significant proportion of the total available habitat of these at-risk species. As the Public Policy Institute of California has noted (2007, 64), the SMSCG was constructed during an era when Suisun Marsh was viewed as distinct from the larger Delta estuary though in fact we now understand it is an integral part of the Delta estuary. This Workplan Element should include a re-evaluation of the salinity objective and SMSCG in light of our present-day understanding of the role of the Marsh in the Delta estuary and the fact that both have substantially decreased the habitat of aquatic species native to the Delta.

E. *Outflows*

The Draft Workplan discusses water flow into and through the Delta and includes the following statement:

> Sufficient fresh water inflows are needed to provide habitat quality in the Bay-Delta and to prevent seawater from intruding into the Delta and degrading water quality. Reduced Delta outflows and elevated salinity can be harmful to various species of fish and wildlife, agricultural production, and municipal and industrial uses of water throughout the Bay-Delta estuary. Diversions upstream and within the Bay-Delta substantially alter fresh water inflows to the Bay-Delta.

(State Water Resources Control Board et al. 2008, 81).

The Coalition agrees that a certain level of freshwater flow is important to the health of the Delta ecosystem, but the Delta should not be managed to achieve stable flows. Indeed, some recent analyses seem to question the benefits of the X2 standard. We encourage a review of this standard. The health and production of estuaries and their adjacent floodplains rely on the extent, duration and dynamics of the hydrological connectivity between rivers and floodplains via surface water and groundwater and the ebb and tide of saline and freshwater inputs. The process of seasonal flooding and inundation produce a dynamic equilibrium of erosion and sedimentation, resulting in high habitat diversity. Flood disturbances are essential to the health of the Delta ecosystem because they initiate succession and foster biodiversity by enabling weak competitors to coexist (Sheimer 1995). We concur with the Public Policy Institute of California, that serious consideration must be given to variable flow, both seasonally and inter-annually (PPIC 2007).

III. Conclusion

We hereby request that these comments be placed into the record for the Draft Workplan. We would be happy to answer any questions regarding these comments and look forward to working with the State Board and the Regional Boards on these important issues.

Very truly yours,

Paul S. Weiland
of Nossaman LLP

PSW/map1

Attachment A – List of References

Amweg, E., D. Weston & N. Ureda. 2005. Use and Toxicity of Pyrethroid Pesticides in the Central Valley, California, USA. Environmental Toxicology and Chemistry, 24(4): 966-972.

Bouley, P. & W. Kimmerer. 2006. Ecology of a highly abundant, introduced cyclopoid copepod in a temperate estuary. Marine Ecology Progress Series, 324: 219-228.

California Department of Fish and Game. 1999. Conservation Plan for the Striped Bass Management Program.

California Department of Water Resources. 2005. California Water Plan Update 2005, Vol. 3, Ch 12.

California Department of Water Resources. 2001. Comprehensive Review: Suisun Marsh Monitoring Data 1985-1995.

California Department of Pesticide Regulation. 2007. Pesticide Use Reporting (PUR). Summaries of Pesticide use data available from 1989 to present. Available at: http://www.cdpr.ca.gov/docs/pur/purmain.htm

Camargoa, J.A. & Á. Alonso. 2006. Ecological and toxicological effects of inorganic nitrogen pollution in aquatic ecosystems: A global assessment. Environment International, 32:831-849

Central Valley Regional Water Quality Control Board (CVRWQCB). 2007. Revised Draft 2007 Review of Monitoring Data Irrigated Lands Conditional Waiver Program. Available at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/monitoring_activity/index.html

Clifford, M.A., Eder, K.J., Werner, I. and R.P. Hendrick. 2005. *Synergistic effects of esfenvalerate and infectious hematopoietic necrosis virus on juvenile Chinook salmon mortality.* Environmental Toxicology and Chemistry 24(7):1766-1772.

Cohen, A.N. & Carlton, J.T. 1998. Accelerating invasion rate in a highly invaded estuary. Science (Washington, D.C.), 279: 555-558.

Cook, L, L. Buffaloe. 1998. Delta agricultural diversion evaluation summary report, 1993-1995. Interagency Ecological Program Technical Report 61. Sacramento, CA: California Dept. of Water Resources.

Delta Vision Blue Ribbon Task Force (Governor's Delta Vision Blue Ribbon Task Force). 2007 (second printing in 01/2008). Our Vision for the California Delta. California Resources Agency.

Feyrer, F., B. Herbold, S. Matern, and P. Moyle. 2003. Dietary shifts in a stressed fish assemblage: Consequences of a bivalve invasion in the San Francisco Estuary. Environmental Biology of Fishes, Vol. 67, Num. 3. Springer Netherlands, 2003.

Garcia, R. P., and Alejandre, R.V. 1995. Predation upon Larvae of the Pacific Sardine Sardinops sagax by Cyclopoid Copepods, Journal of Crustacean Biology, 15: 196-201.

Haya, K. 1989. Toxicity of pyrethroid insecticides to fish. Environmental Toxicology and Chemistry. Vol. 8, no. 5, pp. 381-391

Herren, J. & S. Kawasaki. 2001 in Brown, R.L. (ed). Contributions to the Biology of Central Valley Salmonids. Vol 2:343-355.

Holtz, S. 2006. Pharmaceuticals, personal care products, and endocrine-disrupting substances: emerging contaminants detected in water. Canadian Institute For Environmental Law and Policy.

Interagency Ecological Program. 2005. Interagency Ecological Program 2005 Workplan to Evaluate the Decline of Pelagic Species in the Upper San Francisco Estuary. July 1, 2005. Available at: http://science.calwater.ca.gov/pdf/workshops/sp_workshop_pod_pelagic_decline_workplan_070105.pdf

IMS Health Press Release. 2006. *IMS Health reports 5% growth in retail pharmacy drug sales for the 12 months to December 2006.* Available at: http://www.imshealth.com/ims/portal/front/articleC/0,2777,6025_77685579_80271182,00.html

Interagency Ecological Program (IEP) Pelagic Organism Decline (POD) 2008 Workplan. 2008. Work Plan to Evaluate the Decline of Pelagic Species in the Upper San Francisco Estuary. Available at: http://www.science.calwater.ca.gov/pdf/workshops/POD/IEP_POD_2008_workplan_060208.pdf

Menconi, M. and A. Paul. 1994. Hazard Assessment of the Insecticide Chlorpyrifos to Aquatic Organisms in the Sacramento-San Joaquin River System. CA Department of Fish and Game, Environmental Services Division.

Menconi, M and C. Cox. 1994. Hazard Assessment of the Insecticide Diazinon to Aquatic Organisms in the Sacramento-San Joaquin River System. CA Department of Fish and Game, Environmental Services Division.

Menconi, M and S Gray. 1992. Hazard Assessment of the Insecticide Carbofuran to Aquatic Organisms in the Sacramento-San Joaquin River System. CA Department of Fish and Game, Environmental Services Division.

Mirant Delta LLC. 2007. Mirant Proposed BDCP Covered Activities (BDCP Steering Committee May 4, 2007).

Nobriga, M., Z. Matica, and Z. Hymanson. 2004. Evaluating entrainment vulnerability to agricultural irrigation diversions: a comparison among open-water fishes. American Fisheries

Society Symposium 39:281-295.

Public Policy Institute of California (PPIC). 2007. Envisioning Futures for the Sacramento-San Joaquin Delta.

Pelagic Organism Decline (POD) Progress Report. 2007. Synthesis of Results. Interagency Ecological Program (IEP). January 15, 2008. Available at: http://www.fws.gov/sacramento/es/documents/POD_report_2007.pdf

Sandahl, J.F., Baldwin, D.H., Jenkins, J.J., and Scholz, N.L. 2004. Odor-evoked field potentials as indicators of sublethal neurotoxicity in juvenile coho salmon exposed to copper, chlorpyrifos, or esfenvalerate. Canadian Journal of Fisheries and Aquatic Sciences, 61:404-413.

Sedlak, DL. and D.Schlenk. 2007. Identifying the causes of feminization of Chinook salmon in the Sacramento and San Joaquin River system. Available at: http://www.ce.berkeley.edu/~sedlak/CALFEDwebsite.htm

State Water Resources Control Board. 2002. Water Quality Enforcement Policy.

State Water Resources Control Board et al. 2008. Draft Strategic Workplan.

Tenera. 2008a. Entrainment Monitoring for the Contra Costa and Pittsburg Power Plants – March 2008.

Tenera. 2008b. Entrainment Monitoring for the Contra Costa and Pittsburg Power Plants – April 2008.

The Nielsen Company. 2007. Consumer Ailments and Remedies – a global Nielsen consumer report.

U.S. Department of the Interior. 1996. Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes.