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**CENTRAL VALLEY FLOOD PROTECTION BOARD**

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April 7, 2010

Patrick Morris
Senior Water Quality Control Engineer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, California 95670

Re: Comments on the Proposed Basin Plan Amendment and Delta Methylmercury TMDL

Dear Mr. Morris:

The Department of Water Resources (DWR) and the Central Valley Flood Protection Board (Flood Board) (collectively, "Agencies") submit these joint comments on the proposed Basin Plan Amendment (BPA) and associated February 2010 Staff Report for the Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary (Delta) (Staff Report). The Agencies appreciate the opportunity to review and comment on these documents which set forth the proposed Delta Mercury Control Program and regulations for implementing a Total Maximum Daily Load (TMDL). The Agencies provide general comments below and specific comments in the attached Table (Attachment 1). The Agencies have also attached a "redline" edit of the proposed BPA (Attachment 2) to reflect possible changes that may address many of our concerns expressed in our comments. Although the Agencies provide suggested changes now, we may have additional comments at the Central Valley Regional Water Quality Control Board (Regional Water Board) hearing on April 22.

DWR and the Flood Board would like to emphasize our support of the Regional Water Board taking necessary steps to identify methods to control methylmercury in the Delta. The newly proposed designated beneficial uses of commercial and sport fishing in the Delta are important uses that need to be addressed in order to protect human health and fish and wildlife. We support certain portions of the Regional Water Board's proposed BPA and TMDL for controlling both methyl and total mercury to reduce fish tissue values to levels that are safe for both fish and wildlife and Delta anglers. For example, the Agencies agree that studies to identify actions to reduce production of methylmercury from dredging, wetland, and aquatic habitat restoration activities should be undertaken. DWR and the Flood Board look forward to working with the Regional Water Board to further refine such actions.

However, the Agencies continue to have significant concerns with certain aspects of the proposed BPA and TMDL. As we have expressed previously during the development of the BPA, the Agencies have concern with Phase 1 improvement actions proposed for the Cache Creek Settling Basin (CCSB). The BPA and TMDL continue to characterize the CCSB as a

major source of mercury entering the Delta; however this assertion is incorrect. The Cache Creek watershed is the source of mercury, not the CCSB. The CCSB is a federal Flood Control facility of the Sacramento River Flood Control Project designed with the sole purpose of capturing sediment to minimize downstream flood impacts of sediment on the Yolo Bypass, Sacramento River, the Delta, and the San Francisco Bay. This structure is intended to reduce flooding in the downstream water bodies by minimizing sediment input from the Cache Creek Watershed into those water bodies. The CCSB, by the nature of its sediment capture role, has been and continues to capture mercury entering the basin from the Cache Creek watershed. The BPA and TMDL attempt to reallocate the purpose of the CCSB from single purpose flood control (as designed by the USACE) to multipurpose uses, including increased sediment and mercury capture, above and beyond the design of the flood control feature. Such a change was not envisioned in the federal authorization for the CCSB, and this BPA/TMDL change may not be in the federal interest. We describe these concerns and propose revisions to the BPA in specific comments in Attachments 1 and 2.

In addition, DWR and the Flood Board have fundamental policy, legal, and technical concerns with the joint assignment to our agencies, along with the State Lands Commission (SLC), of the open water allocation as a method to reduce mercury in the Delta. The proposed BPA states that "[o]pen water allocations apply to the methylmercury load that fluxes to the water column from sediments in open-water habitats within channels and floodplains in the Delta and Yolo Bypass." (BPA at 10.) The Agencies believe that it is unreasonable and inappropriate to include the open water allocation as described in the BPA, or to place the burden to meet such an allocation solely on three State agencies. The major source of this methylmercury loading is the mercury-laden sediment underneath the waters that was deposited many years ago from natural and human activities unconnected to activities of these State agencies. We instead recommend that the Regional Water Board recognize this as a Statewide problem that should be remedied through a characterization and control program and not through the use of a TMDL targeted at these three agencies.

We do not believe it is appropriate to characterize DWR, the Flood Board and SLC, collectively, as the "State of California" when assigning the open water allocations. In providing the rationale for assigning the open water allocations to the Agencies, the Regional Water Board staff stated that placing a more upfront and immediate burden on the State government was "in keeping with stakeholder requests" and referenced an April 9, 2008 comment letter signed by various parties ("Comment Letter," attached as Attachment 3). (See also Draft BPA Staff Report at 61, footnote 26.) The major position put forward in the Comment Letter is that substantial mercury load reductions and study requirements should be allocated to the State of California. The letter states that the primary source of methylmercury loading is the sediment underneath the State's waters and, because the People of California own the waters, the State should be held accountable for reducing these loads. (See Comment Letter at 1.)

The Regional Water Board staff responded to this position by assigning the open water allocations to the three state agencies, with the apparent belief that the State's responsibility would be appropriately fulfilled by those agencies. DWR and the Flood Board do not dispute that some of our activities, such as dredging or wetland and aquatic habitat restoration, may affect methylmercury production in the open-water. However, we strongly oppose being solely responsible for meeting the open water allocations simply because we are State agencies.

Importantly, DWR and the Flood Board do agree with the rationale in the Comment Letter for the State responsibility due to mercury contamination as an unfortunate legacy for our State. Mercury is abundant in naturally occurring minerals and rocks of the California Coast Range and Sierra Nevada, which will continue to erode and be deposited in the State's water bodies through natural processes, atmospheric deposition, as well as from anthropogenic activities (primarily historic mercury mining concentrated in the Coast Range, and gold recovery concentrated in the Sierra Nevada foothills and eastern valley). To address this legacy issue, which affects the citizens of California as a whole, the Agencies believe a comprehensive mercury characterization and control program identified with appropriate legislative authority to fund and staff a statewide effort is required. Until such a comprehensive, legislatively authorized and funded approach is developed, the Agencies do not support portions of the proposed BPA that hold them responsible for reducing methylmercury that is not caused by our activities. The Agencies have attached an edited BPA with comments and proposed changes reflecting this position.

The Agencies also believe that the proposed BPA open water allocations narrowly assign responsibility to only State agencies, and that when using the underlying logic of the BPA, federal agencies also should be assigned responsibility. The proposed BPA describes the types of activities that will be subject to the open water methylmercury allocations, including "water management and storage in and upstream of the Delta and Yolo Bypass, maintenance of and changes to salinity objectives, dredging and dredge materials disposal and reuse, and management of flood conveyance flows." (See BPA at 10.) The BPA then identifies the agencies that are responsible for the various activities, including DWR, SLC, the Flood Board, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers and the State Water Resources Control Board (State Water Board). However, despite recognizing that there are numerous other agencies responsible for the types of activities affecting open-water methylmercury production and transport, the proposed BPA assigns responsibility to meet the allocations to only the three State agencies. We believe this is arbitrary and unreasonable.

Another reason to modify the open water allocation is that it assigns the responsibility to meet the allocations before any real analysis has been performed to assess whether the Agencies can feasibly and reasonably reduce methylmercury production in the open water. We believe it is highly unlikely that Agencies will be able to accomplish the methylmercury reductions in a manner envisioned in the BPA.

To properly develop the BPA, the Regional Water Board staff must: 1) conduct an analysis as to whether the fish tissue objective set forth in the BPA can reasonably be achieved; 2) analyze the reasonably foreseeable environmental impacts from the methods of compliance, the reasonably foreseeable mitigation measures, and the reasonably foreseeable alternative means of compliance; and 3) design a program that includes actions that can be reasonably and feasibly implemented. (See Public Resources Code Section 21159(a) and Water Code Section 13241.) The Regional Water Board staff analysis, however, is not adequate to meet this requirement. The Regional Water Board staff identified a few methods of compliance with the open water allocations but these methods focused only on the reduction of total mercury inputs from upstream sources in order to decrease sediment mercury concentrations in the open channels. (See Staff Report at 110, 115-117.) The analysis is unclear as to the Agencies effect on upstream sources of mercury and does not sufficiently analyze whether the

Agencies can feasibly or reasonably reduce methylmercury levels in the open-waters. We believe that one of the main purposes for the Phase 1 studies is to determine the feasibility of control actions that can reduce mercury loading and methylmercury production. As such, DWR and the Flood Board believe assigning responsibility to specific entities for the open water allocations is premature when there is little evidence in the analysis showing feasible or reasonable actions to achieve such allocations.

The last, and extremely important issue the Agencies have with the open water allocations is that it improperly includes flood control and "water management" as activities that are subject to the open water methylmercury allocations. The Agencies interpret the term "water management" to mean activities related to the movement of flows through confined, established Delta conveyance tributaries and channels. Such flow is subject to, and largely the result of, precipitation, snow melt, and other natural processes. Movement of water through the fluvial system will occur regardless of flood control and water management activities and DWR and the Flood Board do not believe that the mere movement of water through established channels should be included in an open water allocation, or any other allocation. The Agencies understand that water management activities may affect the distribution and potentially the resident time of mercury and methylmercury. However, we do not agree that affecting the distribution of methylmercury should be, or legally can be, considered a loading factor.

The "water management activities" described in the BPA cannot be considered point sources or nonpoint sources because they do not add any pollutant to navigable waters, and therefore cannot be regulated in the manner proposed in the BPA. The Regional Water Board staff seem to acknowledge this on page 50 of the Staff Report, which states, in pertinent part: "There are several challenges in developing equitable and effective methylmercury allocations... TMDL regulations and guidance focus on controlling discharges of pollutants to address water quality impairments, and do not clearly address how to handle other contributing factors such as water management activities." In other words, the Regional Water Board staff recognized that water management activities do not discharge mercury or methylmercury into the State's water bodies, which is what a TMDL is designed and intended to address. Therefore, the open water allocations set forth in the BPA pertaining to activities that only affect flow in the Delta channels should not be addressed through a TMDL.

Instead, activities that affect the flow in Delta channels that consistently have water should be considered non-load related contributing factors. Water management activities that affect the distribution of methylmercury or its resident time should not be assigned an allocation, but instead should be viewed as something that potentially contributes to conditions that allow methylmercury to enter into the food chain. Thus, the Agencies believe that the Regional Water Board should take into account the conditions of flow in the watershed when determining the appropriate allocations, but it should not include activities that affect flow into those allocations.

In sum, the Agencies do not believe that there is enough information available for the Regional Water Board to reasonably adopt the open water allocations and the action for the CCSB in the proposed BPA and implementation plan. Currently, it is unclear who is, and who should be, held responsible for the methylmercury loading in the Delta open-water. Also, it is unclear how

Mr. Morris
April 7, 2010
Page 5

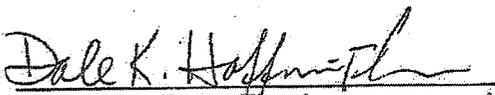
the existing water quality and flow requirements, and the operations necessary to meet those requirements, will be balanced with the new methylmercury allocations and future control actions.

DWR and the Flood Board believe the most viable solution to fully address the State's responsibility for controlling mercury not related to point and non-point source regulation, and which is not appropriate in a TMDL, is to develop a program, perhaps through legislation, that will create, fund, and staff a statewide mercury characterization and control program. Such a program could be housed within the California Environmental Protection Agency (Cal EPA) and would investigate mercury sources, and identify and implement feasible control actions of sources not appropriate for a TMDL. The program could coordinate with federal, State (including the Delta Stewardship Council), and local public health agencies and local groups to best implement public health advisories and education programs with mercury affected communities. Such an approach would be more appropriate than the proposed TMDL approach because it could identify the funding and develop an implementation plan for addressing mercury contamination in the Delta, while minimizing impacts to existing federal, State, and local public resource programs.

For the above reasons, the Agencies requests that the Regional Water Board not adopt the open water allocations, or at least not assign responsibility, until the Phase 1 studies are completed. The Agencies will continue to work with the Regional Water Board and its staff to develop alternative approaches to addressing methylmercury open water allocation in the BPA. In addition, before adopting the proposed BPA, the Agencies request that the Regional Water Board consider changes to the BPA as identified in our specific comments and revisions identified in Attachments 1 and 2.

If you have any questions regarding the Agencies' comments and suggested changes to the BPA, please contact Dale Hoffman-Floerke, DWR Deputy Director, or your staff may contact Jay Punia, Flood Board Executive Officer, at (916) 574-0609.

Sincerely,


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Deputy Director
Department of Water Resources


Jay S. Punia
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Central Valley Flood Protection Board

Attachments

cc: See attached List

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ATTACHMENT 1
Department of Water Resources and Central Valley Flood Protection Board
Specific Comments of Central Valley Regional Water Quality Control Board's
Draft Basin Plan Amendment for the Delta Mercury Control Program

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
	Various			<p>While Board staff acknowledges the "reasonably protect" standard as being the legal standard by which to establish the water quality objective (see page 19 of the Staff report), it occasionally appears that Board staff instead used a "fully protect" standard in establishing the water quality objective of 0.08 and 0.24 mg methylmercury/kg (herein referred to as the 0.24mg/kg standard). Board staff evaluated five alternatives for fish tissue objectives, and chose Alternative 4, which is the 0.24mg/kg standard. The analysis and reasoning that Board staff used to choose this alternative is set forth throughout the Staff Report and the TMDL, and the consistent theme of the analysis is that the 0.24mg/kg standard was chosen because it "fully protects" the beneficial uses. The following is a non-exhaustive list of passages in the Staff Report and the TMDL where Board staff appear to have used the fully protect, rather than reasonably protect, standard in establishing the water quality objective:</p> <ul style="list-style-type: none"> • Page 19 of the Staff Report states "Under alternative 1, beneficial uses are protected by the narrative toxicity objective of the Basin Plan. However, evaluating the success of methylmercury reduction efforts (as part of the implementation plan) will be easier using numeric fish tissue objectives such as those in Alternatives 2 through 5. Alternatives 2 through 5 protect the REC-1 beneficial use already identified in the Basin Plan and the proposed COMM beneficial use. Alternative 2 is not fully protective of the WILD beneficial use because the alternative exceeds the safe methylmercury levels for some wildlife species. Alternatives 3 through 5 fully protect the WILD beneficial use. Alternative 5 provides the greatest level of protection to people who eat Delta fish.

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				<ul style="list-style-type: none"> Page 20 of the Staff Report states, in pertinent part, "Alternative 2 has a fish tissue objective that allows people to safely eat a moderate amount of delta fish from a variety of trophic levels but does not fully protect all sensitive fish-eating wildlife...Alternative 3 has fish tissue objectives that allow people to safely eat a moderate amount of Delta TL4 fish and also fully protects all sensitive fish-eating wildlife...Alternative 4 has fish tissue objectives that allow people to safely eat a relatively high amount of Delta TL3 and TL4 fish and also fully protects all sensitive fish-eating wildlife. Page 26 of the Staff report explains why Board staff recommend adoption of Alternative 4, which establishes 0.24mg/kg standard. The report discusses the linkage between methylmercury in water and fish tissue on page 35, and describes the proposed fish tissue objectives for TL3 and 4 fish and small TL2/3 fish in terms of the equivalent methylmercury concentration in standard 350-mm largemouth bass. It then describes three different levels of methylmercury concentration in 350-mm largemouth bass (0.28 mg/kg, 0.24 mg/kg, and 0.42 mg/kg, respectively) and states "Of the three concentrations above, the most protective is the second one: a methylmercury concentration of 0.24 mg/kg in bass predicted to correspond with the TL3 fish tissue objective. This concentration of 0.24 mg/kg in bass protects both human and wildlife consumers of higher and lower trophic level fish in the Delta because the concentration is the lowest of the bass values predicted for the three fish tissue objectives. As a result, a methylmercury concentration of 0.24 mg/kg in 350-mm largemouth bass is proposed as the implementation goal for largemouth bass throughout the rest of this report." Page 60 the TMDL discusses the recommended standard, with the lowest largemouth bass mercury value as being .24mg/kg for

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				<p>largemouth bass, and states "This is the most conservative of all the calculated largemouth bass safe levels and, if attained, should fully protect all listed beneficial uses in the Delta. Staff recommends that 0.24 mb/kg, wet weight, in a standard 350-mm largemouth bass be used as an implementation goal in the linkage analysis (Chapter 5) and determination of methylmercury allocations (Chapter 8)."</p> <ul style="list-style-type: none"> • Page 64 of the TMDL is a summary entitled "Key Points," and the last sentence of the last bullet on that page states "A methylmercury concentration of 0.24 mg/kg in 350-mm length largemouth bass would fully protect humans and piscivorous wildlife species and is proposed as an implementation goal for use in the linkage analysis and determination of methylmercury allocations for point and nonpoint sources." • Page 294 of staff report, which is part of the proposed Statement of Overriding Considerations, states, "Phases 1 and 2 of the mercury control program described by the proposed BPA are the primary steps required to fully protect these beneficial uses. Fully achieving these beneficial uses will have positive health benefits and social and economic effects by decreasing the exposure of methylmercury to humans." <p>Finally, it should be noted that on page 191 of the Staff Report, in the section entitled "Federal Clean Water Act Requirements for Total Maximum Daily Loads," it states "Essentially, a TMDL is a planning and management tool intended to identify, quantify, and control the sources of pollution within a given watershed so that water quality objectives are achieved and beneficial uses of water are fully protected." As discussed at length above, this is not the correct standard for establishing water quality standards, but given the passes cited above, it calls into question whether Regional Water Board staff was relying on the correct legal standard in developing the water</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				quality objective.
	ES-2/Proposed Modifications to Basin Plan Chapter IV (Implementation)	12 - end of page	Propose all references and requirements associated with completing improvements to CCSB during Phase 1 be removed	<p>This BPA/TMDL document continues to contain requirements for Phase 1 improvements to the Cache Creek Settling Basin (CCSB), a federal Flood Control facility of the Sacramento River Flood Control Project. Phase 1 is purported to be the study phase, with the exception of facilities that are regulated under NPDES permits (e.g., Wastewater Treatment Plants and large Municipal Stormwater systems) which are only required to implement pollution minimization programs as part of the NPDES requirements during Phase 1, and CCSB, which is specifically identified for required improvements. CCSB is not an NPDES point source discharge facility. The Cache Creek watershed is the source of mercury, not the CCSB. Sources of mercury in the Cache Creek watershed are from natural geologic/mineralogical conditions (elemental mercury and various mineral forms, including cinnabar and other mercury compounds are abundant in Coast Range rocks and hot springs). Mercury bearing rocks are abundant in the California Coast Range, and both ongoing hydrothermal and metasomatic activity has concentrated and continues to concentrate mercury within the watershed. Due to the abundant naturally occurring mercury present in Coast Range rocks, and the relationship between gold mining practices and mercury use, mercury mining occurred within the Coast Range, specifically including the Cache Creek watershed. The sources of mercury in and from the Cache Creek watershed are historic and legacy mine waste that has entered the system, as well as mercury-laden sediment entering the watershed from natural erosion of mercury bearing Coast Range rocks, and direct hydrothermal mercury input from hot springs and related sources. Atmospheric mercury deposition is also a major concern. Cache Creek Settling Basin is not the source of mercury. The sole purpose of the Cache Creek Settling Basin is flood control, and this flood control component is designed to capture sediment. Sediment capture is accomplished by the basin acting as an intermediate base level on the</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				<p>stream's profile, slowing water flow velocity, inducing sediment deposition from the upstream watershed, thereby reducing the volume of sedimentary material entering the Yolo Bypass and downstream water bodies. The settling basin has existed as a flood control feature in one form or another for nearly a century. The current configuration of the CCSB includes a training channel on the western side of the basin to direct flows entering the basin, the main basin area where sedimentary materials settle, and a roller-compacted concrete weir as the main outlet for flow from the Cache Creek watershed into the Yolo Bypass. Water and sediment from the Cache Creek Watershed enter the CCSB, slowing the velocity sufficiently to induce particle settling for a portion of the bed load, suspended load and dissolved load. When the volume of water in the basin reaches the weir elevation, water spills over the structure as designed. A low flow outlet (that can be opened and closed) also exists to allow water to exit the basin under low-flow conditions. There is currently inadequate scientific data to identify CCSB as a net exporter of total and/or methyl-mercury. Studies are needed to determine the flows and sediment/mercury loads entering and leaving the basin. This Draft BPA requires improvements to the CCSB to achieve increased sediment trapping efficiency, during Phase 1, while all other components of the BPA/TMDL (excluding the noted NPDES discharges) are allowed to study the mercury issue during Phase 1. These requirements are also placed upon the CCSB in advance of the formal review of the Delta Mercury Control Program, which will consider potential public and environmental benefits and negative impacts of attaining the allocation. By requiring implementation of improvements to the CCSB in advance of the Regional Water Board's formal review, this Phase 1 requirement will not have the benefit of the same consideration as other potential mercury control activities. Therefore, all requirements for improvements to the CCSB during the Phase 1 period should be removed, allowing the required scientific studies to be completed to identify whether or not CCSB is a net exporter of mercury, and the information generated from</p>

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				those studies should be reviewed during the Delta Mercy Control Program formal review process.
	ES-2	14	Change tropic to trophic.	
	ES-3	25	<p>The Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual <u>dischargers</u>. Individual <u>dischargers</u> are not required to do individual studies if the individual <u>dischargers</u> join a collaborative study group(s).</p>	<p>This statement implies that DWR is a Discharger. We disagree with this assertion. A 'Discharger' is defined in various sections of the Porter Cologne Water Quality Control Act. As provided in CWC § 13263.3. Legislative findings; definitions; (c) For the purposes of this section, "discharger" means any entity required to obtain a national pollutant discharge elimination system (NPDES) permit pursuant to the Clean Water Act (33 U.S.C. Sec. 1251 et seq.), or any entity subject to the pretreatment program as defined in Part 403 (commencing with Section 403.1) of Subchapter N of Chapter 1 of Part 403 of Title 40 of the Code of Federal Regulations.</p> <p>The open water and flood protection systems are not POTWs, are not required to obtain an NPDES permit, and are not subject to a pre-treatment program as specified for operation of the flood protection system and the open water are: of the State, nor are these waters a pollutant or effluent.</p> <p>In the cases of flood control and open water, the Department (and other State and federal agencies) has specific responsibilities as laid out in the California Water Code (see CWC Sections 8360, 8361, 12648, among others). The levees, channels, bypasses, floodways, and related flood protection features the Sacramento River Flood Control Project are not identified, considered, recognized, or implied as sources of waste in the California Water Code.</p>

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	ES-4	1-3	<p>A schedule for agencies responsible for Cache Creek Settling Basin operations and maintenance to propose and implement improvements to the Basin to reduce inorganic mercury loading to the Yolo Bypass, <u>over and above the reductions already achieved by the existing operation of the basin.</u></p> <p>(note suggested text addition)</p>	<p>The Cache Creek Settling Basin's basic function is to provide a sediment capture facility, thereby reducing the volume of sediment transported into the Yolo Bypass. It is not the source of the mercury, rather the recipient of such from the upper Cache Creek natural and mining sources. The US Army Corp of Engineers designed it for the sole purpose of flood protection, and turned it over to DWR for operations and maintenance as a Flood Control Facility.</p> <p>Cache Creek Settling Basin is already significantly reducing the inorganic mercury loads that would otherwise enter the Yolo Bypass, Sacramento River the Delta, and the San Francisco Bay. There is no recognition of this fact in any of the Draft BPA or TMDL documents.</p>
	ES-4 Environmental Analysis	14-15	<p>Adoption of the proposed Basin Plan amendments will not by itself have a physical effect on the environment, nor will the Phase 1 studies. However,</p>	<p>If improvements to Cache Creek Settling Basin are required during the Phase implementation, there will be potential significant impacts from the project. Although Regional Water Board staff correctly state that the Regional Water Board does not have the legal authority to specify manner of compliance, several iterations of this Draft BPA/TMDL have provided specific expectation: how Water Board staff would like CCSB improvements to proceed (e.g., perpetual sediment removal, raising of the weir, etc.).</p>

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			<p>implementation actions taken by responsible entities to comply with some components of the proposed implementation plan and improvements to the environment by controlling mercury and/or methylmercury may have the potential for adverse environmental effects impacts.</p>	
	<p>Program Overview/BPA-2 / Paragraph 5</p>	<p>7-9</p>	<p>The review also shall consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, fish consumption) of attaining the allocations.</p>	<p>The public benefits and environmental impacts of attaining the 'mercury' allocations are not being reviewed until the end of the Phase 1 study period; however, specific improvements to Cache Creek Settling Basin are being required in the Draft BPA/TMDL during the Phase 1 period. If the negative impacts to flood protection are not being address by the Regional Water Boa until the Phase 1 Delta Mercury Control Program Review, no improvements (reasonable be required until the positive and negative benefits of such work i reviewed and evaluated, the impacts are quantified, and a decision is render that addresses which of the competing interests is in the best interest of the People of the State. Implementation of improvements during the Phase 1 Study period should be removed from the Draft BPA/TMDL documents. This will allow studies to proceed, and the best solutions to be generated that balance the many competing interests.</p>

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	Program Overview/BPA-2 / Paragraph 5			Clarify how "reasonable" and "demonstrate" will be defined.
	Load and Waste Load Allocations / BPA-3 / Paragraph 1 on page	1-6	<p>Load allocations are specific to Delta subareas, which are shown on Figure xx-x. The load allocations for each Delta subarea apply to the sum of annual methylmercury loads produced by different types of nonpoint sources: agricultural lands, wetlands, and open water habitat in each subarea, as well as atmospheric wet deposition to</p>	<p>Load allocations referenced in this text require significant reductions of methylmercury from open water. It is unclear how the open water allocation could ever be achieved. Naturally occurring and anthropogenic mercury is present throughout the earth materials (rocks and sediments) that make up the wetted system. Mercury is present and disseminated throughout the wetted system. Even with significant efforts to minimize methylmercury production within the Delta and its tributaries, mercury will continue to be in the system. Affecting change to the amount of mercury in open water is unlikely to be possible.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>each subarea (Table A), and runoff from urban areas outside of Municipal Separate Storm Sewer System (MS4) service areas. The subarea allocations apply to both existing and future discharges.</p>	
	Final Compliance Date / BPA 3 /		<p>All dischargers should implement methylmercury management practices identified during Phase 1 that are reasonable and feasible. However, implementation of methylmercury management practices identified in Phase 1 is not required for the purposes of achieving methylmercury</p>	<p>The highlighted text is inconsistent with the apparent intent of the Draft BPA/TMDL with respect to Cache Creek Settling Basin (CCSB). Specific reductions are being required for CCSB during Phase 1. This BPA/TMDL should be corrected to be consistent with the highlighted text by removing requirements for implementation of improvements to CCSB during the Phase 1 study period.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>allocations until the Regional Water Board has completed the Phase 1 Delta Mercury Control Program Review and has developed the tributary mercury control programs.</p>	
	BPA - 5	34-38		<p>Why is a control study required for Cache Creek Settling Basin when it is not source, rather a sensitive receptor from sources in the upper Cache Creek watershed? Until the true originating sources (dischargers) are identified, quantified, and mitigated, true remediation and control of mercury within the Cache Creek watershed and sediment cannot occur.</p>
	Requirements for State and Federal Agencies / BPA-10 / Paragraph 1	1 – end of page	Requirements for State and Federal Agencies Open water allocations are assigned jointly to the State Lands Commission,	<p>It is unclear how the Regional Water Board can place requirements on agency conducting State legislated and federally mandated operations and maintenance activities. Sediment migration is a natural process, even in areas with flood and water conveyance and control facilities. This is especially an issue for open water allocations. The identified agencies had no part in the introduction of mercury into the wetted system (natural processes and historical mining practices did), and there is unlikely to be any reasonable solutions for reducing mercury loads in the open water/flood control system, as sedimentation and sediment migration is a natural fluvial function of every wetted system.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>the Department of Water Resources, and the Central Valley Flood Protection Board. Open water allocations apply to the <u>net methylmercury</u> load that fluxes to the water column from sediments in open-water habitats within channels and floodplains in the Delta and Yolo Bypass.</p> <p><u>Net methylmercury load is the difference between all mercury species entering a study area minus all mercury</u></p>	<p>The Draft BPA/TMDL text is unclear with regard to the intended allocations a reductions. For example, if a 1 mile portion of a channel is all open water, what is the intent of the control program? If characterization activities identify exist total mercury concentrations within the 1 mile section of open water, what reductions would be required? Is the net reduction the intent (mercury fluxing onto the area minus mercury fluxing off of the property) or is the intent of the control program to remove existing mercury from a portion of the system? Disturbing existing sediment has the potential to mobilize mercury from one area to another, and/or expose mercury that has long been buried in a depos to now be available for geochemical reactions.</p> <p>With respect to this, the geochemical balance between all mercury species n be considered, and the net flux (combination of all mercury entering an area minus combination of all mercury leaving an area) must be considered, not simply the flux of methylmercury entering the water column from a particular area.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>species leaving a study area.</p> <p>The transport and deposition of mercury-contaminated sediment and water management activities contribute to the Delta fish mercury impairment. State and Federal projects affect the transport of mercury and the production and transport of methylmercury. Activities including water management and storage in and upstream of the Delta and Yolo Bypass, maintenance of</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>and changes to salinity objectives, dredging and dredge materials disposal and reuse, and management of flood conveyance flows are subject to the open water methylmercury allocations.</p>	
	BPA-10	17-21		<p>Open water methylmercury allocations appear to be a methodology for spreading perceived mitigation costs for unidentified sources throughout the large water maintenance and flood control agencies. What the miners of the 1800's released into the watersheds and drainage courses of California is no the direct responsibility of modern State and federal agencies charged with protecting lives and property from floods.</p>
	<p><u>Cache Creek Settling Basin Improvement Plan and Schedule / BPA-12 / Paragraph 1 – end of page</u></p>		<p><u>Cache Creek Settling Basin Improvement Plan and Schedule</u> DWR, Central Valley Flood Protection Board, and USACE, in conjunction with</p>	<p>DWR staff has consistently raised the issue that Cache Creek Settling Basin (CCSB) is not the source of mercury, but simply a flood protection system component designed to reduce the volume of sediment reaching the Yolo Bypass, Sacramento River, the Delta, and downstream waterways. By minimizing sediment transport into the Yolo Bypass the CCSB has been minimizing mercury transport from the Cache Creek Watershed into downstream waters.</p> <p>The proposed modifications presented here to the Draft BPA/TMDL text are</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>any interested landowners and other stakeholders, shall implement a plan for management of mercury in or discharged from the Cache Creek Settling Basin, including improvements for decreasing total net mercury discharges from the Cache Creek Settling Basin, by 24-December 2018, or following Congressional authorization to modify the Cache Creek Settling Basin during the Phase 2 implementation.</p> <p>1. By [one year after Effective Date the Central Valley Water Board completes a</p>	<p>consistent with previous DWR staff comments, and allow sufficient time for control studies to be completed, feasible control alternatives to be evaluated, and funding sources to be identified. However, because Cache Creek Settling Basin is a federal Flood Control facility and a component of the Sacramento River Flood Control Project, any proposed modifications to the CCSB must go through a federal Feasibility Study, be shown to be in the federal interest, be selected as the best alternative, and be authorized and funded by Congress.</p> <p>All reference to <u>reduction of total mercury from the Basin</u> were modified by changing the word <u>total</u> to <u>net</u>. This is necessary because CCSB is not the source of mercury in the system. The sources of mercury from the Cache Creek Watershed are the natural/mineralogical/hydrothermal mercury enterir the system, the waste materials from historic mining practices, and atmospheric deposition. The burden for addressing the mercury contamination from the Cache Creek Watershed should not be placed upon those Departments and Agencies who maintain the flood protections system. Source control begins the source (those anthropogenic activities that introduced mercury into the watershed). By specifying that the net mercury (mercury entering the CCSB minus mercury leaving the CCSB) must be controlled, this action creates a reasonable relationship between CCSB operations and maintenance, and an mercury 'produced' by that process.</p> <p>By addressing the net mercury discharged from CCSB, the upstream watershed, which is already covered by a TMDL, will be forced to address the mercury input from the Cache Creek Watershed into the Cache Creek Settling Basin, Yolo Bypass, Sacramento River, the Delta, and the San Francisco Ba</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>formal review of the Delta Mercury Control Program] the agencies shall take all necessary actions to initiate the process for Congressional authorization to modify the Basin, including coordinating with the USACE.</p> <p>2. By [two years after the Effective Date Central Valley Water Board completes a formal review of the Delta Mercury Control Program], the agencies shall develop a strategy to reduce total mercury</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>discharged from the Basin for the next 20 years. The strategy shall include a description of, and schedule for, potential studies and control alternatives, and an evaluation of funding options. The agencies shall work with the landowners within the Basin and local communities affected by Basin improvements</p> <p>3. By [four years after the Effective Date Central Valley Water Board completes a formal review of the Delta</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>Mercury Control Program], the agencies shall submit a report describing the long term environmental benefits and costs of sustaining the Basin's mercury trapping abilities indefinitely.</p> <p>4. By [four years after the Effective-Date Central Valley Water Board completes a formal review of the Delta Mercury Control Program], the agencies shall submit a report that evaluates the trapping efficiency of</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>the Cache Creek Settling Basin and proposes, evaluates, and recommends potentially feasible alternative(s) for mercury reduction from the Basin. The report shall evaluate the feasibility of decreasing mercury loads from the basin, up to and including a 50% reduction from existing loads.</p> <p>5. By [six years after Effective Date the Central Valley Water Board completes a formal review of the Delta Mercury Control Program], the</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>agencies shall submit a detailed plan for improvements to the Basin to decrease net mercury loads from the basin.</p> <p>6. By [eight years after Effective Date the Central Valley Water Board completes a formal review of the Delta Mercury Control Program], the agencies shall implement plans to reduce total net mercury loads discharged by the Cache Creek Settling Basin and complete project improvements</p>	

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			<p>by [ten years after Effective Date the Central Valley Water Board completes a formal review of the Delta Mercury Control Program].</p> <p>The agencies shall submit the strategy and planning documents described above to the Regional Water Board for approval by the Executive Officer.</p>	
	BPA-12	5-9		Cache Creek Settling Basin (CCSB) is being incorrectly characterized as the source of mercury, rather than as the contaminated parcel affected by dischargers in the upper basin. Also, CCSB was not designed to be a permanent impoundment facility, as implied by the Draft BPA/TMDL.
	BPA-12	18-20		The environmental benefits in the delta will be far overshadowed by the environmental degradation that occurs in the CCSB as a result of habitat

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				removal and disposal of basin sediment as contaminated waste. The intent to have DWR remove sediment from the CCSB will likely result in increased mercury flux from areas of sediment removal within the basin, as long as long buried mercury sources are exposed to the environment by the disturbance from the removal action. The costs of work in the CCSB will also divert money away from maintenance of flood facilities, which has a negative impact on flood protection.
	BPA-12	21-25		CCSB is not intended to be a hazardous waste facility. The mercury problem should be addressed upstream at the sites of active discharge. Modifying the basin solely to be something it was not designed to do will likely compromise primary purpose.
	BPA-12	28-30		CCSB is not an active source discharger; rather it receives discharges from sources in the upper Cache Creek watershed, with a portion of that input material passing through via hydraulic transport into the Yolo Bypass. It is recognized that without the Cache Creek Settling Basin's, the volume of sediment and mercury reaching Yolo Bypass and downstream waters would be greater.
	BPA-12	35	Change watersheds to "entire watersheds"	It is an important distinction in that the source tributaries in the upper reaches watersheds are where discharges of mercury originate.
				The State Water Resources Control Board should be the lead funding agency as the mercury discharges are historical in origin and system-wide throughout

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
	BPA-15	2-5		<p>the contributing watersheds of the Sacramento and San Joaquin River Systems and their affiliated tributaries. These tributary watersheds reach into old mining districts and associated sediments in the upper and middle reaches. As DWI staff has expressed on numerous occasions throughout this process, the most appropriate action should be for Cal-EPA/SWRCB/CV-RWQCB to seek a sponsor for new legislation, and obtain funding for an appropriate mercury characterization and control program, rather than pushing this issue on other agencies. Doing so would be a much better way to address this issue than diverting funding that is specific for flood protection, species recovery, water conveyance, and other legislatively mandated programs this effort to cover the costs of this proposed regulatory program.</p> <p>The mercury issues in California are a legacy problem. Such problems should be approached holistically, with goals, purposes, and funding strategies laid out. The burden for implementing this program should be borne by all of the State of California as a whole, rather than by select agencies that were identified as "responsible" because they have various mandates and responsibilities related to the wetted system. This Draft BPA/TMDL is an unfunded mandate from a regulatory agency responsible for water quality to other agencies who are peripherally involved.</p>
	BPA-15	16 & 21		<p>Watershed stakeholders [16] is a more appropriate term than dischargers [21]. The State Water Resources Control Board is also a watershed stakeholder. Watershed stakeholder infers parties with a vested interest, while the term "dischargers" implies an active source generator, which streams, reservoirs, floodways in the Central Valley are not; they are merely hydraulic conveyance facilities.</p>
	BPA-15	26-28		<p>The estimated annual costs for agricultural compliance are probably too low in a magnitude of 10 times.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
	Staff Report - Fish Tissue Objective / 13 / entire section			It is not certain that the purposed fish tissue objective is the best way of determining compliance with mercury allocation levels. Fish tissue sampling won't provide specific data to show whether mercury source reduction and control is working for specific areas. Fish inhabit certain areas and migrate to other areas for spawning. How does this type of monitoring show compliance with mercury allocation levels at a particular location? Monitoring fish tissue may provide a general idea of overall reductions, however, these reductions cannot be definitely attributed to a particular control action.
	Staff Report - Consideration #3: Phased Approach / 43 / entire section		Consideration of Phase approach, Option 3(c)	<p>This option requires significant investment of dollars and resources to conduct various studies to evaluate methylmercury and inorganic mercury controls to achieve allocations levels. Additionally, there will be a significant increase in O&M cost to control sources of mercury (i.e., Cache Creek Settling Basin sediments, weirs, erosion control, etc) for a contaminant that the named agencies did not produce. If DWR can't achieve the allocation goal, then additional investment will be needed to conduct and prepare the alternatives analysis.</p> <p>Environmental permitting and/or mitigation will most likely be required when implementing source reduction and control. These costs are considerable, a do not appear to be considered.</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
	Staff Report - Consideration #3: Phased Approach / 61 / entire section		Option 7 (e) Develop methylmercury allocations for all source categories.	Implementation will most likely require a permit(s) (401 cert, WDRs, NPDES, etc). The staff report does not indicate what type of requirements, provisions, and monitoring might be included in a 401 cert, WDRs, or NPDES permit. These are potentially significant costs, and must be considered.
	Staff Report - Water management and Flood Conveyance / 127		Water management and Flood Conveyance	There will be significant costs associated with methyl and total mercury characterization and control studies for new or upgraded projects, and to minimize to the extent practicable any methylmercury loading to the Delta resulting from new projects. The cost associated with ways of potentially deal with management of methylmercury in the Yolo Bypass appear low. The cost assumption does not include potential permitting and mitigation costs.
	Staff Report -- 4.4.2 Cost Considerations / 135 - 140 / all paragraphs			Costs identified in the Draft BPA/TMDL appear to greatly underestimate the likely actual. (Example, to complete a characterization and control study for the entire wetted system (open water))
	Table 4.5	139	Summary of Estimated Costs for Implementation- Cache Creek Settling Basin	Costs are likely significantly underestimated.

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			Implementation Alternative 4	<p>In appears that the proposed alternative will require DWR to make major modifications (i.e., raise weir, increase settling basin size, remove sediment, etc.) to the cache creek settling basin to increase sediment trapping efficiency. Is it too early to say whether those major modification need to be done, or if there are other ways to meet mercury allocation criteria.</p>
151			<p>Summary of recommended Implementation Actions and Timeline (Implementation Alternative 4)</p>	<p>Two years to submit a strategy to reduce mercury loading from the Cache Creek Settling Basin is not enough time, especially since no determination has been completed to identify the extent of the mercury contamination from the Cache Creek Watershed into the basin.</p>
Appendix C – Section B. Cache Creek Settling Basin / pgs C 5 – C 15 / Entire Section			<p>Inappropriate assignment of responsibility on the flood protection system to affect mercury reduction</p>	<p>The Cache Creek Settling Basin is a flood control facility of the Sacramento River Flood Control Project. Authorization for this project does not include addressing mercury impacts from the Cache Creek watershed. Although DWR staff participated fully in the stakeholder process, we do not agree that the specific recommendations for Cache Creek Settling Basin are appropriate, feasible, or can be accomplished.</p> <p>The date set forth in the Draft BPA/TMDL of improvements to the Cache Creek Settling Basin (21 December 2018) are for flood control improvements only, and are not intended to specifically address mercury capture. The language of the Draft BPA/TMDL utilizes a date for envisioned flood control improvements, and places additional requirements on those potential improvements beyond the authorization of the federal flood control project.</p> <p>DWR staff has repeatedly identified these issues in meetings, personal</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				<p>discussions, written submittals, and telephone conversations with Regional Water Board staff. To the Board staff credit, the dates for implementing the regulatory mandated actions and requirements for CCSB have been extended from earlier Draft BPA/TMDL dates, however, there continues to be a push for Regional Water Board staff to get DWR to complete improvements and obtain mercury reductions using the Cache Creek Settling Basin, without adequate consideration of the costs (financial, resources, public safety, increased liability etc.) of implementing such actions. For example, funding directed to a mercury characterization and control program directly affects available funding to operate and maintain the existing flood protection system (which includes maintaining channel capacity, completing erosion repairs, conducting vegetation management, etc.) with the potential of catastrophic consequences. The considerations of potential public safety reduction from implementing the program have not been identified in relation to the potential benefits of implementing a mercury characterization and control program.</p> <p>Funding to implement the program (whether related to specifics at Cache Creek Settling Basin, wetland areas, or others) appears to be significantly underestimated. Regional Water Board staff make some concessions of this fact specifically related to the high cost of the stakeholder process, however the same applies to the entire cost analysis. Further, the open water allocation (which the Draft BPA/TMDL names DWR as a key agency to achieve) does not appear to include any cost estimates. Implementing characterization and control of mercury for the entire wetted system in the Central Valley is not a trivial exercise, and the likelihood of actually achieving the desired allocation for open water is unlikely, due to the unfeasibility of stopping or controlling natural erosion and sediment migration within the various water courses.</p>
	Appendix C pgs C-12 –C15	Tables C3–C5	Cost Considerations for the	Cost of sediment removal, weir and levee maintenance seems low. No mitigation costs were assumed in the cost analysis. Cost estimate assumes excavated sediment is not hazardous or designated waste, and could be reused as building or road foundations. What if sediments are too contaminated for

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
			Implementation Program Alternatives	reuse, are inappropriate as foundation materials, or costs to move material from the CCSB to the 'final destination' are too great. Cost of trucking uncontaminated spoil materials more than about 2 miles become a significant factor from a financial standpoint as well as from a greenhouse gas emission standpoint. Disposal cost or treatment cost could be significant. Cost estimate for disposal and treatment should be included. Doing so would identify more realistic costs, and are likely to increase the identified cost at least 10 fold.
	Appendix C pgs C-58		Yolo Bypass Flood Conveyance Projects, Implementation of Methyl Mercury Management Practices for Existing and New Projects	No mitigation costs were assumed in the cost analysis. Cost estimate assumed excavated sediment is not hazardous/designated waste and could be reused building or road foundations. These are unrealistic assumptions. Disposal cost or treatment cost could be significant. Cost estimates for disposal and treatment should be included.
	Section 6.2.2 Within-Delta Sediment Flux. Page 88			Page 88 and associated Current Loads in Table 6.4 and 8.5: The annual open water methylmercury load was estimated by multiplying open water area by estimated open water sediment flux rate of 10 ng/m ² /day by 365 days/year. The estimated flux rate of 10 ng/m ² /day appears to have come from the report titled "Sediment-Water Exchange and Estuarine Mixing Fluxes of Mercury and Monomethyl Mercury in the San Francisco Bay Estuary and Delta" which can be found here:

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
				<p>(http://oer.tamug.edu/calFed/Report/Final/CALFED%20Mercury%20Project%20TAMUG%20final%20report%20(Task%204B).pdf). This report estimates a flux rate of 10 ng/m²/day for open water in the Delta except for the Sherman Island area, with an estimated flux rate of 5 ng/m²/day, and the Mokelumne a Consumnes areas, with an estimated flux rate of 40 ng/m²/day. Is there a reason why the TMDL used a flux rate of 10 ng/m²/day for the entire western Delta and the Mokelumne and Consumnes areas instead of the estimated flux rates for those areas provided in the report?</p>
	<p>Section 6.3.3, Section 7.23 and throughout the document</p>			<p>a. Dredging and removal of contaminated sediment near industrial sites have ceased discharge (such as mentioned in Table 3.2) is substantially different from maintenance dredging of deepwater ship channels and marina. The former involves removal of the mercury source and exposes uncontaminated sediment below and the latter may not substantially change mercury characteristics of the sediment exposed to the water column.</p> <p>b. Dredging removes mercury with the top sediment, but possibly expose formerly buried mercury-laden sediment to the water column. This may partially or fully negate the effect of dredging as an exporter of methylmercury from the delta.</p> <p>c. The mass balance counts settling as removal, and then double counts the removal of this settled material via dredging as another removal.</p> <p>d. Updating the mass balance accordingly could change the calculated allocations for open water and other source types in Table 8.5.</p>
	<p>Linear relationship between</p>			<p>a. Several locations of the TMDL staff report refer to methylmercury production as having a linear function with the inorganic mercury content of the sediment (e.g. Page 49 of the staff report). These statements do not appear to</p>

Comment #	Section / Page / Paragraph No.	Line No.	General Edit	Comments / Concerns
	inorganic mercury content of sediment and methylmercury production.			<p>be supported by the data provided in Table 3.1 (on page 27 of the staff report. The table demonstrates that the R² for all habitats in the Delta is 0.2 and the for marsh habitat is 0.52. A linear relationship would be indicated by an R² ve near 1.0.</p> <p>b. When considering dredging, the level of mercury in the newly exposed surface does not appear to be linearly correlated to the methylmercury contribution. When other factors are constant, MeHg production to Hg forms linear relationship, but in the Delta environment, other factors appear to dominate, given the low R² scores. These other factors may include mercury speciation, grain size distribution, and microbial activity.</p> <p>c. Conclusions based on this premise (such as equation 6.3) may be inaccurate.</p>

TABLE A
 METHYLMERCURY LOAD AND WASTE LOAD ALLOCATIONS FOR EACH DELTA SUBAREA BY SOURCE CATEGORY

Source Type	DELTA SUBAREA													
	Central Delta		Marsh Creek		Mokelumne River		Sacramento River		San Joaquin River		West Delta		Yolo Bypass	
	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)	Current Load (g/yr)	Allocation (g/yr)
Methylmercury Load Allocations														
Agricultural drainage ^(d)	37	37	2.2	0.40	1.6	0.57	36	20	23	8.3	4.1	4.1	19	4.1
Atmospheric wet deposition	7.3	7.3	0.23	0.23	0.29	0.29	5.6	5.6	2.7	2.7	2.4	2.4	4.2	4.2
Open water	370	370	0.18	0.032	4.0	1.4	140	78	48	17	190	190	100	22
Tributary Inputs ^(e)	37	37	1.9	0.34	110	39	2,034	1,129	367	133			462	100
Inputs from Upstream Subareas	(b)	(b)	---	---	---	---	---	---	---	---	(b)	(b)	---	---
Urban (nonpoint source)	0.14	0.14	---	---	0.018	0.018	0.62	0.62	0.0022	0.0022	0.066	0.066	---	---
Wetlands ^(d)	210	210	0.34	0.061	30	11	94	52	43	16	130	130	480	103
Methylmercury Waste Load Allocations														
NPDES facilities ^(e)	1.3	1.3	0.086	0.086	0	0	162	90	40	15	0.0019	0.0019	1.0	0.42
NPDES facilities future growth ^(e)	---	0.32 ^(b)	---	0.21	---	0	---	8.6	---	2.1	---	0.25 ^(b)	---	0.60
NPDES MS4 ^(e)	5.4	5.4	1.2	0.30	0.045	0.016	2.8	1.6	4.8	1.7	3.2	3.2	1.5	0.38
Total Loads^(c) (g/yr)	668	668	6.14	1.66	146	52.6	2,475	1,385	528	195	330	330	1,068	235

DWR and Flood Board recommend that open water not be included as a source type for reasons explained in our general comment letter and that further discussion be undertaken to identify feasible and reasonable means to address mercury in open waters. In addition, we recommend that prior to identifying the wetland allocation that the Phase 1 studies be completed and then determine allocation.

Table A Footnotes:

- (a) Values shown for Tributary Inputs, NPDES Facilities, NPDES Facilities Future Growth, and NPDES MS4 represent the sum of several individual discharges. See Tables B, C, and D for allocations for the individual discharges that should be used for compliance purposes.
- (b) The Central Delta subarea receives flows from the Sacramento, Yolo Bypass, Mokelumne, and San Joaquin subareas. The West Delta subarea receives flows from the Central Delta and Marsh Creek subareas. These within-Delta flows have not yet been quantified because additional data are needed for loss rates across the subareas. Thereafter, allocations will be calculated. However, these subarea inflows are expected to decrease substantially (e.g., 40-80%) as upstream mercury management practices take place. As a result, reductions for sources within the Central and West subareas and tributaries that drain directly to these subareas are not required.
- (c) The sum of all allocations for each subarea equals the assimilative load capacity for that subarea. Because calculations were completed prior to rounding, some columns may not add to totals.
- (d) The load allocations apply to the net methylmercury loads, where the net loads equal the methylmercury load in outflow minus the methylmercury loads in source water (e.g., irrigation water and precipitation).

TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER METHYLMERCURY (MeHg) ALLOCATIONS

PERMITTEE ^(a)	NPDES Permit No.	MeHg Waste Load Allocation ^(b) (g/yr)
Central Delta		
Discovery Bay WWTP	CA0078590	0.37
Lincoln Center Groundwater Treatment Facility	CA008255	0.018
Lodi White Slough WWTP	CA0079243	0.94
Metropolitan Stevedore Company	CA0084174	^(c)
Unassigned allocation for NPDES facility discharges	^(d)	0.31
Marsh Creek		
Brentwood WWTP	CA0082660	0.14
Unassigned allocation for NPDES facility discharges	^(d)	0.16
Sacramento River		
Rio Vista Northwest WWTP	CA0083771	0.069
Rio Vista WWTP	CA0079588	0.056
Sacramento Combined WWTP	CA0079111	0.53
SRCSA Sacramento River WWTP	CA0077682	89
Unassigned allocation for NPDES facility discharges	^(d)	8.5
San Joaquin River		
Deuel Vocational Inst. WWTP	CA0078093	0.021
Manteca WWTP	CA0081558	0.38
Mountain House Community Services District WWTP	CA0084271	0.37
Oakwood Lake Subdivision Mining Reclamation ^(f)	CA0082783	0.38 ^(f)
Stockton WWTP	CA0079138	13
Tracy WWTP	CA0079154	0.77
Unassigned allocation for NPDES facility discharges	^(d)	1.7
West Delta		
GWF Power Systems ^(e)	CA0082309	0.0052
Mirant Delta LLC Contra Costa Power Plant	CA0004863	^(e)
Ironhouse Sanitation District	CA0085260	0.030
Unassigned allocation for NPDES facility discharges	^(d)	0.22
Yolo Bypass		
Davis WWTP ^(g)	CA0079049	0.17 ^(g)
Woodland WWTP	CA0077950	0.43
Unassigned allocation for NPDES facility discharges	^(d)	0.42

Table B Footnotes:

- (a) If NPDES facilities that have allocations in Table B regionalize or consolidate, their waste load allocations can be summed.
- (b) Methylmercury waste load allocations apply to annual (calendar year) discharge methylmercury loads.
- (c) A methylmercury waste load allocation for non-storm water discharges from the Metropolitan Stevedore Company (CA0084174) shall be established in its NPDES permit once it completes three sampling events for methylmercury in its discharges. Its waste load allocation is a component of the "Unassigned Allocation" for the Central Delta subarea.
- (d) Table B contains unassigned waste load allocations for new discharges to surface water that begin after [the effective date of this amendment]. New discharges that may be allotted a portion of the unassigned allocation may come from (1) existing facilities that previously discharged to land and then began to discharge to surface water or diverted discharges to another facility that discharges to surface water as part of ongoing regionalization efforts; (2) newly built facilities that have not previously discharged to land or water; and (3) expansions to existing facilities beyond their allocations listed in Table B where the additional allocation does not exceed the product of the net increase in flow volume and 0.06 ng/l methylmercury. The sum of all new and/or expanded methylmercury discharges from NPDES facilities within each Delta subarea shall not exceed the Delta subarea-specific waste load allocation listed in Table B.
- (e) Methylmercury loads and concentrations in heating/cooling and power facility discharges vary with intake water conditions. To determine compliance with the allocations, dischargers that use ambient surface water for cooling water shall conduct concurrent monitoring of the intake water and effluent. The methylmercury allocations for such heating/cooling and power facility discharges are 100%, such that the allocations shall become the detected methylmercury concentration found in the intake water. GWF Power Systems (CA0082309) acquires its intake water from sources other than ambient surface water and therefore has a methylmercury allocation based on its effluent methylmercury load.
- (f) The waste load allocation for the Oakwood Lake Subdivision Mining Reclamation (CA0082783) shall be assessed as a five-year average annual methylmercury load.
- (g) The City of Davis WWTP (CA0079049) has two discharge locations; wastewater is discharged from Discharge 001 to the Willow Slough Bypass upstream of the Yolo Bypass and from Discharge 002 to the Conaway Ranch Toe Drain in the Yolo Bypass. The methylmercury load allocation listed in Table B applies only to Discharge 002, which discharges seasonally from about February to June. Discharge 001 is encompassed by the Willow Slough watershed methylmercury allocation listed in Table G.

TABLE C
MS4 METHYLMERCURY (MeHg) WASTE LOAD ALLOCATIONS
FOR URBAN RUNOFF WITHIN EACH DELTA SUBAREA

Permittee	NPDES Permit No.	MeHg Waste Load Allocation ^(a, b) (g/yr)
Central Delta		
Contra Costa (County of) ^(c)	CAS083313	0.75
Lodi (City of)	CAS000004	0.053
Port of Stockton MS4	CAS084077	0.39
San Joaquin (County of)	CAS000004	0.57
Stockton Area MS4	CAS083470	3.6
Marsh Creek		
Contra Costa (County of) ^(c)	CAS083313	0.30
Mokelumne River		
San Joaquin (County of)	CAS000004	0.016
Sacramento River		
Rio Vista (City of)	CAS000004	0.0078
Sacramento Area MS4	CAS082597	1.0
San Joaquin (County of)	CAS000004	0.11
Solano (County of)	CAS000004	0.041
West Sacramento (City of)	CAS000004	0.36
Yolo (County of)	CAS000004	0.041
San Joaquin River		
Lathrop (City of)	CAS000004	0.097
Port of Stockton MS4	CAS084077	0.0036
San Joaquin (County of)	CAS000004	0.79
Stockton Area MS4	CAS083470	0.18
Tracy (City of)	CAS000004	0.65
West Delta		
Contra Costa (County of) ^(c)	CAS083313	3.2
Yolo Bypass		
Solano (County of)	CAS000004	0.021
West Sacramento (City of)	CAS000004	0.28
Yolo (County of)	CAS000004	0.083

Table C Footnotes:

- (a) Some MS4s service areas span multiple Delta subareas and are therefore listed more than once. The allocated methylmercury loads for all MS4s are based on the average methylmercury concentrations observed in runoff from urban areas in or near the Delta during water years 2000 through 2003, a relatively dry period. Annual loads are expected to fluctuate with water volume and other factors. As a result, attainment of these allocations shall be assessed as a five-year average annual load. Allocations may be revised during review of the Delta Mercury Control Program to include available wet year data.
- (b) The methylmercury waste load allocations include all current and future permitted urban discharges not otherwise addressed by another allocation within the geographic boundaries of urban runoff management agencies within the Delta and Yolo Bypass, including but not limited to Caltrans facilities and rights-of-way (NPDES No. CAS000003), public facilities, properties proximate to banks of waterways, industrial facilities, and construction sites.
- (c) The Contra Costa County MS4 discharges to both the Delta and San Francisco Bay. The above allocations apply only to the portions of the MS4 service area that discharge to the Delta within the Central Valley Water Quality Control Board's jurisdiction.

**TABLE D
 TRIBUTARY WATERSHED
 METHYLMERCURY (MeHg) ALLOCATIONS**

Tributary	MeHg Load Allocation ^(a) (g/yr)
Central Delta	
Bear Creek @ West Lane / Mosher Creek @ Morada Lane (sum of watershed loads)	11
Calaveras River @ railroad tracks u/s West Lane	26
Marsh Creek	
Marsh Creek @ Highway 4	0.34
Mokelumne River	
Mokelumne River @ Interstate 5	39.3 (39) ^(b)
Sacramento River	
Morrison Creek @ Franklin Boulevard	4.2
Sacramento River @ Freeport	1,125 (1,100) ^(b)
San Joaquin River	
French Camp Slough downstream of Airport Way	4.0
San Joaquin River @ Vernalis	129 (130) ^(b)
Yolo Bypass	
Cache Creek	30 ^(c)
Dixon Area	0.77
Fremont Weir	39
Knights Landing Ridge Cut	22
Putah Creek @ Mace Boulevard	2.4
Ulatis Creek near Main Prairie Road	2.1
Willow Slough	3.9

Table D Footnotes:

- (a) Methylmercury allocations are assigned to tributary inputs to the Delta and Yolo Bypass. Mercury control programs designed to achieve the allocations for tributaries listed in Table D will be implemented by future Basin Plan amendments. Methylmercury load allocations are based on water years 2000 through 2003, a relative dry period. Annual loads are expected to fluctuate with water volume and other factors. As a result, attainment of these allocations shall be assessed as a five-year average annual load. Allocations will be revised during review of the Delta Mercury Control Program to include available wet year data.
- (b) Tributary load allocations rounded to two significant figures for compliance evaluation.
- (c) The allocation for water from Cache Creek entering the Yolo Bypass in this table is designed to achieve fish tissue objectives in the Yolo Bypass and Delta established by the Delta Mercury Control Program. The allocation in Table IV-6.1 assigned by the Cache Creek Mercury Control Program applies to the Cache Creek Settling Basin and requires a greater reduction so that fish within the Settling Basin can achieve water quality objectives for methylmercury in fish tissue that apply to Cache Creek, including the Settling Basin.

Add New Appendix 43 to the Basin Plan as follows:

APPENDIX 43

Delta and Yolo Bypass Waterways Applicable to the Delta Mercury Control Program

Table A43-1 lists the Sacramento-San Joaquin Delta waterways and the Yolo Bypass waterways within the Delta and north of the legal Delta boundary to which the COMM beneficial use, site-specific methylmercury fish tissue objectives, Delta mercury control implementation program, and monitoring provisions apply. The list contains distinct, readily identifiable water bodies within the boundaries of the "Legal" Delta (as defined in California Water Code section 12220) that are hydrologically connected by surface water flows (not including pumping) to the Sacramento and/or San Joaquin rivers. The list also includes Knights Landing Ridge Cut, Putah Creek, and Tule Canal in the Yolo Bypass north of the legal Delta boundary. Figures A43-1, A43-2, and A43-3 show the locations of these waterways.

The methylmercury allocations set forth in the Delta methylmercury control program are specific to Delta subareas, which are shown on Figure A43-4. Table A43-2 lists the waterways within each of the subareas.

TABLE A43-1- DELTA AND YOLO BYPASS WATERWAYS

Map Label # / Waterway Name	Map Label # / Waterway Name
1. Alamo Creek	48. Grizzly Slough
2. Babel Slough	49. Haas Slough
3. Barker Slough	50. Hastings Cut
4. Bear Creek	51. Hog Slough
5. Bear Slough	52. Holland Cut
6. Beaver Slough	53. Honker Cut
7. Big Break	54. Horseshoe Bend
8. Bishop Cut	55. Indian Slough
9. Black Slough	56. Italian Slough
10. Broad Slough	57. Jackson Slough
11. Brushy Creek	58. Kellogg Creek
12. Burns Cutoff	59. Latham Slough
13. Cabin Slough	60. Liberty Cut
14. Cache Slough	61. Lindsey Slough
15. Calaveras River	62. Little Connection Slough
16. Calhoun Cut	63. Little Franks Tract
17. Clifton Court Forebay	64. Little Mandeville Cut
18. Columbia Cut	65. Little Potato Slough
19. Connection Slough	66. Little Venice Island
20. Cosumnes River	67. Livermore Yacht Club
21. Crocker Cut	68. Lookout Slough
22. Dead Dog Slough	69. Lost Slough
23. Dead Horse Cut	70. Main Canal (Duck Slough tributary)
24. Deer Creek (Tributary to Marsh Creek)	71. Main Canal (Italian Slough tributary)
25. Delta Cross Channel	72. Marsh Creek
26. Disappointment Slough	73. Mayberry Cut
27. Discovery Bay	74. Mayberry Slough
28. Donlon Island	75. Middle River
29. Doughty Cut	76. Mildred Island
30. Dry Creek (Marsh Creek tributary)	77. Miner Slough
31. Dry Creek (Mokelumne River tributary)	78. Mokelumne River
32. Duck Slough	79. Mormon Slough
33. Dutch Slough	80. Morrison Creek
34. Elk Slough	81. Mosher Slough
35. Elkhorn Slough	82. Mountain House Creek
36. Emerson Slough	83. North Canal
37. Empire Cut	84. North Fork Mokelumne River
38. Fabian and Bell Canal	85. North Victoria Canal
39. False River	86. Old River
40. Fisherman's Cut	87. Paradise Cut
41. Fivemile Creek	88. Piper Slough
42. Fivemile Slough	89. Pixley Slough
43. Fourteenmile Slough	90. Potato Slough
44. Franks Tract	91. Prospect Slough
45. French Camp Slough	92. Red Bridge Slough
46. Georgiana Slough	93. Rhode Island
47. Grant Line Canal	94. Rock Slough

TABLE A43-1: DELTA AND YOLO BYPASS WATERWAYS, *Continued*

Map Label # / Waterway Name	Map Label # / Waterway Name
95. Sacramento Deep Water Channel	124. Toe Drain
96. Sacramento River	125. Tom Paine Slough
97. Salmon Slough	126. Tomato Slough
98. San Joaquin River	127. Trapper Slough
99. Sand Creek	128. Turner Cut
100. Sand Mound Slough	129. Ulatis Creek
101. Santa Fe Cut	130. Upland Canal (Sycamore Slough tributary)
102. Sevenmile Slough	131. Victoria Canal
103. Shag Slough	132. Walker Slough
104. Sheep Slough	133. Walthall Slough
105. Sherman Lake	134. Washington Cut
106. Short Slough	135. Werner Dredger Cut
107. Smith Canal	136. West Canal
108. Snodgrass Slough	137. Whiskey Slough
109. South Fork Mokelumne River	138. White Slough
110. Steamboat Slough	139. Winchester Lake
111. Stockton Deep Water Channel	140. Woodward Canal
112. Stone Lakes	141. Wright Cut
113. Sugar Cut	142. Yosemite Lake
114. Sutter Slough	143. Yolo Bypass
115. Sweany Creek	144. Deuel Drain
116. Sycamore Slough	145. Dredger Cut
117. Taylor Slough (Elkhorn Slough tributary)	146. Highline Canal
118. Taylor Slough (near Franks Tract)	147. Cache Creek Settling Basin Outflow
119. Telephone Cut	148. Knights Landing Ridge Cut
120. The Big Ditch	149. Putah Creek
121. The Meadows Slough	150. Tule Canal
122. Three River Reach	
123. Threemile Slough	

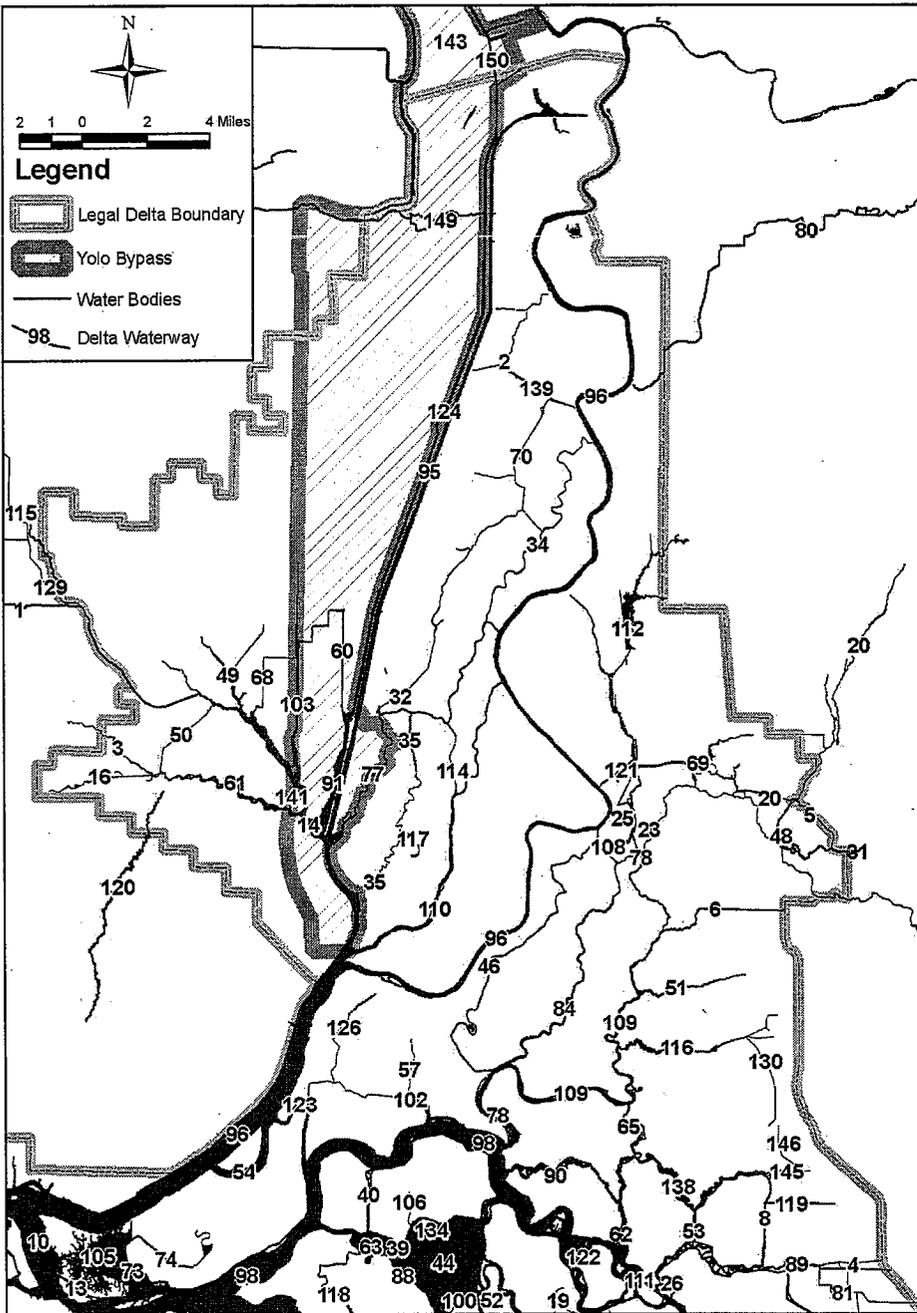


Figure A43-1: Delta Waterways (Northern Panel)

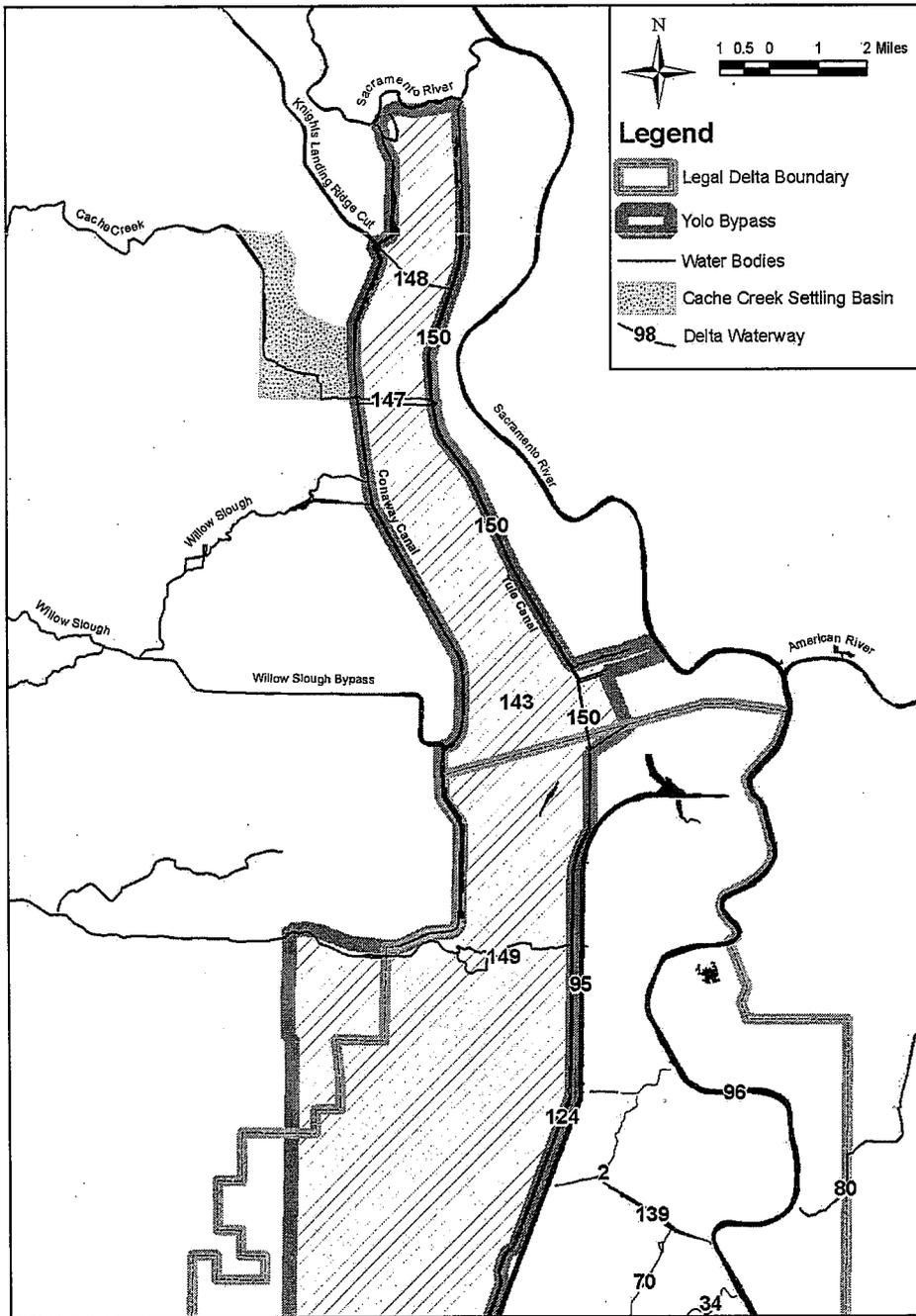


Figure A43-3: Northern Yolo Bypass

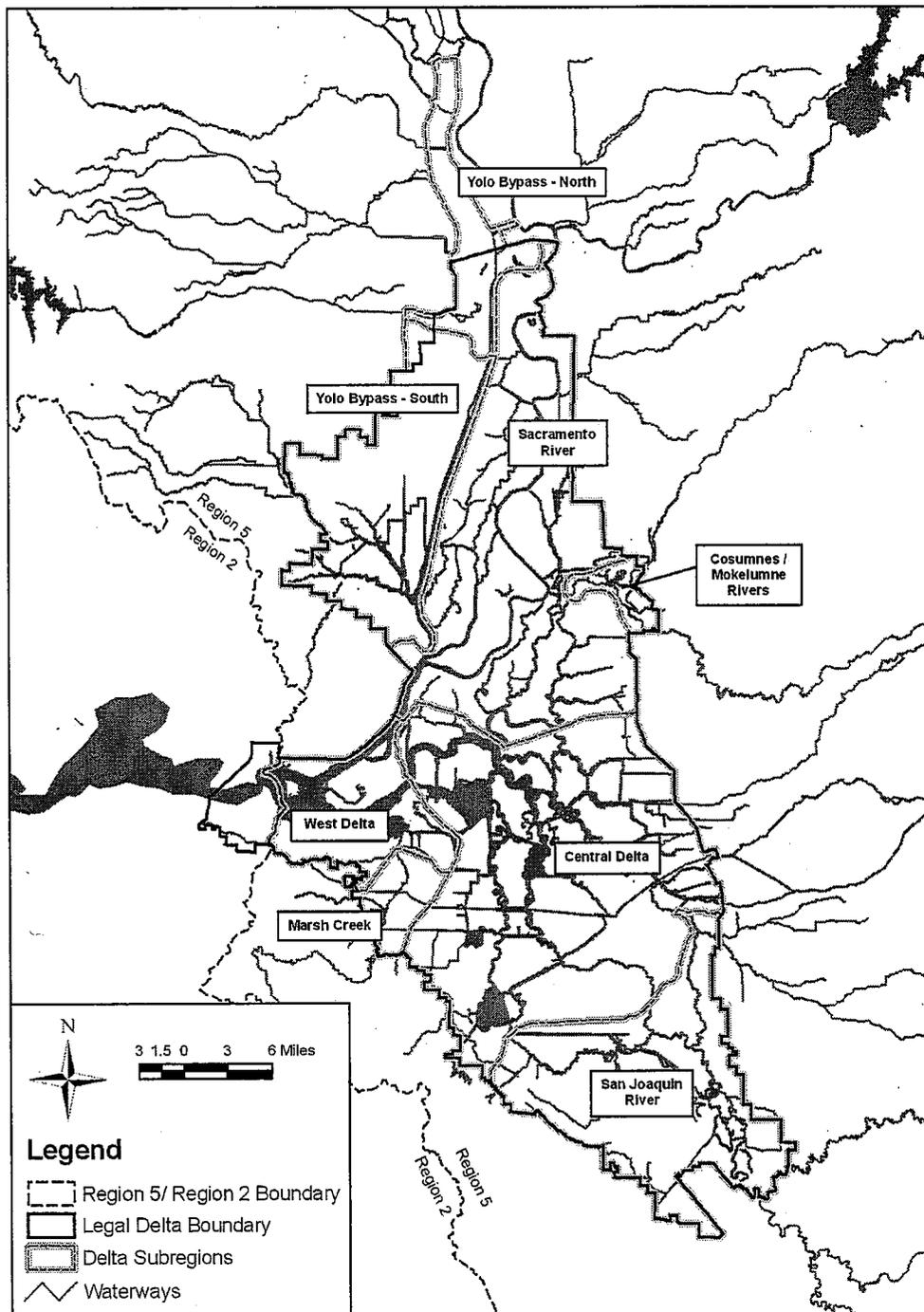


Figure A43-4: Subareas for the Delta Methylmercury Control Program

**TABLE A43-2: DELTA AND YOLO BYPASS WATERWAYS BY
 METHYL MERCURY ALLOCATION SUBAREA**

Waterway Name [Map Label #]	Waterway Name [Map Label #]	Waterway Name [Map Label #]
CENTRAL DELTA		
Bear Creek [4]	Indian Slough [55]	San Joaquin River [98]
Bishop Cut [8]	Italian Slough [56]	Sand Mound Slough [100]
Black Slough [9]	Jackson Slough [57]	Santa Fe Cut [101]
Brushy Creek [11]	Kellogg Creek [58]	Sevenmile Slough [102]
Burns Cutoff [12]	Latham Slough [59]	Sheep Slough [104]
Calaveras River [15]	Little Connection Slough [62]	Short Slough [106]
Clifton Court Forebay [17]	Little Franks Tract [63]	Smith Canal [107]
Columbia Cut [18]	Little Mandeville Cut [64]	Stockton Deep Water Channel [111]
Connection Slough [19]	Little Potato Slough [65]	Taylor Slough [nr Franks Tract] [118]
Dead Dog Slough [22]	Little Venice Island [66]	Telephone Cut [119]
Disappointment Slough [26]	Livermore Yacht Club [67]	Three River Reach [122]
Discovery Bay [27]	Main Canal [Indian Slough trib.] [71]	Threemile Slough [123]
Dredger Cut [145]	Middle River [75]	Tomato Slough [126]
Empire Cut [37]	Mildred Island [76]	Trapper Slough [127]
Fabian and Bell Canal [39]	Mokelumne River [78]	Turner Cut [128]
False River [39]	Mormon Slough [79]	Upland Canal [Sycamore Slough tributary] [130]
Fisherman's Cut [40]	Mosher Slough [81]	Victoria Canal [131]
Fivemile Creek [41]	North Canal [83]	Washington Cut [134]
Fivemile Slough [42]	North Victoria Canal [85]	Werner Dredger Cut [135]
Fourteenmile Slough [43]	Old River [86]	West Canal [136]
Franks Tract [44]	Piper Slough [88]	Whiskey Slough [137]
Grant Line Canal [47]	Pixley Slough [89]	White Slough [138]
Highline Canal [146]	Potato Slough [90]	Woodward Canal [140]
Holland Cut [52]	Rhode Island [93]	Yosemite Lake [142]
Honker Cut [53]	Rock Slough [94]	
MOKELUMNE/COSUMNES RIVERS		
Bear Slough [5]	Dry Creek [Mokelumne R. trib.] [31]	Lost Slough [69]
Cosumnes River [20]	Grizzly Slough [48]	Mokelumne River [78]
MARSH CREEK		
Deer Creek [24]	Main Canal [Indian Slough trib.] [71]	Rock Slough [94]
Dry Creek [Marsh Creek trib.] [30]	Marsh Creek [72]	Sand Creek [99]
Kellogg Creek [58]		
SACRAMENTO RIVER		
Babel Slough [2]	Little Potato Slough [65]	Stone Lakes [112]
Beaver Slough [6]	Lost Slough [69]	Sutter Slough [114]
Cache Slough [14]	Main Canal [Duck Slough trib.] [70]	Sycamore Slough [116]
Dead Horse Cut [23]	Miner Slough [77]	Taylor Slough [Elkhorn Slough tributary] [117]
Delta Cross Channel [25]	Mokelumne River [78]	The Meadows Slough [121]
Duck Slough [32]	Morrison Creek [80]	Tomato Slough [126]
Elk Slough [34]	North Mokelumne River [84]	Upland Canal [Sycamore Slough tributary] [130]
Elkhorn Slough [35]	Sacramento River [96]	Winchester Lake [139]
Georgiana Slough [46]	Snodgrass Slough [108]	
Hog Slough [51]	South Mokelumne River [109]	
Jackson Slough [57]	Steamboat Slough [110]	

**TABLE A43-2: DELTA AND YOLO BYPASS WATERWAYS BY
 METHYL MERCURY ALLOCATION SUBAREA, *Continued***

Waterway Name [Map Label #]	Waterway Name [Map Label #]	Waterway Name [Map Label #]
SAN JOAQUIN RIVER		
Crocker Cut [21]	Middle River [75]	San Joaquin River [98]
Deuel Drain [144]	Mountain House Creek [82]	Sugar Cut [113]
Doughty Cut [29]	Old River [86]	Tom Paine Slough [125]
Fabian and Bell Canal [38]	Paradise Cut [87]	Walker Slough [132]
French Camp Slough [45]	Red Bridge Slough [92]	Walthall Slough [133]
Grant Line Canal [47]	Salmon Slough [97]	
WEST DELTA		
Big Break [7]	Horseshoe Bend [54]	San Joaquin River [98]
Broad Slough [10]	Marsh Creek [72]	Sand Mound Slough [100]
Cabin Slough [13]	Mayberry Cut [73]	Sherman Lake [105]
Donlon Island [28]	Mayberry Slough [74]	Taylor Slough [near Franks Tract] [118]
Dutch Slough [33]	Rock Slough [94]	Threemile Slough [123]
Emerson Slough [36]	Sacramento River [96]	
False River [39]		
YOLO BYPASS-NORTH ^(a)		
Cache Creek Settling Basin Outflow [147]	Toe Drain [124]/Tule Canal [150] Putah Creek [149]	Sacramento Deep Water Ship Channel [95]
Knights Landing Ridge Cut [148]		
YOLO BYPASS-SOUTH ^(a)		
Alamo Creek [1]	Liberty Cut [60]	Sweany Creek [115]
Babel Slough [2]	Lindsey Slough [61]	Sycamore Slough [116]
Barker Slough [3]	Lookout Slough [68]	The Big Ditch [120]
Cache Slough [14]	Miner Slough [77]	Toe Drain [124]
Calhoun Cut [16]	Prospect Slough [91]	Ulatis Creek [129]
Duck Slough [32]	Sacramento Deep Water Ship Channel [95]	Wright Cut [141]
Haas Slough [49]		
Hastings Cut [50]	Shag Slough [103]	

(a) Both the "Yolo Bypass-North" and "Yolo Bypass-South" subareas contain portions of the Yolo Bypass flood conveyance channel shown in Figure IV-4. When flooded, the entire Yolo Bypass is a Delta waterway. When the Yolo Bypass is not flooded, the Toe Drain [127] (referred to as Tule Canal [C] for its northern reach), Cache Creek Settling Basin Outflow [A], and Knights Landing Ridge Cut [B] are the only waterways within the Yolo Bypass hydrologically connected to the Sacramento River.

ATTACHMENT 2

Department of Water Resources and Central Valley Flood Protection Board
Redline Edits and Comments on the
Central Valley Regional Water Quality Control Board's
Delta Methylmercury TMDL
DRAFT BASIN PLAN AMENDMENTS
(February 2010)

**Revise Chapter II (Existing and Potential Beneficial Uses),
Table II-1 for Sacramento San Joaquin Delta, to add as follows:**

Yolo Bypass (8)

Sacramento San Joaquin Delta (8,9)

Addition to Table II-1 Footnote (8) under existing text:

COMM is a designated beneficial use for the Sacramento San Joaquin Delta and Yolo Bypass waterways listed in Appendix 43 and not any tributaries to the listed waterways or portions of the listed waterways outside of the legal Delta boundary unless specifically designated.

Addition to Table II-1 Footnote (9) under existing text:

COMM is a designated beneficial use for Marsh Creek and its tributaries listed in Appendix 43 within the legal Delta boundary.

**Revise Chapter III (Water Quality Objectives),
under "Methylmercury", to add as follows:**

For the Sacramento-San Joaquin Delta and Yolo Bypass waterways listed in Appendix 43, the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.

**Revise Chapter IV (Implementation), under "Mercury Discharges in the
Sacramento River and San Joaquin River Basins", to add as follows:**

Delta Mercury Control Program

The Delta Mercury Control Program applies specifically to the Delta and Yolo Bypass waterways listed in Appendix 43.

This control program was adopted by the Regional Water Quality Control Board on [date], and approved by the U.S. Environmental Protection Agency on [date] [Effective Date].

Program Overview

Additional information about methylmercury source control methods must be developed to determine how to attain load and waste load allocations. Information is also needed about the methylmercury control methods' potential benefits and adverse impacts to humans, wildlife, and the environment. Therefore, the Delta Mercury Control Program will be implemented through a phased, adaptive management approach.

The long-term goal of the mercury program is to enable people to safely eat four to five meals per week (128-160 g/day) of Delta fish. The Delta objectives protect people eating one meal/week (32 g/day) of trophic levels 3 and 4 Delta fish plus some non-Delta (commercial market) fish. The fish tissue objectives will be re-evaluated during the Phase 1 Delta Mercury Control Program Review and later program reviews to determine whether a higher consumption rate can be reasonably attained as methylmercury reduction actions are developed and implemented.

Phase 1 spans from [Effective Date] through the Phase I Delta Mercury Control Program Review, expected to be in [9 years after the Effective Date]. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass, and control of sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agriculture, wetland, and open-water habitats, and to reduce total mercury loading to San Francisco Bay, as required by the Water Quality Control Plan for the San Francisco Bay Basin.

Phase 1 also includes: development of upstream mercury control programs for major tributaries; the development and implementation of a mercury exposure reduction program to protect humans; and development of a mercury offset program.

At the end of Phase 1, the Regional Water Board shall conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a Mercury Offset Program for dischargers who cannot meet their load and waste load allocations after implementing all reasonable load reduction strategies and can demonstrate no disproportionate impacts on local communities as a result. The review also shall consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, fish consumption) of attaining the allocations. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.

During Phase 2 (after the Phase 1 Delta Mercury Control Program Review through 2030), dischargers shall implement methylmercury control programs and continue inorganic (total)

mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2.

Load and Waste Load Allocations

Final methylmercury waste load allocations for point sources and load allocations for non-point sources are listed in Tables A through D. New or expanded methylmercury discharges that begin after [Effective Date] may necessitate adjustments to the allocations.

Load allocations are specific to Delta subareas, which are shown on Figure xx-x. The load allocations for each Delta subarea apply to the sum of annual methylmercury loads produced by different types of nonpoint sources: agricultural lands, wetlands, and open-water habitat in each subarea, as well as atmospheric wet deposition to each subarea (Table A), and runoff from urban areas outside of Municipal Separate Storm Sewer System (MS4) service areas. The subarea allocations apply to both existing and future discharges. [NOTE: DWR and Flood Board request that the Regional Water Board not include in the BPA, including in Table A, the open-water habitat as a type of non-point source discharge for defining load allocations but instead require studies and conduct further discussion, and perhaps develop legislation, on how to address mercury and methylmercury that is transported in open waters without being attributed to a specific discharge, as discussed in our general comment letter, dated April 7, 2010.]

Deleted: ¶

Waste load allocations apply to point sources, which include individual NPDES permitted facility discharges and runoff from urban areas within MS4 service areas within the Delta and Yolo Bypass (Tables B and C, respectively).

Methylmercury allocations are assigned to tributary inputs to the Delta and Yolo Bypass (Table D). Future upstream control programs are planned for tributaries to the Delta through which management practices will be implemented to meet load allocations for tributary inputs assigned by the Delta Mercury Control Program.

Load allocations for the tributary inputs, urban areas outside of MS4 service areas, open-water habitat, and atmospheric deposition, and waste load allocations for the MS4s, are based on water years 2000 through 2003, a relatively dry period. Annual loads are expected to fluctuate with rainfall volume and other factors. As a result, attainment of these allocations shall be assessed as a five-year average annual load. Allocations for these sources will be re-evaluated during review of the Phase 1 Delta Mercury Control Program as wet year data become available. [NOTE: DWR and Flood Board request that load allocations not be based on open-water habitat for reasons described above.]

Margin of Safety

The Delta Mercury Control program includes an explicit margin of safety of 10%.

Final Compliance Date

Beginning in Phase 2, methylmercury load and waste load allocations for dischargers in the Delta and Yolo Bypass shall be met as soon as possible, but no later than 2030, unless the Regional Water Board modifies the implementation schedule and Final Compliance Date due to studies that show no reasonable, feasible measures to control methylmercury are available.

During Phase 1, all dischargers shall implement reasonable, feasible controls for inorganic (total) mercury.

All dischargers should implement methylmercury management practices identified during Phase 1 that are reasonable and feasible. However, implementation of methylmercury management practices identified in Phase 1 is not required for the purposes of achieving methylmercury allocations until the Regional Water Board has completed the Phase 1 Delta Mercury Control Program Review and has developed the tributary mercury control programs.

Beginning in Phase 2, the Regional Water Board shall, as necessary, include schedules of compliance in NPDES permits for compliance with water quality-based effluent limits based on the waste load allocations. The compliance schedules must be consistent with the requirements of federal laws and regulations, including, USEPA regulations 40 CFR 122.47, State laws and regulations, including State Water Board Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits, and the Final Compliance Date.

Implementation Program

Point Sources

The regulatory mechanism to implement the Delta Mercury Control Program for point sources shall be through NPDES permits.

Requirements for NPDES Permitted Facilities

By [six months after Effective Date], all facilities listed in Table B shall submit individual pollutant minimization program workplans to the Regional Water Board. The dischargers shall implement their respective pollutant minimization programs within 30 days after receipt of written Executive Officer approval of the workplans. Until the NPDES permitted facility achieves compliance with its WLA during Phase 2, the discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of mercury and methylmercury monitoring results.

During Phase 1, all facilities listed in Table B shall limit their discharges of inorganic (total) mercury to facility performance-based levels. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of a 12-month running average effluent inorganic (total) mercury load (lbs/year). For intermittent dischargers, the interim inorganic (total) mercury effluent mass limit shall consider site-specific discharge conditions. The limit shall be assigned in permits as an annual load based on a calendar year. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate.

NPDES permitted facilities that begin discharging to the Delta or Yolo Bypass during Phase 1 shall comply with the above requirements.

Requirements for NPDES Permitted Urban Runoff Discharges

MS4 dischargers listed in Table C shall implement best management practices (BMPs) to control erosion and sediment discharges consistent with their existing permits and orders with the goal of reducing mercury discharges.

The Sacramento MS4 (CAS082597), Contra Costa County MS4 (CAS083313), and Stockton MS4 (CAS083470) permittees shall implement pollution prevention measures and BMPs to minimize total mercury discharges. This requirement shall be implemented through mercury reduction strategies required by their existing permits and orders. Annually, the dischargers shall report on the results of monitoring and a description of implemented pollution prevention measures and their effectiveness.

The Sacramento MS4 (CAS082597), Contra Costa County MS4 (CAS083313), and Stockton MS4 (CAS083470) shall continue to conduct mercury control studies to monitor and evaluate the effectiveness of existing BMPs per existing requirements in permits and orders, and to develop and evaluate additional BMPs as needed to reduce their mercury and methylmercury discharges within and upstream of the legal Delta boundary.

Nonpoint Sources

Nonpoint sources shall be regulated through the authority contained in State laws and regulations, including State Water Board's Nonpoint Source Implementation and Enforcement Policy.

Table A contains methylmercury load allocations for non-point sources in the Delta and Yolo Bypass waterways listed in Appendix 43. [NOTE: Please see comment above on page 3, requesting deletion of open-water as a source type on Table A.]

During Phase 1, all nonpoint sources in the Delta and Yolo Bypass shall implement reasonable, feasible actions to reduce sediment in runoff with the goal of reducing inorganic mercury loading to the Yolo Bypass and Delta, in compliance with existing Basin Plan objectives and requirements, and Irrigated Lands Regulatory Program requirements.

Attainment of methylmercury load allocations at the end of 2030 will be determined by comparing monitoring data and documentation of methylmercury management practice implementation for each subarea with loads specified in Table A and Table D.

For subareas not in compliance with allocations by 2030, the Regional Water Board may develop load allocations for individual sources and require individual monitoring and waste discharge requirements.

In subareas needing reductions in methylmercury, proponents of new wetland and wetland restoration projects scheduled for construction after [Effective Date] shall (a) participate in Control Studies as described below, or shall implement site-specific study plans, that evaluate practices to minimize methylmercury discharges, and (b) implement methylmercury controls as feasible. New wetland projects may include pilot projects and associated monitoring to evaluate management practices that minimize methylmercury discharges.

Phase 1 Control Studies

Point and nonpoint source dischargers, working with other stakeholders, shall conduct methylmercury control studies (Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and waste load allocations. The Regional Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. A Technical Advisory Committee, described below, will review the Control Studies' designs and results.

Study Participants

Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. Individual dischargers are not required to do individual studies if the individual dischargers join a collaborative study group(s).

Control Studies are required for:

- a. Irrigated agricultural lands that discharge to the Yolo Bypass and Delta subareas that require methylmercury source reductions.
- b. Managed wetlands and wetland restoration projects that discharge to the Yolo Bypass and Delta subareas that require methylmercury source reductions.
- c. Existing NPDES permitted facilities in the Delta and the Yolo Bypass (listed in Table B).
- d. Sacramento Area MS4, Stockton MS4, and Contra Costa County MS4 service areas within and upstream of the legal Delta boundary.
- e. State, Federal, and other agencies whose activities may affect the transport increase ambient mercury and the production of methylmercury through and in the Yolo Bypass and Delta, including but not limited to Department of Water Resources, State Lands Commission, Central Valley Flood Protection Board, U.S. Army Corps of Engineers, and U.S. Bureau of Reclamation, State and federal projects, related to flood conveyance, water management, and salinity control that have the potential to increase ambient mercury and/or methylmercury levels in the Delta or Yolo shall evaluate their projects activities to determine whether operational changes or other practices or strategies could be implemented to reduce methylmercury production in Delta open water areas and floodplain areas inundated by managed floodplain flows. Water management and flood control activities which may only affect the transport and/or methylization of mercury due to conveyance of water shall not be considered discharges, and the agencies responsible for those activities ("water management agencies") shall not be considered dischargers, but the agencies shall participate in the Control Studies.
- f. Other significant sources of methylmercury not listed above, as identified and deemed appropriate by the Executive Officer.

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Dischargers in the Central Valley that are not subject to the Delta Mercury Control Program but may be subject to future mercury control programs in upstream tributary watersheds are encouraged to participate in the coordinated Delta Control Studies. Dischargers in and upstream of the Delta who participate in the Control Studies will be exempt from conducting equivalent Control Studies required by future upstream mercury control programs.

Study Objectives

The Control Studies shall evaluate existing control methods and, as needed, additional control methods that could be implemented to achieve methylmercury load and waste load allocations. The Control Studies shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve allocations.

Phase 1 studies also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure.

Dischargers may evaluate inorganic (total) mercury controls as a method of controlling methylmercury discharges.

Dischargers may conduct characterization studies to inform and prioritize the Control Studies. Characterization studies may include, but not be limited to, evaluations of methylmercury and total mercury concentrations and loads in source waters, receiving waters, and discharges, to determine which discharges act as net sources of methylmercury, and which land uses result in the greatest net methylmercury production and loss.

Final reports for Control Studies shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness, and costs, potential environmental effects, and overall feasibility of the control actions. Final reports shall also include proposed implementation plans and schedules to comply with methylmercury allocations.

If the Control Study results indicate that achieving a given methylmercury allocation is infeasible, then the discharger, or an entity representing a discharger, shall provide detailed information on why full compliance is not achievable, what methylmercury load reduction is achievable, and an implementation plan and schedule to achieve partial compliance.

Control Study Workplans

Control Studies shall be implemented through Control Study Workplan(s). The Control Study Workplan(s) shall provide detailed descriptions of how methylmercury control methods will be identified, developed, and monitored, and how effectiveness, costs, potential environmental effects, and overall feasibility will be evaluated for the control methods.

The Control Study Workplan(s) shall include details for organizing, planning, developing, prioritizing, and implementing the Control Studies.

The Control Studies will be governed using an Adaptive Management approach.

Technical Advisory Committee and Adaptive Management Approach

The Regional Water Board commits to supporting an Adaptive Management approach. The adaptive management approach includes the formation of a Stakeholder Group(s) and a Technical Advisory Committee (TAC). Regional Water Board staff, working with the TAC and Stakeholder Group(s), will provide a Control Study Guidance Document for stakeholders to reference.

The TAC shall be comprised of independent experts who would convene as needed to provide scientific and technical peer review of the Control Study Workplan(s) and results, advise the Board on scientific and technical issues, and provide recommendations for additional studies and implementation alternatives developed by the dischargers and water management agencies. The Board shall form and manage the TAC with recommendations from the dischargers and other stakeholders, including community organizations.

Board staff shall work with the TAC and Stakeholder Group(s) to review the Control Study Workplan(s) and results. As new information becomes available from the Control Studies or outside studies that result in redirection and/or prioritization of existing studies, dischargers, and water management agencies may amend the Control Study Workplan(s) with Executive Officer approval.

Mercury Control Studies Schedule

1. By [six months after the Effective Date], entities required to conduct Control Studies shall submit for Executive Officer approval either: (1) a report(s) describing how dischargers,

water management agencies, and stakeholders plan to organize to develop a coordinated, comprehensive Control Study Workplan(s), or (2) a report describing how individual dischargers will develop individual Control Study Workplans. For dischargers and water management agencies conducting coordinated studies, the report shall include a list of participating dischargers, and water management agencies stakeholders and community groups. Dischargers and water management agencies shall be considered in compliance with this reporting requirement upon written commitment to either be part of a group developing a Control Study Workplan or develop an individual Control Study Workplan.

2. Control Study Workplans shall be submitted to the Regional Water Board within [nine months of the Effective Date of this amendment]. With Executive Officer approval, an additional nine months may be allowed for Workplans being developed by a collaborative stakeholder approach. The Control Study Workplan(s) shall contain a detailed plan for the Control Studies and the work to be accomplished during Phase 1. Regional Water Board staff and the TAC will review the Workplans and provide recommendations for revising Workplans if necessary.

Within four months of submittal, the Executive Officer must determine if the Workplans are acceptable. After four months, Workplans are deemed approved and ready to implement if no written approval is provided by the Executive Officer, unless the Executive Officer provides written notification to extend the approval process.

Dischargers and water management agencies shall be considered in compliance with this reporting requirement upon timely submittal of workplans and revisions.

3. By [four years after the Effective Date], entities responsible for Control Studies shall submit report(s) to the Regional Water Board documenting progress towards complying with the Control Study Workplan(s). The report shall include amended workplans for any additional studies needed to address methylmercury reductions. The TAC will review the progress reports and may recommend what additional or revised studies should be undertaken to complete the objectives of the Control Studies. Staff will review the progress reports and recommendations of the TAC and provide a progress report to the Regional Water Board.
4. By [seven years after the Effective Date], entities responsible for Control Studies shall complete the studies and submit to the Regional Water Board Control Studies final reports that present the results and descriptions of methylmercury control options, their preferred methylmercury controls, and proposed methylmercury management plan(s) (including implementation schedules), for achieving methylmercury allocations. In addition, final report(s) shall propose points of compliance for non-point sources.

If the Executive Officer determines that dischargers and water management agencies are making significant progress towards developing, implementing and/or completing the Phase 1 Control Studies but that more time is needed to finish the studies, the Executive Officer may consider extending the studies' deadline.

The Executive Officer may, after public notice, extend time schedules up to two years if the dischargers demonstrate reasonable attempts to secure funding for the Phase 1 studies but experience severe budget shortfalls.

Annually, staff shall publicly report to the Regional Water Board progress of upstream mercury program development, discharger, water management agencies and stakeholder coordination, Control Study Workplan status, implementation of Control Studies, actions implemented or proposed to meet load and waste load allocations, and the status of the formation and activities of the TAC.

By [four years after the Effective Date], the Executive Officer shall provide a comprehensive report to the Regional Water Board on Phase 1 progress, including progress of upstream mercury control program development, Control Studies, actions implemented or proposed to meet Delta Mercury Control Program load and waste load allocations, and the status and progress of the TAC.

If dischargers do not comply with Control Study implementation schedules, the Executive Officer shall consider issuing individual waste discharge requirements or requests for technical reports and management plans.

Phase 1 Delta Mercury Control Program Review

By [nine years after Effective Date] at a public hearing, and after a scientific peer review and public review process, the Regional Water Board shall review and reconsider, if appropriate, the Delta Mercury Control Program and may consider modification of objectives, allocations, implementation provisions and schedules, and the Final Compliance Date.

If the Executive Officer allows an extension for the Control Studies' schedule, then the Delta Mercury Control Program Review may be delayed up to two years. If the Delta Mercury Control Program Review is delayed more than one year, the Regional Water Board should consider extending the schedule for Phase 2 implementation of methylmercury controls, and the Final Compliance Date.

The Regional Water Board shall assess: (a) the effectiveness, costs, potential environmental effects, and technical and economic feasibility of potential methylmercury control methods; (b) whether implementation of some control methods would have negative impacts on other project or activity benefits; (c) methods that can be employed to minimize or avoid potentially significant negative impacts to project or activity benefits that may result from control methods; (d) implementation plans and schedules proposed by the dischargers; and (e) whether methylmercury allocations can be attained.

The Regional Water Board shall use any applicable new information and results of the Control Studies to adjust the relevant allocations and implementation requirements as appropriate. Interim limits established during Phase 1 and allocations will not be reduced as a result of early actions than result in reduced inorganic (total) mercury and/or methylmercury in discharges.

As part of the Phase 1 Delta Mercury Control Program Review and subsequent program reviews, the Regional Water Board may consider adjusting the allocations to allow methylmercury discharges from existing and new wetland restoration and other aquatic habitat enhancement projects if dischargers provide information that demonstrates that 1) all reasonable management practices to limit methylmercury discharges are being implemented and 2) implementing additional methylmercury management practices would negatively impact

fish and wildlife habitat or other project benefits. The Regional Water Board will consider the merits of the project(s) and whether to require the discharger(s) to propose other activities in the watershed that could offset the methylmercury. The Regional Water Board will periodically review the progress towards achieving the allocations and may consider additional conditions if the plan described above is ineffective.

The Regional Water Board shall conduct the Phase 1 Delta Mercury Program Review based on information received in Phase 1. If the Regional Water Board does not receive timely information to review and update the Delta Mercury Control Program, then allocations shall not be raised but may be lowered and the 2030 Final Compliance Date shall not be changed for those individual dischargers who did not complete the Phase 1 requirements.

The Regional Water Board shall require implementation of appropriate management practices. The methylmercury management plan(s) developed in Phase 1 shall be initiated as soon as possible, but no later than one (1) year after Phase 2 begins.

The Regional Water Board shall review this control program two years prior to the end of Phase 2, and at intervals no more than 10 years thereafter.

Compliance Monitoring

Within two years after the start of Phase 2, entities responsible for meeting load and waste load allocations shall monitor methylmercury loads and concentrations and submit annual reports to the Regional Water Board. The points of compliance for waste load allocations for NPDES facilities shall be the effluent monitoring points described in individual NPDES permits. The points of compliance for MS4s required to conduct methylmercury monitoring are those locations described in the individual MS4 NPDES permits or otherwise determined to be representative of the MS4 service areas and approved by the Executive Officer on an MS4-specific basis. The points of compliance and monitoring plans for non-point sources shall be determined during the Control Studies. Compliance with the load allocations for nonpoint sources and waste load allocations for MS4s may be documented by monitoring methylmercury loads at the compliance points or by quantifying the annual average methylmercury load reduced by implementing pollution prevention activities and source and treatment controls.

Entities will be allowed to comply with their mercury receiving water monitoring requirements by participating in a regional monitoring program, when such a program is implemented.

Chapter V, Surveillance and Monitoring, contains additional monitoring guidance.

Requirements for State, Federal, and Other Agencies

~~The State, Federal, and other agencies identified during Phase 1 shall coordinate studies to determine improvement in management practices to reduce ambient mercury in open waters of the Delta. Activities, such as dredging and habitat restoration may cause the methylmercury load to flux to the water column from sediments in open-water habitats within channels and floodplains in the Delta and Yolo Bypass. [NOTE: see comment on page 3.]~~

~~The deposition of mercury-contaminated sediment and water management activities contribute to the Delta fish mercury impairment. State, Federal, and other agencies' activities may affect the distribution of total mercury and the distribution and production of methylmercury. Activities including the impoundment of water in and upstream of the Delta and Yolo Bypass, maintenance of and changes to salinity objectives, dredging and dredge materials disposal and reuse, and management of flood conveyance flows are subject to the methylmercury~~

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allocations. Agencies responsible for water management and flood management activities in the Delta and Yolo Bypass include, but are not limited to, Department of Water Resources, State Lands Commission, Central Valley Flood Protection Board, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers (USACE), and the State Water Resources Control Board. These agencies, when implementing or approving proposed projects under their jurisdiction, shall require entities implementing the projects to conduct control studies and to implement actions to minimize ambient methylmercury concentrations. These agencies may conduct their own coordinated Control Studies or may work with the other stakeholders in comprehensive, coordinated Control Studies.

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The responsible agencies should coordinate with wetland and agricultural landowners during Phase 1 to characterize existing methylmercury discharges to open waters from lands immersed by managed flood flows and develop methylmercury control measures.

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The Regional Water Board will enter into MOUs with the State Lands Commission, Central Valley Flood Protection Board, Department of Water Resources, and others to conduct Control Studies and evaluate options to reduce methylmercury in open waters resulting from floodplain areas inundated by flood flows. Evaluations shall include inorganic mercury reduction projects. One of the goals under the MOUs will be to identify, and pursue adequate resources to fund the Control Studies. Regional Water Board staff will work with the agencies in conducting these studies and evaluating potential mercury reduction actions.

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New wetland, floodplain, and other aquatic habitat restoration and enhancement projects, including but not limited to projects developed, planned, funded, or approved by individuals, private businesses, non-profit organizations, and local, State, and federal agencies such as USACE, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Fisheries, U.S. Environmental Protection Agency, U.S Bureau of Reclamation, State Water Board, California Department of Water Resources, and California Department of Fish and Game, shall comply with all applicable requirements of this program, including conducting or participating in Control Studies and complying with allocations that will be determined after Phase 1 studies. To the extent allowable by their regulatory authority, Federal, State, and local agencies that fund, approve, or implement such new projects shall direct project applicants/grantees/loanees to apply to or consult with the Regional Water Board to ensure full compliance with the water quality requirements herein. [NOTE: DWR and Flood Board recommend that wetland studies be done in Phase 1 before any allocation is established, similar to the process outlined for the Cache Creek Settling Basin, including having wetland project proponents submit a report that evaluates feasible alternatives for reducing methylmercury discharges and proposes, evaluates, and recommends potentially feasible alternatives for the reduction of discharges. This comment also applies to Table 1]

Dredging and Dredge Material Reuse

Dredging activities and activities that reuse dredge material in the Delta should minimize increases in methyl and total mercury discharges to Delta waterways (Appendix 43). The following requirements apply to dredging and excavating projects in the Delta and Yolo Bypass where a Clean Water Act 401 Water Quality Certification or other waste discharge requirements are required. The Clean Water Act 401 Water Quality Certifications shall include the following conditions:

- 1. Employ management practices during and after dredging activities to minimize sediment releases into the water column.

2. Ensure that under normal operational circumstances, including during wet weather, dredged and excavated material reused at upland sites, including the tops and dry-side of levees, is protected from erosion into open waters.

In addition to the above requirements, the following requirements apply to the California Department of Water Resources, U.S. Army Corps of Engineers, the Port of Sacramento, the Port of Stockton, and other State and federal agencies conducting dredging and excavating projects in the Delta and Yolo Bypass:

1. Characterize the total mercury mass and concentration of material removed from Delta waterways (Appendix 43) by dredging activities.
2. Conduct monitoring and studies to evaluate management practices to minimize methylmercury discharges from dredge return flows and dredge material reuse sites. Agencies shall:
 - By [two years from Effective Date] project proponents shall submit a study workplan(s) to evaluate methylmercury and mercury discharges from dredging and dredge material reuse, and to develop and evaluate management practices to minimize increases in methyl and total mercury discharges. The proponents may submit a comprehensive study workplan rather than conduct studies for individual projects. The comprehensive workplan may include exemptions for small projects. Upon Executive Officer approval, the plan shall be implemented.
 - By [seven years after the Effective Date], final reports that present the results and descriptions of mercury and methylmercury control management practices shall be submitted to the Regional Water Board.

Studies should be designed to achieve the following aims for all dredging and dredge material reuse projects. When dredge material disposal sites are utilized to settle out solids and return waters are discharged into the adjacent surface water, methylmercury concentrations in return flows should be equal to or less than concentrations in the receiving water. When dredge material is reused at aquatic locations, such as wetland and riparian habitat restoration sites, the reuse should not add mercury-enriched sediment to the site or result in a net increase of methylmercury discharges from the reuse site.

The results of the management practices studies should be applied to future projects.

Cache Creek Settling Basin Improvement Plan and Schedule

If studies identify feasible actions to decrease total mercury loading, and if adequate funding is available, DWR, Central Valley Flood Protection Board, and USACE, in conjunction with upstream landowners and other interested stakeholders, shall implement a plan for management of mercury in the Cache Creek Settling Basin, including improvements for decreasing total mercury from upstream sources and in the Cache Creek Settling Basin, following Congressional authorization to modify the Cache Creek Settling Basin. The following steps will be taken to determine if a feasible plan can be developed and implemented.

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1. By [one year after Effective Date] the agencies shall take all necessary actions to initiate the process for Congressional authorization to modify the Basin, including coordinating with the USACE.

2. By [two years after the Effective Date], the agencies shall develop a strategy to reduce total mercury discharged from the Basin for the next 20 years. The strategy shall include a description of, and schedule for, potential studies and control alternatives, and an evaluation of funding options. The agencies shall work with the landowners within the Basin and local communities affected by Basin improvements.
3. By [four years after the Effective Date], the agencies shall submit a report describing the long term environmental benefits and costs of sustaining the Basin's mercury trapping abilities indefinitely.
4. By [four years after the Effective Date], the agencies shall submit a report that evaluates the trapping efficiency of the Cache Creek Settling Basin and proposes, evaluates, and recommends potentially feasible alternative(s) for mercury reduction from the Basin. The report shall evaluate the feasibility of decreasing mercury loads from the basin, up to and including a 50% reduction from existing loads.
5. If the evaluation conducted in step 4 identifies feasible actions that can be taken to reduce total mercury, then By [six years after Effective Date], the agencies shall submit schedule and detailed plan for implementing improvements to the Basin to decrease mercury loads from the basin.
6. As identified in the schedule in step 5, the agencies shall implement plans to reduce total mercury loads at the Cache Creek Settling Basin and complete project improvements.

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The agencies shall submit the strategy and planning documents described above to the Regional Water Board for approval by the Executive Officer.

Tributary Watersheds

Table D identifies methylmercury allocations for tributary inputs to the Delta and Yolo Bypass.

The sum total of 20-year average total mercury loads from the tributary watersheds identified in Table D needs to be reduced by 110 kg/yr. Initial reduction efforts should focus on watersheds that contribute the most mercury-contaminated sediment to the Delta and Yolo Bypass, such as the Cache Creek, American River, Putah Creek, Cosumnes River, and Feather River watersheds.

Future mercury control programs will address the tributary watershed methylmercury allocations and total mercury load reductions assigned to tributary inputs to the Delta and Yolo Bypass. Additional methylmercury and total mercury load reductions may be required within those watersheds to address any mercury impairment within those watersheds.

Mercury control programs will be developed for tributary inputs to the Delta by the following dates:

- 2012: American River;
- 2016: Feather, Sacramento, San Joaquin, and Mokelumne Rivers, and Marsh and Putah Creeks; and
- 2017: Cosumnes River and Morrison Creek.

Mercury Offsets

The intent of an offset program is to best use limited resources to maximize environmental benefits. The overall objectives for an offset program are to (1) provide more flexibility than the current regulatory system provides to improve the environment while meeting regulatory requirements (i.e., load and wasteload allocations) at a lower overall cost and (2) promote watershed-based initiatives that encourage earlier and larger load reductions to the Delta than would otherwise occur.

On or before [nine years after Effective Date] the Regional Board will consider adoption of a mercury (inorganic and/or methyl) offsets program. During Phase 1, stakeholders may propose pilot offset projects for public review and Regional Board approval. The offsets program and any Phase 1 pilot offset projects shall be based on the following key principles:

- Offsets should be consistent with existing USEPA and State Board policies and with the assumptions and requirements upon which this and other mercury control programs are established.
- Offsets should not include requirements that would leverage existing discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context "fair share" refers to the dischargers' proportional contribution of methylmercury load.
- Offset credits should only be available to fulfill a discharger's responsibility to meet its (waste) load allocation after reasonable control measures and pollution prevention strategies have been implemented.
- Offsets should not be allowed in cases where local human or wildlife communities bear a disparate or disproportionate pollution burden as a result of the offset.
- Offset credits should be available upon generation (i.e., after an offset project is implemented) and last long enough (i.e., not expire quickly) to encourage feasible projects.
- Creditable load reductions achieved should be real, quantifiable, verifiable, and enforceable by the Regional Board.

Alternatives to direct load credits may be developed, such as time extensions to the Final Compliance Date.

Exposure Reduction Program

While methylmercury and mercury source reductions are occurring, the Regional Water Board recognizes that activities need to be undertaken with people who eat Delta fish to reduce their methylmercury exposure and potential health risks. The Exposure Reduction Program is not intended to replace timely reduction of mercury and methylmercury in Delta waters.

The Central Valley Water Board will investigate ways, consistent with its regulatory authority, to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and their families.

By [one year after Effective Date], Board staff shall work with dischargers, State and local public health agencies, and stakeholders, including community-based organizations and Delta fish consumers to complete an Exposure Reduction Strategy. The purposes of the strategy will be to recommend to the Executive Officer which dischargers will be responsible for participating in an Exposure Reduction Program and propose a process for developing, funding and

implementing the program in a collaborative manner. At a minimum, point source dischargers and the state and federal agency dischargers shall be responsible for conducting the Exposure Reduction Program. In the absence of participation recommendations provided through the Exposure Reduction Strategy, methylmercury dischargers shall be individually responsible for the Exposure Reduction Program requirements.

The objectives of the Exposure Reduction Program are to:

- reduce actual and potential mercury exposure of Delta fish consumers most likely affected by mercury;
- develop and implement community-driven activities to reduce mercury exposure;
- raise awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;
- integrate community-based organizations that serve Delta fish consumers, Delta fish consumers, and public health agencies in the design and implementation of an exposure reduction program; and
- identify resources, as needed, for community-based organizations to participate in the Program.

The dischargers, individually or collectively, or based on the Exposure Reduction Strategy, shall submit an exposure reduction workplan for Executive Officer approval by [two years after Effective Date]. The workplan shall address the Exposure Reduction Program objectives and dischargers' coordination with other stakeholders. Dischargers shall integrate or, at a minimum, provide good-faith opportunities for integration of community-based organizations and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities.

The dischargers shall implement the workplan by [four years after Effective Date]. Every three years after workplan implementation begins, the dischargers, individually or collectively, shall provide a progress report to the Executive Officer.

The California Department of Public Health, the California Office of Environmental Health Hazard Assessment, and the local county public health and/or environmental health departments should collaborate with dischargers and community members to develop and implement exposure reduction programs and provide guidance to dischargers and others that are conducting such activities. The California Department of Public Health and/or other appropriate agency should seek funds to contribute to the Exposure Reduction Program and to continue it beyond 2030, if needed, until fish tissue objectives are attained.

The State Water Board should develop a statewide policy that defines the authority and provides guidance for exposure reduction programs, including guidance on addressing public health impacts of mercury, activities that reduce actual and potential exposure of, and mitigating health impacts to those people and communities most likely to be affected by mercury.

Exceptions for Low Threat Discharges

Discharges subject to a waiver of waste discharge requirements based on a finding that the discharges pose a low threat to water quality, except for discharges subject to water quality certifications, are exempt from the mercury requirements of this Delta Mercury Control Program.

Discharges subject to waste discharge requirements for dewatering and other low threat discharges to surface waters are exempt from the mercury requirements of this Delta Mercury Control Program.

**Revise Chapter IV (Implementation),
under "Recommended for Implementation by the State Water Board", to add:**

Delta Mercury

1. The State Water Board should consider requiring methylmercury controls for new water management activities that have potential to increase ambient methylmercury levels as a condition of approval of any water right action required to implement the project. The State Water Board Division of Water Rights should consider requiring the evaluation and implementation of feasible management practices to reduce or, at a minimum, prevent methylmercury ambient levels from increasing from those changes in water management activities and flood conveyance projects that have potential to cause increased methylmercury levels. The State Water Board should consider funding or conducting studies to develop and evaluate management practices to reduce methylmercury production resulting from existing water management activities or flood conveyance projects. Deleted: are expected to
2. During future reviews of the salinity objectives contained in the Bay-Delta Plan, the State Water Board Division of Water Rights should consider conducting studies to determine whether proposed changes to salinity objectives could affect methylmercury production and should consider the results of these studies in evaluating changes to the salinity objectives. Deleted: to

**Revise Chapter IV (Implementation),
under "Recommended for Implementation by Other Agencies", to add:**

Delta Mercury

1. USEPA and the California Air Resources Board should work with the State Water Board and develop a memorandum of understanding to evaluate local and statewide mercury air emissions and deposition patterns and to develop a load reduction program(s).
2. The State of California, through the State Water Board, should seek legislation to establish the means to fund a portion of the mercury control projects in the Delta and upstream watersheds.
3. Watershed stakeholders are encouraged to identify total mercury and methylmercury reduction projects and propose and conduct projects to reduce upstream non-point sources of methylmercury and total mercury. The Regional Water Board recommends that state and federal grant programs give priority to projects that reduce upstream non-point sources of methylmercury and total mercury.

4. Dischargers may evaluate imposed administrative civil liabilities projects for total mercury and methylmercury discharge and exposure reduction projects, consistent with Supplemental Environmental Project policies.

Revise Chapter IV (Implementation), under “Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing”, to add:

Delta Mercury Control Program

The total estimated costs (2007 dollars) for the agricultural methylmercury control studies to develop management practices to meet the Delta methylmercury allocations range from \$290,000 to \$1.4 million. The estimated annual costs for agricultural discharger compliance monitoring range from \$14,000 to \$25,000. The estimated annual costs for Phase 2 implementation of methylmercury management practices range from \$590,000 to \$1.3 million.

1. Potential funding sources include those identified in the San Joaquin River Subsurface Agricultural Drainage Control Program and the Pesticide Control Program.

**Revise Chapter V (Surveillance and Monitoring),
under “Mercury and Methylmercury”, to add as follows:**

Delta

Fish Methylmercury Compliance Monitoring

The Regional Water Board will use the following specifications to determine compliance with the methylmercury fish tissue objectives in the Sacramento-San Joaquin Delta. Beginning 2025, Regional Water Board staff will initiate fish tissue monitoring. Thereafter compliance monitoring will ensue every ten years, more frequently as needed where substantial changes in methyl or total mercury concentrations or loading occur, but not to exceed ten years elsewhere.

Initial fish tissue monitoring will take place at the following compliance reaches in each subarea:

- Central Delta subarea: Middle River between Bullfrog Landing and Mildred Island;
- Marsh Creek subarea: Marsh Creek from Highway 4 to Cypress Road;
- Mokelumne/Cosumnes River subarea: Mokelumne River from the Interstate 5 bridge to New Hope Landing;
- Sacramento River subarea: Sacramento River from River Mile 40 to River Mile 44;
- San Joaquin River subarea: San Joaquin River from Vernalis to the Highway 120 bridge;
- West Delta subarea: Sacramento/San Joaquin River confluence near Sherman Island;
- Yolo Bypass-North subarea: Tule Canal downstream of its confluence with Cache Creek; and
- Yolo Bypass-South subarea: Toe Drain between Lisbon and Little Holland Tract.

Compliance fish methylmercury monitoring will include representative fish species for comparison to each of the methylmercury fish tissue objectives:

- Trophic Level 4: bass (largemouth and striped), channel and white catfish, crappie, and Sacramento pikeminnow.
- Trophic Level 3: American shad, black bullhead, bluegill, carp, Chinook salmon, redear sunfish, Sacramento blackfish, Sacramento sucker, and white sturgeon.
- Small (<50 mm) fish: primary prey species consumed by wildlife in the Delta, which may include the species listed above, as well as inland silverside, juvenile bluegill, mosquitofish, red shiner, threadfin shad, or other fish less than 50 mm.

Trophic level 3 and 4 fish sample sets will include three species from each trophic level and will include both anadromous and non-anadromous fish. Trophic level 3 and 4 fish sample sets will include a range of fish sizes between 150 and 500 mm total length. Striped bass, largemouth bass, and sturgeon caught for mercury analysis will be within the CDFG legal catch size limits. Sample sets for fish less than 50 mm will include at least two fish species that are the primary prey species consumed by wildlife at sensitive life stages. In any subarea, if multiple species for a particular trophic level are not available, one species in the sample set is acceptable.

Water Methylmercury and Total Mercury Compliance Monitoring

Compliance points for irrigated agriculture and managed wetlands methylmercury allocations shall be developed during the Phase 1 Control Studies.

In conjunction with the Phase 1 Control Studies, nonpoint sources, irrigated agriculture, and managed wetlands shall develop and implement mercury and/or methylmercury monitoring, and submit monitoring reports.

NPDES facilities' compliance points for methylmercury and total mercury monitoring are the effluent monitoring points currently described in individual NPDES permits.

During Phase 1 and Phase 2, facilities listed in Table B shall conduct effluent total mercury and methylmercury monitoring starting by [one year after the Effective Date]. Monitoring frequencies shall be defined in the NPDES permits. Effluent monitoring requirements will be re-evaluated during the Delta Mercury Control Program Reviews.

Facilities that begin discharging to surface water during Phase 1 and facilities for which effluent methylmercury data were not available at the time Table B was compiled, shall conduct monitoring.

Compliance points and monitoring frequencies for MS4s required to conduct methylmercury and total mercury monitoring are those locations and wet and dry weather sampling periods currently described in the individual MS4 NPDES permits or otherwise determined to be representative of the MS4 service areas and approved by the Executive Officer on an MS4-specific basis.

Annual methylmercury loads in urban runoff in MS4 service areas within the Delta and Yolo Bypass may be calculated by the following method or by an alternate method approved by the Executive Officer. The annual methylmercury load in urban runoff for a given MS4 service area during a given year may be calculated by the sum of wet weather and dry weather methylmercury loads. To estimate wet weather methylmercury loads discharged by MS4 urban areas, the average of wet weather methylmercury concentrations observed at the MS4's compliance locations may be multiplied by the wet weather runoff volume estimated for all urban areas within the MS4 service area within the Delta and Yolo Bypass. To estimate dry weather

-Draft-

methylmercury loads, the average of dry weather methylmercury concentrations observed at the MS4's compliance locations may be multiplied by the estimated dry weather urban runoff volume in the MS4 service area within the Delta and Yolo Bypass.



April 9, 2008

Dr. Karl Longley, Chair
 Regional Water Quality Control Board
 11020 Sun Center Drive, #200
 Rancho Cordova, CA 95670

Re: Draft Methylmercury TMDL for the Delta – February 2008 Version

Dear Dr. Longley:

The undersigned organizations continue to have serious concerns with the proposed "Basin Plan Amendment to Control Methyl and Total Mercury in the Sacramento-San Joaquin Delta Estuary (Delta.)" Despite the fact that Regional Board Members directed staff to work with our organizations to address the issues we raised at the March 2007 TMDL workshop, there has been very little outreach by Regional Water Board staff, and virtually no substantive effort to resolve those issues. This conclusion is reflected by the fact that the February 2008 version of the Mercury TMDL is very similar to the earlier draft and, if anything, it is even less acceptable.

Chief among all of our concerns about this Mercury TMDL is the fact that more than three-quarters of all methylmercury loading into the Delta comes from "open water" and "tributary" sources which are not addressed in the proposed TMDL. The source of this methylmercury loading is the sediment underneath these waters. California law clearly establishes that these waters are owned by the People of California and, as such, the State should be held accountable for reducing these loads.

It is unfair and unreasonable for this TMDL to impose costly studies and potential load reductions on private property owners, local public agencies, and non-profit groups that construct and maintain wetlands and wildlife areas, when the State is effectively given a "free pass" for the large majority of mercury load to the Delta. Many of the parties listed above are simply the unfortunate recipients of mercury that was transported from state lands and through state owned and controlled channels. These parties had no role in creating the mercury deposited on their lands and had no ability to block its deposition. As such, the expense potentially being assigned to the parties for monitoring or control of methylmercury is unreasonable. As just one example, according to the TMDL Staff Report, February 2008, costs are estimated in the millions of dollars for the studies of wetland sources plus annual costs of up to \$270,000 to implement best management practices.

Clearly, it is time to consider allocating substantial mercury load reductions and study requirements to the State of California. This allocation is critical for policy discussion given the restoration objectives being developed by the Bay Delta Conservation Plan and its pivotal role in meeting the objectives of the Governors Executive Order S-17-06 establishing Blue Ribbon Task Force to develop a durable vision for the management of the Delta. Both the Delta Vision and the Bay Delta Conservation Plan are proposing restoration of thousands of acres to tidal influence and dredging to improve hydrodynamic function. Considering these diverse and necessary objectives, we believe it is critical that the Regional Water Board be fully informed of the water quality and habitat objectives that are desired and have a clear understanding where objectives can be complimentary or in the worst case mutually exclusive.

We believe the Regional Board should consider a modified approach to the Mercury TMDL that has a more realistic chance of achieving the goal of a "fishable" Delta. This modified approach can build on much of what your staff has developed over the past couple of years, and calls for State responsibility to substantially help fund the Phase 1 studies to characterize methylmercury controls in the Delta. The State of California has already accepted this responsibility, in part, through \$30 million of comprehensive scientific mercury research conducted by CalFed. The State's ongoing responsibility under this TMDL should include a clear synthesis of the results of that research as well as funding to support the methylmercury studies required under Phase 1 and 2 of this TMDL, in proportion to the load contributions (75% from tributaries and open water sources).

Background

In June 2006, the Regional Water Board staff issued for public review a draft Basin Plan Amendment that would embody the anticipated Delta Mercury TMDL. In sum, that draft TMDL: (1) acknowledged that very little is known about methylmercury and particularly how to control methylation; (2) established specific methylmercury load allocations for sources of methylmercury to the Delta (*similar to Attachment A although numbers were slightly different in 2006*); (3) required load allocation recipients to perform characterization and control studies; and (4) established a methylmercury water concentration "goal" of 0.06 ng/L that would go into effect in 2014.

By letter dated November 17, 2006, a stakeholder group consisting of the California Rice Commission, California Waterfowl Association, Central Valley Clean Water Association, City of Sacramento Department of Utilities, City of Vacaville, Ducks Unlimited, Northern California

Water Association, Sacramento Regional County Sanitation District, County of Sacramento, and The Nature Conservancy (Stakeholders), submitted to Regional Water Board Executive Officer Pamela Creedon an "alternative approach for the Delta Methylmercury Basin Plan Amendment" (Attachment B). That "alternative approach" called for fundamental changes in the proposed TMDL, embodying a "different, more comprehensive, long-term approach [to] mercury reduction efforts." The stakeholders noted that the approach proposed in the draft TMDL "would have profound impacts on... environmental and public health, particularly those associated with wetland management and restoration within the Delta." The stakeholders requested a re-examination of the approach to mercury management to ensure that it would be based on a sound scientific foundation and advocated the use of creative and flexible compliance approaches, including mercury offsets, while methylation control studies are underway.

A second draft of the TMDL and related Basin Plan Amendment was released in February 2007 for public comment, and a public workshop was held before the Regional Water Board on March 16, 2007. At that public workshop, many interested stakeholders voiced their general and specific concerns about the overall *process* by which the Mercury TMDL was being developed (that is, insufficient collaboration with stakeholders) as well as the focus and approach being taken to address mercury impairment of the Delta.

The "alternative approach" proposed in November 2006 was essentially ignored by staff, which was pointed out at the workshop by representatives of the Stakeholders. During the March 2007 Regional Water Board workshop, several Regional Water Board members asked focused questions and raised specific issues related to, for instance, fish tissue standards, the need for methylmercury water concentration limits, potential roadblocks to mercury "offset" projects, and an overall concern that the Phase 1 TMDL would not lead to meaningful actions to control mercury levels in fish tissue.

Salient questions asked during the March 2007 workshop include:

"I would like to see real good peer review data when that comes back.....If that science base isn't there, we have to look for a new direction" Karl Longley regarding fish tissue and concentration limits -- peer review, p. 174 beginning line 22,

"Is imposing a mercury concentration limit going to get us to our goals of cleaning up mercury? Aren't we really just concerned about mercury in fish?" Kate Hart regarding mercury offsets, p. 175, line 6.

"I don't know why we would only be addressing 6% of the mercury in the entire Delta and not the actual tributaries that are contributing to this problem, and I think we're putting the cart before the horse. And correct me if I am wrong. I hope I am wrong." Kate Hart regarding Delta contributions to mercury loading, p. 193, beginning line 5:

In February 2008, a third draft Basin Plan Amendment and associated staff reports were released. This third draft TMDL shows few substantive changes since the February 2007 draft and still ignores the "alternative approach" ideas advocated by the Stakeholders in November 2006. The February 2008 draft TMDL also fails to substantively address many of the issues and questions raised by Regional Water Board members during the March 2007 public workshop.

In sum, the February 2008 draft TMDL continues to acknowledge that very little is known about most methylmercury sources, how to control them, and how controlling source contributions of methylmercury will affect fish tissue. Despite this significant conclusion about the state of knowledge, the February 2008 draft (1) establishes specific methylmercury load reduction requirements for some of the sources of methylmercury to the Delta (*e.g.*, agriculture, wetlands, municipal and industrial wastewater, urban stormwater and major tributaries); (2) requires specific load allocation recipients to perform characterization and control studies; and (3) establishes a water concentration "goal" of 0.06 ng/L for methylmercury that would go into effect as early as 2016. In addition, the February 2008 draft TMDL asserts that attainment of the methylmercury load allocations will result in attainment of the fish tissue targets. We fail to see how the February 2008 draft supports such a profound conclusion.

Issue Discussion

The February 2008 draft TMDL recognizes that, based on the current state of science, very little is known about how to control sources of methylmercury affecting the Delta. Furthermore, it is unknown if controlling only those methylmercury sources identified in this TMDL will actually change ambient water concentrations and ultimately reduce mercury concentrations in fish. However, despite these many unknowns, the draft TMDL asserts that attainment of methylmercury load allocations will result in meeting fish tissue targets. To our knowledge, there is not sufficient information to make the assertion, which is the basis for the load allocations proposed. The purpose behind Phase 1 of the TMDL is to characterize sources and study ways to control methylmercury. Once this information is developed, then appropriate load allocations and controls can be identified. Until that time, the proposed TMDL goals, allocations and required controls currently included in the draft are premature and unsupported by current science.

As Attachment A shows, at best, the draft TMDL may lead to an unknown reduction (not elimination) in only about 25% of all methylmercury loading to the Delta. The remaining **75% of all current sources of methylmercury to the Delta would not be controlled under this TMDL**. The implication that future TMDL's in the tributaries and open water sources will effectively achieve the desired reductions for 75% of the methylmercury load is unsubstantiated. Furthermore, the claim is untenable considering the huge challenge of finding any effective and reasonable methylmercury controls. In short, this TMDL ignores 75% of the methylmercury load. This TMDL only proposes to study 25% of the load to determine if they are controllable and if they are, determine if controlling these loads will attain the fish tissue goals. In reality, the ability to achieve the reductions in fish by controlling 25% of the load is unknown. Further, the notion of manipulating wetlands for the purpose of controlling ambient water concentrations of methylmercury in the Delta could thwart other ongoing and proposed efforts to restore essential Delta ecosystem function. One should recognize that loss of critical habitat is one of the likely consequences that could result from a narrowly focused control strategy, such as limiting natural methylation pathways in Delta wetlands in the effort to control methylmercury production. For example, recent work by the Governor's Delta Vision Blue Ribbon Task Force identified "[h]igh priority ecosystem revitalization projects should be pursued aggressively...." These projects would involve considerable wetlands restoration, and as such the Assembly is now considering legislation (AB 2502) to create a wetlands restoration fund to restore tidal wetlands on three Delta islands. The current focus of Phase 1 of this TMDL on methylmercury allocations is

premature, fatally flawed and cannot reasonably be expected to result in the anticipated reductions in fish tissue concentrations cited by Regional Water Board staff.

A Modified Approach

Key elements of a modified approach proposed by the undersigned stakeholders include:

1. **The State must establish the means to fund the methylmercury characterization and control studies** required during Phase 1 of the February 2008 draft TMDL. This important work will appropriately inform the Regional Water Board whether and when it is appropriate to establish methylmercury load allocations. It is unacceptable that this TMDL assigns no responsibility to the State of California to address 75% of the methylmercury load which comes from open water and tributary sources. Gold mining legacy sources of mercury are spread throughout much of the waters of the State. The modified approach proposed by the stakeholders offers a fair approach by the State of California to fund characterization and control studies, in proportion to its methylmercury load contribution to the Delta.

Central to this modified approach is the expectation that the characterization and control studies are not only predicated on a strong scientific foundation, but that the results of these studies and holistic analysis of the effectiveness of future methylmercury controls on reducing fish tissue concentrations in the Delta should be subject to independent scientific peer review. This modified approach will provide the Regional Water Board and all stakeholders with a better understanding of what can be done, by whom, when, and at what cost.

2. **Establish an appropriate fish tissue standard to protect beneficial uses now and into the future.** We support the fish tissue standard proposed by Regional Water Board staff in the February 2008 draft Mercury TMDL.

3. **Recognize the current limitations on the ability to control methylmercury from various identified sources.** The characterization and control studies performed in Phase 1 of the Mercury TMDL are intended to provide the Regional Board and all stakeholders with better, more current information about the controllability of methylmercury from the identified sources. The level of effort and resources required for characterization and control studies should be linked to the relative magnitude of the source. In addition, the TMDL should include flexibility for dischargers to combine resources for these studies on a regional and watershed basis. This would facilitate a stronger focus on the most important sources and areas of interest, rather than forcing expensive studies of relatively insignificant sources.

4. **Create early incentives for the removal and control of *total mercury* from the Delta and upstream watersheds.** The state of current science cannot tell us how to control methylmercury loading to the Delta. Reliance on total mercury rather than methylmercury load allocations is consistent with the approach taken in the San Francisco Bay mercury TMDL and other TMDL's nationwide. When the Phase 1 studies are complete, the Regional Water Board will be better informed as to what can be controlled and at what cost. Until then, it is unknown whether the methylmercury allocations can be met or if they are even needed. Therefore, it is most appropriate to focus our current mercury removal and control strategies on mercury sources that we do know how to control, which are ultimately part of the long-term solution. By focusing our removal and control strategies on **total mercury** while the Phase 1 methylmercury

studies are being done, we have the best chance to effect *both* total *and* methylmercury reductions in the Delta now and into the future. Again, the State should share proportionally in funding these total mercury offset projects.

5. Eliminate the water concentration "goal" and develop methylmercury allocations at the end of Phase 1 based on outcome of characterization and control studies. The methylmercury water concentration goal is not necessary and is redundant if a fish tissue standard is adopted. Establishing a water concentration "goal" (or target, limit, trigger, or standard) before the Phase 1 studies have been completed is premature. The purpose of Phase 1 is to determine if reducing sources will attain the desired levels in fish. Without this information, the proposed goal and allocations are unsupported by science. In the face of what could be completely "uncontrollable" tributary and open water sources, the question of attainability of the goal and allocations becomes paramount. Further, point source dischargers view the proposed water concentration goal as an eventual permit limit which cannot be met without major treatment plant modifications. This increased treatment comes at a price that includes higher energy demands and greenhouse gas emissions to both construct and operate those facilities. These same point source dischargers are those most likely, able, and willing to perform pilot "offset" projects and other collaborative roles in the future development of the TMDL. The costs of treatment to meet the goal will obviate their interest in implementing offset projects.

6. Require the development and implementation of remedial actions by the State of California to reduce the contribution of legacy mercury in the watershed by at least half, as part of a comprehensive effort to achieve the TMDL. As discussed earlier in this letter, reduction in the legacy component is absolutely essential if the goals in this TMDL are ever to be achieved in the Sacramento Valley watershed. To propose costly measures on other sources when upwards of 75% of the problem goes un-addressed is bad public policy and will not achieve regulatory goals.

We appreciate this important opportunity to comment on the Draft TMDL and provide a modified approach to the current staff proposal. We believe that our modifications will more effectively lead to a defensible and acceptable TMDL that will enable mercury load reduction projects and long-term reduction in fish tissue levels in the Delta.

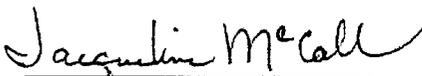
Sincerely yours,



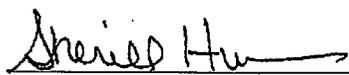
Paul Buttner
Manager, Environmental Affairs
California Rice Commission



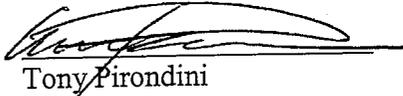
Greg Yarris
Director of Conservation Policy
California Waterfowl Association



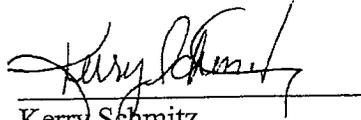
Jacqueline McCall
Chair, Water Committee
Central Valley Clean Water Association



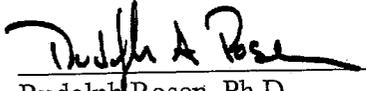
Sherill Huun
Supervising Engineer
City of Sacramento



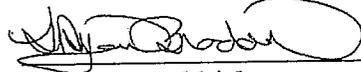
Tony Pirondini
Water Quality Supervisor
City of Vacaville



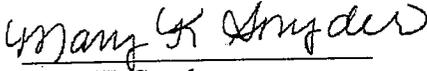
Kerry Schmitz
Senior Civil Engineer
County of Sacramento



Rudolph Rosen, Ph.D.
Director of the Western Regional Office
Ducks Unlimited



L. Ryan Broddrick
Executive Director
Northern California Water Association



Mary K. Snyder
District Engineer
Sacramento Regional County Sanitation District



Susan Tatayon
Assistant Director
California Freshwater Initiative
The Nature Conservancy



Chris Scheuring
Attorney, Natural Resources and Environmental Division
California Farm Bureau Federation

- cc. Senator Darrell Steinberg
Assemblymember Lois Wolk
Tam Doduc, State Water Resources Control Board Chair
Art Baggett, State Water Resources Control Board Member
Francis Spivy-Weber, State Water Resources Control Board Member
Gary Wolff, State Water Resources Control Board Member
Charlie Hoppin, State Water Resources Control Board Member
Katherine Hart, Central Valley Regional Water Quality Control Board
Paul Betancourt, Central Valley Regional Water Quality Control Board
Dan Odenweller, Central Valley Regional Water Quality Control Board
Sopac Mullholland, Central Valley Regional Water Quality Control Board
Cheryl Maki, Central Valley Regional Water Quality Control Board
Sandra Meraz, Central Valley Regional Water Quality Control Board
Pamela Creedon, Regional Water Quality Control Board
Patrick Morris, Regional Water Quality Control Board

**Summary of Methylmercury Loads & Reductions:
Proposed Mercury TMDL for the Sacramento-San Joaquin Delta**

Table A Agriculture Methylmercury Allocations			
Delta Sub-Area Receiving Source Input	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Central Delta	37	0%	37
Marsh Creek	2.2	83%	0.37
Mokelumne & Consumnes Rivers	1.6	49%	0.82
Sacramento River	36	44%	20
San Joaquin River	23	75%	5.8
West Delta	4.1	0%	4.1
Yolo Bypass	19	84%	3
Sub-Total: Agriculture Sources	123		70.7

Table A Wetland Methylmercury Allocations			
Delta Sub-Area Receiving Source Input	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Central Delta	210	0%	210
Marsh Creek	0.34	83%	0.058
Mokelumne & Consumnes Rivers	30	49%	15
Sacramento River	94	44%	53
San Joaquin River	43	75%	11
West Delta	130	0%	130
Yolo Bypass	480	84%	77
Sub-Total: Wetlands Sources	987.3		496.1

Table B Municipal & Industrial Wastewater Methylmercury Allocations				
Sub-Area	Source	Existing Load (g/yr) <i>ref. Feb 07 BPA</i>	% Reduction Required <i>ref. Feb 07 BPA</i>	Load Allocation (g/yr)
Central Delta	Discovery Bay WWTP	0.42	0%	0.37
	Lodi (City of) White Slough WWTP	0.92	0%	0.93
	San Joaquin Co. DPW 31-Flag City WWTP	0.007	0%	0.007
	<i>Unassigned Allocation for New Discharges</i>	0	0%	30
Marsh Creek	Brentwood (City of) WWTP	0.085	73%	0.14
	<i>Unassigned Allocation for New Discharges</i>	0	0%	.12
Sacramento River	Rio Vista (City of) WWTP	0.11	44%	0.06
	SRCSD – Elk Grove Walnut Grove WWTP	0.24	44%	0.13
	Sacramento (City of) Combined WWTP	0.43	44%	0.24
	SRCSD Sacramento River WWTP	160	44%	90.0
	West Sacramento (City of) WWTP	0.40	0%	0.62
	<i>Unassigned Allocation for New Discharges</i>	0	0%	8.4
San Joaquin River	Deuel Vocational Inst. WWTP	0.013	0%	0.02
	Manteca (City of) WWTP	1.4	72%	0.38
	Oakwood Lake Subdivision Mining Recl	0.40	0%	0.38
	Stockton (City of) WWTP	36	75%	9
	Tracy (City of) WWTP	1.9	59%	0.77
	<i>Unassigned Allocation for New Discharges</i>	0	0%	2.2

* Tables, information and data presented herein are taken from the February 2008 Draft Mercury TMDL for the Delta, except where shaded values from February 2007 Draft Mercury TMDL Basin Plan Amendment (BPA).

**Many inconsistencies in required % reductions occur between February 2008 BPA and February 08 staff report.

Sub-Area	Source	Existing Load (g/yr) <i>ref. Feb 07 BPA</i>	% Reduction Required <i>ref. Feb 07 BPA</i>	Load Allocation (g/yr)
West Delta	<i>Unassigned Allocation for New Discharges</i>	0	0%	0.57
Yolo Bypass	Woodland (City of) WWTP	.26	0%	0.40
	<i>Unassigned Allocation for New Discharges</i>	0	0%	0.42
Sub-Total: Municipal & Industrial Wastewater Sources (Sub-Total: February 2008 staff report)		202.59 (205.69)		115.45

**Table E
Urban Stormwater Methylmercury Allocations**

Sub-Area	Source	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Central Delta	Contra Costa (County of)	0.75	0%	0.75
	Lodi (City of)	0.053	0%	0.053
	Port of Stockton MS ⁴	0.39	0%	0.39
	San Joaquin (County of)	0.57	0%	0.57
	Stockton Area MS ⁴	3.6	0%	3.6
Marsh Creek	Contra Costa (County of)	1.2	75%	0.30
Mokelum River	San Joaquin (County of)	0.045	49%	0.023
Sacramento River	Rio Vista (City of)	0.014	44%	0.0078
	Sacramento Area MS ⁴	1.8	44%	1.0
	San Joaquin (County of)	0.19	44%	0.11
	Solano (County of)	0.073	44%	0.041
	West Sacramento (City of)	0.65	44%	0.36
	Yolo (County of)	0.073	44%	0.041
San Joaquin River	Lathrop (City of)	0.27	75%	0.068
	Port of Stockton MS ⁴	0.01	75%	0.0025
	San Joaquin (County of)	2.2	75%	0.55
	Stockton Area MS ⁴	0.50	75%	0.13
	Tracy (City of)	1.8	75%	0.45
West Delta	Contra Costa (County of)	3.2	0%	3.2
Yolo Bypass	Solano (County of)	0.085	75%	0.021
	West Sacramento (City of)	1.1	75%	0.28
	Yolo (County of)	0.33	75%	0.083
Sub-Total: Urban Stormwater Sources		18.9		12.03

**Table G
Open Water Methylmercury Allocations**

Source	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Central Delta	370	0%	370
Marsh Creek	0.18	83%	0.031
Mokelumne River	4.0	0%	4.0
Sacramento River	140	0%	140
San Joaquin River	48	0%	48
West Delta	190	0%	190
Yolo Bypass	100	84%	16
Sub-Total: Open Water Sources		852.18	768

**Table H
Tributary Watershed Methylmercury Allocations**

Sub-Area	Source	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Central Delta	Calaveras River	26	0%	26
	Bear/Mosher Creeks	11	0%	11
	Bethany Reservoir Area	TBD	0%	TBD
Marsh Creek	Marsh Creek	1.9	82%	0.34
Mokelum River	Mokelumne River	110	70%	33

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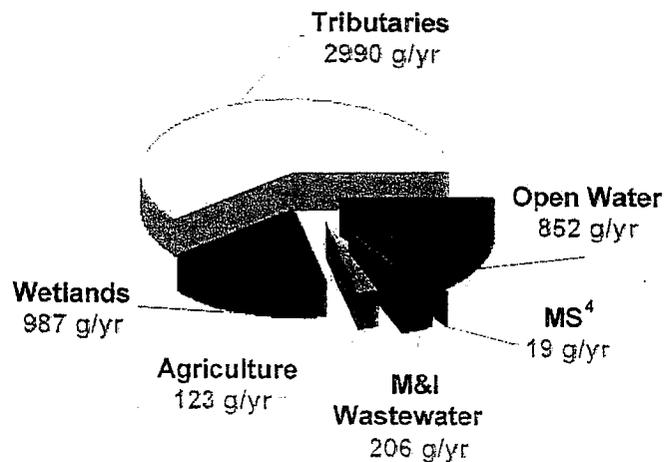
**Many inconsistencies in required % reductions occur between February 2008 BPA and February 08 staff report.

Sub-Area	Source	Existing Load (g/yr)	% Reduction Required	Load Allocation (g/yr)
Sacramento River	Sacramento River	2000	50%	1000
	Morrison Creek	7.5	50%	3.8
San Joaquin River	San Joaquin River		69%	110
	French Camp Slough	360	64%	4.0
	Manteca-Escalon, Mountain House & Corral Hollow Creeks Areas	11	0%	TBD
West Delta	Antioch & Montezuma Hills Areas		0%	TBD
Yolo Bypass	Cache Creek Settling Basin	TBD	92%	14
	Cache Slough/Lindsey Slough/Dixon Areas	TBD	79%	0.76
	Fremont Weir	140	50%	90
	Knights Landing Ridge Cut	3.6	74%	26
	Putah Creek	180	72%	3.1
	Ulatis Creek	100	79%	2.0
	Willow Slough	11	79%	3.8
Sub-Total: Tributary Watershed Sources		2990		1327.8
Total All Sources		5177		2790

Synopsis of Methylmercury Loads & Reductions By Source Category

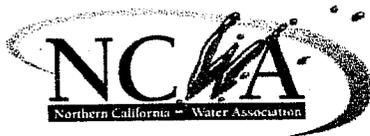
Source (percentage of all sources)	Existing Load (g/yr)	Load Allocation (g/yr)
Tributary Watersheds (58%)	2990	1328
Wetlands (15%)	987	987
Agriculture (2%)	123	71
Open Water (17%)	852	852
Municipal & Industrial Wastewater (4%)	206	110
Urban Stormwater (1%)	19	12
Total All Sources	5177	2790

} Uncontrollable Sources:
4953 g/yr
- or -
96%



* Tables, information and data presented herein are taken from the February 2008 Draft Mercury TMDL for the Delta, except where shaded values from February 2007 Draft Mercury TMDL Basin Plan Amendment (BPA).

**Many inconsistencies in required % reductions occur between February 2008 BPA and February 08 staff report.



November 17, 2006

Ms. Pamela Creedon
Executive Officer
Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

Dear Ms. Creedon:

The undersigned organizations continue to have serious concerns with the direction that the proposed "Basin Plan Amendment to Control Methyl and Total Mercury in the Sacramento-San Joaquin Delta Estuary (Delta)" appears to be heading. We respectfully request a meeting with you to discuss and help formulate alternative approaches to the current staff proposal that we believe can more effectively address health issues related to fish and will advance a sound regulatory process to accomplish public health objectives.

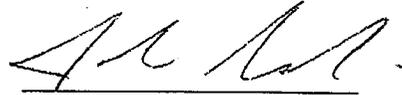
The attached document presents an overview of an alternative approach that recognizes the unique nature of methyl and total mercury in the Delta. Most importantly, the approach calls for a comprehensive and scientific evaluation to characterize methyl-mercury in the Delta, which is a critical foundation to assure an effective regulatory strategy for the Regional Board. Moreover, we believe a broad and diverse working group convened by the California Environmental Protection Agency (CALEPA) and the Water Boards can assist in framing the characterization studies and can help secure the necessary funding for these important efforts.

We look forward to talking with you at your earliest convenience.

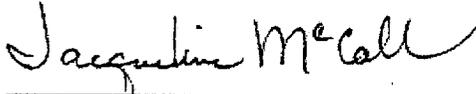
Sincerely yours,



Paul Buttner
Manager, Environmental Affairs
California Rice Commission



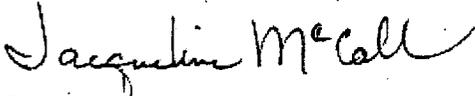
Jake Messerli
Director of Waterfowl and Wetland Programs
California Waterfowl Association



Jacqueline McCall
Chair, Water Committee
Central Valley Clean Water Association



Bill Busath
Supervising Engineer
City of Sacramento



Jacqueline McCall
Water Quality Manager
City of Vacaville



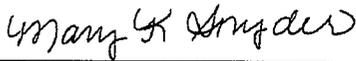
David Tamayo
Environmental Specialist
County of Sacramento



Dave Widell
Director of Conservation Policy
Duck's Unlimited



David J. Guy
Executive Director
Northern California Water Association



Mary K. Snyder
District Engineer
Sacramento Regional County Sanitation District



Susán Tatayon
Assistant Director
California Freshwater Initiative
The Nature Conservancy

cc: Water Boards

AN ALTERNATIVE APPROACH FOR THE DELTA METHYLMERCURY BASIN PLAN AMENDMENT

Methylmercury Calls for a Different Approach. Mercury and methylmercury are different than the other impairments being addressed by the Regional Board. It is widely recognized by scientists that mercury is a relic pollutant, present in Central Valley watercourses as a result of historic mining and natural erosion. Mercury is not a pollutant that is added to the waterways by any current land uses or water management and the effects of mercury in our watersheds today are not the responsibility of today's water managers, wetlands managers or landowners. For this reason, the traditional Total Maximum Daily Load (TMDL) model simply does not work for mercury or methylmercury.

The current Regional Board staff proposal follows the traditional TMDL model by arbitrarily pre-assigning responsibility for load allocations throughout the region and then mandating unspecified entities and/or individuals to prepare ad-hoc control studies to help answer questions about mercury in the system, the discharge of mercury and the process of methylation. This proposal, if adopted, would have profound impacts on a variety of state and federal mandates and objectives aimed at improving environmental and public health, particularly those associated with wetland management and restoration within the Delta and its watersheds. A different, more comprehensive, long-term approach is necessary and would be more appropriate for mercury reduction efforts.

The Need for Comprehensive and Coordinated Control Studies. There is general agreement that additional characterization and control studies are necessary for mercury and methylmercury. Rather than proceed in the proposed manner haphazardly by pre-assigning responsibility to unspecified entities for mercury load allocations in the Delta and Central Valley, a more sound approach would be for California Environmental Protection Agency (CALEPA) and the Water Boards, in coordination with resource agencies and others, to convene a working group to help frame and coordinate the necessary characterization studies. This workgroup would help develop a strategic over-arching plan to study mercury and its methylation in the Delta and could help secure funding for the effort to develop a feasible TMDL. The results from this coordinated approach would then guide future regulatory actions by the Central Valley Regional Board and could serve as a model for addressing mercury impairments in the rest of the state.

The Control Studies Should Begin with a Strong Scientific Program. A good starting foundation for this effort is the 2003 "Mercury Strategy for the Bay-Delta Ecosystem: A Unifying Framework for Science, Adaptive Management and Ecological Restoration" that was prepared for the Bay-Delta Authority. Here, the CALFED Bay-Delta Program coordinated an aggressive effort to look at mercury in the Bay-Delta over the past decade and has conducted numerous studies and made several recommendations that would help inform the state agencies on a comprehensive study plan for methyl and total mercury. We are waiting for the final review

and synthesis of this \$30 million program. We are confident that this comprehensive approach will be completed more quickly and be more comprehensive than the ad-hoc studies by individual entities that will emerge from any pre-assignment of responsibility.

The Regional Board Should Pursue Flexible Tools to Address Mercury that Do Not Pit Environmental Objectives Against One Another. Under the TMDL regulations, the Regional Board can provide reasonable assurances that load allocations will be developed when the science supports an allocation and there is a methodical way to allocate responsibility in a legally appropriate manner. While the control studies are underway, creative and flexible compliance approaches can and should be immediately pursued with interested parties. This should include an offset program and should recognize the broad and diverse scope of wetland habitat types in the Central Valley that are managed in different ways at different times of the year.

The State of California Should Fund These Studies. Californians all share the concern about mercury and methylmercury in fish and other wildlife. As a relic pollutant, controlling mercury is a large societal issue that is in the public interest and the characterization studies and related work should be supported by broad public funding from throughout the State. The proposed "Mercury Monitoring and Remediation Fund" proposed in AB 2901 (Wolk) or a similar mechanism would help serve this purpose.