

**Delta Methylmercury TMDL
DRAFT BASIN PLAN AMENDMENTS & COMMENTS
(24 September 2009)**

The Delta Methylmercury TMDL Stakeholder Group has been discussing and developing suggested revisions for the draft Basin Plan Amendment (BPA) text. The following table provides the (1) latest version of the BPA text dated 2 September and (2) comments provided by stakeholder group participants as of 24 September. This table contains comments provided both before and after the 17 September stakeholder meeting. In preparation for the next stakeholder meeting (1 October), please read comments submitted by other stakeholders. Understanding areas of significant disagreement between stakeholders will advance the discussion at the next stakeholder meeting and help direct additional revisions.

Appendix 43 is provided in a separate Adobe Acrobat file. Appendix 43 contains maps and lists of named waterways in the Delta and Yolo Bypass and the subarea delineations. The draft appendix has not been edited since February 2008. Appendix 43 and this table, as well as the table with the 27 July BPA text and the comments received for it, are available at the following Central Valley Water Board website:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/stakeholder_meetings/

Commenters:

CVCWA: Central Valley Clean Water Agencies
CVFPB: Central Valley Flood Protection Board
CWA: Clean Water Action
DFG: California Department of Fish and Game
DPC: Delta Protection Commission
DU: Ducks Unlimited
DWR: California Department of Water Resources
MS4: Sacramento & Stockton Stormwater Management Programs
RB: Central Valley Water Board staff
TNC: The Nature Conservancy
USFWS: U.S. Fish and Wildlife Service
YCFCWCD: Yolo County Flood Control & Water Conservation District

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#	<i>September 2 BPA Text</i>	<i>Edits & Comments as of 24 September 2009</i>
1	<p>Revise Chapter II (Existing and Potential Beneficial Uses), Table II-1 for Sacramento San Joaquin Delta, to add as follows: Sacramento San Joaquin Delta (8,9,e)</p> <p>Footnote: (e) in addition COMM is designated for the Sacramento San Joaquin Delta waterways listed in Appendix 43 and not any tributaries unless specifically designated.</p>	<p>CVCWA: The designation should be classified as a potential use for sections of the delta not meeting MeHg fish tissue objectives because the water quality conditions necessary to meet this use have not existed and do not exist in all waterbodies listed in Appendix 43.</p> <hr/> <p>CWA: Then what constitutes a Sacramento San Joaquin waterway? Needs to be specified, because it is our understanding that tributaries within the watershed are included in this TMDL. How do we avoid taking away a designation because water is impaired</p>
2	<p>Revise Chapter III (Water Quality Objectives), under “Methylmercury”, to add as follows:</p> <p>The following fish tissue objectives apply to 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.</p>	<p>TNC: “This objective is protective of wildlife species that consume small fish.” – I assume this was accidentally deleted in the Sept 2 revision. (S. Liu)</p> <hr/> <p>CVCWA: Add the hyphen: (150-500 mm total length).</p> <hr/> <p>DWR: Where is Appendix 43 that is referenced here? (M. List)</p> <hr/> <p>CWA: These paragraphs (number 2 and number 3) should be reversed and CWA recommends the following edits. Please keep in mind that this is a suggestion and has not been vetted with impacted communities who we are aware have strong concerns about the fish tissue targets in this TMDL to date and the calculations of a meal size.</p> <p><u>“The long-term goal is a fish tissue objective protective of humans eating four to five meals (xg/day) per week of top trophic level fish. (Fill in with actual concentration numbers as you do below)”</u></p> <p><u>The immediate objectives of the BPA will protect people eating one meal/week (32 g/day) of Delta fish plus some non-Delta (commercial market) fish. The fish tissue objectives will be reevaluated during the Phase 1 Delta Mercury Control Program Review and later program reviews to determine by what timeframe the higher consumption rate can</u></p>

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		<p><u>be attained as methylmercury reduction actions are developed and implemented.</u></p> <p><u>The following fish tissue objectives apply to the Sacramento-San Joaquin Delta and Yolo Bypass waterways listed in Appendix 43 during phase 1. 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. “</u></p> <p>We would respectfully recommend avoiding words like “reasonable” in this specific case. This is an ultimate goal that must be met over time. We strongly believe that the data generated by community groups and DPH, demonstrating much higher consumption rates must be fully integrated into what those goals should be and those studies clearly demonstrate significantly higher consumption rates.</p> <p>CWA is attempting here to provide an approach that establishes the necessary fish tissue goals up front but to allow for a realistic less stringent goal in the short term as we learn more and in recognition that it may take time to reach more stringent goals. Bottom line is that the TMDL must be driven by the needs of the watershed in order to meet a true beneficial use, and not an artificial one.</p> <p>We understand the challenges to meet load allocations, and are not advocating for actions/strategies that do not make sense in terms of little gain at great cost. However, it is not appropriate for goals necessary to protect beneficial uses of a watershed to be based on what discharger claim they can/can't do. It is about the water.</p> <p><u>DPC: Please note that Water Policy 3 of the Management plan provides that “Water agencies at local, State, and federal levels shall work together to ensure that adequate Delta water quality standards are set and met and that beneficial uses of State waters are protected consistent with the CALFED (see Water Code Sections 12310(f)) record of Decision dated August 8, 2000.”</u></p>

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3	<p>A long-term goal is to have a fish tissue objective protective of humans eating four to five meals per week of top tropic level fish. The current objectives protect people eating one meal/week (32 g/day) of Delta fish plus some non-Delta (commercial market) fish. The fish tissue objectives will be reevaluated during the Phase 1 Delta Mercury Control Program Review and later program reviews to determine whether the higher consumption rate can be attained as methylmercury reduction actions are developed and implemented.</p>	<p>CVCWA: Edit the last sentence as follows: “The fish tissue objectives will be re-evaluated during the Phase 1 Delta Mercury Control Program Review and later program reviews to determine whether the higher consumption rate can be <u>reasonably</u> attained as methylmercury reduction actions are developed and implemented.”</p> <p>Need to be consistent on the name of the program review. The title sometimes refers to the Phase I, and sometimes not.</p> <hr/> <p>CWA: We would strongly recommend any language about studying the feasibility of reaching higher (more stringent) goals be included in the TMDL and not in an MOI.</p>
4	<p>Revise Chapter IV (Implementation), under “Mercury Discharges in the Sacramento River and San Joaquin River Basins”, to add as follows:</p> <p><i>[The introductory paragraphs in this section will be updated to reflect current conditions.]</i></p>	
5	<p><u>Delta Mercury Control Program</u> The Delta Mercury Control Program applies specifically to the Delta and Yolo Bypass waterways listed in Appendix 43.</p>	<p>DWR: Where is Appendix 43 that is referenced here? (M. List)</p>
6	<p>This control program was adopted by the Regional Water Quality Control Board on [date], approved by the Office of Administrative Law on [date], [Effective Date], and approved the U.S. Environmental Protection Agency on [date].</p>	<p>CVCWA: The Basin Plan amendment is not effective until approved by the U.S. Environmental Protection Agency. Thus, the placeholder for the effective date must follow the EPA date, not the Office of Administrative Law.</p>
7	<p>Program Overview</p> <p>Additional information must be developed on ways to control methylmercury sources in order to attain waste load and load allocations. Therefore, the Delta Mercury Control Program shall be implemented through a phased, adaptive management approach.</p>	<p>CVCWA: Edit: “Additional information must be developed on <u>methods</u> ways to control methylmercury sources in order to attain waste load and load allocations.</p> <hr/> <p>YCFWCWD: It would help to state that: Hg control is needed to protect human health and wildlife, but current understanding indicates some controls may reduce wildlife habitat or result in actions that increase other types of risk to humans and wildlife. The management program will aim at balancing these potentially competing needs.</p>

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		This would give proper foundation to later specifics dealing with adaptive management.
8	Phase 1 spans from [Effective Date] to [8 years after the Effective Date]. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes pollution minimization programs for inorganic (total) mercury sources in the Delta and Yolo Bypass, as well as requirements for reducing total mercury loads from the upstream watersheds, to reduce sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in wetland and open-water habitats, and to reduce total mercury loading to San Francisco Bay, as required by Resolution R2-2006-0052.	<p>CVCWA: Is the requirement for reducing total mercury loads from upstream watersheds still accurate? The requirements for the Cache Creek Settling Basin are to evaluate load reduction feasibility. See highlighted version below and correct if necessary. Also added total mercury to be consistent with Principal 1.</p> <p>Suggested edit: Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control <u>inorganic (total) and methyl mercury</u>. Phase 1 includes <u>provisions for: pollution minimization programs for inorganic (total) mercury sources in the Delta and Yolo Bypass;</u> as well as requirements for reducing total methylmercury load reductions from the upstream watersheds; to reduce best management practices to reduce sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in wetland and open-water habitats, and to reduce total mercury loading to San Francisco Bay, as required by Resolution R2-2006-0052.</p> <hr/> <p>CWA: As we have said over the last few years, we oppose an 8 year study period that is just that.</p> <p>We believe the goals of Phase 1 need to be twofold (and note that we include methylmercury strategies as well as total):</p> <ol style="list-style-type: none"> 1) Study strategies to reduce methylmercury. 2) Implement strategies, based on what we know on the date the TMDL becomes effective and what will become known throughout Phase 1 to reduce methylmercury and total mercury <p>In some cases, we will not have definitive understanding of whether strategies to interfere with/reduce methylation will be effective. Those may be pilot programs and not full blown projects during Phase 1 as part of the learning process. However, keep in mind that we will not know 'everything' in 8 years either.</p> <p>As you will see below, we also believe that while this is a methylmercury</p>

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		<p>TMDL, reducing total mercury loads should continue in Phase 2 as part of the strategy to reduce methylmercury levels</p> <p>We also believe that the clarity needed on this issue is needed in the BPA and not in an MOI. The MOIs need to reflect the goals of the TMDL, not the other way around.</p> <p>Edit: “and <u>potentially</u> the development of a pilot mercury offset program”.</p> <p>We don't want to reiterate all of our comments from the past, but development of such a program must have limitations/parameters and be seen as last resort, so should not be seen as a definite. This wording takes it for granted that such programs will need to be included.</p> <p>The internal processes that dischargers must go through to get their reduction strategies approved by their own leadership is not something the TMDL should consider. That is, frankly, up to the discharger groups to address internally.</p>
9	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 pilot mercury offset program.	CVCWA: Unless the Offset program is developed adequately to describe in prior to Basin Plan approval, the offset program to be developed in Phase I should not be described as a pilot program in this section. The program itself may include a pilot aspect (see lines 110 & 111). With the language in this section, it limits the development of a program as described in line 10. Suggest removing the word pilot. Be consistent with lines #10 and 110-111.
10	At the end of Phase 1, the Regional Water Board shall conduct a Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, and/or allocations for the Delta Mercury Control Program; adoption of management practices and implementation schedules for methylmercury controls; and adoption of a Mercury Offset Program to compensate for loads in excess of the methylmercury allocations. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on	DU: I suggest adding to evaluations for consideration by the board: Review of the public and environmental benefits of wetlands vs. MeHg impacts and consideration of modifying (increasing) wasteload allocations to allow for these beneficial uses or conflicts, such as providing habitat for wetlands dependant endangered species. <hr/> CWA: At the end of Phase 1, the Regional Water Board shall conduct a Delta Mercury Control Program Review that considers: modification of <u>immediate</u> methylmercury goals and <u>timelines for reaching them</u> , objective <u>timeframe</u> , and/or allocations for the Delta Mercury Control Program;

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	<p>the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives and allocations shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.</p>	<p>adoption of management practices and implementation schedules for methylmercury controls; and <u>potential</u> adoption of a Mercury Offset Program <u>for dischargers who cannot meet load allocations after implementing all reasonable possible load reduction strategies and can demonstrate no disproportionate impacts on local communities as a result.</u> 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 and allocations shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.</p>
11	<p>During Phase 2 (after the Phase 1 Delta Mercury Control Program Review through 2030), dischargers shall implement methylmercury control programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2.</p>	<p>DU: Does this mean compliance monitoring does not start until Phase 2 begins? What about monitoring during Phase 1? Apart from monitoring during designated studies, will all other monitoring be deferred until Phase 2 begins?</p> <hr/> <p>CVCWA: Phase 2 should span 15 years, to the year 2035, which is equivalent to 3 five-year NPDES permit cycles, as originally contemplated when the BPA was introduced in 2004. Otherwise this limits compliance to 10 years or less to achieve Phase 2 WLAs, which may not be enough time to design, build, and implement BMPs for some dischargers.</p> <hr/> <p>CWA: During Phase 2 (after the Phase 1 Delta Mercury Control Program Review through 2030), dischargers shall implement methylmercury control programs and <u>continue with inorganic mercury reduction strategies.</u> Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2.</p>
12	<p>Load and Waste Load Allocations</p> <p>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.</p>	<p>CVCWA: Add at the end “Load and wasteload allocations will become effective at the beginning of Phase 2.” (Do the load allocations account for potential new or expanded discharges? It must include the consideration of new and expanded discharges now as the allocation can’t be adjusted later. We need to specifically account for potential new discharges from MUN now.)</p> <hr/> <p>DWR: It is unclear that the Table D waste load allocation for Cache Creek Settling Basin Outflow is reasonable or achievable. (M. List)</p>

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		CWA: As we've said in past, new and expanded methylmercury dischargers are not acceptable in a watershed with no more assimilative capacity.
13	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 agricultural lands, wetlands, and open-water habitat in each subarea, as well as atmospheric wet deposition to each subarea (Table A). The subarea allocations apply to both existing and future discharges.	DPC: Enhance language to specifically address benefit/cost analysis that takes into account the costs to reduce mercury by beneficial activities in the Delta such as habitat creation, flood control, agriculture, wastewater treatment and dredging. (Comment may apply to other lines as well). DWR: Without the figure (referenced as Figure xx.x) it is very difficult to follow the discussion of load allocations (Table A). (M. List)
14	Waste load allocations apply to individual NPDES permitted facility and Municipal Separate Storm Sewer System (MS4) discharges (Tables B and C, respectively).	
15	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.	DWR: It is unclear who must comply with the load allocations specified in Table D. Additionally, for load allocation assignments, regardless of the tributary, the language and table do not address the issue of upstream inputs to the point location being measure and assessed the load. With the example of Cache Creek Settling Basin (and/or any other specific tributary allocation), it is unclear if the load allocation is addressing the difference between upstream inputs of total and methylmercury versus the output loads, or if the entire allocation and control is being placed on the point location used as the measuring point. (M. List) CWA: Timing?
16	Margin of Safety The Delta Mercury Control program includes an explicit margin of safety of 10%.	DWR: How is this margin of safety calculated, and what inputs are used in the calculation? (M. List)
17	Compliance Date 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.	DU: Since much of the discharge and presumably methylization of mercury takes place in the bypass during flood events, how will such events be treated in the context of load allocation or meeting allocations, considering there will be no means to control such events and the consequences? Language should be inserted to clarify that, or allocations be adjusted to reasonably accommodate such events.

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		<p>CVCWA: Need to look at. Phase I is a study period and in Phase I we are looking for interim limits for all. Load and waste load allocations are to be reviewed and adjusted as necessary in the public review process AFTER Phase I studies are completed. Therefore, “as soon as possible” is no sooner than the beginning of Phase 2.</p> <p>What happened to year 2035? The year 2035 was calculated as 15 years (three 5-year cycles for NPDES permits) from the year 2020 milestone for starting Phase 2.</p> <p>Use of the term “dischargers” is confusing. Do you mean those with NPDES permits or all of those who contribute to the methylmercury loading? Suggest being specific.</p> <p>Edit: <u>Beginning in Phase 2, methylmercury load and waste load allocations for point (and non-point?) dischargers in the Delta and Yolo Bypass shall be met as soon as possible, but no later than 2030-2035, unless the Regional Water Board modifies the implementation schedule and final compliance date.</u></p> <p>_____</p> <p>CWA: Under what circumstances would the Reg. Board do this?</p>
18	<p>Nonpoint source dischargers are not required to begin implementation of methylmercury management practices developed in Phase 1 until the Regional Water Board has completed the Delta Mercury Control Program Review and has developed the tributary mercury control programs. However, nonpoint source dischargers should implement reasonable and feasible methylmercury management practices as they are developed.</p>	<p>CVCWA: Why would this requirement be exclusively for NPS group?</p> <p>Nonpoint source-During Phase 1, all dischargers shall implement reasonable control options for inorganic mercury and/or methylmercury. However, dischargers are not required to begin implementation of methylmercury management practices developed identified in Phase 1 until the Regional Water Board has completed the Delta Mercury Control Program Review and has developed the tributary mercury control programs</p> <p>_____</p> <p>RB: How do we apply Principle #1?</p> <p>_____</p> <p>DWR: Please provide an implicit definition or reference to a list identifying specifically which discharges are being considered as point source versus non-point source. Traditional definitions refer to those discharges with an</p>

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		<p>NPDES permit). There has been, and still is ambiguity in the definitions of which discharges must specifically implement methylmercury management practices, and by when. (M. List)</p> <hr/> <p>CWA: We oppose this. We do believe that “nonpoint” source dischargers should be held responsible for their loads of mercury and methylmercury into the watershed.</p>
19	<p>When implementing the waste load allocations in this control program, 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 the Clean Water Act, EPA regulations 40 CFR 122.47, and State laws and regulations, including State Water Board Resolution 2008-0025. Compliance with NPDES requirements in this program shall be as soon as possible.</p>	<p>CVCWA: Consistent with the comment in row #12, add at the end “...as soon as possible <u>in Phase 2.</u>”</p> <p>The final sentence makes this item confusing related to whether the section is talking about WLAs or about interim total mercury limits which will be handled in the individual NPDES permits? Recommend deleting the final sentence and sticking with the requirements in lines 17 and 22.</p> <p>The TMDL and the Basin Plan Amendment must include compliance schedule provisions that are separate from compliance with State Water Board Resolution 2008-0025. The State’s Compliance Schedule Policy limits compliance schedules in NPDES permit to no longer than 10-years. It is anticipated here that compliance schedules may need to be longer than 10-years. Thus, the Basin Plan Amendment must include its own compliance schedule provisions for approval by U.S. EPA.</p> <p>CVCWA: What happened to text specifically allowing compliance schedules in the permits? This specifically needs to be stated in the BPA to allow compliance schedules beyond 10 years.</p>
20	<p>Implementation Program <i>[Issue for Stakeholder Discussion: How and where to include Principle #1? [During Phase 1, all dischargers shall implement reasonable control options for inorganic mercury and/or methylmercury.] (May not fit here.)]</i></p>	<p>TNC: Suggest add to Paragraph 8, although not sure about legal ramifications of “shall” and “reasonable”. Reword first to add “should” and “reasonable, feasible”? (S. Liu)</p> <hr/> <p>CVCWA: Note: Principle #1 states Phase 1 studies should address both inorganic mercury (inorganic Hg) and methylmercury (MeHg) from all sources. Reasonable control options should be implemented during Phase 1 for inorganic Hg and/or MeHg.</p> <p>See paragraphs 8 and 18 above for suggested areas to incorporate the</p>

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		<p>principle.</p> <p>We agree with TNC that the principal that implementation is going to be conducted through an adaptive management approach needs to be very clear and should be spelled out right away.</p>
21	<p><u>Point Sources</u> The regulatory mechanism to implement the Delta Mercury Control Program for point sources shall be through NPDES permits.</p>	
22	<p><i>Requirements for NPDES Permitted Facilities</i> NPDES permitted facilities listed in Table B shall implement reasonable, feasible actions with the goal of reducing inorganic mercury discharges. 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 by 30 days after Executive Officer approval of the workplans. The dischargers shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including mercury and methylmercury monitoring results.</p>	<p>CVCWA: There are several issues with this paragraph where we suggest corrections: (1) Sometimes it is several weeks beyond the dated letter when POTWs receive their approval letters. (2) Monitoring data will be submitted as part of the self-monitoring reports. This appears to be a duplication of effort. (3) PMP program effectiveness may be measured by water quality or other parameter, where the last sentence seems to indicate that water quality monitoring is the appropriate matrix. (4) The text infers that PMP reporting needs to go on forever (including reports, etc). The BPA should include an end date – for example, when final WLAs are incorporated in the permits. (5) There is a lot of confusion in this section between total and methyl mercury reductions that continues on in other point source (including MS4) paragraphs, which makes it unclear what the proposed requirements really are. There may also need to be a differentiation between Phase I and Phase 2.</p> <p>Edit as follows: <u>During Phase I before compliance is achieved in Phase 2 with final WLAs</u>, NPDES permitted facilities listed in Table B shall implement reasonable, feasible actions with the goal of reducing inorganic <u>(total)</u> mercury discharges. 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 <u>within 30 days after of receipt of written</u> Executive Officer approval of the workplans. <u>Until the NPDES permitted facility achieves compliance with its WLA, t</u>The discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including mercury and methylmercury monitoring results.</p>

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		<p>Alternative: <u>and an annual summary of</u>including mercury and methylmercury monitoring results.</p> <p>_____</p> <p>CWA: We certainly agree that actions need to be within reason, but this text does not indicate that these actions need to be based on the most up to date technologies and should be comprehensive. Otherwise dischargers can decide what is reasonable and hide behind current capacity or in appropriate cost considerations. How will the Exec. Officer determine what is adequate and what is reasonable? It needs to say here that the expectation is that all current technologies will be considered in establishing a plan and implemented to the extent possible</p>
23	<p>During Phase 1, all facilities listed in Table B shall limit their discharges of inorganic (total) mercury. The 12-month running average effluent total recoverable mercury loading shall not exceed XX lbs/month. This interim mass limit is to be derived using current, representative data as follows: XX lbs/month = 99.9th percentile running annual average mercury load. The limit shall be assigned in permits.</p>	<p>CVCWA: Edit: "This interim <u>inorganic (total) mercury</u> mass limit is to be derived..."</p>
24	<p>The applicability and effectiveness of the total mercury limit will be re-evaluated at the end of Phase 1.</p>	<p>CVCWA: Edit: "The applicability and effectiveness of the <u>interim inorganic (total) mercury</u> <u>mass</u> limit will be re-evaluated at the end of Phase 1."</p> <p>This is consistent with row #23 and we are not sure how "applicability" will be evaluated.</p> <p>_____</p> <p>CWA: We continue to advocate for expectations to be as explicit as possible. So it should be said that actions to reduce total mercury will continue in Phase 2. Why wouldn't they?</p>
25	<p>NPDES permitted facilities that begin discharging to the Delta or Yolo Bypass during Phase 1 shall comply with the above requirements.</p>	<p>CVCWA: (if this is intended to allow for new discharges, it needs to so specify.)</p> <p>_____</p> <p>CWA: We do not support allowing new discharges, esp. in Yolo Bypass.</p>
26	<p><i>Requirements for NPDES Permitted Urban Runoff Discharges</i> NPDES-permitted MS4 dischargers listed in Table C shall implement reasonable, feasible inorganic mercury control</p>	<p>CVCWA: See comment above regarding timeframe for total mercury control.</p> <p>_____</p>

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	actions with the goal of reducing inorganic mercury 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.	<p>CWA: NPDES-permitted MS4 dischargers listed in Table C shall implement reasonable, feasible inorganic mercury control actions with the goal of reducing mercury 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.</p> <p>We recommend deleting the word <u>inorganic</u> simply because they should be reducing the mercury discharges in their stormwater, even if it has methylated.</p> <p>Our understanding is that the BPA can list recommended BMPs as a way to provide guidance and as a place to start, as long as they are not prescribed. We would recommend such detail be included.</p>
27	The Sacramento MS4 (CAS082597) and Stockton MS4 (CAS083470) permittees shall implement pollution prevention measures and best management practices 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 submit a report on the results of monitoring and a description of implemented pollution prevention measures and their effectiveness.	<p>CVCWA: Is this a Phase I activity, Phase 2 interim or both? Is this a forever and ever reporting requirement, or should there be a stopping point such as compliance with final WLAs?</p> <hr/> <p>MS4: The MS4 permittees are required already to submit annual reports to the Regional Board. These reports include the results of monitoring and a description of implemented pollution prevention measures and their effectiveness. The measures are already documented in their Mercury Plans. Add: "The report required by this amendment may be provided as a section of the annual reports that the MS4s submit under the NPDES permit requirement."</p>
28	The Sacramento MS4 (CAS082597) 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 mercury and methylmercury discharges.	MS4: The last phrase, "and to develop...." could be deleted, as it is redundant with the more detailed requirements in rows #35-61.
29	<u>Nonpoint Sources</u> Nonpoint sources shall be regulated through the authority contained in Water Code sections 13263 and 13269, and in conformance with the State Water Resources Control Board's Nonpoint Source Implementation and Enforcement Policy.	DPC: See comment on Line 13.

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30	Non-point sources are responsible for discharges that contribute to net increases in methylmercury and/or inorganic mercury loading to Delta and Yolo Bypass waterways listed in Appendix 43.	<p>CVFPB: Just want to clarify that “loading to Delta and Yolo Bypass” means that dischargers into these areas that increase MeHg are the ones responsible for mitigation not the managers of the bypass, except for wetland restoration projects.</p> <hr/> <p>DPC: This program creates a funding burden to in-Delta interests for an environmental legacy issue of statewide concern. We see a lack of funding to accomplish program’s objectives.</p> <hr/> <p>DWR: Where is Appendix 43 that is referenced here? (M. List)</p>
31	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.	CWA: Does this contradict what was said above?
32	Attainment of methylmercury load allocations at the end of Phase 2 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.	<p>CVCWA: State somewhere what triggers the “end of Phase 2”</p> <hr/> <p>MS4: When is the end of Phase 2?</p>
33	For subareas not in compliance with allocations by 2030, the Regional Water Board shall develop load allocations for individual sources and require individual monitoring and waste discharge requirements.	<p>CVCWA: Change to 2035. See comments above.</p> <hr/> <p>TNC: This changed from the previous draft. It now reads “shall”, where it used to say “may”. We do not think “shall” is appropriate. For instance, the Delta Mercury Control Program Review may come to the conclusion that the tested control measures are going to achieve 50% reduction and the subareas would potentially still out in compliance. Another possibility is that the 2030 timeframe may come and tested control measures are <i>all</i> in place and the subareas are still out in compliance. The Regional Board may require load allocations, but it should not box itself (and NPS sources) in, with use of “shall”.</p> <p>TNC edits: For subareas not in compliance with allocations by 2030, the Regional Water Board shall <u>may</u> develop load allocations for individual sources and</p>

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		<p>require individual monitoring and waste discharge requirements.</p> <hr/> <p>CWA: Don't dischargers have individual load allocations and discharge requirements?</p>
34	<p>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. Wetland projects may include pilot projects and monitoring to evaluate management practices that minimize methylmercury discharges.</p>	<p>CVCWA: Is there a reason this is only limited to wetlands?</p> <hr/> <p>DU & TNC: DU & TNC appreciate the EO's work in bringing the Permitting and TMDL sections together to coordinate work and ensure that the interim permitting period follows the flavor of the draft BPA. We would like to work with the RB to further discuss this coordination and prevent unnecessary and costly monitoring that does not advance the research knowledge on wetland characterization and control studies. The research knowledge will be advanced under Phase I studies that are developed and implemented with rigorous research study and monitoring protocols. It should be noted that RB has dropped mandatory characterization studies from the BPA and requiring site-specific monitoring is equivalent to requiring mandatory characterization.</p> <p>DU & TNC proposes additional text to clarify how new projects will be evaluated for inclusion in the collaborative Control Studies.</p> <p>DU & TNC edits: In subareas needing reductions in methylmercury, proponents of new wetland and wetland restoration projects scheduled for construction after [Effective Date] shall (a) participate in <u>collaborative</u> 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. <u>New</u> wetland projects may include pilot projects and <u>associated</u> monitoring to evaluate management practices that minimize methylmercury discharges.</p> <p>Text for BPA or MOI: Proposed new wetland and wetland restoration projects will be evaluated for applicability to and incorporation in collaborative Control Studies. New projects will be included if the project will yield scientifically valid data required to evaluate management practices that minimize methylmercury</p>

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		<p>discharges. Funding for data collection or additional study-related expense should be provided through specially designated grants and contracts tied to Control Study Work Plans.</p> <hr/> <p>CWA: Based on discussion 9/17: Any language developed to coordinate and clarify Phase 1 studies should 1) be included in the BPA and not simply the MOI, esp since this is central to what wetlands restoration projects are required to do and is part of ensuring that we will accomplish the TMDL's goals.; 2) address the fact that however studies are developed, they will take into consideration the differences in what role wetlands play in methylmercury levels</p>
35	<p><u>Control Studies</u> Point and nonpoint source dischargers, working with other stakeholders, shall conduct methylmercury control studies (Control Studies) to identify existing control methods and, as needed, develop new control methods to comply with the methylmercury load and waste load allocations.</p>	<p>TNC: change "identify" to "evaluate". The revision to identify does not fit since entire phrase suggested by WWTP not used. (S. Liu)</p> <p>TNC Edits: Point and nonpoint source dischargers, working with other stakeholders <u>and a Technical Advisory Committee as described below</u>, shall conduct methylmercury control studies (Control Studies) to <u>evaluate</u> existing control methods and, as needed, develop new control methods to comply with the methylmercury load and waste load allocations.</p> <hr/> <p>CVCWA: Add to the title "<u>Phase 1</u> Control Studies"</p> <p>Aspects of Principle 3 should be incorporated in this discussion. Principle 3 states: "The control program should create strategies, including incentives to encourage innovative actions, to address the accumulation of MeHg in fish tissue and to reduce MeHg exposure, including watershed approaches, offsets projects, and short and long-term actions that result in reducing inorganic Hg and MeHg."</p> <p>As currently worded, it is asking for cutting-edge research to develop new technologies.</p> <p>Edit: "...to identify, <u>characterize and evaluate the effectiveness of existing control methods and, as needed, develop new control methods to comply with the methylmercury load and waste load allocations. <u>Incentives to</u></u></p>

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		<p><u>encourage innovative actions, watershed approaches, offsets projects, and short and long-term actions that result in reducing inorganic Hg and MeHg to address the accumulation of MeHg in fish tissue and to reduce MeHg exposure are encouraged to be evaluated in the Phase 1 control studies.</u></p> <p>MS4: MS4s (presumably like other dischargers) cannot be expected to develop new control methods needed to comply with allocations. That type of research is appropriate for industry groups, government research centers and university researchers. See edit to row 39.</p> <p>CVFPB: “working with other stakeholders” should have the statement “to secure funding for these studies” added directly after it.</p>
36	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 Delta Mercury Control Program Review.	
37	Dischargers may evaluate inorganic mercury controls as a method of controlling methylmercury discharges.	
38	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.	CVCWA: During Phase I, it appears that only point sources will be monitoring MeHg and total mercury. Characterization data is needed to identify current contributions and provide benchmarks for control strategies.
39	Final reports for Control Studies shall include a description of existing and/or newly developed methylmercury and/or organic mercury management practices; an evaluation of the effectiveness, costs, potential environmental effects, and overall feasibility of the control actions; and proposed implementation plans and schedules to comply with methylmercury allocations.	<p>TNC: should be “and/or <u>inorganic</u> mercury management...” (S. Liu)</p> <p>CVCWA: Edit “Final reports for Control Studies shall include a description of <u>available existing and/or newly developed methylmercury and/or organic</u> mercury management practices...”</p> <p>MS4: Edit “...a description of <u>available existing and/or newly developed methylmercury and/or organic</u> mercury management practices...”</p>

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40	Final reports for Control Studies for wetlands and agriculture lands may include a cost-benefit analysis or other evaluation of the incremental adverse impact of implementing control actions to reduce methylmercury discharges when such implementation would negatively affect the ecological function of the wetlands or would result in conversion of agricultural crop lands to different crops or to non-agricultural use.	<p>DPC: See comment line 13.</p> <hr/> <p>DU: Another assessment of environmental impact would be how the cost of regulating MeHg affects the acreage of wetlands restored, and the lost opportunity cost to the environment if wetlands are not restored.</p> <hr/> <p>DWR: How does compensatory wetland mitigation from construction activities, as is often required by the USACE, DFG, and/or other regulatory/resource agencies under 404 (and other) permits affect the cost-benefit ratio? If an entity or agency is required under ESA and/or the Clean Water Act to develop wetlands as mitigation, and the cost of not doing so would cause enforcement from that agency and violate law or statute, yet the potential cost of doing so may also adversely affect methylmercury production and conflict with this BPA, which competing interest “wins”? (M. List)</p>
41	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 an implementation plan and schedule to achieve partial compliance along with detailed information on why full compliance is not achievable.	<p>CVCWA: Suggested edit: “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 <u>detailed information on why full compliance is not achievable, what allocation is achievable, and</u> an implementation plan and schedule to achieve partial compliance along with detailed information on why full compliance is not achievable.”</p> <hr/> <p>DWR: The definition of infeasible in this context is unknown. Is this referring to economic and technological infeasibility or something different? (M. List)</p>
42	<p><i>Sources and Activities for which Control Studies Are Required</i></p> <p>Control Studies are required for:</p> <p>a. Irrigated agricultural lands that discharge to the Yolo Bypass and Delta subareas that require methylmercury source reductions</p>	
43	b. Managed wetlands and wetland restoration projects that discharge to the Yolo Bypass and Delta subareas that require methylmercury source reductions.	

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44	c. Existing NPDES permitted facilities in the Delta and the Yolo Bypass (listed in Table B).	
45	d. Sacramento Area MS4 and Stockton MS4 service areas within and upstream of the legal Delta boundary.	
46	e. State and Federal agencies whose projects affect the transport of mercury and the production and transport of methylmercury through the Yolo Bypass and Delta, or manage open water areas in the Yolo Bypass and Delta, including but not limited to Department of Water Resources, State Lands Commission, Central Valley Flood Protection Board, and U.S. Bureau of Reclamation.	<p>DU: I suggest citing the authorities that enable the Regional Board to mandate this of federal agencies.</p> <hr/> <p>CVFPB: If the CVFPB is listed here, then we feel that the USACE should also probably be listed. Also, by “affect” does this mean in either a positive or adverse impact? Some structures already reduce the amount of mercury already in the system.</p>
47	f. Proposed new projects or changes to existing 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 Bypass.	<p>CVCWA: Add “g. Other significant sources of methylmercury not listed above, as identified and deemed appropriate by the Executive Officer.”</p> <hr/> <p>CVFPB: This essentially seems as if it needs to be grouped with No. 46, however is it separated merely because this is specifically for projects that have an adverse affect?</p>
48	<p><i>Control Study Workplans and Technical Advisory Committee</i></p> <p>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.</p>	<p>CVCWA: Should separate workplans (part of rows #35-41) and TAC (part of row #51-53).</p> <p>Suggested Edit: “<i>Control Study Workplans and Technical Advisory Committee</i>”</p> <hr/> <p>DU/TNC: We recommend emphasizing the need for scientifically rigorous studies that will yield useful results for the regulatory program. Suggest adding words: scientifically valid”.</p> <p>DU/TNC edits: “Control Studies shall be implemented through <u>scientifically valid</u> Control Study Workplan(s).”</p>
49	Control Study Workplans can be developed through a stakeholder group approach or other collaborative	TNC: Item 49 should be elevated to the discussion on the Control Studies after Item 35, rather than buried in the Workplan, since it is not just the

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		done in the context of a Delta MeHg TMDL one might assume there may be other Stakeholder Groups and TACs for future MeHg TMDLs. (TCM)
52	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. The Board shall form and manage the TAC with recommendations from the dischargers and other stakeholders, including community organizations.	CWA: How do we ensure that TAC members are in fact independent given that dischargers can recommend those members?
53	Board staff shall work with the TAC and Stakeholder Group 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 of existing studies, dischargers may amend the Control Study Workplan(s) with Executive Officer approval.	DWR: If a characterization/control study is already being planned/initiated, prior to the development of the BPA/TMDL adoption and TAC development, how/what involvement does RWQCB staff and their EO believe is necessary at this point? (M. List)
54	<i>Mercury Control Studies Schedule</i> 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 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 conducting coordinated studies, the report shall include a list of participating dischargers, stakeholders and community groups. Dischargers 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.	CVCWA: Something like a Gantt chart would be useful to discuss in the stakeholder group. The larger group efforts will take time, as the TMDL developers know. See also edits to rows #56 and 60. MS4: Sacramento and Stockton MS4s have already submitted Mercury Plans. See row 28. How would this schedule fit in with those existing plans? USFWS: RWQCB needs to clearly identify what it wants to see as a minimum for these reports otherwise the reports will be all over the place as to format, level of effort and quality. Reports for different types of dischargers may need to be different. The RB could provide report guidelines in later documents, such as the MOI, but recommend that the BPA say that staff will provide such guidance in coordination with stakeholders. (TCM)
55	2. Control Study Workplans shall be submitted to the Regional Water Board within [nine months of the Effective Date of this amendment]. The Control Study Workplan(s) shall	CVCWA: This timeframe again is too short. Although we realize that there may be some opportunities to organize beforehand, workplan development is important and the TMDL should allow additional time for

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	<p>contain a detailed plan for the Control Studies and the work to be accomplished in the following three years. Regional Water Board staff and the TAC will review the workplans and provide recommendations for revising workplans if necessary.</p>	<p>this process. One alternative is to allow additional (12 months) time for group efforts, which need the additional time for coordination and approvals.</p> <p>Still uncertain how the Stakeholder group fits in to this and the adaptive management review. #53 above indicates that the Stakeholder group would also be reviewing, although this could cause timeframe issues.</p> <hr/> <p>MS4: While the characterization studies have been dropped as requirements, there is an expectation that they'll be done. However, this schedule doesn't seem to provide any time for characterization. Perhaps some control studies will just have a first step of characterization.</p> <hr/> <p>DWR: It is unclear whether or not the RWQCB staff/EO and/or TAC must provide a letter of concurrence with the proposed study prior to study initiation. Assuming the norm, most studies work plans will not be submitted until nine months after the effective date of this amendment. Projecting complete compliance, the sheer volume of work plans will completely overwhelm Water Board staff and the TAC. If a concurrence letter must be received prior to initiating studies, the Water Board/TAC will become a backlog, resulting in delays in study initiation. Additionally, as with our comment in line #53, what is the intended process for those already preparing/initiating studies, prior to adoption of the BPA and establishment of the TAC? (M. List)</p>
56	<p>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.</p>	<p>CVCWA: Add at end “, unless the Executive Officer provides written notification to extend the approval process.”</p> <hr/> <p>DWR: Although this item partially addresses our comment in line #55, a four month review period seems extensive for those who are ready to begin work, and must coordinate contracting, and other planning/budgeting efforts, as well as begin sampling when water is present in the system. A four month delay in approval may result in missing critical sampling events (e.g. first flush storm events, etc.) (M. List)</p>
57	<p>Dischargers shall be considered in compliance with this reporting requirement upon timely submittal of workplans</p>	

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	and revisions.	
58	3. By [three years after the Effective Date], entities responsible for implementing Control Study Workplan(s) 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.	CVCWA: Change from three to four years to account for the workplan approval process, as this will be less than 2 years into the study.
59	4. By [seven years after the Effective Date], entities responsible for Control Study Workplans 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 implementation schedules for achieving methylmercury allocations. In addition, final report(s) shall propose points of compliance for non-point sources.	CVCWA: The above paragraph describes “entities responsible for <i>implementing</i> Control Study Workplans” this sentence leaves out the word <i>implementing</i> . Does this infer that they may be two separate groups?
60	If the Regional Water Board determines that dischargers are making significant progress towards completing the Phase 1 Control Studies but that more time is needed to finish the studies, the Regional Water Board may consider extending the time for the studies’ completion.	CVCWA: Edit “If the Regional Water Board determines that dischargers are making significant progress towards <u>developing, implementing and/or</u> completing the Phase 1 Control Studies but that more time is needed to finish the studies, the Regional Water Board may consider extending the a <u>time for the studies’ completion</u> <u>deadline</u> . The above suggested edit provides flexibility on the front end if warranted. May want to add a final backstop so that other dischargers are not harmed if one report gets an extension beyond 7 years. Final WLA and LA should not go into effect until the Phase I Delta MeHg Program Review is complete. See comments under #70 below.
61	Dischargers in the Central Valley that are not subject to the	MS4: The Stockton and Sacramento MS4s are already required to

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	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. If such dischargers actively participate in the Control Studies, they will be exempt from conducting Control Studies required by future upstream mercury control programs.	<p>participate in studies per this TMDL and will be implicated in upstream TMDLs for the San Joaquin and American Rivers (both due 2012), respectively. Edit the second sentence as follows: "<u>if such Dischargers in and upstream of the Delta who</u> actively participate in the Control Studies, they will be exempt..."</p> <p>Are there other MS4s upstream who may be implicated, who could be encouraged by this language to participate now in a coordinated study?</p> <hr/> <p>DWR: It is unclear what "active participation" in studies entails. The intent appears to be to try and encourage more involvement in studies. If land owner "X" is an upstream contributor/source of total or methyl mercury, what level of participation is necessary to exempt them from future control study work? Is only monetary participation sufficient for exemption? Does the participation have to involve detailed studies and results for their property? (M. List)</p>
62	Annually, staff shall publicly report to the Regional Water Board progress of upstream TMDL development, discharger and stakeholder coordination, Control Study Workplan status, implementation of Control Studies, actions implemented or proposed to meet TMDL load and waste load allocations, and the status of the formation and activities of the TAC.	
63	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.	CVCWA: Again, the date may need adjustment based on the whole scheduling of the effort.
64	If dischargers do not comply with Control Study implementation schedules, the Executive Officer will consider issuing individual waste discharge requirements or requests for technical reports and management plans.	
65	<u>Delta Mercury Control Program Review</u>	

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	By [eight 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 allocation compliance date.	
66	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 beneficial uses; (c) methods that can be employed to minimize or avoid potentially significant negative impacts to beneficial uses that may result from control methods; (d) implementation plans and schedules proposed by the dischargers; and (e) whether methylmercury allocations can be attained.	
67	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. The Regional Water Board shall require implementation of appropriate management practices.	CVCWA: After the first sentence in this part, add the statement: "Allocations will not be reduced as a result of early actions conducted to reduce mercury in discharges."
68	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 impair fish and wildlife beneficial uses. 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	CVCWA: Is the verb "offset" referring to conducting a project under an offset program?

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	allocations and may consider additional conditions if the plan described above is ineffective.	
69	If the Regional Water Board allows an extension for the Control Studies' schedule, the Board may consider extending the schedule for the Delta Mercury Control Program Review and implementation of methylmercury control methods to comply with the allocations.	
70	If the Regional Water Board does not receive information to review and update the Delta Mercury Control Program, the program shall not be changed. Then, by [eight years after Effective Date], the Regional Water Board shall issue waste discharge requirements or requests for management plans for meeting the allocations and compliance date.	<p>CVCWA: Concerned with the language of this process. If there is still no information, there still needs to be a public meeting to confirm the allocations and start Phase 2. Otherwise, as written, Phase 2 may begin by a date certain [eight years after the effective date] with or without information, which could be detrimental to stakeholders.</p> <p>Suggested Edit: <u>"The Regional Water Board shall conduct the Phase I Delta Mercury Program Review based on information received in Phase I.</u> If the Regional Water Board does not receive <u>timely</u> information to review and update the Delta Mercury Control Program, the program shall not be changed. Then, by [eight years after Effective Date]<u>Beginning in Phase 2,</u> the Regional Water Board shall issue waste discharge requirements or requests for management plans for meeting the allocations and compliance date.</p>
71	<i>[Need stakeholder discussion about how to address the need for some assurance that early implementation of actions will not be "taken against" if/when allocations are adjusted.]</i>	<p>CVCWA: Under row #67, add the statement: "Allocations will not be reduced as a result of early actions conducted to reduce methylmercury discharges."</p> <p>_____ USFWS: Not just early implementation actions but also for common wetland management practices already utilized that reduce methylation. (TCM)</p>
72	Methylmercury controls developed in Phase 1 shall be initiated as soon as possible, but no later than 2019 or within one (1) year of review of the Delta Mercury Control Program.	CVCWA: This paragraph should be deleted. It differs from rows #10, 11, and 17 and is ambiguous (which controls? How soon is possible?). The Control Study reports and Phase 2 of the TMDL will include implementation schedules (See paragraph #68).
73	The Regional Water Board shall make all reasonable efforts to complete its review of the Control Program by 2020; if it does not, the Regional Water Board will consider extending the	<p>CVCWA: Consistent with the comment in row 72, delete the last sentence.</p> <p>_____ CWA: This contradicts number 72.</p>

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	compliance date to the extent necessary to facilitate its review. In this case, methylmercury controls shall be initiated within one (1) year of review of the Delta Mercury Control Program.	
74	The Regional Water Board shall review this control program every 10 years after the Phase 1 Delta Mercury Control Program Review.	CVCWA: 10 years after ~2020 would be 2030. This first review should be scheduled before regulatory deadlines, to address cases of unanticipated eventual non-compliance.
75	<p><u>Compliance Monitoring</u></p> <p>Starting in 2022, 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.</p>	<p>CVCWA: Replace “in 2022” with “within one (1) year of review of the Delta Mercury Control Program”.</p> <p>Entities with WLAs already will be monitoring and reporting during Phase 1—see line #22 above.</p> <p>As written, Phase 2 of the TMDL will be written based on circa 2003 data because the only discharge and receiving water monitoring required is by NPDES permittees. See also row #126.</p> <p>This implies that the Control Studies will determine monitoring locations. They are supposed to suggest monitoring locations – what is the approval process to solidify these suggestions?</p> <hr/> <p>MS4: Sacramento and Stockton with WLAs already will be monitoring and reporting during Phase 1—see line #22 above.</p>
76	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.	CVCWA: Where are the receiving water monitoring requirements outlined? Is this referring to the monitoring points discussed in line 75 above? If so, be consistent with terminology: effluent monitoring points, receiving water monitoring points, monitoring points specified in NPDES permits, or monitoring determined by the control studies.
77	Chapter V, Surveillance and Monitoring, contains additional monitoring guidance.	
78	<u>Allocations and Requirements for State and Federal Agencies</u>	CVFPB: Is there a specific reason that the CVFPB was added to this list

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	<p>Open water allocations are assigned jointly to the State Lands Commission, the Department of Water Resources, and the Central Valley Flood Protection Board. Open 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.</p>	<p>for open water allocations, even though the CVFPB does not directly own any open waters? The CVFPB is responsible along with DWR for management of such facilities for flood control and belongs in the list in 79, but may not also be listed here. Seems the comment from DWR last time about federal and local agencies being mentioned in this list was also not addressed.</p> <hr/> <p>DWR: It is unclear what the legal basis is for assigning these allocations to the specified entities. How does Regional Water Board staff envision those assigned as “responsible” will be able to affect a change in the chemical process taking place in open water? What about other state agencies (e.g. the State Water Board, California Environmental Protection Agency, etc.) and land owners who still have a fee ownership of the water course? (M. List)</p>
79	<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 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. Agencies responsible for these activities in the Delta and Yolo Bypass include Department of Water Resources, State Lands Commission, Central Valley Flood Protection Board, U.S. Bureau of Reclamation, and U.S. Army Corps of Engineers (USACE), and the State Water Resources Control Board. These agencies shall include requirements for projects under their authority to conduct Control Studies and implement methylmercury reductions as necessary to comply with the allocations by 2030. These agencies may conduct their own coordinated Control Studies or may work with the other stakeholders in comprehensive, coordinated Control Studies.</p>	<p>DU: I suggest citing the authorities that enable the Regional Board to mandate this of federal agencies.</p> <hr/> <p>CVFPB: Funding issues have not been addressed at all as a requirement, however, it is a necessity for any mitigation projects to be completed. These funding opportunities will also most likely be joint efforts between stakeholders.</p>
80	<p>The responsible agencies should coordinate with wetland and</p>	<p>CVCWA: Where will this data be reported?</p>

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	agricultural landowners to characterize existing methylmercury discharges to open waters from lands immersed by managed flood flows and develop methylmercury control measures.	<hr/> CWA: Why is this not done in Phase 1? We would like to see “should” changed to “shall”.
81	The State Lands Commission, Central Valley Flood Protection Board, and Department of Water Resources shall conduct Control Studies and evaluate options to reduce methylmercury production in open waters under jurisdiction of the State Lands Commission and floodplain areas inundated by managed flood flows. Evaluations shall include inorganic mercury reduction projects. By [three months after Effective Date] these agencies shall submit to the Legislature a budget proposal to fund Control Studies and mercury reduction actions. Regional Water Board staff will work with these agencies in conducting these studies and evaluating potential mercury reduction actions.	CVFPB: How do you reduce or mitigate MeHg in the floodplain? CVFPB believes that this is the responsibilities of the upstream dischargers. Also, agencies are referenced as being responsible; however there should be some sort of requirement for upstream dischargers to be held accountable and responsible for contributing to the funding or studies in some way, to protect these agencies from the entire financial burden of these studies, reports, and mitigations. <hr/> DWR: It seems the CA Environmental Protection Agency and/or the State and Regional Water Boards should be the agency(-ies) submitting the Budget Change Proposal to fund investigation and clean-up for this legacy problem. (M. List)
82	Agencies that fund or implement new wetland, floodplain, and other aquatic habitat restoration and enhancement projects, including but not limited to USACE, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Fisheries, U.S. Environmental Protection Agency, California Department of Water Resources, and California Department of Fish and Game, shall require that projects comply with all applicable requirements of this program, including conducting or participating in Control Studies and complying with allocations.	DU: I suggest citing the authorities that enable the Regional Board to mandate this of federal agencies. <hr/> DFG: Department staff appreciates the effort to address previous Departmental concerns about this proposed language. However, concerns remain. <ol style="list-style-type: none"> 1. It is not clear that the Department has specific legal jurisdictions or mandates necessary to enforce compliance with water quality regulations in the manner proposed. The Department is not specifically the State water quality agency, and is not a water quality enforcement agency. (Instead, it <u>consults</u> with the Regional Water Quality Control Boards [e.g., via memorandums of understanding, task forces, stakeholder groups, etc.] on issues of water quality that impact fish and wildlife resources.) 2. Rather, it is the Water Board that has the specific legal and regulatory authorities to ensure water quality compliance, for example through its own permit and enforcement programs. Therefore, the proposed language should be changed to state this. <p>The Water Board may, of course, require compliance of individual permit applicants and holders, of which the Department may be one,</p>

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		<p><i>for specific projects.</i> As such, the Department may have to comply with Basin Plan requirements in the operation and maintenance of its own wildlife refuges, for example, if such require Water Board approvals or are subject to Water Board regulations (which they, of course, may be).</p> <p>But it remains unclear under what authority the Department can and should be regulatorily (via formal mention in the Basin Plan) directed to enforce compliance with the Basin Plan with regard to methyl-mercury discharges.</p> <p>3. This requirement appears to have no precedent in the current Central Valley Basin Plan.</p> <p>4. This requirement would also require some level of not insignificant resources (manpower, funding) to implement. Where will these resources come from?</p> <p>Suggested edits: Agencies that fund or implement New wetland, floodplain, and other aquatic habitat restoration and enhancement projects, including but not limited to <u>projects developed, planned, or approved by individuals, private businesses, non-profit organizations, and local, State, and federal agencies such as</u> USACE, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Fisheries, U.S. Environmental Protection Agency, California Department of Water Resources, and California Department of Fish and Game, shall require that projects comply with <u>be reviewed for compliance with</u> all applicable requirements of this program, including and may be required to conducting or participating <u>participate</u> in Control Studies and to complying with pre- <u>determined methyl-mercury discharge</u> allocations. <u>Compliance shall be implemented via standard legal and regulatory authorities granted to the Water Board in laws and regulations associated with the California Environmental Quality Act, the California Porter-Cologne Water Quality Act, and the federal Clean Water Act.</u></p> <hr/> <p>RB: Add SWRCB.</p> <hr/> <p>USFWS: This is better than the previous language as we</p>

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		discussed. (TCM)
83	<p><i>Dredging and Dredge Material Reuse</i></p> <p>The following requirements apply to dredge 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:</p>	
84	1. 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).	
85	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.	
86	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.	
87	2. Employ management practices during and after dredging activities to minimize sediment releases into the water column.	DWR: Minimization of sediment release to the water column is already a requirement for dredging projects covered under 401, and in this context is duplicative. The focus here should be on minimizing mercury release, which may, or may not be linked directly to sediment discharge. (M. List)
88	3 Characterize total mercury load and concentration of material removed from Delta waterways (Appendix 43) by dredging activities.	
89	4. When approved dredge material disposal sites are utilized to settle out solids and return waters are discharged into the	CVFPB: The wetlands are going to be mitigated for within the floodplain. Once again to clarify, there is not a request to mitigate the entire floodway

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	adjacent surface water, the goal is to ensure that return flows do not have methylmercury concentrations greater than the receiving water concentration. The project proponent shall conduct monitoring and conduct or cause to be conducted studies to evaluate management practices to minimize methylmercury in return flows.	is there?
90	5. Ensure that under normal operational circumstances, including protection from wet weather, dredged material reused at upland sites, including the tops and dry-side of levees, is protected from erosion into open waters.	
91	6. A goal is to ensure that reuse of dredge material at aquatic locations, such as wetland and riparian habitat restoration sites, does not add mercury-enriched sediment or water to a site or otherwise result in a net increase in methylmercury discharges from the site. Projects that propose to dispose dredge material to aquatic sites shall conduct mercury and methylmercury monitoring and, if monitoring shows methylmercury increases due to the project, proponents shall conduct or cause to be conducted studies to evaluate management practices to minimize the methylmercury discharges. The results of the management practices studies should be applied to future projects.	YCFWCWD: Goal is too narrow. Should say material does not result in increased Hg exposure. We may want to use Hg laden sediments as fill below a root zone in subsided areas we want restored. Goal as stated would prevent this.
92	<i>Cache Creek Settling Basin Improvement Plan and Schedule</i> DWR, Central Valley Flood Protection Board, and USACE, in conjunction with 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 mercury discharges from the Cache Creek Settling Basin, by 21 December 2018, or following Congressional authorization to modify the Cache Creek Settling Basin.	CVFPB: Funding cooperation and requirements are still not discussed. Something needs to be put in place to protect the agencies from the sole burden of these positive improvements for mitigation to structures that already provide mitigation.
93	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	

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	with the USACE.	
94	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 implementation schedules and an evaluation of funding options. The agencies shall work with the landowners within the Basin and local communities affected by Basin improvements.	<p>CVFPB: for No. 94-98 we feel that timing should be discussed further between interested parties, and these timeframes need to be predicated on the ability to secure funding.</p> <p>_____</p> <p>DWR: Our previous comments stated that <u>4 years</u> after the effective date were needed to 1) complete the characterization and control studies (a 3-year study), 2) evaluate potentially feasible alternative, and 3) to formulate control strategies. It is unreasonable to expect development of control strategies without evaluating the detailed characterization and control study results. (M. List)</p>
95	3. By [three 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.	<p>CVFPB: see No. 94</p> <p>_____</p> <p>DWR: Our previous comment identified the submittal date of (December 31, 2018) as the time frame to necessary to complete this requested work. A detailed flood control study must be completed and combined with the results of the mercury studies in order to meet the requirements laid out in the proposed BPA and comply with the USACE Operation and Maintenance Manual for the Cache Creek Settling Basin. The December 31, 2018 time frame is a reasonable date to set for compliance with this requested item. (M. List)</p>
96	4. By [two 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 increasing the trapping efficiency by 50% in addition to other trapping efficiencies.	<p>CVFPB: see No. 94</p> <p>_____</p> <p>DWR: This comment was previously addressed by DWR, and the requested changes were not made. DWR sticks by the previous comments, as no trap efficiency evaluations can reasonable be conducted prior to completion of the Characterization and Control study, and feasibility evaluation. It is also unclear how the RWQCB can be specifying a proposed increase in trap efficiency of this flood control structure. This appears to be the Regional Board staff specifying the manner of compliance. The Cache Creek Settling Basin (in its existing and previous configurations) has had a net positive effect on reducing mercury loads that reach the Yolo Bypass, Sacramento River, the Delta, and areas downstream. Without the Cache Creek Settling Basin, all of the sediment and mercury from the Cache Creek Watershed that is currently trapped in the basin would be distributed downstream in the Yolo Bypass,</p>

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		<p>Sacramento River, the Delta, the SF Bay, and the Pacific Ocean. There is no acknowledgement of this fact. (M. List)</p> <hr/> <p>YCFCWCD: limit focus to Hg trapping efficiency. Do not refer to sediment trapping efficiencies. Hg and sediment do not likely behave in a one to one relationship and limiting sediment discharge could make it harder to manage for Hg. If in practice the management is coupled, then no added control is provided by the BPA addressing sediment. If on the other hand, methods can differentially retain Hg, allowing sediment to move through the system would extend operational life of the basin.</p>
97	<p>5. By [TBD] years after Effective Date], the agencies shall submit a detailed plan for improvements to the Basin to increase its sediment and mercury mass trapping efficiency.</p>	<p>CVFPB: see No. 94</p> <hr/> <p>DWR: Increasing sediment trap efficiency at Cache Creek Settling Basin may not be in the best interest of the People of the State from a flood management perspective. Additionally, increasing the volume of sediment impounded in Cache Creek Settling Basin is likely to decrease total mercury released from the basin, but may cause increased export of methylmercury. It is inappropriate for this BPA to specify manner of compliance. At most, this item should state ...submit a detailed plan to minimize mercury loads leaving the basin. (M. List)</p> <hr/> <p>YCFCWCD: limit focus to Hg trapping efficiency. Do not refer to sediment trapping efficiencies. See comment above.</p>
98	<p>6. By [_____], the agencies shall initiate management practices to reduce total mercury loads discharged by the Cache Creek Settling Basin and complete project improvements by [seven years after the effective date of this amendment _____].</p>	<p>CVFPB: see No. 94</p> <hr/> <p>DWR: This item contains open time frames, yet specifies “complete project improvements by [seven years after the effective date of this amendment _____].” The seven year time frame is neither reasonable nor achievable. A time frame of completing work by December 31, 2018 was previously provided by DWR staff, and we maintain that schedule as necessary. (M. List)</p>
99	<p>The agencies shall submit the strategy and planning documents described above to the Regional Water Board for approval by the Executive Officer.</p>	<p>YCFCWCD: Add a statement that provides that a feasibility study or environmental documents developed to support modifications of the Basin can be used in lieu of the prescribed reports if the feasibility study or environmental documents address the issues required by the reports.</p>

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100	<p><i>Tributary Watersheds</i></p> <p>Table D identifies methylmercury allocations for tributary inputs to the Delta and Yolo Bypass.</p>	
101	<p>The sum total of 20-year average total mercury loads from the American River, Putah Creek, and Feather River needs to be reduced by 32 kg/yr, from 103 to 71 kg/yr.</p>	<p>CVCWA: Why are these tributaries called out specifically but not all of the others on the 303(d) list?</p>
102	<p>Future mercury control programs for tributary watersheds shall implement the methylmercury allocations and total mercury load reductions. Additional methylmercury and total mercury load reductions may be required to accomplish future water quality objectives to be established for those watersheds.</p>	<p>CVCWA: I am not sure I understand what the first sentence means.</p> <p>Edit: "Additional methylmercury and total mercury load reductions may be required to accomplish future water quality objectives <u>or load allocations</u> to be established for those watersheds.</p> <hr/> <p>DWR: Although future mercury reductions are addressed here, when will reductions of the mercury input from the Cache Creek watershed, which enters the Cache Creek Settling Basin be achieved? Until significant reductions in the Cache Creek Watershed mercury source contamination is significantly reduced, the Cache Creek Settling Basin will continue to be plagued by excessive mercury. (M. List)</p>
103	<p>Development of mercury control programs shall be completed for tributary inputs to the Delta by the following dates: <u>2012</u>: American River; <u>2016</u>: Feather, Sacramento, San Joaquin, and Mokelumne Rivers, and Marsh and Putah Creeks; and <u>2017</u>: Cosumnes River and Morrison Creek.</p>	<p>CVCWA: Not one of these is consistent with the latest 303(d) list:</p> <ul style="list-style-type: none"> • American River is 2010 • Feather is 2012 • 5 reaches of the San Joaquin are 2012 • Sacramento and Mokelumne are 2021 • Marsh Creek's are 2015 • Putah is 2017 • Cosumnes River and Morrison Creek are not listed <hr/> <p>CWA: When will they be required to meet their reduction requirements by?</p>
104	<p><u>Recommendations for State and Federal Agencies</u></p> <p>USEPA and the California Air Resources Board should work with the State Water Board to evaluate local and statewide mercury air emissions and deposition patterns and to develop a load reduction program(s).</p>	

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105	The State Water Board should consider requiring methylmercury controls for new water management activities that are expected 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 changes to water management activities and flood conveyance projects. 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.	
106	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 if methylmercury production in the Bay-Delta is a function of sulfate concentrations. Furthermore, the State Water Board should consider the results of these studies in evaluating changes to the salinity objectives.	CVCWA: Is it only a sulfate issue? Could other issues related to the salinity objectives (flow, salinity, etc.) impact this?
107	The State of California should establish the means to fund a portion of the mercury control projects in the Delta and upstream watersheds.	DU: Strike " a portion " and insert " <u>non-federal</u> "
108	<u>Other Recommendations</u> 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.	
109	Dischargers may direct imposed administrative civil liabilities towards total mercury and methylmercury reduction projects in	CVCWA: Add: "...methylmercury <u>discharge and risk reduction</u> projects... Capitalize "Supplemental Environmental Project"

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	their watersheds, consistent with supplemental environmental project policies.	
110	<p><u>Pilot Mercury Offset Program and Early Implementation of Total Mercury Reduction Efforts</u></p> <p><i>[Additional language pending stakeholder offsets workgroup and Stakeholder Group discussions.]</i></p>	<p>CVCWA: Note: We need to convene another offsets WG meeting with clearer goals for the meeting to provide additional language in this section.</p> <p>Remove the word “Pilot” in this section. The Mercury Offset program can include a pilot aspect, but it doesn’t need to be limited here.</p>
111	Regional Water Board staff shall work with stakeholders to develop guidance for a mercury offset pilot program by [two years after the effective date of this amendment].	<p>CVCWA: Use same terminology as elsewhere. Write “[two years after the Effective Date of this amendment]”</p>
112	<p><u>Exposure Reduction Program</u></p> <p>Methylmercury dischargers in the Delta and Yolo Bypass shall work with community organizations to develop and implement effective, community driven programs to reduce mercury-related risks to humans. This shall include 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.</p> <p><i>[Additional language pending stakeholder discussions.]</i></p>	<p>DU: This is really a role for State Agencies, not private landowners or others involved with restoring and preserving wetlands habitat that provides public benefits. And the State should fund this.</p> <hr/> <p>CVCWA: Lots of questions for SG discussion:</p> <ul style="list-style-type: none"> • How will funds for this effort be coordinated and apportioned? Will the open water and tributaries be responsible for the vast majority? • What does it mean to reduce potential exposure? • How could a program mitigate health impacts? <p>What is an effective, feasible program?</p>
113	The dischargers shall work with affected communities and the public health agencies to develop and implement an effective risk management program(s). Dischargers may work together to develop a program. The risk management program(s) should include, but not be limited to, the following activities:	<p>CWA: The dischargers shall work with affected communities and the public health agencies to develop and implement an effective <u>risk exposure</u> management program(s). Dischargers may work together to develop a program. The <u>risk exposure</u> management program(s) should include, but not be limited to, the following activities:</p>
114	<ul style="list-style-type: none"> • Plan and implement feasible ways to address public health impacts of mercury in Delta fish, including activities that reduce the actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta fish, such as subsistence fishers and their families. 	<p>CVCWA: Would like to discuss what is envisioned here with the stakeholder group.</p>

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115	<ul style="list-style-type: none"> Provide fish-consumption advice to the public in multiple languages and culturally appropriate fashion, including identifying fish species that have relatively low levels of mercury; 	
116	<ul style="list-style-type: none"> Regularly inform the public about monitoring data and findings regarding hazards of eating mercury-contaminated fish in an easy to understand and culturally appropriate fashion; and 	
117	<ul style="list-style-type: none"> Perform special studies as needed to support exposure assessment, especially among the most impacted, and to identify appropriate intervention strategies. 	
118	<p>The dischargers shall submit an exposure reduction workplan for Executive Officer approval by [two years after Effective Date], and implement the plan by [four years after Effective Date]. The implementation plan must describe how the discharger(s) have and will work collaboratively with impacted communities to develop appropriate strategies and how those communities will be involved in implementation. Every three years thereafter, the dischargers shall provide a progress report to the Executive Officer.</p>	<p>CVCWA: There should be an end date to the progress reports, such the end of Phase 2 (2035).</p> <hr/> <p>DWR: Which dischargers is this referring to? It seems like a huge overlap for each and every “discharger” to be conducting this same work. Would it be better for all required discharges to contribute funding and/or resources to the CA Dept of Health Services and/or the CA Dept of Public Health, or county health agencies for this work to be completed? (M. List)</p>
119	<p>The California Department of Health Services and the local county health departments should develop and promote public education programs and work with at risk fish consumers to develop exposure reduction activities and provide guidance to dischargers and other that are conducting such activities.</p>	<p>DWR: Where is the funding for this work anticipated to be coming from? (M. List)</p>
120	<p>These efforts need to consider and incorporate the positive health impacts associated with fish consumption.</p>	
121	<p><u>Exceptions for Low Threat Discharges</u></p> <p>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</p>	

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	requirements of this Delta Mercury Control Program.	
122	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.	
123	<p>Revise Chapter IV (Implementation), under “Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing”, to add:</p> <p>Delta Mercury Control Program The total estimated costs (2007 dollars) for the agricultural methylmercury characterization and control studies to develop management practices to meet the Delta methylmercury objectives range from \$430,000 to \$820,000. 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 \$500,000 to \$1.1 million.</p>	
124	1. Potential funding sources include those identified in the San Joaquin River Subsurface Agricultural Drainage Control Program and the Pesticide Control Program.	
125	<p>Revise Chapter IV (Implementation), under “Mercury Discharges in the Sacramento River and San Joaquin River Basins”, under subsection “Cache Creek Watershed Mercury Program”, as follows:</p> <p>Delete the last line in Table IV-6.1, ‘Cache Creek Settling Basin Outflow’, and delete Footnote ‘(c)’.</p>	
126	<p>Revise Chapter V (Surveillance and Monitoring), under “Mercury and Methylmercury”, to add as follows:</p> <p>Delta <u>Fish Methylmercury Compliance Monitoring</u> The Regional Water Board will use the following specifications</p>	<p>CVCWA: This schedule means that Phase 2 of the TMDL will be developed based on circa 2003 data. Additional monitoring should occur before this point to provide a basis in Phase 2 for early implementation.</p> <hr/> <p>USFWS: Considering the changes likely to take place in the Delta in the next 15 years I think it would be appropriate to start this compliance</p>

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	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.	monitoring before 2025 (e.g. don't want to wait until 2025 to see that the Central Delta fish increased in Hg for some reason). Every 5 years until 2025 would be appropriate and then an evaluation of whether extending the period to every 10 years will be sufficient. (TCM)
127	<p>Initial fish tissue monitoring will take place at the following compliance reaches in each subarea:</p> <ul style="list-style-type: none"> • 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. 	
128	<p>Compliance fish methylmercury monitoring will include representative fish species for comparison to each of the methylmercury fish tissue objectives:</p> <ul style="list-style-type: none"> • 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 	

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	above, as well as inland silverside, juvenile bluegill, mosquitofish, red shiner, threadfin shad, or other fish less than 50 mm	
129	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.	
130	<p><u>Water Methylmercury and Total Mercury Compliance Monitoring</u></p> <p>Compliance points for irrigated agriculture and managed wetlands methylmercury allocations shall be developed during the Control Studies.</p>	CVCWA: The process is still missing as earlier sections only include a recommendation.
131	NPDES facilities' compliance points for methylmercury and total mercury monitoring are the effluent monitoring points currently described in individual NPDES permits.	
132	Facilities listed in Table B shall conduct total mercury and methylmercury monitoring starting by [one year after the Effective Date]. Monitoring frequencies shall be defined in the NPDES permits.	CVCWA: Total Mercury monitoring should not be required after compliance with the WLA is achieved. Edit: " <u>During Phase I and while under a compliance schedule in Phase 2,</u> Facilities listed in Table B shall conduct total mercury and methylmercury monitoring starting by [one year after the Effective Date]. Monitoring frequencies shall be defined in the NPDES permits.
133	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.	
134	Compliance points and monitoring frequency for MS4s	

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	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.	
135	Annual methylmercury loads in urban runoff in MS4 service areas 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. To estimate dry weather 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.	<p>MS4: Does the representative area need to be defined for Sacramento and Stockton MS4s, to distinguish between in-Delta and upstream discharges?</p> <p>MS4 current loads exceed their average load in almost half of the years and will exceed their WLAs at a similar rate even if they meet it as a long-term average. If compliance is assessed annually, MS4s will need some sort of water year normalizing or a multi-year averaging period.</p>
	TABLE A	YCFWCWD: label as MeHg load and wasteload allocations
	TABLE C	<p>MS4: Table C, footnote (a) comment: The MS4s will certainly have to look at their longer-term datasets during Phase 1. This footnote alludes to the fact that the estimated average load is probably exceeded in more than half of the years now. The WLA could be exceeded at the same rate, even if loads are reduced by the required percentages.</p> <p>Edit footnote (b): management agencies <u>in the Delta</u>, including but not...</p>
	TABLE D	<p>YCFWCWD: Add a footnote to the Cache Creek Setting Basin allocation that states: Loads from Cache Cr derived from flows above 30,000 cfs are excluded from the TMDL. (See letter from S. Lorenzato following Tables D.)</p>

Draft Tables A through D

**TABLE A
LOAD AND WASTELOAD 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)
Load Allocations														
Agricultural drainage	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 sediment	370	370	0.18	0.032	4.0	1.4	140	78	48	17	190	190	100	22
Tributary Inputs ^(a)	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	210	210	0.34	0.061	30	11	94	52	43	16	130	130	480	103
Wasteload Allocations														
NPDES facilities ^(a)	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 ^(a)	---	0.31 ^(b)	---	0.21	---	0	---	8.5	---	2.2	---	0.57 ^(b)	---	0.60
NPDES MS4 ^(a)	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	2,480	1,384	528	195	330	330	1,068	235

(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.

**TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER
METHYLMERCURY (MeHg) ALLOCATIONS**

PERMITTEE ^(a)	NPDES Permit No.	MeHg Wasteload Allocation ^(b) (g/yr)	Required to Conduct Phase 1 Control Study
Central Delta			
Discovery Bay WWTP ^(h)	CA0078590	0.37	√
Lodi White Slough WWTP ^(h)	CA0079243	0.93	√
Metropolitan Stevedore Company	CA0084174	^(c)	
San Joaquin Co DPW CSA 31 – Flag City WWTP	CA0082848	0.0066	
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			
California, State of, Central Heating / Cooling Facility	CA0078581	^(e)	
Rio Vista Northwest WWTP	CA0083771	0.083	
Rio Vista WWTP	CA0079588	0.056	
Sacramento Combined WWTP ^(h)	CA0079111	0.53	√
SRCSA Sacramento River WWTP ^(h)	CA0077682	89	√
Unassigned allocation for NPDES facility discharges	^(d)	8.4	
San Joaquin River			
Deuel Vocational Inst. WWTP	CA0078093	0.021	
Manteca WWTP ^(h)	CA0081558	0.38	√
Mountain House Community Services District WWTP	CA0084271	0.37	
Oakwood Lake Subdivision Mining Reclamation ^(f)	CA0082783	0.38 ^(f)	
Stockton WWTP ^(h)	CA0079138	13	√
Tracy WWTP ^(h)	CA0079154	0.77	√
Unassigned allocation for NPDES facility discharges	^(d)	1.8	
West Delta			
GWF Power Systems ^(e)	CA0082309	0.0052	
Mirant Delta LLC Contra Costa Power Plant	CA0004863	^(e)	
Unassigned allocation for NPDES facility discharges	^(d)	0.57	
Yolo Bypass			
Davis WWTP ^(g, h)	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.
- (h) These facilities are required to complete Phase 1 Control Studies. If they conduct effluent monitoring that demonstrates average effluent methylmercury concentrations less than 0.06 ng/l, they will not be required to conduct the Control Studies.

TABLE C
MS4 METHYLMERCURY WASTELOAD ALLOCATIONS
BY DELTA SUBAREA

Permittee	NPDES Permit No.	Wasteload 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	0.040
West Sacramento (City of)	CAS000004	0.36
Yolo (County of)	CAS000004	0.040
San Joaquin River		
Lathrop (City of)	CAS000004	0.098
Port of Stockton MS4	CAS084077	0.0036
San Joaquin (County of)	CAS000004	0.80
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. 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, 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. Most of the MS4's service area falls within the San Francisco Bay Regional Water Quality Control Board's jurisdiction. The mercury control requirements approved by the San Francisco Bay Regional Water Quality Control Board (Resolution R2-2006-0052) for the Contra Costa County MS4 apply to its service area within the Central Valley Regional Water Quality Control Board's jurisdiction. The methylmercury allocation for the Contra Costa County MS4 service area within the Delta will be reevaluated during the Delta Mercury Control Program Review.

**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
Sacramento River	
Morrison Creek @ Franklin Boulevard	4.2
Sacramento River @ Freeport	1,122 (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 Settling Basin Outflow	30
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

(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. 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.

Comment: Cache Creek Settling Basin Requirement and Table D footnote recommendation.
YCFWCWD (S. Lorenzato, 22 September 2009)

I believe the TMDL would be improved by specifically stating that high flows in Cache Creek above 30,000 cfs (the design capacity of the Cache Creek settling basin) are excluded from the load allocations. I think this will focus limited financial resources on controlling mercury in flows that pose the greatest exposure risks. High flows that do not pass through the settling basin are different than sediment mobilizing flows below this discharge level and pose little additional exposure risk (see explanation below). A Cache Creek flood management strategy is being developed that is aimed at reducing flooding risks in Woodland. To achieve this end, it is necessary to eliminate ponding of flood waters behind (to the west of) the west levee of the Yolo Bypass. Eliminating this ponding would allow some additional flood waters into the Yolo Bypass, and those waters would carry some amount of mercury. However, the events that create this ponding are rare, and for various reasons the concentration of mercury in these flows would be low enough, that on an annualized basis, they would not pose a significant contribution to Delta mercury loads.

Hg loading in the Cache Creek basin is generally believed to be primarily the result of erosion of soils and sediments from mine sites and geothermal features in the upper watershed (Domagalski 2004, Holloway 2009, Foe and Bosworth 2008), while the majority of sediment is derived from Capay Valley (USACE, 1979). Soil and sediments in channel sections and on alluvial fans and plains have been examined by the USGS. In the upper watershed above Capay valley, exposed serpentinite soils, mine tailings, and geothermal vents continue to release high concentrations of mercury into the stream channels. (Domagalski 2004, Holloway 2009). Soils in the mid and lower watershed generally have mercury concentrations equivalent to continental background levels unless they are overlain with upper watershed deposits. (Holloway et al. 2009)

Stream flows that result in discharges up to 30,000 cfs at the settling basin mobilize channel sediments, but stay within the channel banks. Flows above this level can often flood Capay Valley and portions of the Cache Creek alluvial plain between the Settling Basin and Capay Dam. Alluvial deposits downstream of Cache Creek canyon demonstrate diluted sediment mercury concentrations due to the low mercury content Great Valley derived sediments (Holloway et al 2009). Capay Valley acts as a mercury sink in large events as evidenced by the elevated soil mercury concentrations in the floodplain soils when compared to Great Valley formation background levels (Holloway et al. 2009). Capay Valley also contributes sediment to the channel from overland sheet erosion and in channel erosion during high flow events (USACE 1975). Both of these sources exhibit mercury concentrations near continental background, so the overland sediment contributions act to dilute mercury concentrations in water reaching the lower Cache Creek alluvial plain (Foe and Croyle 1998, Foe and Bosworth 2008). Flood flows that come out of channel in the lower alluvial plain are substantially lower in Hg than flows moving through the settling basin as evidenced by soil samples analyzed by USGS (0.13-.2 mg/kg alluvial plain, Holloway, >0.7mg/kg settling basin Domagalski 2004, Conway pers. communication). This is consistent with Regional Board findings that grain size analysis reveals that more than 75 percent of the mercury in the Cache Creek canyon is contained in sand and larger sized material (RWQCB 2008). These heavier particles tend to stay within the channel during higher flows. Over bank flows are likely to carry a high percentage of silts and clays and a low percentage of sands. The USGS data show the alluvial plain acts as a Hg sink.

The over bank flows also persist for relatively short periods of time. For example in the 1995 high flow event the storm flow lasted for over 200 hours but the peak above 30,000 cfs only lasted for

about 10 hours and the discharge associated with the flows over 30,000 cfs was less than 10% of the storm event discharge. The other, roughly 90% of the flows went through the settling basin.

If we assume the ratio between settling basin soils and alluvial plain soils represents the concentrations of Hg in the overlying waters, then the alluvial plain receives water that is 1/10 to 1/5 the concentration of water moving through the settling basin. If we assume at least as efficient Hg trapping on the floodplain as in the basin (a conservative assumption given the slower and shallower flows that will occur on the floodplain) then only about 1/20 to 1/10 of the Hg moving through the creek would be available for overland transport to the Yolo Bypass. Foe and Croyle estimated daily Hg loads from selected storm events in 1997 and 1998. The highest value estimated at the inlet to the settling basin is 63,000 g/day total Hg. Using this value and assuming that the daily load from overbank flows would be proportional in time (10 hrs/24hrs) 26,250 grams would be moving during the overbank flow period. The overbank flow represents about 33% of the total flow at that time, or ~8500 grams during the event. But if we apply the correction factor above, then only 425-850 grams would be carried in the overbank flows. However, not all of the over bank water would reach the Yolo Bypass. Assuming the alluvial plain absorbs about half the overbank waters, about 200-450 grams of mercury would reach the Yolo Bypass from over bank flows.

If we then consider the annual loading rate this represents (eg. a 50 year recurrence period) then the annual load from overbank flows is 4-9 grams of total mercury. The TMDL regulates MeHg, and a consistent conversion between total and methyl Hg is not available. But given that overbank flows will not be subjected to the wetting and drying phenomena that is emerging as a major driver of methylation, and that the ratio of total to methyl mercury is often between 100 and 1000 to one, it is safe to assume that the annualized contribution of MeHg will likely be a fraction of a gram. Data from sediment cores in the watershed also suggest that control measures being put in place are reducing overall loading. (Holloway) This suggests we might expect a continued decline in the concentration of Hg in overbank flows.

Given this relative magnitude of loading and the difficulty of managing mercury during high flow events, it would be reasonable to exclude these flows from the TMDL. I suggest that a footnote be added to Table D for the Cache Creek Settling Basin allocation that says:

Loads from Cache Cr derived from flows above 30,000 cfs are excluded from the TMDL.

Foe and Bosworth 2008, Mercury Inventory in the Cache Creek Canyon, Regional Water Quality Control Board, Central Valley Region, Staff Report,

Foe and Croyle, 1998. Mercury Concentrations and Loads from the Sacramento River and from Cache Creek to the Sacramento-San Joaquin Delta Estuary. California Regional Water Quality Control Board, Central Valley Region, June 1998

Domagalski et al., 2004 Mercury and methylmercury concentrations and loads in the Cache Creek Watershed, California, January 2000 through May 2001, Califed Bay Delta Program, pg28.

Holloway 2009, Spatial and seasonal variations in mercury methylation and microbial community structure in a historic mercury mining area, Yolo County, California, Chemical Geology, 1579.

Holloway et al. 2009, Geomorphic controls on mercury accumulation in soils from a historically mined watershed, Central California Coast Range, USA, Applied Geochemistry, 2009, in press

USACE 1979. Cache Creek Basin California: Feasibility Report and Environmental Statement for Water Resources Development, US Army Corps of Engineers, February 1979, pg 23.