

SACRAMENTO



STORMWATER
QUALITY
PARTNERSHIP

October 18, 2006

Mr. Patrick Morris
TMDL Unit
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670

Subject: Early review of June 2006 Delta Mercury Total Maximum Daily Load Peer Review, Draft Staff Report, and Basin Plan Amendment

Dear Mr. Morris:

Thank you for providing this opportunity for an early review of the June 2006 Delta Mercury Total Maximum Daily Load (TMDL) Peer Review, Draft Staff Report, and Basin Plan Amendment (BPA) language. These comments are submitted to you by the Sacramento Area's Stormwater Quality Partnership (SWQP), which is a joint program of the County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento. SWQP members and representatives from other local stormwater programs met with you on September 5, 2006 and listened to a presentation on the TMDL's analysis, allocations, and implementation plan. In addition to comments and questions shared at that time, we offer the following comments, as well as specific edits (Attachment 1) to the BPA text, as you had suggested.

We would like to preface our comments by saying that we, as environmental stewards in the Sacramento metropolitan area, have done much to understand and improve the quality of our stormwater discharges. We commend the Regional Board's efforts to analyze the mercury situation in the Delta, to work with stakeholders at this point to improve our common understanding, and to craft a workable implementation plan. Regardless of the fact that our urban stormwater contributes about 1% of the total mercury currently being discharged to the Delta, we are committed to doing our part in reducing the mercury load in the Delta. In the interest of prudent use of public funds as well as achieving real environmental benefits, it is our hope that we would not be required to spend our limited resources on activities that will have no measurable effect on that load.

As described below, there are four important issues that we wish to bring to the attention of the Regional Board. First, this TMDL only addresses a small fraction of the mercury load to the Delta, yet requires substantial effort with uncertain benefit, all while ignoring the majority of the source. Second, the TMDL should not commit to allocations until the many special studies in phase 1 are completed and synthesized. Third, the report should eliminate the 2014 prohibition of discharge of methylmercury. This provision, which is unrealistic and overly stringent,

The Sacramento Stormwater Quality Partnership is a joint program of the County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento.

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unnecessarily focuses significant funding and resources on the smallest sources in the watershed. Fourth, the report needs to prioritize and emphasize the development of a mercury offset program that will expedite the reduction of mercury loads in the watershed and provide regulatory compliance credit for making those improvements.

In addition to these written comments, attached are proposed edits to the BPA that reflect these comments. Both this letter and the edits are generally consistent with comments submitted by the Central Valley Clean Water Association.

1. Address the majority of the mercury load to the Delta prior to implementing phase 2 of this TMDL.

There is no plan or strategy to deal with the bulk of the mercury load. The TMDL implementation plan primarily looks to control in-Delta sources such as urban runoff, which leaves the impression that these types of efforts will result in achieving the TMDL fish tissue target. In so doing, the TMDL implementation plan avoids addressing the reality that controlling this small percentage may have little or no impact on actually attaining the TMDL goals. Focusing attention on minor sources, while approximately 90% of total mercury and methylmercury sources are uncontrollable or unaccounted for, is misleading to decision makers and ultimately will be ineffective. Peer reviewer Dr. Horne commented on this point as well.

The Regional Board should have a plan for addressing the entire load of mercury to the Delta beyond simply allocating reductions to tributary watersheds. The Regional Board needs an overall strategy for completing over 30 mercury TMDLs and multiple TMDLs for over 100 water bodies (based on the 2002 303(d) list for Region 5).

2. Wait for special studies before committing to allocations.

This TMDL is clearly identified as a phase 1 action, generally requiring only studies by regulated contributors of mercury. Until these and other studies are evaluated, including over \$50 million of past and on-going CALFED studies, no one can realistically anticipate all of the potential issues that will be identified, nor the subsequent requirements in phase 2 necessary to address the issues.

At this time, allocations and other conditions that are slated to go into effect in 2014 should instead be referred to as *potential direction* for phase 2, pending results of the phase 1 special studies. Final decisions regarding Phase 2 should also be dependent on the establishment of a reasonable definition of feasibility for control options, which should include consideration of special study findings.

3. Eliminate the 2014 methylmercury prohibition and other unnecessary provisions.

There are essentially two TMDLs wrapped into one: total mercury and methylmercury. The proposed TMDL compels very minor sources of methylmercury to implement potentially very expensive control measures, with little evidence of the potential for measurable benefit to the environment. Peer reviewer Dr. Horne commented extensively on this point as well, pointing out how difficult it would be to revise fossilized standards once incorporated into regulations.

We are particularly concerned that the linkage analysis only addresses the linkage between methylmercury concentrations in water and in fish, whereas the implementation plan aims to reduce total mercury and methylmercury sources to water. No total mercury or methylmercury control programs have documented reductions of mercury in fish to the levels proposed in this TMDL.

A verifiable linkage between proposed control measures and actual reductions of mercury in fish should be established to justify requiring dual elements for one pollutant. Given this uncertainty, scheduling prohibitions at this time is not warranted. Until we develop a correlation between methyl and total mercury, we should focus on what we can potentially control: total.

4. Develop a mercury offset program.

Part of our stormwater management responsibility is compliance with our NPDES permit and other regulatory requirements such as this TMDL. The apparently unattainable wasteload allocations are slated for phase 2 with little hope of compliance, despite what we anticipate now to be our best efforts including substantial expenditures of money. To us this can only lead to certain regulatory problems that divert our limited resources from more productive activities.

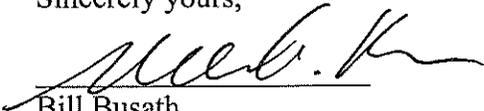
We strongly recommend that the Regional Board commit to the development and implementation of an effective mercury offset program well in advance of regulatory deadlines. Relying on the State Board is seems to us unwise and disregards the several years of effort already spent by Regional Board staff and stakeholders in the Central Valley to develop an offset program. To encourage offsets as an effective regulatory tool, the Regional Board should include language in the TMDL that:

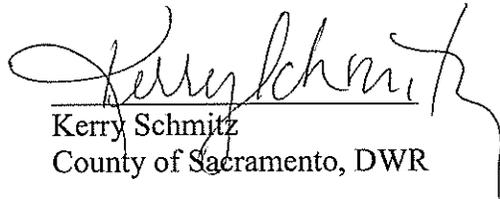
1. Commits the Regional Board to the development of an effective offset program or framework in coordination with the State Board within the next two years;
2. Allows total mercury mass load reductions to be used as the basis for any mercury offset credits (related to comment #3); and
3. Makes candidate projects immediately available for offsets and minimizes legal obstacles by working closely with the USEPA.

We also support the Sacramento Regional County Sanitation District's interest in potentially implementing a pilot offset project to test feasibility.

We appreciate this opportunity to provide early input into the Basin Planning process and look forward to working with you and your staff to resolve our concerns.

Sincerely yours,


Bill Busath
City of Sacramento, Utilities


Kerry Schmitz
County of Sacramento, DWR

Cc:

Pamela Creedon, CVRWQCB
Dave Tamayo, County of Sacramento
Connie Perkins, City of Sacramento
Kevin Becker, City of Citrus Heights
Ramy Kamel, City of Elk Grove
Sarah Amaya, City of Folsom
Trung Trinh, City of Galt
Kathy Garcia, City of Rancho Cordova
Carmel Brown, CKB Environmental

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DRAFT BASIN PLAN AMENDMENT

Text additions to the existing Basin Plan language are underlined and text deletions are indicated by ~~strike through~~. (NOTE: For this review edition, underline is not used for ease of reading- everything below is new language) Revise Basin Plan sections as follows:

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

Sacramento San Joaquin Delta (8,9, a)

Footnote (a) Sacramento San Joaquin Delta: COMM

Comment [MSOffice1]: This proposed use designation is a "potential" use rather than "existing" use. Although people certainly do use the Delta for sport fishing, the ability to catch and consume fish that meet the proposed mercury fish tissue target does not currently exist (and may never exist, due to natural or other factors).

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

For the Sacramento San Joaquin Delta, the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/ kg, wet weight, in muscle tissue of large trophic level 3 and 4 fish, respectively (150-500 mm total length unless legal catch size designated by the California Department of Fish and Game). These objectives are protective of (a) humans eating 32 g/day (1 meal/week) of commonly consumed, large fish; and (b) all wildlife species that consume large fish. The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/ kg, wet weight, in whole trophic level 2 and 3 fish less than 50 mm in length. This objective is protective of wildlife species that consume small fish.

Comment [MSOffice12]: Given the peer review comments by Alex Horne, you should recognize that these are extremely conservative fish tissue targets, especially the wildlife-based objectives. Also, the Regional Board is supposed to provide a Section 13241 and 13242 analysis to support adoption of these objectives, which we have not yet seen.

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

Delta Methylmercury Program:

The goal of the control program is to achieve the methylmercury fish tissue objectives throughout the Delta. Fish tissue methylmercury concentrations are linked to the concentration of methylmercury in the water. Available information indicates that meeting a long-term average aqueous methylmercury (unfiltered) goal of 0.06 ng/l may achieve the Delta fish tissue objectives. The aqueous methylmercury goal applies to the average ambient water methylmercury concentration. In some areas of the Delta significant reductions in methylmercury concentrations are necessary to achieve the aqueous methylmercury goal. Allocations are specific to Delta subareas, which are shown on Figure IV-1.

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Comment [MSOffice3]: The goal is for a long-term average, and won't apply to single years. For stormwater, averages are calculated for up to 10 years of historical data.

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Comment [MSOffice4]: "inputs" ignores the importance of demethylation

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Comment [MSOffice5]: The deleted statement applies to Phase 2.

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The concentration of total mercury in sediment is a factor for methylmercury production. Point and nonpoint sources, of historic, natural, and human origins, contribute total mercury to the Delta. In addition, existing sediments in the Delta represent a reservoir of mercury available for methylation. The control program includes requirements for addressing sediment and for controlling total mercury loads from point and nonpoint sources. The control program includes

Attachment 1

October 18, 2006

Sacramento Stormwater Quality Partnership comments on Draft Basin Plan Amendment

Page 2 of 21

requirements to reduce total mercury loading to San Francisco Bay, as required by the San Francisco Bay Water Board's total mercury allocation for the Central Valley.

This Basin Plan Amendment represents phase 1 of the TMDL. The Regional Board intends to develop phase 2 of this TMDL by December 2014.

The discharge of methylmercury into the Delta or its tributaries within the legal Delta and for 30 miles beyond the legal boundary (Figure IV-1) is may be limited in phase 2 unless 1) the fish tissue mercury objectives for the Delta are being met, 2) methylmercury allocations have been met, 3) the methylmercury discharge concentration is less than 0.06 ng/l, 4) additional studies of the Delta indicate that methylmercury controls on existing sources will not attain the methylmercury goal, or 5) responsible parties have conducted or participated in methylmercury Characterization and Control Studies by December 2012 and identified a schedule for implementation of reasonable and necessary control actions in accordance with State and Regional Board adopted plans and schedules.

Characterization and Control Studies

Phase 1 of the control program requires Characterization and Control Studies to evaluate methylmercury and total mercury concentrations and loads in discharges, identify variables that control methylmercury production, and propose feasible management practices or other controls and implementation schedules to reduce methylmercury loads. Responsible parties within each source category can develop collaborative studies and will be considered to be in compliance with the study requirements if they participate in the collaborative studies and propose management practices and implementation schedules.

Responsible parties for **Characterization and Control Studies** shall submit study plans by December 2007 to the Regional Board for approval by the Executive Officer. By December 2009, responsible parties shall submit a report documenting progress towards complying with the study requirements and management practice development. By December 2012, the responsible parties shall complete the studies and submit results and proposed management practices to the Regional Board. In January 2008 and January 2010 staff will report to the Regional Board the responsible parties' progress towards compliance with the studies and management practice development.

In developing phase 2 of this TMDL, the Regional Board will evaluate the completed studies, proposed management practices, implementation schedules, potential positive and negative environmental impacts of proposed methylmercury control actions, and the effectiveness and feasibility of methylmercury controls on existing sources to meet the methylmercury goal at various locations in the Delta. The Regional Board may consider allowing any combination of the following: modification of methylmercury goal or objectives, allocations or total mercury limits; adoption of management practices and implementation schedules for on-site methylmercury controls; or adoption of an offset program to compensate for loads in excess of the methylmercury allocations.

The State Water Board is requested to fund or conduct studies to develop and evaluate management practices to reduce methylmercury discharges from nonpoint sources.

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Prohibition¶

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Comment [MSOffice6]: P Morris indicated in the workshop that this was the intent

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Comment [MSOffice7]: A concentration-based requirement implies acute toxicity, which is not appropriate.

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By December 2014

Comment [MSOffice8]: There needs to be less reliance on this fixed date. It's a significant liability for the Regional Board.

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Comment [MSOffice9]: There needs to be some contingency plan in case this is not done or the results are inconclusive.

The Central Valley and San Francisco Water Boards will conduct coordinated studies to evaluate methyl and total mercury loads that flux between the jurisdictional areas for allocation revisions in phase 2.

Methylmercury allocations are provided in Tables A, B, D, F, and G. Methylmercury allocations may be required to be met in phase 2 unless dischargers or discharger groups complete the studies and submit to the Regional Board the management plan discussed below by December 2012. If feasible and effective controls are identified, compliance with the methylmercury allocations may be required by 31 December 2029, or sooner if required by Regional Board adopted implementation schedules.

Agricultural Lands and Wetlands

This control program applies to agricultural lands and wetlands in the Delta and within 30 miles (Figure IV-1) of the Delta. Methylmercury allocations are included in Table A for each Delta subarea. The allocations for each subarea apply to the sum of existing discharges. Responsible parties are encouraged to work together to:

1. Complete **Characterization and Control Studies** to characterize methyl and total mercury concentrations and loads in source and receiving waters and discharges, and to identify variables that control methylmercury production; and
2. Develop management practices that can be implemented to achieve the methylmercury allocations, a time schedule for implementation and, if applicable, detailed information documenting why fully achieving the methylmercury allocations is infeasible.

Dischargers responsible for new sources of methylmercury from agricultural lands and wetlands that are proposed to be initiated between the effective date of this amendment and implementation of phase 2 may be limited unless discharge methylmercury concentrations are less than the source water methylmercury concentrations or the discharger conducts studies as discussed above and increases in methylmercury are approved by the Executive Officer. New discharges that begin after the effective date of this amendment may necessitate adjustments to the allocation assignments in phase 2.

Discharges from agricultural lands and wetlands that exceed source water methylmercury concentrations may be limited in subareas where load allocations are not being met unless responsible parties (individuals or groups) complete the studies and submit to the Regional Board the management practices discussed above and increases in methylmercury are approved by the Executive Officer.

NPDES Wastewater Treatment Facilities

Methylmercury allocations apply to NPDES permitted facilities in the Delta or within 30 miles of the Delta (Table B, Figure IV-1). Methylmercury allocations may be required in phase 2 unless dischargers or discharger groups complete the studies and submit to the Regional Board the management plan discussed below by December 2012. Facilities that discharge greater than 1 mgd are required to:

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Comment [MSOffice10]: Minimize constraints to working together.

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1. Complete **Characterization and Control Studies** to characterize methyl and total mercury concentrations and loads in influent, effluent and receiving waters, and to identify variables that control methylmercury production; and
2. Develop plans to achieve the methylmercury allocations, a time schedule for implementation and, if applicable, detailed information documenting why fully achieving the allocations is infeasible.

Smaller facilities are encouraged to coordinate and cooperate in the above studies.

Dischargers of new sources of methylmercury that are proposed to be initiated between the effective date of this amendment and phase 2 are prohibited unless the discharge is less than 0.06 ng/l methylmercury, or the discharger conducts studies as discussed above and increases above 0.06 ng/l methylmercury are approved by the Executive Officer. New discharges that begin after the effective date of this amendment may necessitate adjustments to the allocations.

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Total mercury load limits apply to NPDES permitted facilities that discharge greater than 1 mgd within the Delta and in tributaries to the Delta downstream from major dams (Table C).¹ The total mercury limit for a facility shall be the facility's 2008 annual mercury load. Facilities shall report their 2008 loads by 31 March 2009. Annual loads are calculated by the summation of monthly concentrations times monthly flows.²

From the effective date of this amendment until the date the Central Valley Water Board adopts a final Mercury Offset Program, a facility is in compliance with the total mercury limits if it (1) implements a Pollution Prevention Plan for total mercury in compliance with Section 13263.3 of the California Water Code and maintains compliance with a USEPA approved pretreatment program, as applicable, and (2) does not exceed the 2006 annual average mercury concentration.³

Dischargers whose mercury loads exceed the 2008 load limit shall maintain a Pollution Prevention Plan and either reduce their loads to surface waters to achieve the limit or offset the excess mercury in conformance with the final Mercury Offset Program. A Mercury Offset Program is anticipated for Regional Board consideration in 2009. In the absence of a final Mercury Offset Program, the 2008 load limits will continue to be in effect. After 2008, the Executive Officer will evaluate new NPDES facilities on an individual basis when establishing total mercury load limits in permits.

Facilities that discharge less than 1 mgd are required to implement a Pollution Prevention Plan for total mercury in compliance with Section 13263.3 of the California Water Code and maintain compliance with a USEPA approved pretreatment program, as applicable.

¹ Major reservoirs and lakes in the Sacramento Basin are Shasta,iskeytown, Oroville, Englebright, Camp Far West, Folsom/Natoma, and Black Butte, Indian Valley, Clear Lake and Lake Berryessa. Major reservoirs and lakes in the San Joaquin Basin are Camanche, New Hogan, New Melones/Tulloch, Don Pedro, McClure, Burns, Owens, Eastman, Hensley, Millerton and Marsh Creek.

² Monthly concentration shall be an average of all effluent concentration data collected that month. Non-detect measurements shall use one-half of the detection level (minimum detection level 0.2 ng/l) for the calculations.

³ Annual average concentration shall be average of monthly averages. Monthly averages are the mean of all data collected during a given month.

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Urban Runoff

Methylmercury allocations for urban runoff shall be implemented through NPDES Municipal Separate Storm Sewer Systems (MS4) permits issued to urban runoff management agencies in the Delta and within 30 miles of the Delta (Table D, Figure IV-1). The urban runoff allocations implicitly include all current and future urban discharges not otherwise addressed by another allocation within the geographic boundaries of urban runoff management agencies, including but not limited to Caltrans roadway and non-roadway facilities and rights-of-way, public facilities, properties proximate to banks of waterways, industrial facilities, and construction sites.

Methylmercury allocations may be required to be met in phase 2 unless MS4 dischargers or discharger groups complete the studies and submit to the Regional Board the management plan discussed below by December 2012.

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In phase 1, Phase I MS4s are required to:

1. Complete **Characterization and Control Studies** to characterize methyl and total mercury concentrations and loads in MS4 discharges; and
2. Develop best management practices that can be implemented to achieve the methylmercury allocations and maintain the total mercury load limits, a time schedule for implementation and, if applicable, detailed information documenting why full achievement of the methylmercury allocations and total mercury load limits is infeasible.

Comment [MSOffice11]: The only requirement should be for characterizing loads.

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Phase II MS4s are encouraged to coordinate with Phase I MS4s in completion of the studies described above. MS4s that are designated after the effective date of this amendment may necessitate adjustments to the methylmercury allocations. Urban areas (including industrial and construction discharges) that are not regulated by MS4s may be assigned allocations in phase 2.

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Total mercury limits apply to MS4 (Table E) discharges within the Delta and in tributaries to the Delta downstream from major dams. The total mercury limit for MS4 discharges shall be the 10-year average mercury load calculated for 2002 through 2011. Average annual total mercury loads shall be calculated by the average total mercury concentration measured in urban runoff multiplied by average annual runoff volume for 2002 through 2011, or alternate method approved by the Executive Officer. Total mercury load limits will be effective within 12 months after final approval of the Mercury Offset Program by the State and USEPA. In expanding municipalities, MS4s are responsible for only any increase in total mercury load associated with urban development and land use associated with those newly annexed areas.

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Phase 2 of this TMDL will be consistent with statewide policy for regulating MS4s, particularly with regard to the definition of Maximum Extent Practicable and the application of numeric effluent limits.

Dredging

There shall be no net increase in methyl and total mercury loads from dredging activities in Delta waterways. Clean Water Act 401 Water Quality Certifications shall include the following conditions:

1. Characterize methyl and total mercury loads removed from Delta waterways by dredging activities.

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2. Conduct before-and-after surface sediment monitoring to ensure that newly-exposed sediment has an average total mercury concentration less than the surface material before dredging.
3. Employ management practices during and after dredging activities to minimize sediment releases into water column.
4. Ensure that disposal of dredged material with average total mercury concentrations greater than 0.2 mg/kg (dry weight, fines < 63 microns), is protected from erosion by 100-year precipitation or flow conditions.
5. Ensure that return flows from the disposal of dredged material do not have methylmercury concentrations greater than the receiving water concentration.

Flood Conveyance Flows and Water Management and Storage

Methylmercury flux from sediment in open waters of the Delta needs to be maintained at existing levels (Table F).

Flood conveyance inputs from the Yolo Bypass, water management activities (e.g., the South Delta Improvement Project or new or expanded reservoirs), and seasonal wetland flooding may influence ambient methylmercury levels in the Delta. Parties responsible for flood conveyance activities include USACE, State Reclamation Board, DWR, USFWS, CDFG, Sacramento Area Flood Control Agency, local reclamation districts, levee and drainage districts and municipalities. Parties responsible for salinity control and other water management activities in the Delta include SWRCB, DWR and USBR.

The Regional Board requires that the parties responsible for flood conveyance projects coordinate with wetland and agricultural landowners to characterize existing methylmercury discharges to open waters from lands immersed by managed flood flows and to develop control measures.

In addition, the Regional Board requires that the parties responsible for water supply management in the Delta conduct collaborative studies to characterize baseline methylmercury production in open channels during different flow conditions in the Delta, in particular:

1. Evaluate direct and indirect effects of flow management practices on sulfate concentrations and methylmercury production in the Delta; and
2. Conduct sulfate amendment studies to determine whether sulfate concentrations affect methylmercury production rates and resulting ambient water column concentrations in the Delta.

Changes in flood conveyance, water delivery to, diversions from, or storage in the Delta, and salinity standards or flow management practices used to maintain current salinity standards could affect methyl and total mercury loading to the Delta. The SWRCB is requested to evaluate direct and indirect effects of changes in salinity standards on methylmercury production. If changes to the salinity standards (or flow management practices used to maintain current salinity standards) would increase methylmercury levels, then the SWRCB should require responsible agencies to conduct studies and develop management plans to reduce methylmercury concentrations. As necessary, management plans should be developed prior to changes in salinity standards.

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Inter-agency agreements and coordination with SWRCB authority over water rights will be needed to ensure that existing and potential impacts are properly characterized and controlled.

The Regional Board requires that responsible parties for existing and proposed flood conveyance and water management projects complete **Characterization and Control Studies** by 2012. By December 2014, the Regional Board will evaluate the studies and management practices and determine whether to implement control actions or modify allocations. Responsible agencies may participate in a mercury offset program.

Cache Creek Settling Basin

Comment [SAM12]: This entire section is very prescriptive. Suggest replacing with discussion of an offset program.

The Delta mercury control program requires a total mercury reduction of 53 kg/yr from the Cache Creek Settling Basin in addition to mercury reduction efforts described in the Cache Creek Watershed Program. The tributary total mercury load limits are based on 20-year average loads for water years 1984 through 2003, which includes a mix of wet and dry years that is statistically similar to what has occurred in the Sacramento Basin over the last 100 years. By 31 December 2007, the Regional Board requires that responsible agencies for Cache Creek Settling Basin operations and maintenance propose a plan for removing contaminated sediments and improving the trapping efficiency of the basin to reduce the total mercury discharge. Responsible agencies include DWR and USACE. By 31 December 2010, responsible agencies shall implement control actions to reduce total mercury loads from the Settling Basin. Total mercury load reductions from the Cache Creek Settling Basin may be accomplished, in part, through a mercury offset program.

Table G identifies the methylmercury allocation for the Cache Creek Settling Basin. The Regional Board requires that by 31 December 2012 responsible agencies complete **Characterization and Control Studies** and develop management practices to achieve the methylmercury allocation.

Additional mercury control actions for the settling basin may be required to further reduce mercury in the Yolo Bypass.

Tributary Watersheds

Table G identifies methylmercury allocations for tributary inputs to the Delta. [The Regional Board will develop TMDLs for these tributaries prior to implementing phase 2 of the Delta mercury TMDL.](#)

The sum total of 20-year average total mercury loads from the American River, Putah Creek, and Feather River needs to be reduced by 38 kg/yr, from 104 to 66 kg/yr. This reduction will be implemented by future TMDL programs for these watersheds. The tributary total mercury load limits are based on 20-year average loads for water years 1984 through 2003, which includes a mix of wet and dry years that is statistically similar to what has occurred in the Sacramento Basin over the last 100 years. Additional total mercury load reductions may be required to accomplish future water quality objectives to be established for those watersheds.

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Public Education

The local county health departments should expand current outreach and education regarding the risks of consuming fish containing mercury, emphasizing portions of the population that are at highest risk, such as pregnant women and children. The Regional Board will work towards developing a strategy for public outreach and education and will support stakeholders implementing the strategy. The Regional Board encourages dischargers of methyl and total mercury to promote public education programs and work with at-risk fish consumers to develop community-based risk reduction and mitigation strategies aimed at lowering their risk to eating locally caught fish.

The Regional Board recommends that the California Department of Health Services provide expanded public outreach and education to reduce methylmercury health risks to people consuming local fish.

Adaptive Implementation

The Regional Board recognizes that meeting the methylmercury allocations, total mercury limits, and other requirements of this control program may be difficult. Therefore, in developing phase 2 the Regional Board will evaluate the results of the control studies and implementation plans developed by the Regional Water Board and other entities to determine whether adjustments in goals, objectives, allocations or time schedules need to be made. By 2014, the Regional Board will consider adoption of an offset program that will allow dischargers to offset methylmercury in excess of requirements by implementing more feasible or cost effective projects elsewhere in the watershed. Participation in the offset program will be allowed only after dischargers have completed control studies, as described in this control program, and clearly demonstrated that meeting the methylmercury allocations or total mercury limits is infeasible or impracticable.

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Comment [MSOffice13]: The offset program should be developed sooner, for the Central Valley region specifically, and combined for all forms of mercury.

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Monitoring and Review

The monitoring guidance for the Delta is described in Chapter V, Surveillance and Monitoring.

Recommendations for Other Agencies

Atmospheric deposition of mercury in the Central Valley tributary watersheds needs to be maintained at existing levels. Atmospheric deposition is a statewide issue and some sources originate outside of the state. A memorandum of understanding should be developed between USEPA, the State Water Board, and the Air Resources Board to conduct studies to evaluate local and statewide air emissions and deposition patterns and to develop and implement a load reduction program(s). The study results and implementation options will be reviewed by the Regional Board in developing phase 2.

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

The total estimated costs for management practices to meet the Delta methylmercury objective range from \$xxx to \$xxx. The estimated costs for discharger compliance monitoring, planning and evaluation range from \$xxx to \$xxx million. The estimated total annual costs range from \$xxx million to \$xxx million (2006 dollars).

Potential funding sources include:

1. Those identified in the San Joaquin River Subsurface Agricultural Drainage Control Program and the Pesticide Control Program.

Revise Chapter V, (Surveillance and Monitoring) to add:

Delta

The Central Valley Water Board will use the following criteria to determine compliance with the methylmercury fish tissue objectives in the Sacramento-San Joaquin Delta.

The representative fish species for each trophic level shall be:

- Trophic Level 4: bass (largemouth and striped), 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.
- Trophic Level 2 or 3 fish less than 50 mm: inland silverside, juvenile bluegill, mosquitofish, red shiner, threadfin shad, or other fish of this size commonly consumed by wildlife species in the Delta.

Sample sets for large trophic level 3 and 4 fish shall include three species from each trophic level and shall include anadromous and non-anadromous fish. Sample sets for the large fish shall include a range of sizes of fish between 150-500 mm total length, with average length of 350 mm. Striped bass, largemouth bass, and sturgeon caught for mercury analysis should be within the CDFG legal catch size limits. Sample sets for fish less than 50 mm shall include at least two fish species. To attain compliance, the average concentration of methylmercury in sample sets for each subarea shall equal the objectives for three consecutive years. In any subarea, if multiple species for a particular trophic level are not available, one species in the sample set is acceptable.

The largemouth bass implementation goal may be used as a cost-effective tool to track progress toward meeting the fish tissue objectives. The largemouth bass implementation goal is 0.24 mg methylmercury/ wet weight muscle tissue of largemouth bass at a standard, total length of 350 mm. This implementation goal corresponds to the fish tissue objectives and is expected to protect humans and wildlife species that eat fish from a mixture of trophic levels.

The aqueous methylmercury goal is in the form of the annual average concentration in unfiltered samples of ambient water. Water samples should be collected seasonally throughout the year during typical flow conditions.

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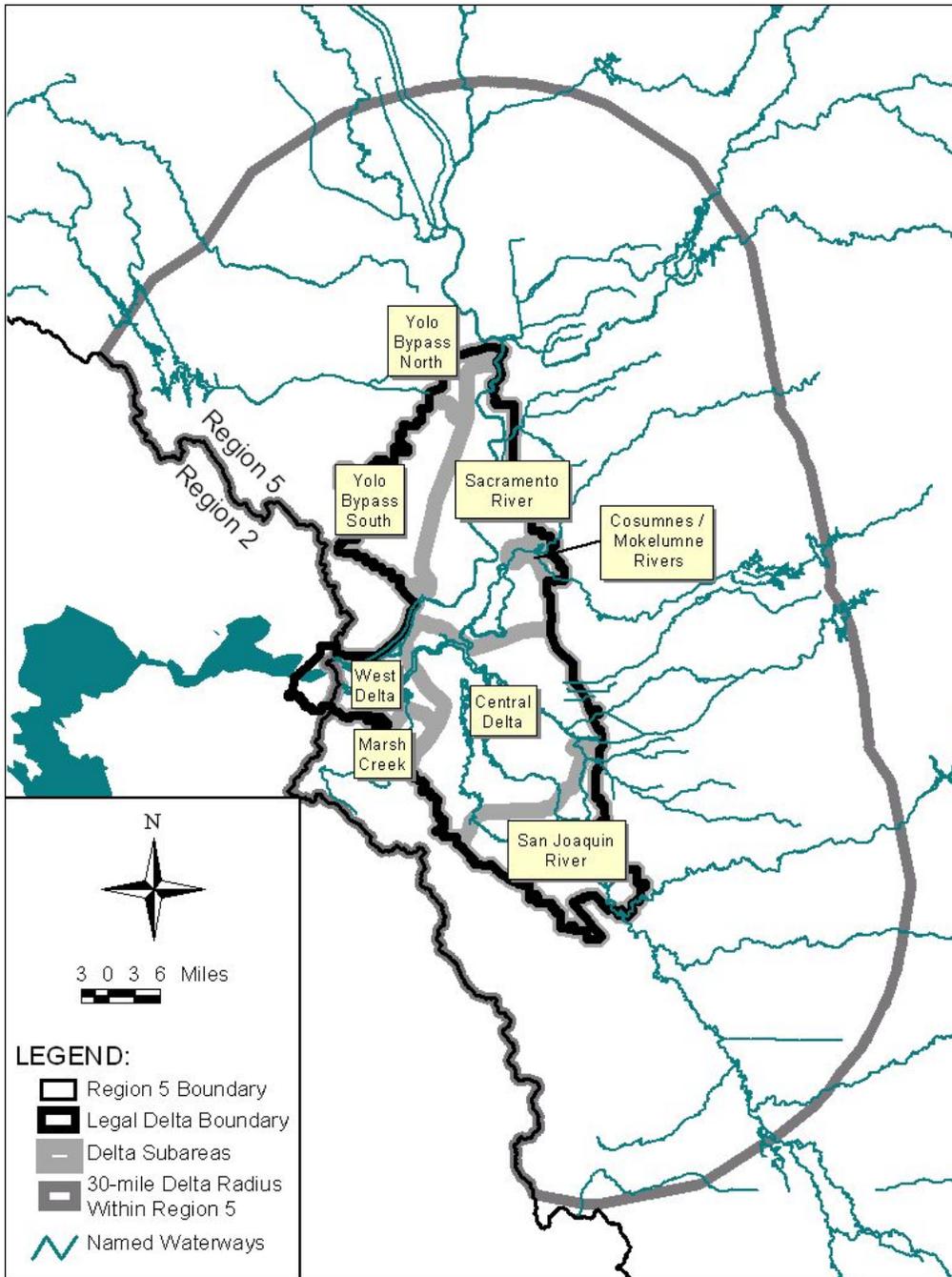


Figure IV-1 Delta Subareas for Delta Methylmercury Program

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TABLE A
AGRICULTURE AND WETLAND
METHYLMERCURY ALLOCATIONS

DELTA SUBAREA RECEIVING SOURCE INPUT	PROXIMITY TO DELTA	SOURCE	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr)
Central Delta	Within Subarea	Agriculture	37	0%	37
		Wetlands	135	0%	135
	Within 30-Miles Upstream of Subarea	Agriculture	<i>Upstream values to be included in the next draft of the Proposed BPA staff report.</i>		
		Wetlands			
Marsh Creek	Within Subarea	Agriculture	2.2	75%	0.58
		Wetlands	0.40	75%	0.10
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	75%	<i>tbd</i>
		Wetlands	<i>tbd</i>	75%	<i>tbd</i>
Mokelumne/ Cosumnes Rivers	Within Subarea	Agriculture	1.6	65%	0.56
		Wetlands	12	65%	4.2
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	65%	<i>tbd</i>
		Wetlands	<i>tbd</i>	65%	<i>tbd</i>
Sacramento River	Within Subarea	Agriculture	36	54%	19
		Wetlands	66	54%	35
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	54%	<i>tbd</i>
		Wetlands	<i>tbd</i>	54%	<i>tbd</i>
San Joaquin River	Within Subarea	Agriculture	23	82%	4.1
		Wetlands	18	82%	3.2
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	82%	<i>tbd</i>
		Wetlands	<i>tbd</i>	82%	<i>tbd</i>
West Delta	Within Subarea	Agriculture	4.1	0%	4.1
		Wetlands	121	0%	121
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	0%	<i>tbd</i>
		Wetlands	<i>tbd</i>	0%	<i>tbd</i>
Yolo Bypass	Within Subarea	Agriculture	19	83%	3.2
		Wetlands	415	85%	62
	Within 30-Miles Upstream of Subarea	Agriculture	<i>tbd</i>	83%	<i>tbd</i>
		Wetlands	<i>tbd</i>	85%	<i>tbd</i>

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TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER
METHYLMERCURY WASTE LOAD ALLOCATIONS BY DELTA SUBAREA

PERMITTEE	PERMIT #	EXISTING MeHg CONCENTRATION (ng/l)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg CONCENTRATION (ng/l) (a)	ALLOCATED MeHg LOAD (g/yr)	2005 EFFLUENT VOLUME (mgd) (b)
Central Delta Subarea – Within Delta Facilities (c)						
Discovery Bay WWTP	CA0078590	0.20	0%	0.20	0.42	1.5
Lodi (City of) White Slough WWTP	CA0079243	0.13	0%	0.13	0.72	4.0
San Joaquin Co DPW CSA 31-Flag City WWTP	CA0082848	0.09	0%	0.09	0.007	0.06
Marsh Creek Subarea – Within Delta Facilities (c)						
Brentwood (City of) WWTP	CA0082660	0.02	0%	0.02	(a)	3.1
Mokelumne River Subarea – Facilities that Discharge to Tributaries within 30 Miles of the Subarea (c)						
CDFG Mokelumne River Fish Hatchery	CA0004791		64%			
El Dorado ID Deer Creek WWTP	CA0078662		64%			
El Dorado ID El Dorado Hills WWTP	CA0078671		64%			
Galt WWTP	CA0081434		64%			
Sacramento River Subarea – Within-Subarea Facilities						
Rio Vista (City of) WWTP	CA0079588	0.16	46%	0.09	0.06	0.47
Rio Vista (City of) Trilogly WWTP	CA0083771			(d)		0.2
SRCSD-Elk Grove Walnut Grove WWTP	CA0078794	1.7	46%	0.91	0.10	0.08
Sacramento (City of) Combined WWTP	CA0079111			(e)		1.3
SRCSD Sacramento River WWTP	CA0077682	0.73	46%	0.39	84	156
West Sacramento (City of) WWTP	CA0079171	0.05	0%	0.05	(a)	5.6
Sacramento River Subarea – Facilities that Discharge to Tributaries within 30 Miles Upstream of the Subarea						
Auburn WWTP	CA0077712		46%			
CDFG Nimbus Fish Hatchery	CA0004774		46%			
DGS Office of State Publishing	CA0078875		46%			
Formica Corporation Sierra Plant	CA0004057		46%			
Lincoln WWTP	CA0084476		46%			
Pacific Coast Sprout Farms, Inc. (Sacramento)	CA0082961		46%			
Placer Co. SA #28 Zone #6	CA0079341		46%			
Placer Co. SMD #3 WWTP	CA0079367		46%			
Proctor & Gamble Co. WWTP	CA0004316		46%			
Roseville Dry Creek WTP	CA0079502		46%			
Roseville Pleasant Grove WTP	CA0084573		46%			
United Auburn Indian Community Casino WWTP	CA0084697		46%			
San Joaquin River Subarea – Within-Subarea Facilities						
Deuel Vocational Inst. WWTP	CA0078093	0.02	0%	0.02	(a)	0.47

Upstream values to be included in the next draft of the Proposed BPA staff report.

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PERMITTEE	PERMIT #	EXISTING MeHg CONCENTRATION (ng/l)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg CONCENTRATION (ng/l) (a)	ALLOCATED MeHg LOAD (g/yr)	2005 EFFLUENT VOLUME (mgd) (b)
Manteca Aggregate Sand Plant	CA0082783	0.032	0%	0.03	(a)	9.2
Manteca (City of) WWTP	CA0081558	0.216	72%	0.06	(a)	4.6
Mountain House CSD WWTP	CA0084271			(f)		5.4 (e)
Stockton (City of) WWTP	CA0079138	0.936	82%	0.17	6.4	28
Tracy (City of) WWTP	CA0079154	0.146	59%	0.06	(a)	9.5
San Joaquin River Subarea – Facilities that Discharge to Tributaries within 30 Miles Upstream of the Subarea						
Altamont Landfill and Resource	CA0083763		63%			
Canada Cove LP French Camp Golf & RV Park	CA0083682		63%			
Hershey Chocolate USA, Oakdale	CA0004146		63%			
J.F. Enterprises Worm Farm	CA0081949		63%			
Modesto ID Regional WTP	CA0083801		63%			
Modesto WQCF	CA0079103		63%			
Turlock WWTP	CA0078948		63%			
Yolo Bypass Subarea – Facilities that Discharge to Tributaries within 30 Miles Upstream of the Subarea						
Davis WWTP	CA0079049		78%			
University of California, Davis (UC Davis) WWTP	CA0077895		78%			
UC Davis Center for Aquatic Biology & Aquaculture	CA0083348		78%			
USDI UC Davis Aquatic Weed Laboratory	CA0083364		78%			
UC Davis Hydraulics Laboratory	CA0084182		78%			
Vacaville Easterly WWTP Plant	CA0077691		78%			
Woodland WWTP	CA0077950		78%			

Upstream values to be included in the next draft of the Proposed BPA staff report.

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PERMITTEE	PERMIT #	EXISTING MeHg CONCENTRATION (ng/l)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg CONCENTRATION (ng/l) (a)	ALLOCATED MeHg LOAD (g/yr)	2005 EFFLUENT VOLUME (mgd) (b)
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- (a) This table lists facilities within the Delta and within 30 miles of the Delta by the Delta subarea that receives the discharge. Facilities with existing average effluent methylmercury concentrations less than 0.06 ng/l, or allocated effluent methylmercury concentrations of 0.06 ng/l, do not have load limits; however, they do have concentration limits and must therefore maintain the concentrations listed in this table.
- (b) Facilities that discharged greater than 1 mgd in 2005 shall participate in the **Characterization and Control Studies**.
- (c) As of 20 March 2006, there are no permitted facilities that discharge to surface water within the Mokelumne River, Yolo Bypass and West Delta subareas or within 30 miles upstream of the Central Delta, West Delta and Marsh Creek subareas, other than heating/cooling, power, or groundwater treatment facilities. Available information indicates that such facilities do not contribute measurable amounts of methylmercury loading to the Delta. If future studies indicate otherwise, allocations will be developed for these facilities.
- (d) During the period of TMDL development, several facilities in the Delta or within 30 miles of the Delta were undergoing substantial changes in treatment processes or other plant upgrades that could affect their methylmercury discharges. The Regional Board Executive Officer issued a California Water Code Section 13267 order to these facilities requiring the characterization of their effluent once plant upgrades are completed. Allocations for these facilities will be developed upon availability of methylmercury data representative of plant upgrades. Facilities that discharged greater than 1 mgd in 2005 shall participate in the **Characterization and Control Studies**.
- (e) The Sacramento Combined WWTP (CA0079111) operates only when combined wastewater/storm flows that are normally conveyed to the SRCSD's Sacramento River WWTP (CA0077682) exceed 60 MGD. A California Water Code Section 13267 order was issued but effluent methylmercury data are not yet available.
- (f) The Mountain House CSD WWTP (CA0084271) is included on this table because it has expected to begin discharge to surface water within the next two years. It is permitted to discharge 5.4 mgd, and therefore shall participate in the **Characterization and Control Studies**. A methylmercury allocation will be developed based on characterization of the effluent once plant upgrades are completed and discharge to surface water begins.

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TABLE C
NPDES PERMITTED FACILITIES IN THE DELTA AND ITS TRIBUTARY WATERSHEDS
DOWNSTREAM OF MAJOR DAMS WITH 2008 TOTAL MERCURY LOAD LIMITS

FACILITY (NPDES NO.)	FACILITY (NPDES NO.)
FACILITIES WITHIN THE DELTA	
Brentwood WWTP (CA0082660) Discovery Bay WWTP (CA0078590) Lodi White Slough WWTP (CA0079243) Manteca Aggregate Sand Plant (CA0082783) Manteca WWTP (CA0081558) Mountain House CSD WWTP (CA0084271)	Sacramento Combined WWTP (CA0079111) SRCSD Sacramento River WWTP (CA0077682) Stockton WWTP (CA0079138) Tracy WWTP (CA0079154) West Sacramento WWTP (CA0079171)
FACILITIES IN THE TRIBUTARY WATERSHEDS DOWNSTREAM OF MAJOR DAMS	
Aerojet Interim Groundwater Treatment Plant (CA0083861) Anderson WPCP (CA0077704) Atwater WWTF (CA0079197) Auburn WWTP (CA0077712) Boeing Company Interim Treatment System (CA0084891) Chico Regional WWTF (CA0079081) Corning Industries/ Domestic WWTF (CA0004995) Davis WTP (CA0079049) Defense Logistics Agency Sharpe Groundwater Cleanup (CA0081931) El Dorado Irrigation District Deer Creek WWTP (CA0078662) El Dorado Irrigation District El Dorado Hills WWTP (CA0078671) Galt WWTP (CA0081434) General Electric Co. GWCS (CA0081833) Hershey Chocolate USA, Oakdale (CA0004146) J.F. Shea Co Fawndale Rock and Asphalt (CA0083097) Lincoln WWTP (CA0084476) Linda Co Water Dist WPCP (CA0079651) Live Oak (CA0079022)	Merced WWTF (CA0079219) Modesto WQCF (CA0079103) Olivehurst PUD WWTP (CA0077836) Oroville WWTP (CA0079235) Pactiv Molded Pulp Mill (CA0004821) Placer Co. SMD #1 WWTP (CA0079316) Proctor & Gamble Co. WWTP (CA0004316) Red Bluff WWRP (CA0078891) Redding Clear Creek WWTP (CA0079731) Redding Stillwater WWTP (CA0082589) Roseville Dry Creek WTP (CA0079502) Roseville Pleasant Grove WTP (CA0084573) Turlock WWTP (CA0078948) University of California, Davis WTP (CA0077895) U.S. Air Force McClellan Air Force Base Groundwater Extraction & Treatment System (CA0081850) Vacaville Easterly Sewage Plant (CA0077691) Woodland WWTP (CA0077950) Yuba City WW Reclamation Plant (CA0079260)

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MeHg load allocations will be updated to include upstream component in the next draft of the Proposed BPA staff report.

TABLE D
MS4 METHYLMERCURY WASTE LOAD ALLOCATIONS

PERMITTEE	PERMIT #	PROXIMITY TO DELTA (a)	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) (a, b)	PHASE (c)
Central Delta Subarea Waste Load Allocations						
Contra Costa (County of)	CAS083313	Within-Delta & Upstream	0.75	0%	0.75	I
Lodi (City of)	CAS000004	Within-Delta & Upstream	0.053	0%	0.053	II
Port of Stockton MS4	CAS084077	Within-Delta & Upstream	0.39	0%	0.39	I
San Joaquin (County of)	CAS000004	Within-Delta & Upstream	0.57	0%	0.57	I
Stockton Area MS4	CAS083470	Within-Delta & Upstream	3.6	0%	3.6	I
Marsh Creek Subarea Waste Load Allocations						
Contra Costa (County of)	CAS083313	Within-Delta & Upstream	1.2	74%	0.31	I
Mokelumne River Subarea Waste Load Allocations						
Lodi (City of)	CAS000004	Upstream				II
Sacramento Area MS4	CAS082597	Upstream				I
San Joaquin (County of)	CAS000004	Within-Delta	0.51	65%	0.018	II
Sacramento River Subarea Waste Load Allocations						
Butte (County of)	CAS000004	Upstream				II
Chico (City of)	CAS000004	Upstream				II
Lincoln (City of)	CAS000004	Upstream				II
Loomis (City of)	CAS000004	Upstream				II
Marysville (City of)	CAS000004	Upstream				II
Rio Vista (City of)	CAS000004	Within-Delta & Upstream	0.014	46%	0.01	II
Rocklin (City of)	CAS000004	Upstream				II
Roseville (City of)	CAS000004	Upstream				II
Sacramento Area MS4	CAS082597	Within-Delta & Upstream	3.0	46%	1.6	I
San Joaquin (County of)	CAS000004	Within-Delta	0.19	46%	0.10	II
Solano (County of)	CAS000004	Within-Delta & Upstream	0.074	46%	0.040	II
Sutter (County of)	CAS000004	Upstream				II
West Sacramento (City of)	CAS000004	Within-Delta & Upstream	0.62	46%	0.33	II
Yolo (County of)	CAS000004	Within-Delta	0.073	46%	0.039	II
Yuba (County of)	CAS000004	Upstream				II
Yuba City (City of)	CAS000004	Upstream				II
San Joaquin River Subarea Waste Load Allocations						
Ceres (City of)	CAS000004	Upstream				II
Hughson (City of)	CAS000004	Upstream				II
Lathrop (City of)	CAS000004	Within-Delta & Upstream	0.27	75%	0.07	II
Manteca (City of)	CAS000004	Upstream				II
Modesto (City of)	CAS083526	Upstream				I
Oakdale (City of)	CAS000004	Upstream				II
Patterson (City of)	CAS000004	Upstream				II

MeHg load allocations will be updated to include upstream component in the next draft of the Proposed BPA staff report.

TABLE D
MS4 METHYLMERCURY WASTE LOAD ALLOCATIONS

PERMITTEE	PERMIT #	PROXIMITY TO DELTA (a)	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) (a, b)	PHASE (c)
Port of Stockton MS4	CAS084077	Within-Delta & Upstream	0.0096	75%	0.0024	I
Ripon (City of)	CAS000004	Upstream				II
Riverbank (City of)	CAS000004	Upstream				II
San Joaquin (County of)	CAS000004	Within-Delta & Upstream	2.6	75%	0.65	II
Stanislaus (County of)	CAS000004	Upstream				II
Stockton Area MS4	CAS083470	Within-Delta & Upstream	0.50	75%	0.12	I
Tracy (City of)	CAS000004	Within-Delta & Upstream	1.8	75%	0.45	II
Turlock (City of)	CAS000004	Upstream				II
West Delta Subarea Waste Load Allocations						
Contra Costa (County of)	CAS083313	Within-Delta & Upstream	3.3	0%	3.3	I
Solano (County of)	CAS000004	Upstream				II
Yolo Bypass Subarea Waste Load Allocations						
Dixon (City of)	CAS000004	Upstream				II
Solano (County of)	CAS000004	Within-Delta & Upstream	0.085	75%	0.021	II
Vacaville (City of)	CAS000004	Upstream				II
West Sacramento (City of)	CAS000004	Within-Delta & Upstream	1.1	75%	0.27	II
Yolo (County of)	CAS000004	Within-Delta & Upstream	0.12	75%	0.030	II

- (a) Some MS4s service areas span multiple Delta subareas and tributary watersheds, and are therefore listed more than once. Separate allocations are needed for each Delta subarea because different levels of reduction are required to achieve the water quality objective in each subarea. If an MS4 service area discharges within a given Delta subarea and within 30 miles upstream of that subarea, its within-Delta and upstream allocations are summed. The allocated methylmercury loads for all MS4s are based on the average methylmercury loads estimated in runoff from urban areas in or near the Delta for water years 2000 through 2003, a relatively dry period. Actual loads are expected to fluctuate with water volume and other factors. The above allocations may be adjusted based on new information for wet years as needed during future Basin Plan reviews.
- (b) The methylmercury 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 (CAS000003), public facilities, properties proximate to banks of waterways, industrial facilities, and construction sites.
- (c) Phase I MS4s shall participate in the **Characterization and Control Studies**.

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TABLE E
MS4S IN THE DELTA AND ITS TRIBUTARY WATERSHEDS DOWNSTREAM
OF MAJOR DAMS WITH PHASE 2 TOTAL MERCURY LOAD LIMITS (a)

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MS4 (NPDES NO.)	PHASE	MS4 (NPDES NO.)	PHASE
MS4s WITHIN THE DELTA			
Contra Costa (County of) (CAS083313)	I	San Joaquin (County of) (CAS000004)	II
Lathrop (City of) (CAS000004)	I	Solano (County of) (CAS000004)	II
Lodi (City of) (CAS000004)	II	Stockton Area MS4 (CAS083470)	I
Port of Stockton MS4 (CAS084077)	I	Tracy (City of) (CAS000004)	II
Rio Vista (City of) (CAS000004)	II	West Sacramento (City of) (CAS000004)	II
Sacramento Area MS4 (CAS082597)	I	Yolo (County of) (CAS000004)	II
MS4S IN THE TRIBUTARY WATERSHEDS DOWNSTREAM OF MAJOR DAMS			
Butte (County of) (CAS000004)	II	Ripon (City of) (CAS000004)	II
Ceres (City of) (CAS000004)	II	Riverbank (City of) (CAS000004)	II
Chico (City of) (CAS000004)	II	Rocklin (City of) (CAS000004)	II
Contra Costa (County of) (CAS083313)	I	Roseville (City of) (CAS000004)	II
Dixon (City of) (CAS000004)	II	Sacramento Area MS4 (CAS082597)	I
Hughson (City of) (CAS000004)	II	San Joaquin (County of) (CAS000004)	II
Lathrop (City of) (CAS000004)	II	Solano (County of) (CAS000004)	II
Lincoln (City of) (CAS000004)	II	Stanislaus (County of) (CAS000004)	II
Lodi (City of) (CAS000004)	II	Stockton Area MS4 (CAS083470)	I
Loomis (City of) (CAS000004)	II	Sutter (County of) (CAS000004)	II
Manteca (City of) (CAS000004)	II	Tracy (City of) (CAS000004)	II
Marysville (City of) (CAS000004)	II	Turlock (City of) (CAS000004)	II
Modesto (City of) (CAS083526)	I	Vacaville (City of) (CAS000004)	II
Oakdale (City of) (CAS000004)	II	West Sacramento (City of) (CAS000004)	II
Patterson (City of) (CAS000004)	II	Yolo (County of) (CAS000004)	II
Port of Stockton MS4 (CAS084077)	I	Yuba City (City of) (CAS000004)	II

(a) Including CalTrans Statewide permit #CAS000003

MeHg load allocations will be updated to include upstream component in the next draft of the Proposed BPA staff report.

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TABLE F
OPEN WATER METHYLMERCURY LOAD ALLOCATIONS

DELTA SUBAREA	PROXIMITY TO DELTA	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) (a)
Central Delta	Within Subarea Within 30 Miles	301	0%	301
Marsh Creek	Within Subarea Within 30 Miles	0.03	0%	0.03
Mokelumne River	Within Subarea Within 30 Miles	1.1	0%	1.1
Sacramento River	Within Subarea Within 30 Miles	118	0%	118
San Joaquin River	Within Subarea Within 30 Miles	20	0%	20
West Delta	Within Subarea Within 30 Miles	190	0%	190
Yolo Bypass	Within Subarea Within 30 Miles	86	0%	86

(a) Open water methylmercury load allocations are based on methylmercury flux from sediment in open water habitat (data collected in May 2000 and October 2001).

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TABLE G
TRIBUTARY WATERSHED METHYLMERCURY ALLOCATIONS

DELTA SUBAREA	TRIBUTARY (a)	MeHg LOAD (g/yr) (b,c)	MeHg CONCENTRATION (ng/l)	
Central Delta	Calaveras River	25	0.14	
	Bear/Mosher Creeks	11	0.31	
	Bethany Reservoir Area	(d)	(d)	
Marsh Creek	Marsh Creek	0.50	0.07	
Mokelumne River	Mokelumne River	38	0.06	
San Joaquin River	San Joaquin River	123	0.06	
	French Camp Slough	4.5	0.06	
	Manteca-Escalon, Mountain House & Corral Hollow Creeks Areas	(d)	(d)	
West Delta	Antioch & Montezuma Hills Areas	(d)	(d)	
Sacramento Basin (b,d)	Delta Inputs	Sacramento River	1,078	0.06
		Prospect Slough	81	0.06
		Morrison Creek	4.4	0.06
		Ulatis Creek	2.0	0.06
	Upstream Tributaries	Cache Creek Settling Basin	28	0.06
		American River	139	0.05 (e)
		Feather River	407	0.06
		Putah Creek	24	0.06

- (a) The methylmercury load allocations include point and nonpoint sources identified within 30 miles of the Delta, which are addressed by the allocations and characterization and control studies described in previous sections and tables.
- (b) Methylmercury allocations are assigned to tributary inputs to the Delta as well as to upstream tributaries in the Sacramento Basin that are required to substantially reduce total mercury loading. The methylmercury allocations for the Sacramento Basin tributaries are based on reductions needed to achieve the implementation goal for ambient methylmercury in the Delta. Methylmercury reduction strategies shall be developed for other upstream tributaries during implementation of the Delta mercury control program and development of TMDLs for upstream water bodies identified as impaired on the Clean Water Act Section 303(d) List.
- (c) 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.
- (d) Ambient mercury data are not available for smaller tributaries to the Delta and Sacramento Basin. As a result, methylmercury loads are limited to existing conditions.
- (e) Methylmercury concentrations in American River exports average 0.05 ng/l. As a result, its methylmercury allocation is set to 0.05 ng/l.