

From: "Snyder. Mary (MSA)" <snyderm@SacCounty.NET>
To: <pmorris@waterboards.ca.gov>
Date: 10/11/2006 5:33:47 PM
Subject: Suggested changes to BPA language

Dear Patrick --

At the presentations of the draft staff report for the Delta Mercury TMDL, you asked our staff to submit suggested changes to the BPA language that would resolve concerns expressed with the various aspects of the TMDL and recommended approach to mercury and methylmercury controls. As always, we appreciate your willingness to consider our comments and proposed changes during this informal review period.

I have attached SRCSD's suggested changes to the BPA language for your consideration. Our changes are mostly associated with the two major concerns we have been discussing with you in detail; the offset pilot project and the discharge prohibition language. Based on our discussions, we have suggested keeping the offset language in the text of the BPA fairly short, with details included in an appendix, similar to how other agreements are appended to the Basin Plan.

I am copying Regional Board management to facilitate the review process in recognition of your scheduled release of the draft for public comment in late October. We know time is short and you are all very busy.

Please feel free to call myself, Vicki Fry (876-6113) or Terrie Mitchell (876-6092) to discuss any of these suggestions and/or comments. We look forward to working with staff to resolve our concerns. Again, thank you for considering our suggested changes and we look forward to talking to you soon.

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<<101106 Delta BPA 2006-06-20 - SRCSD.doc>>

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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~~I~~

[S1]

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.

[S2]

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 ~~directly~~-linked to the concentration of methylmercury in the water. Available information indicates that meeting ~~an annual~~a long-term average^[S3] aqueous methylmercury (unfiltered) goal of 0.06 ng/l ~~will~~may achieve the Delta fish tissue objectives. The aqueous methylmercury goal applies to the average ~~annual~~-ambient water methylmercury concentration. In some areas of the Delta significant reductions in methylmercury ~~inputs~~concentrations^[S4] are necessary to achieve the aqueous methylmercury goal.

Methylmercury allocations and implementation of actions to address the sources set forth in this control program ~~will result in achieving the aqueous methylmercury goal.~~ ~~Allocations~~ are specific to Delta subareas, which are shown on Figure IV-1.

The concentration of total mercury in sediment is ~~one of the main factors~~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. ^[S5] The control program includes requirements for ~~addressing sediment and for~~ controlling total mercury loads from point and nonpoint sources. The control program includes requirements to reduce total mercury loading to San Francisco Bay, as required by the San Francisco Bay Water Board’s total mercury allocations~~s~~ 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.

Prohibition

Methylmercury Controls

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 conditionally prohibited after 31 December 2014, 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, ~~or~~ 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 ~~implemented~~ 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

~~The Phase 1 of the~~ control program requires **Characterization and Control Studies** to evaluate methylmercury and total mercury concentrations and loads in ~~source and receiving waters and discharges~~^[S6], identify variables that control methylmercury production, and propose feasible management practices or other controls and implementation schedules to reduce methylmercury loads^[S7] ~~and concentrations~~. Responsible parties ^[S8] 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.

By December 2014

In developing phase 2 of this TMDL^[S9], the Regional Board will evaluate the completed studies, proposed management practices, implementation schedules, potential positive and ~~the~~ 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.^[S10]

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 ~~future~~-allocation revisions in phase 2.

Methylmercury allocations are provided in Tables A, B, D, F, and G. Methylmercury allocations ~~are~~ may be required to be met ~~by 2014~~ 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. ~~Full~~ If feasible and effective controls are identified, compliance with the methylmercury allocations ~~is~~ 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 ~~in each subarea to~~ [S11]

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 2014 ~~are prohibited~~ 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 ~~2014~~ phase 2.

Discharges from agricultural lands and wetlands that exceed source water methylmercury concentrations ~~are prohibited after 31 December 2014~~ may be limited in phase 2 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 ~~are~~ may be required to be met ~~by 2014~~ in phase 2 unless dischargers ~~complete~~ or ~~discharger groups complete~~ participate in the studies and submit to the Regional Board the management plan or documentation of infeasibility discussed below by December 2012. ~~Facilities that discharge greater than~~ In phase 1, facilities that discharge greater than 1 mgd are required to:

1. Complete or participate in **Characterization and Control Studies** to characterize methyl and total mercury concentrations and loads in ~~influent, effluent and receiving waters~~ [S12]; ~~and to identify variables that control methylmercury production~~; and

2. Develop management 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~~New dischargers greater than 1 mgd that are proposed to be initiated between the effective date of this amendment and phase 2 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 2014 are prohibited~~restricted as follows unless the discharge is less than 0.06 ng/l methylmercury, ~~or the:~~The discharger conducts~~conducts~~must conduct or participate in studies as discussed above and ~~increases above 0.06 ng/l methylmercury are approved~~must gain approval by the Executive Officer. ~~New~~in accordance with existing anti-degradation policies.

All facilities listed in Table B are required to implement a Pollution Prevention Plan for total mercury in compliance with Section 13263.3(d)(2) of the California Water Code and maintain compliance with a USEPA approved pretreatment program, as applicable.

Average annual total mercury mass discharges ~~that begin after the effective date of this amendment may necessitate adjustments to the allocations.~~

~~Total mercury load limits apply to~~from 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.~~² will be capped at the highest average annual load calculated from the three previous years from the date the Central Valley Water Board adopts a final Mercury Offset Program. Annual loads are calculated by the summation of monthly average concentrations times corresponding monthly average flows.³

~~From~~Total mercury load limits will be effective within 12 months after final approval of the effective date of this amendmentMercury Offset Program by the State and USEPA.

During phase 1 or 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.~~⁴

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 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.

³ 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.

⁴ ~~Annual average concentration shall be average of monthly averages. Monthly averages are the mean of all data collected during a given month.~~

~~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~~adopted, the Executive Officer will evaluate ~~new~~-NPDES facilities on an individual basis when establishing total mercury load limits in NPDES 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.~~

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 ~~are~~may be required to be met ~~by 2014~~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.

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 receiving waters and to identify variables that control methylmercury production; 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.

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 shall ~~maintain their existing methylmercury discharges. These discharges will~~ be assigned allocations in ~~2014~~phase 2.

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 annual average mercury load calculated for 2002 through 2011. Annual total mercury loads shall be calculated by the average total mercury concentration measured in urban runoff multiplied by annual average 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.

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.
- ~~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.~~
- ~~3.2.~~ Employ management practices during and after dredging activities to minimize sediment releases into water column.
- ~~4.3.~~ 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.
- ~~5.4.~~ 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~~ It is recognized that methylmercury flux from sediment in open waters of the Delta needs is a significant uncontrolled source of methylmercury. Studies are needed to be maintained examine the impact of this source on mercury fish tissue levels in the Delta and to determine the feasibility of maintaining methylmercury flux from sediments 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 to the extent practicable. As necessary, management plans should be developed prior to changes in salinity standards.

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~~For phase 2, the Regional Board will evaluate the studies and management practices and determine whether to implement/require control actions or modify allocations. Responsible agencies may participate in a mercury offset program.

Cache Creek Settling Basin^(S13)

~~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.~~

Mercury Offset Program

The Regional Water Board supports the concept of offset projects to reach water quality goals more rapidly and at a substantial economic savings over alternative approaches. Mercury offsets are a viable regulatory option for compliance with mercury water quality goals. USEPA's 2003 policy on water quality trading (USEPA, 2003) establishes that "the Clean Water Act and federal regulations provide authority to incorporate provisions for trading (and/or offsets) into NPDES permits issued to point sources and for trading under TMDLs that include provisions for trading to occur."

During phase 1, the Regional Board will develop a Mercury Offset Program that will allow dischargers and other entities impacted by the TMDL to offset total mercury and methylmercury loads in excess of their allocations. Offset credits will be allowed only after dischargers have completed control studies and demonstrated that meeting the allocations through other means is not cost-effective or is technically infeasible, as described in this control program.

Also during phase 1, a mercury offset pilot project by the Sacramento Regional County Sanitation District (SRCSD) is authorized, as described in Appendix XXX^[S14]. SRCSD has worked with the Regional Board, SWRCB, USEPA, and other stakeholders in an open working group format to develop a feasibility study for the pilot project. The study, titled “Mercury Offset Feasibility Study (February 2005),” is available from the Regional Water Board, and has been relied upon in establishing this program of implementation. The factors used to determine the applicable credit ratios for offset include consideration of relative bioavailability; thus all crediting and offset are expressed as total mercury loading but the program will result in offset for all forms of mercury. This pilot project will provide useful information and experience contributing to the development of the regional Mercury Offset Program.

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.

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, ~~prior to the 2014 deadline for achieving the methylmercury allocations specified in this control program, developing phase 2~~ the Regional Board will evaluate the results of the control studies and implementation plans developed by ~~dischargers~~ 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.~~

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 2014 developing phase 2.

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~~representative flow conditions.

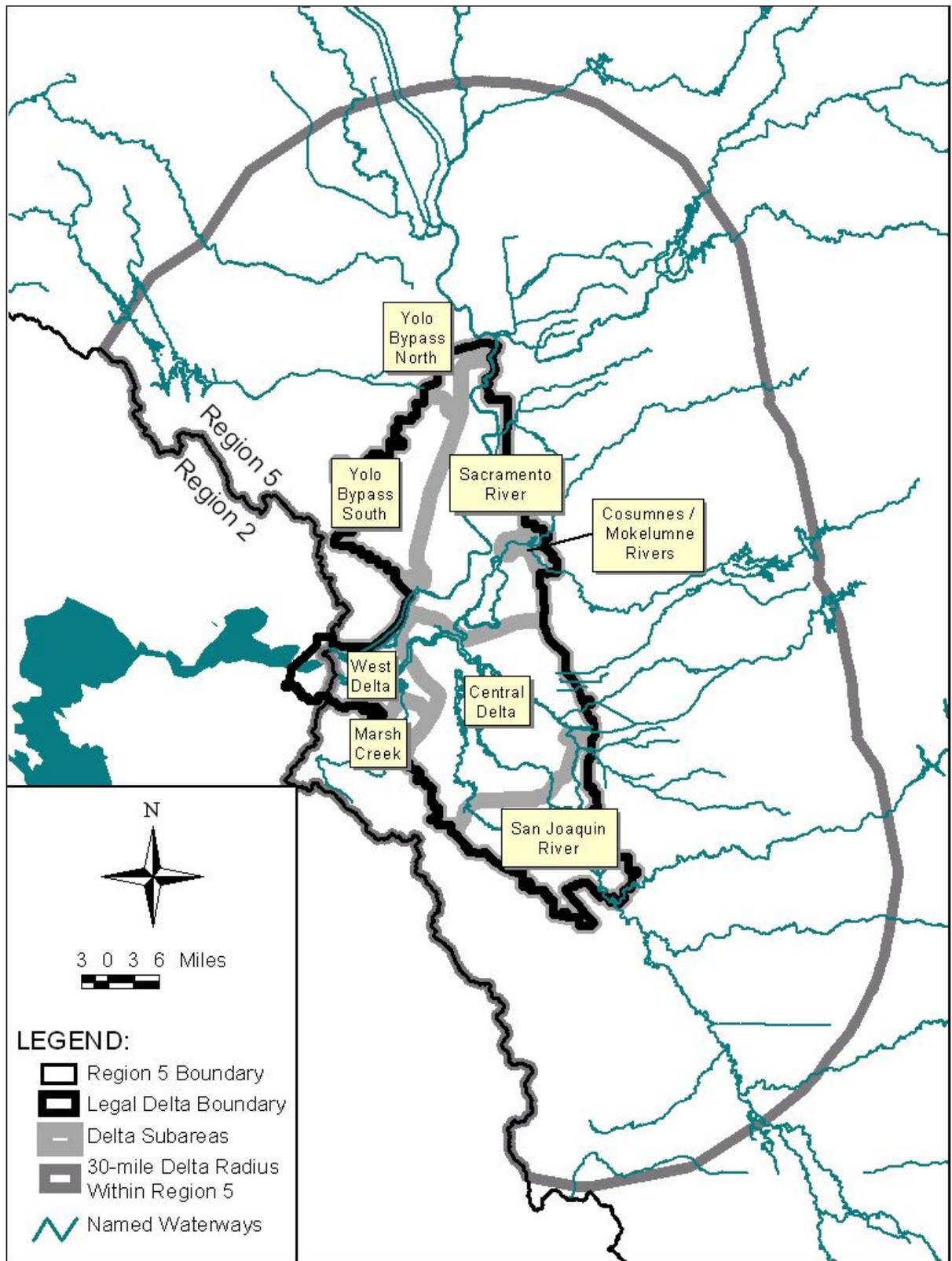


Figure IV-1 Delta Subareas for Delta Methylmercury Program

TABLE A
AGRICULTURE AND WETLAND
PHASE I PREDICTED METHYLMERCURY ALLOCATIONS^[S15]

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>		
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>

TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER
PHASE I PREDICTED 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) Trilogy WWTP	CA0083771			(d)		0.2
SRCS-D-Elk Grove Walnut Grove WWTP	CA0078794	1.7	46%	0.91	0.10	0.08
Sacramento (City of) Combined WWTP	CA0079111			(e)		1.3
SRCS-D 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
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

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

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

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)
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.

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

- (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.

**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) SRCSA 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)

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

TABLE D
MS4 PHASE I PREDICTED 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
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

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

TABLE D
MS4 PHASE I PREDICTED 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)
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 1 MS4s shall participate in the **Characterization and Control Studies**.

TABLE E
MS4S IN THE DELTA AND ITS TRIBUTARY WATERSHEDS DOWNSTREAM
OF MAJOR DAMS WITH 2014 PHASE 2 TOTAL MERCURY LOAD LIMITS (a)

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.

TABLE F
OPEN WATER PHASE I PREDICTED 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).

TABLE G
TRIBUTARY WATERSHED PHASE I PREDICTED 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
		Ulati 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.

It is proposed that the following language describing the SRCSD mercury offset project be inserted as Appendix XXX to the Basin Plan.

SRCSD OFFSET PROGRAM FOR
TOTAL AND METHYL MERCURY

The proposed implementation plan for NPDES facilities also includes opportunity for performance of a pilot mercury offset program by Sacramento Regional County Sanitation District (SRCSD). This pilot project opportunity has been included to create momentum for the offset concept and as a result of extensive planning and analysis performed by SRCSD, in concert with the Regional Board, SWRCB and USEPA. If implemented, the pilot project will provide valuable information and insight that will be used by the SWRCB and Regional Board in the development of the basin-wide offset program.

Background and Applicable Policies

The Regional Water Board supports mercury offset projects to reach water quality goals more rapidly and at a substantial economic savings over alternative approaches. Mercury Offsets are a viable regulatory option for compliance with mercury water quality goals. USEPA's 2003 policy on water quality trading (USEPA, 2003) establishes that "the Clean Water Act and federal regulations provide authority to incorporate provisions for trading (and/or offsets) into NPDES permits issued to point sources and for trading under TMDLs that include provisions for trading to occur." As a delegated state under the Clean Water Act, California has exercised this authority in supporting the development and implementation of a specific offset project by Sacramento Regional County Sanitation District (SRCSD) intended to advance water quality goals and also to provide information and experience as contributions to development of a regional offset program for the Central Valley.

The State Water Board has determined that "...neither the Clean Water Act nor the California Water Code should be used as a means to leverage existing point source discharges as a means of forcing dischargers to bear more than their fair share of responsibility for causing or contributing to any violation of water quality standards. In this context 'fair share'

shall refer to the dischargers' proportional contribution to the impairment.” (Resolution No. 2005-0060, dated 7 September 2005.)

The SRCSD conducted and completed in February 2005, a comprehensive mercury offset feasibility study as required in Regional Water Board Order 5-00-188, the August 2000 NPDES permit governing discharges from the Sacramento Regional Wastewater Treatment Plant (SRWTP) to the Sacramento River. The objective of the study was to evaluate the feasibility of candidate mercury load reduction projects to offset mercury loadings to the Sacramento River from the SRWTP. The study was performed with significant input and direction from the Regional Water Board, State Water Board, USEPA and other stakeholders in an open working group format.

SRCSD identified and evaluated a number of mercury load reduction projects that would result in an equivalent or greater mercury load reduction than would be achieved through required removals at the SRWTP. The study, titled “Mercury Offset Feasibility Study (February 2005),” is available from the Regional Water Board, and has been relied on in establishing this program of implementation.

Mercury is addressed in the program on a total basis, recognizing that current science indicates that methyl mercury is the toxic form that accumulates in fish and causes the most problematic environmental impacts. Reducing total mercury within the watershed in the manner here specified for the SRCSD offset program addresses methyl mercury.

Offset Crediting and Applicability

SRCSD may discharge total mercury loads in excess of the wasteload allocation for the SRWTP specified in this TMDL, up to the amount of any available credit. Credits shall accumulate as specified below, and shall be expended as specified by SRCSD. Credits shall accrue either by virtue of discharge at the SRWTP below applicable mass discharge limits or through reduction of mercury loads at other locations in the watershed. Accrued credits shall remain available until expended.

The offset project shall be deemed to satisfy any and all implementation controls for total and methyl mercury set forth in the Delta Mercury TMDL including any amendments

thereto, throughout the life of the offset project; i.e., until all accrued credits are expended; in this regard, the offset credit for the SRWTP for total mercury satisfies any WLA for either total mercury and methylmercury. The factors used to determine the applicable credit ratios for offset include consideration of relative bioavailability; thus all crediting and offset are expressed as total mercury loading but the program will result in offset for all forms of mercury. Further, the Regional Water Board fully recognizes that SRCSD would be required to make a significant investment of public resources in a mercury offset project. It would be unreasonable and a disincentive to such projects, and hinder progress in overall water quality improvement, if SRCSD were to be subject to potential future regulatory controls which are inconsistent with the assumptions on which its mercury offset project is based or establish control requirements uniquely for methylmercury.

Crediting for Discharge Below Applicable Limits

Credits will accrue for discharge below applicable mass loading limits as follows.

Regional Water Board Order 5-00-188 established an interim mass discharge limit for the SRWTP of 5.1 pounds per year. Order 5-00-188 also provided that mass loading over or under this limit shall be banked for future offset. Consistent with this order, credits of 8.05 pounds of mercury have accumulated as of October 2005 and credits shall continue to accrue on the same basis until renewal of the NPDES permit.

The mercury TMDL establishes a total mercury wasteload allocation (WLA) for SRCSD of _____ . Once the WLA has been incorporated in the NPDES permit for the SRWTP, credits shall accrue to the extent mass loading from the SRWTP discharge is below this level.

Crediting for discharge below applicable limits shall be at a ratio of 1:1. That is, SRCSD will receive one pound (or fraction thereof) of credit for every pound (or fraction thereof) by which mass loading is less than the interim limits of Order 5-00-188 or the WLA in this TMDL after its incorporation into the NPDES permit.

Crediting for Watershed Offsets

Credits shall also accrue for actions taken to reduce mercury loading in other locations in the drainage of the Sacramento River as provided herein. The pursuit and implementation of watershed offsets is at the discretion of SRCSD but shall, if implemented, be governed by the criteria below.

Credits for watershed offsets shall accrue when the activity causing the credit is completed. Should the SRCSD need mercury credit in advance of completion of an offset activity, the Executive Officer may, in his/her discretion award credit in advance of completion of an activity, upon demonstration of meaningful progress towards implementation of the workplan for the activity.

The crediting system for watershed offsets incorporates multipliers, such that more than one pound of total mercury removal is necessary to achieve one pound of credit. The multipliers are based on relative bioavailability, location, and uncertainty. The bioavailability factor or multiplier recognizes that methylmercury is the toxic compound formed through the transformation of total mercury under certain and variable environmental conditions and is the form of mercury that accumulates in fish tissue. Thus, inclusion of this factor provides a basis for crediting watershed offset projects based on total mercury reduction; the bioavailability factor causes increase in total load reduction required for offset credit. The Regional Water Board also recognizes that methylation of mercury occurs in the environment.

The measure of success for watershed offset projects is performance of actions that achieve total mercury load reduction in accordance with the criteria for awarding credit.

1. *Increased Sediment Trapping of Cache Creek Settling Basin.*

SRCSD may elect to provide increased maintenance of the Cache Creek Settling Basin (CCSB) through excavation and disposal of sediments originating in the Cache-Creek watershed, as described in Mercury Offset Feasibility Study (February 2005). This project would improve sediment trapping efficiency of the CCSB as well as extend its useful life, thus reducing mercury loading to the Sacramento River and Delta.

SRCSD shall receive one pound of credit for every 2.6 pounds of mercury removed from the CCSB. The pounds removed shall be calculated based on mercury assay values of the material removed.

2. *Other Watershed Offsets.*

If SRCSD does not elect to implement the CCSB project, it may implement an alternative project. The credit ratio for projects described in the Mercury Offset Feasibility Study (February 2005) shall be as reflected in the Mercury Offset Feasibility Study (February 2005).

Relationship to Other Regional Water Board Activities

The SRCSD offset program described herein shall direct future NPDES permits for the SRCSD. The SRCSD-specific offset program shall control over any future regional and/or statewide mercury offset program.