Attachment 4: Draft Basin Plan Amendment

Text additions to the existing Basin Plan language are underlined and text deletions are indicated by ~~strikethrough~~. (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 for Sacramento San Joaquin Delta:

Footnote (9) COMM is a POTENTIAL beneficial use for waterways listed in Appendix _X_.

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

The following objectives apply to the Sacramento-San Joaquin Delta and Yolo Bypass Waterways listed in Appendix _X_. The average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/ kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). These objectives are protective of (a) humans eating 32 g/day 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 fish less than 50 mm in length. This objective is protective of wildlife species that consume small fish.

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

Delta Mercury Program:
The goal of the mercury control program is to reduce methylmercury exposure to humans and wildlife in the Delta and Yolo Bypass Waterways listed in Appendix _X_. Fish tissue methylmercury concentrations are directly linked to the concentration of methylmercury in the water. Reducing ambient methylmercury concentrations to the aqueous methylmercury (unfiltered) goal of 0.06 ng/l should achieve the Delta fish tissue objectives. The aqueous methylmercury goal incorporates an explicit margin of safety of 10%. In some areas of the Delta significant reductions in methylmercury inputs are necessary to achieve the aqueous methylmercury goal. Methylmercury allocations and implementation of actions to address the sources set forth in this control program are expected to result in achieving the aqueous methylmercury goal. Allocations are specific to Delta subareas, which are shown on Figure IV-4. Monitoring specifications for aqueous methylmercury are defined in Chapter V (Monitoring and Surveillance).

The concentration of total mercury in sediment is one factor controlling methylmercury production. Point and nonpoint sources contribute total mercury to the Delta. The control program includes requirements for controlling total mercury loads from point and nonpoint sources. The control program includes requirements to begin reducing total mercury loading to San Francisco Bay, as required by Resolution R2-2006-0052.

Methylmercury allocations and total mercury limits for dischargers and discharger groups are listed in the tables following this section. The allocations are required to be met by 2030, unless the Regional Board amends the allocations and implementation provisions. The Regional Board intends to implement the mercury control program in two phases. During Phase 1, dischargers will conduct

studies that will help the Regional Board determine whether allocation adjustments are warranted. During the Phase 1 study period, dischargers will implement actions to control discharges to minimize increases in mercury and methylmercury discharged to the Delta. Phase 1 also includes development of a program to reduce mercury related risks to humans.

At the end of Phase 1 [eight years after the effective date of this amendment], the Regional Board will consider whether there needs to be adjustments to the methylmercury allocations and the mercury control program. The Regional Board will re-evaluate the appropriateness of load- and/or concentration-based methylmercury allocations for all sources. During Phase 2, dischargers and discharger groups will be required to submit plans for achieving compliance with applicable methylmercury allocations and total mercury limits and implementation schedules.

Phase 1 Characterization and Control Studies

Phase 1 of the control program requires dischargers to conduct mercury and methylmercury **Characterization and Control Studies.** Characterization Studies shall evaluate methylmercury and total mercury concentrations and loads in source and receiving waters and discharges. Control Studies shall identify variables that control methylmercury production and propose management practices and implementation schedules to comply with methylmercury allocations.

As described in the following sections, dischargers shall conduct **Characterization and Control Studies** for multiple categories of methylmercury and total mercury discharges:

- Irrigated agricultural lands and managed wetlands that have discharge methylmercury concentrations greater than 0.06 ng/l (or greater than source water methylmercury concentration if it exceeds 0.06 ng/l) and new wetland and wetland restoration projects scheduled for construction in the Delta or Yolo Bypass during Phase 1.
- Existing NPDES permitted facilities in the Delta and its tributary watersheds downstream of major dams listed in Table C and new facilities scheduled for construction during Phase 1.
- Sacramento Area MS4, Stockton Area MS4, Tracy MS4, and Modesto Area MS4 service areas within and upstream of the legal Delta boundary.
- New flood conveyance, water management, and salinity control projects that have the potential to increase ambient methylmercury levels in the Delta or Yolo Bypass.
- Cache Creek Settling Basin outflow to the Yolo Bypass.

Dischargers may work individually or develop collaborative **Characterization and Control Studies**. However, if no acceptable characterization and control studies are undertaken, then the methylmercury allocations and total mercury limits specified in the following sections will remain in effect at the end of Phase 1.

If the studies indicate that achieving a given methylmercury allocation and/or total mercury limit is infeasible, then the discharger, or an entity representing a discharger, shall provide a management plan and implementation schedule to achieve partial compliance and detailed information documenting why achieving the full allocation or limit is infeasible.

Regional Board staff will work with dischargers and entities representing dischargers to form an advisory committee(s) of independent, internationally recognized mercury experts to review study designs, evaluate results, propose follow up experiments and make recommendations on whether sufficient information is available to implement management practices. By [one year after the effective date of this amendment], staff will report to the Regional Board the progress towards formation of the advisory committee. The structure and members of the advisory committee must be submitted to the Executive Officer for approval.

In general, the schedule described below applies to all discharger categories. Specific requirements for each discharger category are included in other sections.

1. By (one year after the effective date of this amendment) dischargers, or entities representing dischargers, shall provide to Regional Board staff a report that describes how individuals or coalitions will implement the **Characterization and Control Studies**. The report shall include a list of the dischargers that will participate in each study and progress toward formation of advisory committees.

2. Dischargers, or entities representing dischargers, shall submit **Characterization and Control Studies** workplans by [two years after the effective date of this amendment] to Regional Board staff for approval by the Executive Officer. The workplans will contain a general description of all the studies that need to be done for the **Characterization and Control Studies** and a detailed workplan for the initial work to be accomplished in the following two years. Workplans may be accompanied by a letter from the advisory committee(s) reviewing the study plans and indicating whether the studies are likely to characterize methylmercury production and control. Staff will review the workplans, including the recommendations of the advisory committee(s), and report to the Regional Board on whether satisfactory progress is being made.

3. By [four years after the effective date of this amendment], dischargers, or entities representing dischargers, shall submit a report to Regional Board staff documenting progress towards complying with the study requirements and management practice development. The report shall include study plans for any additional required studies. The report may contain a letter from the advisory committee(s) evaluating the scientific basis of the findings to date and recommending what additional studies should be undertaken to complete the objectives of the Characterization and Control Studies. Staff will review the workplans including the recommendations of the advisory committee(s) and report to the Regional Board on whether satisfactory progress is being made.

4. By [seven years after the effective date of this amendment], the dischargers, or entities representing dischargers, shall complete the studies and submit to Regional Board staff a final report that presents the study results and descriptions of methylmercury control options, their preferred methylmercury controls, and implementation schedules for achieving methylmercury allocations and/or total mercury limits. The reports may contain a statement from the advisory committee on whether they agree with the study findings and whether the preferred management practices are ready for implementation.

At the end of Phase 1, the Regional Board will evaluate the completed studies, the effectiveness and costs of identified methylmercury controls, preferred management practices, implementation schedules, and environmental effects of potential methylmercury control actions. The Regional Board will consider: modification of methylmercury goals, objectives, or allocations; modification of total mercury limits; adoption of management practices and implementation schedules for on-site methylmercury controls; and adoption of a Mercury Offset Program to compensate for loads in excess of either the methylmercury allocations or total mercury limits. After an offset program is developed for Phase 2, dischargers may submit a proposal to offset their total mercury or methylmercury exceedance.

If the Regional Board determines that existing and new dischargers are making sufficient progress towards completing the **Characterization and Control Studies**, it may consider extending the time

for the studies' completion and implementation of control options. If insufficient progress is made the Regional Board may consider a prohibition of individual methylmercury discharges or other control options.

Dischargers in the Central Valley that are not subject to the Delta mercury control program that may be subject to future mercury control programs in upstream tributary watersheds should consider participating in the coordinated mercury control studies during Phase 1. If such dischargers actively participate in the studies, they will not be required to conduct their own individual studies as part of any future upstream mercury control programs. The Regional Board will acknowledge early implementation of mercury controls by Central Valley dischargers and grant credit towards meeting future allocations and implementation requirements as they are developed for sources upstream of the Delta.

New or expanded methylmercury discharges that begin after the effective date of this amendment may necessitate adjustments to the allocations.

Discharger-Specific Study Requirements and Other Specifications

The following sections include discharger-specific requirements for methylmercury Characterization and Control Studies, total mercury load reductions and other conditions that must be met during Phase 1.

Agricultural Lands and Wetlands

Methylmercury allocations listed in Table A apply to agricultural lands and wetlands in the Delta and Yolo Bypass (Figure IV-1). The allocations for each subarea apply to the sum of existing and new discharges.

Characterization and Control Studies are required for those irrigated agricultural lands and managed wetlands that have discharge methylmercury concentrations greater than 0.06 ng/l (or greater than source water methylmercury concentration if it exceeds 0.06 ng/l). Within a subarea, individual dischargers exceeding 0.06 ng/l methylmercury concentration (or greater than source water) do not need to complete individual studies if the Executive Officer approves a comprehensive, coordinated study plan that will provide a characterization of discharges within the subarea and will propose a coordinated plan for achieving subarea load allocations.

Proponents of new wetland and wetland restoration projects scheduled for construction during Phase 1 shall either participate in any comprehensive study plan as described above or implement a site-specific study plan, evaluate practices to minimize methylmercury discharges, and implement newly developed management practices as feasible. Wetland projects may include pilot projects to demonstrate which management practices minimize methylmercury discharges. Projects shall include monitoring to demonstrate effectiveness of management practices.

NPDES Wastewater Treatment Facilities

Methylmercury. Methylmercury allocations apply to NPDES permitted facilities that discharge to the Delta and Yolo Bypass (Table B). The Phase 1 methylmercury concentration limits for NPDES facilities are listed in Table B. Beginning in [six months after the effective date of this amendment], all facilities listed in Table B shall monitor methylmercury in their effluent and receiving water and include their monitoring results and annual average concentration calculations in annual monitoring reports to the Regional Board. Chapter V contains methylmercury monitoring specifications.

Dischargers listed in Table C shall complete the **Characterization and Control Studies** and shall evaluate the feasibility of reducing their methylmercury discharge concentrations to meet both (a) their assigned allocations and (b) the 0.06 ng/l methylmercury in their effluent.

By [seven years after the effective date of this amendment], every facility that discharges to the Delta (Table B) that does not meet its methylmercury allocation – including those that were not required to conduct **Characterization and Control Studies** – must submit a management plan that identifies its preferred control options to achieve its methylmercury allocation and a time schedule for implementation. If a discharger indicates achieving the on-site allocation is infeasible, the discharger shall provide a management plan for partial compliance and detailed information documenting why achieving the allocations on-site is infeasible.

In general, new NPDES projects that discharge or propose to discharge methylmercury to the Delta or its upstream tributaries downstream of major dams[1] during Phase 1 should not exceed 0.06 ng/l methylmercury in their effluent. The Regional Board will consider allowing a new project to discharge methylmercury at levels greater than 0.06 ng/l during Phase 1 if the discharger conducts **Characterization and Control Studies** as part of the project.

Total Mercury. Beginning in [six months after the effective date of this amendment], NPDES facilities that discharge to the Delta or its tributaries downstream of major dams (Table D) shall (a) monitor their effluent for total mercury, (b) implement a Pollution Prevention Plan for total mercury in compliance with Section 13263.3 of the California Water Code, and (c) maintain compliance with a USEPA approved pretreatment program, as applicable. Beginning in [four years after the effective date of this amendment], effluent from NPDES permitted facilities listed in Table D shall not exceed the highest annual average effluent mercury concentration observed during years [2008, 2009 and 2010]. NPDES permits for new discharges or facilities will contain total mercury concentration limits based on best practicable treatment and control. At the end of Phase 1, the Regional Board will consider adoption of total mercury load limits for existing and new discharges.

Facilities listed in Table D shall include their annual average total mercury concentrations and loads in annual monitoring reports to the Regional Board. Chapter V contains total mercury monitoring and load calculation specifications.

Urban Runoff

Methylmercury. The methylmercury allocations listed in Table E apply to runoff from urban areas within Municipal Separate Storm Sewer Systems (MS4) and shall be implemented through NPDES MS4 permits.

After 2010, methylmercury concentration limits apply to the following MS4s: Sacramento Area MS4 (CAS082597), Stockton Area MS4 (CAS083470), Tracy MS4 (CAS000004), and Modesto Area MS4 (CAS083526). Methylmercury concentration limits specific to each of these MS4s shall be the 90th percentile methylmercury concentration of water samples collected during 2000 to 2010. The 2000-2010 monitoring period that defines the MS4-specific methylmercury concentration limits may be extended to ensure the inclusion of a range of wet and dry years, as approved by the Executive Officer. By [one year after the effective date of this amendment], the MS4s with methylmercury

[1] Major reservoirs and lakes in the Sacramento Basin are Shasta, Whiskeytown, Oroville, Englebright, Camp Far West, Folsom/Natoma, 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.

concentration limits shall begin monitoring methylmercury at their compliance points and include their monitoring results in their annual Self-Monitoring Reports to the Regional Board. Chapter V contains methylmercury monitoring and compliance specifications.

During Phase 1, the following MS4s shall complete **Characterization and Control Studies:** Sacramento Area MS4 (CAS082597), Stockton Area MS4 (CAS083470), Tracy MS4 (CAS000004), and Modesto Area MS4 (CAS083526). The study requirement applies to the entire MS4 service area, including those portions outside the legal Delta boundary. The studies shall characterize methyl and total mercury concentrations and loads in MS4 discharges and receiving waters and identify a suite of best management practices that can be implemented to achieve methylmercury allocations.

The urban runoff methylmercury allocations implicitly include all current and future urban discharges not otherwise addressed by another methylmercury allocation or total mercury limit 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.

MS4s that are designated after the effective date of this amendment may necessitate adjustments to the methylmercury allocations. Urban areas in the Delta and Yolo Bypass (including industrial and construction discharges) that are not regulated by MS4s shall maintain their existing methylmercury discharges (0.81 g/year).

Total Mercury. During Phase 1, dischargers listed in Table F shall implement best management practices to the maximum extent practicable to control total mercury discharges. By [one year after the effective date of this amendment], the following MS4s shall begin monitoring total mercury in urban runoff and report the annual total mercury loads to the Regional Board by 31 March 2014**:** Sacramento Area MS4 (CAS082597), Stockton Area MS4 (CAS083470), Port of Stockton MS4 (CAS084077), Tracy MS4 (CAS000004), and Modesto Area MS4 (CAS083526). Chapter V contains total mercury monitoring and load calculation specifications. At the end of Phase 1, the Regional Board will consider adoption of total mercury load limits.

Dredging

The following requirements apply to dredge projects where a Clean Water Act 401 Water Quality Certification is required. The Clean Water Act 401 Water Quality Certifications shall include the following conditions:

1. There shall be no net increase in methyl and total mercury loads to Delta waterways from dredging activities or from reuse of dredge material in the Delta.
2. Conduct pre-dredge sediment coring to determine total mercury concentrations of surface sediment and buried sediment at the proposed dredge depth as required by the Executive Officer. During Phase 1, if the newly exposed sediment has an average total mercury concentration greater than the surface material before dredging, the project proponent shall submit a workplan for Executive Officer approval that demonstrates that the project will be accomplished in a manner that minimizes the increase in the amount of bioavailable mercury in the newly exposed sediment.
3. Employ management practices during and after dredging activities as required by Regional Board staff to minimize sediment releases into the water column.
4. Characterize total mercury loads removed from Delta waterways by dredging activities.
5. When approved dredge material disposal sites are utilized to settle out solids and return waters are discharged into the adjacent surface water, ensure that return flows do not have methylmercury concentrations greater than the receiving water concentration.

6. Ensure that dredged material reused at upland sites, including the tops and backs of levees, is protected from erosion.
7. Ensure that reuse of dredge material at aquatic locations, such as wetland and riparian habitat restoration sites, does not result in a net increase in methylmercury discharges from the sites. Projects that propose to dispose dredge material to aquatic sites will be required to conduct monitoring to demonstrate that their activities are accomplished in a manner that does not increase the bioavailability of mercury.

Flood Conveyance Flows and
Water Management and Storage

Methylmercury flux from sediment in open waters of the Delta needs to be reduced. At a minimum, methylmercury flux should not increase above the levels defined in Table G. Changes in flood conveyance, water management activities, and seasonal wetland flooding may influence ambient methylmercury levels in the Delta. Additionally, changes in the salinity concentrations of Delta waters (with the resulting changes in sulfate concentrations) may also influence the ambient methylmercury levels in the Delta.

Proponents for new projects that have the potential to increase ambient methylmercury levels in the Delta shall conduct **Characterization and Control Studies** to determine baseline conditions, evaluate potential negative impacts of project alternatives on ambient methylmercury levels, and develop mitigation measures for alternatives that would increase ambient methylmercury levels.

Flood conveyance/ seasonal wetland flooding. Agencies responsible for flood conveyance activities in the Yolo Bypass include Department of Water Resources (DWR) and U.S. Bureau of Reclamation (USBR).

The Regional Board requires responsible agencies that propose new flood conveyance projects or changes to existing flood conveyance projects complete **Characterization and Control Studies** prior to project completion. Changes in flood conveyance include new or modified weirs in the Yolo Bypass and changes in the *Central Valley Project – Operations Criteria and Plan, 30 June 2004* (CVP-OCAP) that result in increased flows, flood frequency, or flood duration in the Yolo Bypass. If a characterization study indicates a project would increase ambient methylmercury levels, then the project proponents shall develop and implement control actions to mitigate the methylmercury increase. The responsible parties may coordinate with wetland and agricultural landowners to characterize existing methylmercury discharges to open waters from lands immersed by managed flood flows and to develop methylmercury control measures.

Water management. Existing water management activities in the Delta include upstream reservoir storage and releases, water routing, and state and federal water diversion projects. Agencies responsible for water management activities in the Delta include DWR and USBR.

Proponents of new or expanded reservoirs, changes to the CVP-OCAP that result in alterations to currently permitted water storage or release schedules, or new within-Delta diversion projects (including the South Delta Improvement Project and "Delta Wetlands Project"), shall evaluate the potential of the projects to increase methylmercury levels in the Delta prior to project completion. If the evaluation indicates a project would increase ambient methylmercury levels, then the project proponents shall develop methylmercury control actions, evaluate the affects of potential control actions on other water quality or flow mandates (e.g., minimum flow and temperature mandates) for such projects, and implement those methylmercury control actions that do not conflict with the other water quality or flow mandates.

Salinity Objectives. The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Estuary (Bay-Delta Plan) includes Water Quality Objectives for salinity (typically measured as electrical conductivity) at specific locations in the Delta. An example of this is the Delta Outflow objective, which requires the maintenance of the two parts per thousand salinity level (X2) at various locations within the Delta, depending on the season and water year type. Changes to the water quality objectives for salinity (such as the Delta Outflow objective) or flow management practices used to maintain current salinity objectives could affect sulfate concentrations in sediment and methylmercury production rates.

Proponents of water management actions that could result in direct or indirect changes to sulfate concentrations in the Delta due to changes to the salinity objectives shall conduct studies to characterize baseline methylmercury production in open channels during different seasons and flow regimes prior to project completion. In addition, project proponents shall:

1. Evaluate direct and indirect effects of proposed 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.

If changes in the salinity objectives (or changes in flow management practices used to maintain current salinity objectives) would increase ambient methylmercury levels, then the project proponents shall 1) develop methylmercury control actions, 2) evaluate potential conflicts between methylmercury control actions and mandates for achieving salinity objectives, 3) document the inability to implement feasible methylmercury control actions if there is a conflict with meeting salinity objectives, and 4) implement those methylmercury control actions that do not conflict with the mandates.

Cache Creek Settling Basin

The Cache Creek Settling Basin is effective at reducing total mercury loads to the Yolo Bypass; however, it is a net source of methylmercury. Table H identifies the methylmercury allocation for the Cache Creek Settling Basin. For Phase 1, the Reclamation Board/DWR (agencies responsible for the basin operations and maintenance) shall:

1. Complete **Characterization and Control Studies** to characterize methyl and total mercury concentrations and loads in import and export waters during varying flow regimes, and to identify a suite of methylmercury control options; and
2. Select preferred control options to achieve the methylmercury allocations and a time schedule for implementation. The methylmercury control actions can be incorporated with the necessary total mercury reductions described below.

If DWR determines that achieving the methylmercury allocation through within-basin management practices is infeasible, DWR shall submit a management plan and implementation schedule to achieve partial compliance and detailed information documenting why achieving the full allocation on-site is infeasible.

Improvements to the Cache Creek Settling Basin. The Delta mercury control program requires a long-term total mercury reduction of 46 kg/yr from the Cache Creek Settling Basin exports in addition to mercury reduction efforts described in the Cache Creek Watershed Program. By [one year after the effective date of this amendment], Regional Board staff will work with DWR to develop a funding and planning strategy for improvements to the Settling Basin. By [two years after the

effective date of this amendment], DWR shall propose a plan for the Cache Creek Settling Basin to provide operations and maintenance of the settling basin to extend its life indefinitely. By [three years after the effective date of this amendment], DWR shall propose improvements to the basin to increase the trapping efficiency to 75% (the existing efficiency is about 50%) to reduce the total mercury discharged from the basin. By [five years after the effective date of this amendment], DWR shall initiate control actions to reduce total mercury loads from the Cache Creek Settling Basin and complete project improvements by [seven years after the effective date of this amendment].

Tributary Watersheds

Table H identifies methylmercury allocations for tributary inputs to the Delta.

The sum total of 20-year average total mercury loads from the American River, Putah Creek, and Feather River needs to be reduced by 32 kg/yr, from 103 to 71 kg/yr. Future TMDL programs for these watersheds will implement this reduction. Additional total mercury load reductions may be required to accomplish future water quality objectives to be established for those watersheds.

Pilot Mercury Offset Program

By [8 years after adoption of the Amendment], the Regional Board intends to consider adoption of an offset program to allow dischargers to offset methylmercury and/or total mercury in their discharges by implementing more feasible or cost effective projects elsewhere in the watershed. The offset program will be consistent with any State Board offset policy that is developed. In the interim, the Regional Board will allow all mercury and/or methylmercury dischargers to conduct pilot offset projects. The purpose of pilot offset projects would be to promote early implementation of mercury reduction projects, while, at the same time, providing information that can be used to develop the final offset program. To be most useful, the pilot offset projects should focus on projects that can be implemented relatively quickly. The Regional Board must approve any pilot offset project.

During Phase 1, any discharger proposing a pilot offset project shall conduct **Characterization and Control Studies** to determine the feasibility of on-site controls for methylmercury and total mercury for its own discharge as required by this Delta Mercury Program

The Regional Board will use the following criteria to evaluate proposed pilot projects:

1. Proposed projects will be evaluated and credits calculated based on estimates of reductions in loads of mercury and/or methylmercury that would be expected to be achieved on an annual basis in the Delta. The offset proponent shall submit documentation on actual reductions in total mercury or methylmercury loading or concentrations to the Delta.
2. In cases where the site for the pilot project has a methylmercury allocation, there must be clear agreement between the responsible parties and the Regional Board on how credit for the project will be apportioned between the two dischargers.
3. The implementation of pilot offset projects must not result in changes to the total methylmercury allocations that are applicable in the Delta.
4. The Regional Board preference is that pilot offset projects occur within the same watershed as the offset proponent's discharge; however, the Regional Board will consider approving pilot projects in an adjacent watershed, when it can be demonstrated that the offset project will provide significant Delta-wide benefits. In this case, load and waste load allocations would need to be adjusted.

The Regional Board may consider approving a pilot offset project that is not expected to result in long term (at least 20 years) annual load reductions if the project would result in significant short-term improvements. The discharger implementing the project could receive an extension on their time schedule for meeting their own methylmercury allocations.

The pilot offset project proponent shall submit documentation of the mercury and/or methylmercury reduction achieved after the project is implemented. Methylmercury and total mercury credits earned in the pilot program may be used to offset methylmercury allocation and total mercury limit requirements after 2015.

The Regional Board will consider pilot offset projects for the following sources: mercury and gold mine sites, Cache Creek Settling Basin, in-stream contaminated sediments, NPDES MS4 discharges, NPDES facilities, wetlands, irrigated agriculture, flood conveyance and water management activities, or other Regional Board approved projects.

Risk Management

Until methylmercury and mercury reductions are reflected in attainment of the fish tissue objectives, activities need to be undertaken to help manage the health risk to people who eat Delta fish and reduce methylmercury exposure. The Regional Board recommends that methylmercury dischargers (wastewater, stormwater, and wetland restoration projects) develop and implement effective programs to reduce mercury related risks to humans and quantify risk reductions resulting from these activities. Regional Board staff will continue to work with health agencies and stakeholders towards developing and implementing a strategy for public outreach and education for risk reduction. At the end of Phase 1, Regional Board staff will re-evaluate risk reduction efforts and propose additional recommendations or requirements for an effective risk reduction program.

Monitoring and Review

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

Recommendations for Other Agencies

The Central Valley and San Francisco Water Boards should consider conducting coordinated studies to evaluate methyl and total mercury loads that flux between the jurisdictional areas to adjust allocations as necessary.

Existing methylmercury inputs from atmospheric wet deposition should be maintained at existing loading rates (23 g/yr). USEPA, the State Water Board, and the Air Resources Board should develop a memorandum of understanding to conduct studies to evaluate local and statewide mercury air emissions and deposition patterns and to develop options for a load reduction program(s).

The State Water Board should consider requiring methylmercury controls for new water management activities that are found to increase ambient methylmercury levels as a condition of approval of any water right action required to implement the project. The State Water Board Division of Water Rights should consider requiring the evaluation and implementation of feasible management practices to reduce or, at a minimum, prevent methylmercury ambient levels from increasing from changes to flood conveyance projects. The State Water Board should consider funding or conducting studies to develop and evaluate management practices to reduce methylmercury production resulting from existing water management activities or flood conveyance projects.

During future reviews of the salinity objectives contained in the Bay-Delta Plan, the State Water Board Division of Water Rights should consider conducting studies to determine if methylmercury production in the Bay-Delta is a function of sulfate concentrations. Furthermore, the State Water Board should consider the results of these studies in evaluating changes to the salinity objectives.

If funding is available, the Regional Board will conduct studies to evaluate the effects of water management, flood conveyance and salinity control projects on ambient methylmercury levels in the Delta.

The California Office of Health Hazard Assessment should update and expand the list of fish advisories for the Delta. In addition, the California Department of Health Services and the local county health departments should develop and promote public education programs and work with at-risk fish consumers to develop risk reduction activities.

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 agricultural methylmercury characterization and control studies to develop management practices to meet the Delta methylmercury objectives range from $xxx to $xxx. The estimated costs for agricultural 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

Fish methylmercury compliance monitoring. The Regional Board will use the following specifications to determine compliance with the methylmercury fish tissue objectives in the Sacramento-San Joaquin Delta. Regional Board staff will initiate fish tissue monitoring five years after dischargers implement projects to reduce methylmercury and total mercury discharges. Compliance monitoring will ensue every ten years thereafter. Initial fish tissue monitoring will take place at the following compliance reach in each subarea:

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

Once fish tissue methylmercury levels at a given subarea's compliance reach have achieved the methylmercury fish tissue objectives, fish tissue monitoring may take place at additional waterways in the subarea to ensure that the objectives are achieved throughout the subarea.

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

- 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.
- Small (<50 mm) fish: primary prey species consumed by wildlife in the Delta, which may include the species listed above, as well as inland silverside, juvenile bluegill, mosquitofish, red shiner, threadfin shad, or other fish less than 50 mm.

Trophic level 3 and 4 fish sample sets shall include three species from each trophic level and shall include both anadromous and non-anadromous fish. Trophic level 3 and 4 fish sample sets shall include a range of fish sizes between 150 and 500 mm total length, with average length of 350 mm. Striped bass, largemouth bass, and sturgeon caught for mercury analysis shall be within the CDFG legal catch size limits. Sample sets for fish less than 50 mm shall include at least two fish species that are the primary prey species consumed by wildlife at sensitive life stages. In any subarea, if multiple species for a particular trophic level are not available, one species in the sample set is acceptable.

Regional Board staff will work with the State Board and dischargers to develop a strategy to fund the fish tissue monitoring program.

Water methylmercury and total mercury compliance monitoring. The aqueous methylmercury goal of 0.06 ng/l for ambient Delta water is in the form of the annual, average concentration in unfiltered samples. For comparison of Delta waterways and tributary methylmercury concentration data with aqueous methylmercury goals, water samples should be collected periodically throughout the year and during typical flow conditions as they vary by season, rather than targeting extreme low or high flow events. Aqueous methylmercury data may be collected by Regional Water Board staff or required of project proponents.

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

NPDES facilities' compliance points for methylmercury and total mercury monitoring are the effluent monitoring points currently described in individual NPDES permits. Facilities listed in Table B that discharge greater than one million gallons per day (1 mgd) shall conduct methylmercury monitoring once per month, at a minimum; facilities that discharge less than 1 mgd shall conduct quarterly methylmercury monitoring, at a minimum. Facilities listed in Table D that discharge greater than 1 mgd shall conduct total mercury monitoring once per month, at a minimum; facilities that discharge less than 1 mgd shall conduct quarterly total mercury monitoring, at a minimum. Annual average (January-December) total mercury and methylmercury concentrations for each year shall be the average of monthly averages. Monthly averages are the mean of all concentration data collected during a given month. Non-detect measurements shall use one-half of the detection level (minimum detection level of 0.02 ng/l for methylmercury and 0.2 ng/l for total mercury) for the calculations.

Compliance points and monitoring frequency for MS4s required to conduct methylmercury and/or total mercury monitoring are those locations and wet and dry weather sampling periods currently described in the individual MS4 NPDES permits. Non-detect measurements shall use one-half of the detection level (minimum detection level of 0.02 ng/l for methylmercury and 0.2 ng/l for total mercury) for average and 90th percentile concentration and load calculations. After the establishment of an MS4-specific methylmercury concentration limit, compliance during the following years shall

be evaluated by comparing the 95% confidence interval for the mean of the concentration data collected by the MS4 during a given year to the limit.

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

APPENDIX _X_

Table X-1 lists the Sacramento-San Joaquin Delta Waterways (Delta Waterways)(1) to which the site-specific diazinon, chlorpyrifos, and methylmercury water quality objectives and implementation and monitoring provisions apply. The following are distinct, readily identifiable water bodies within the boundaries of the "Legal" Delta that are hydrologically connected by surface water flows (not including pumping) to the Sacramento and/or San Joaquin rivers. Figures X-1 and X-2 show the locations of the Delta Waterways.

The site-specific methylmercury water quality objectives and implementation and monitoring provisions apply to the Yolo Bypass within the Delta and north of the legal Delta boundary (Figure X-3). When the Yolo Bypass is not flooded, the following waterways within the Yolo Bypass north of the legal Delta boundary are hydrologically connected by surface water flows (not including pumping) to the Sacramento and/or San Joaquin rivers:

A. Cache Creek Settling Basin outflow
B. Knights Landing Ridge Cut
C. Tule Canal.

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

TABLE X-1: DELTA WATERWAYS

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

TABLE X-1: DELTA WATERWAYS, *continued*

95. Red Bridge Slough
96. Rhode Island
97. Rock Slough
98. Sacramento Deep Water Channel
99. Sacramento River
100. Salmon Slough
101. San Joaquin River
102. Sand Creek
103. Sand Mound Slough
104. Santa Fe Cut
105. Sevenmile Slough
106. Shag Slough
107. Sheep Slough
108. Sherman Lake
109. Short Slough
110. Smith Canal
111. Snodgrass Slough
112. South Fork Mokelumne River
113. Steamboat Slough
114. Stockton Deep Water Channel
115. Stone Lakes
116. Sugar Cut
117. Sutter Slough
118. Sweany Creek
119. Sycamore Slough
120. Taylor Slough (Elkhorn Slough tributary)
121. Taylor Slough (near Franks Tract)
122. Telephone Cut
123. The Big Ditch
124. The Meadows Slough
125. Three River Reach
126. Threemile Slough
127. Toe Drain
128. Tom Paine Slough
129. Tomato Slough
130. Trapper Slough
131. Turner Cut
132. Ulatis Creek
133. Upland Canal (Sycamore Slough tributary)
134. Victoria Canal
135. Walker Slough
136. Walthall Slough
137. Washington Cut
138. Werner Dredger Cut
139. West Canal
140. Whiskey Slough
141. White Slough
142. Winchester Lake
143. Woodward Canal
144. Wright Cut
145. Yosemite Lake
146. Yolo Bypass (2)

Footnotes:

(1) The Delta Waterways include only those reaches that are located within the "Legal" Delta, as defined in Section 12220 of the California Water Code.

(2) When flooded, the entire Yolo Bypass is a Delta Waterway. When the Yolo Bypass is not flooded, Putah Creek and Toe Drain ~~is~~ are the only Delta Waterways within the Yolo Bypass.

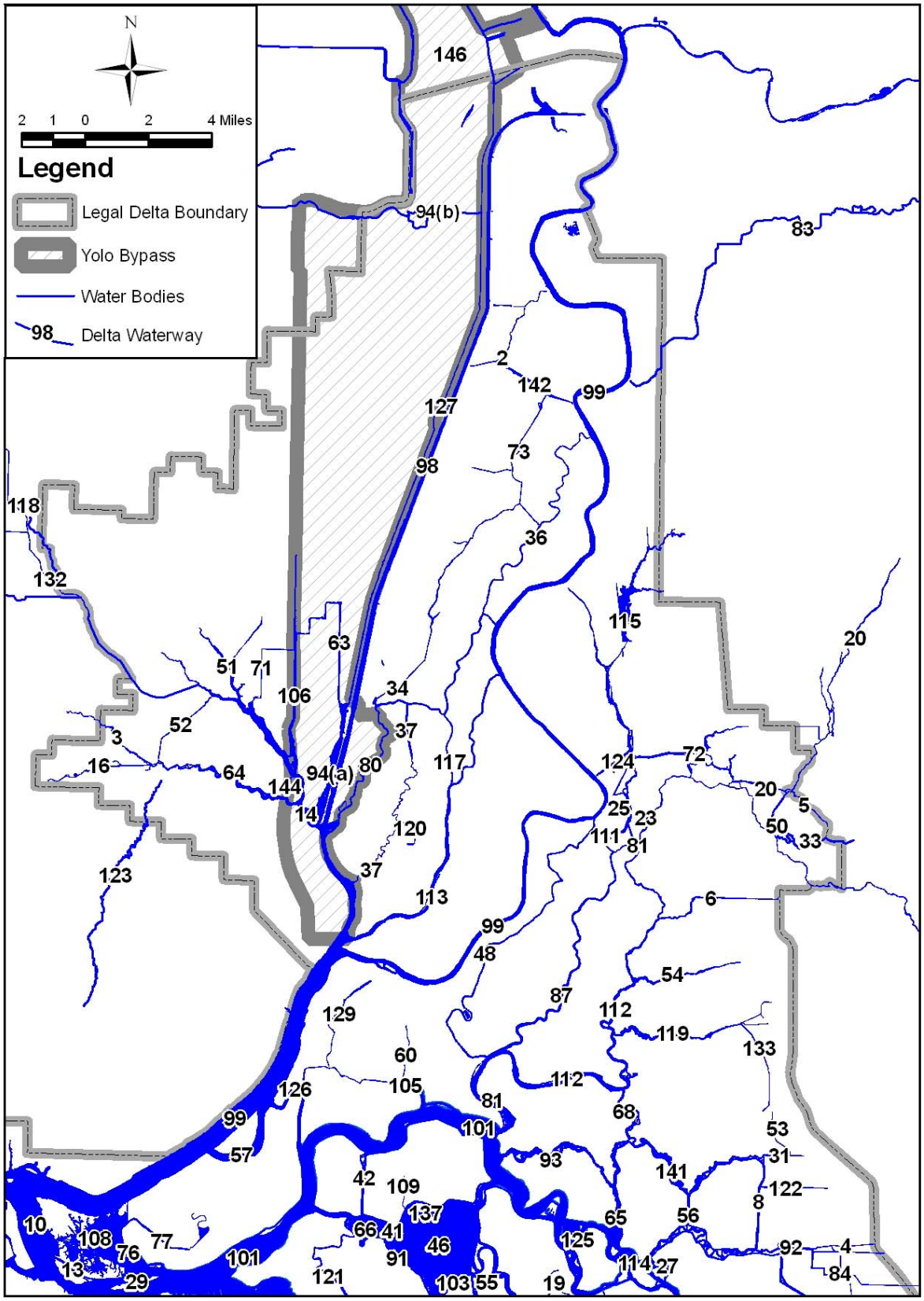

Figure X.1: Delta Waterways (Northern Panel)

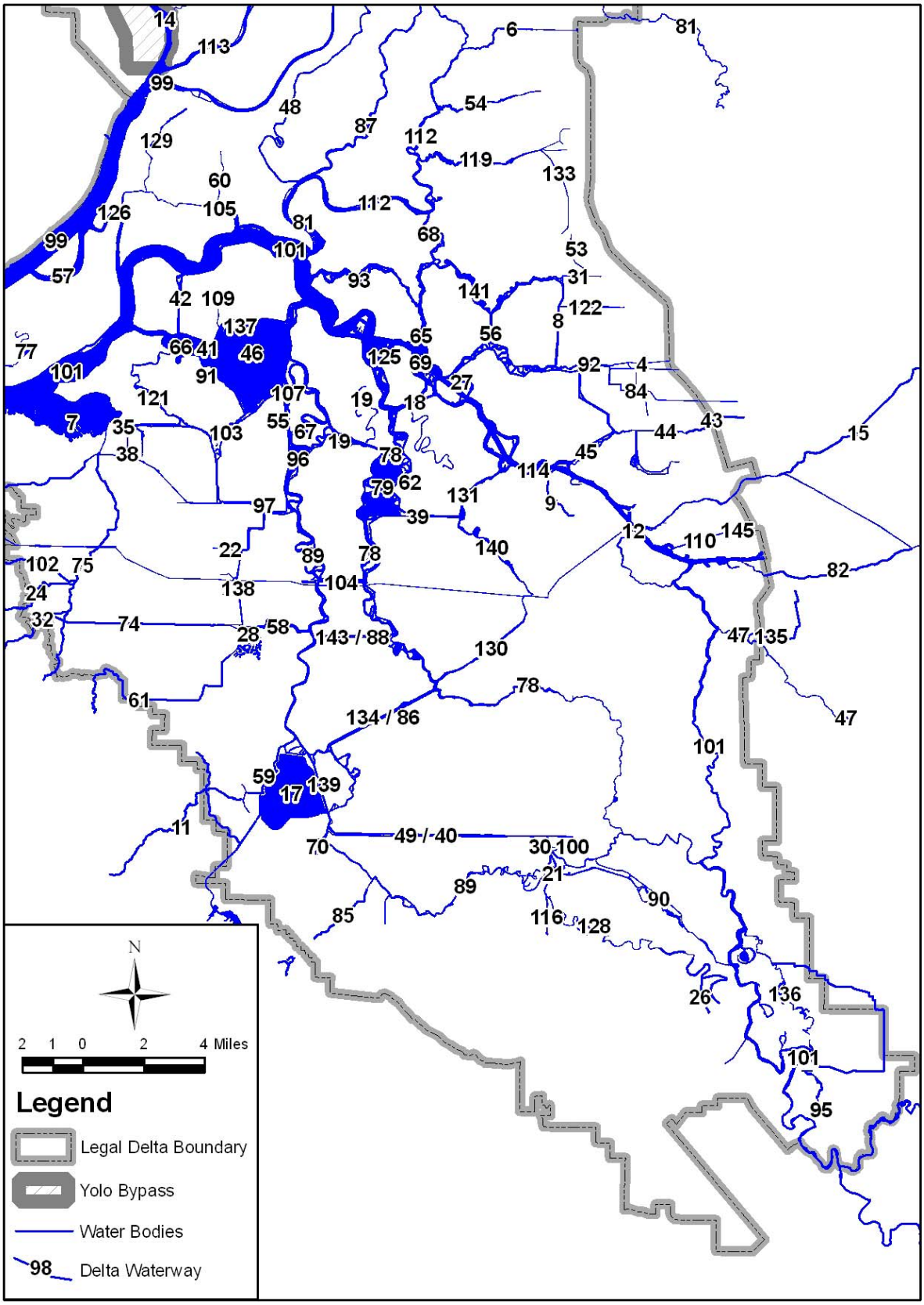

Figure X.2: Delta Waterways (Southern Panel)

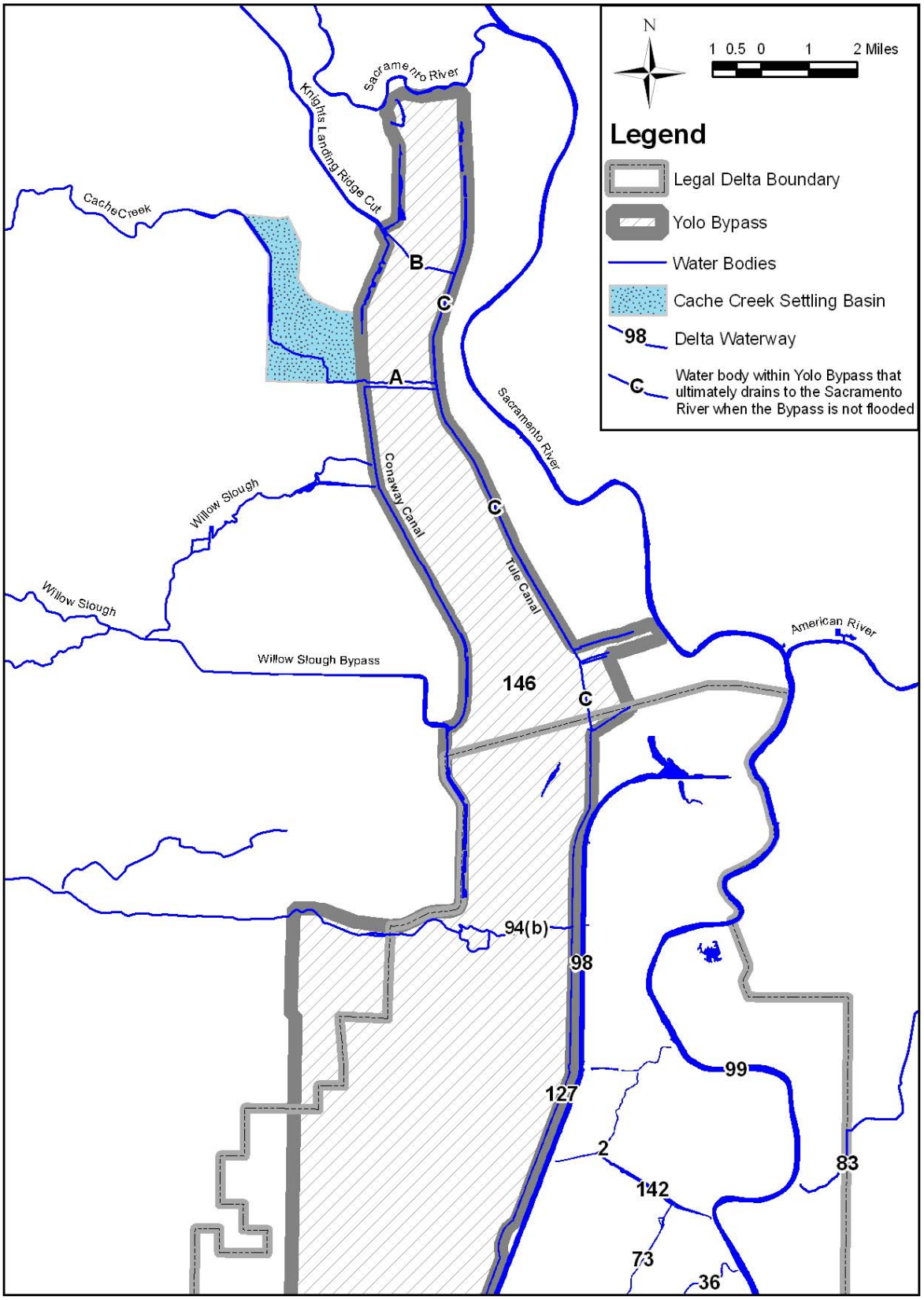

Figure X.3: Northern Yolo Bypass

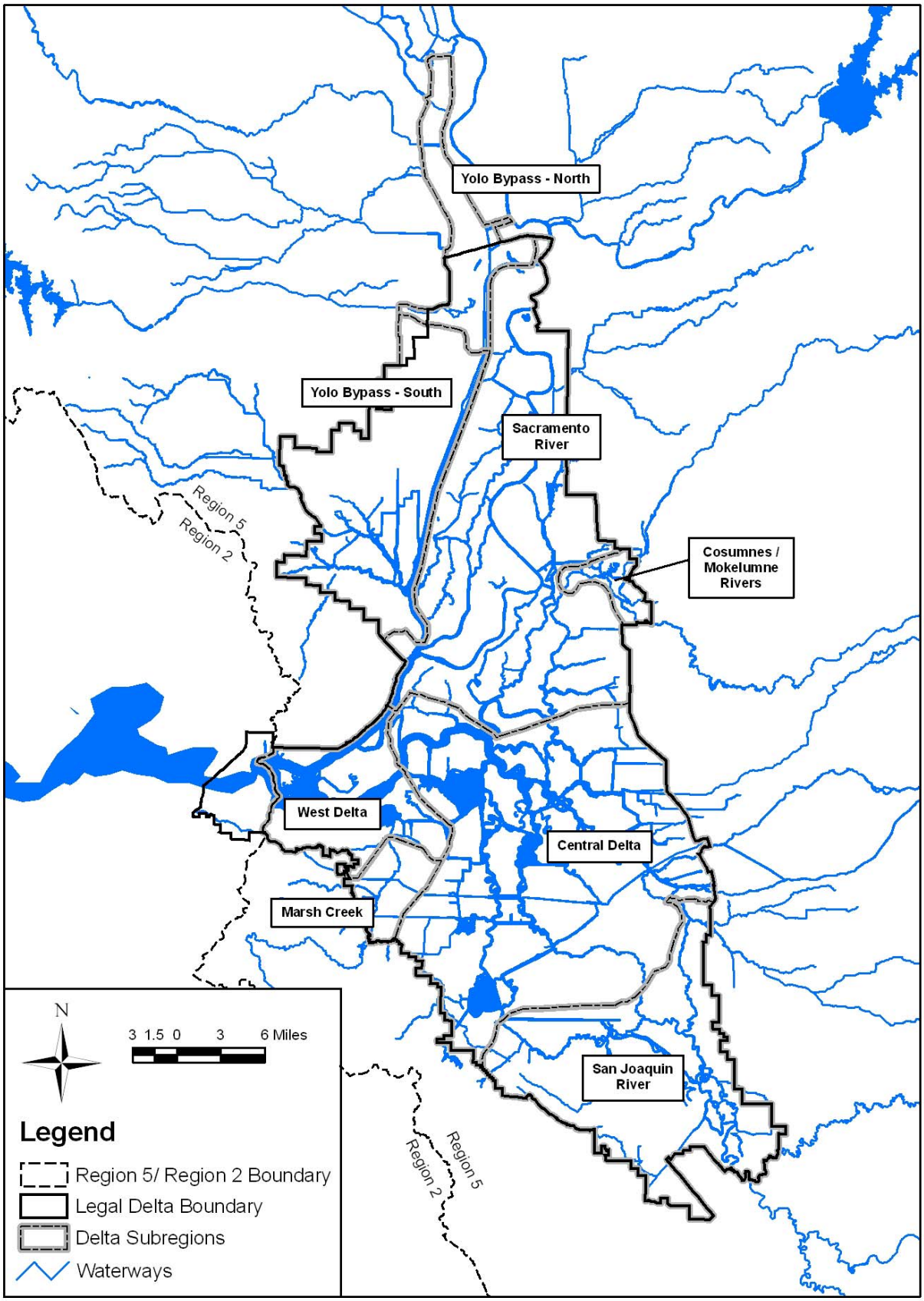

Figure X.4: Subareas for the Delta Methylmercury Control Program

TABLE X-2: DELTA AND YOLO BYPASS WATERWAYS BY METHYLMERCURY ALLOCATION SUBAREA

Waterway Name [Map Label #]	Waterway Name [Map Label #]	Waterway Name [Map Label #]
CENTRAL DELTA		
Bear Creek [4]	Indian Slough [58]	San Joaquin River [101]
Bishop Cut [8]	Italian Slough [59]	Sand Mound Slough [103]
Black Slough [9]	Jackson Slough [60]	Santa Fe Cut [104]
Brushy Creek [11]	Kellogg Creek [61]	Sevenmile Slough [105]
Burns Cutoff [12]	Latham Slough [62]	Sheep Slough [107]
Calaveras River [15]	Little Connection Slough [65]	Short Slough [109]
Clifton Court Forebay [17]	Little Franks Tract [66]	Smith Canal [110]
Columbia Cut [18]	Little Mandeville Cut [67]	Stockton Deep Water Channel [114]
Connection Slough [19]	Little Potato Slough [68]	Taylor Slough [nr Franks Tract] [121]
Dead Dog Slough [22]	Little Venice Island [69]	Telephone Cut [122]
Disappointment Slough [27]	Livermore Yacht Club [70]	Three River Reach [125]
Discovery Bay [28]	Main Canal [Indian Slough trib.] [74]	Threemile Slough [126]
Dredger Cut [31]	Middle River [78]	Tomato Slough [129]
Empire Cut [39]	Mildred Island [79]	Trapper Slough [130]
Fabian and Bell Canal [40]	Mokelumne River [81]	Turner Cut [131]
False River [41]	Mormon Slough [82]	Upland Canal [Sycamore Slough tributary] [133]
Fisherman's Cut [42]	Mosher Slough [84]	Victoria Canal [134]
Fivemile Creek [43]	North Canal [86]	Washington Cut [137]
Fivemile Slough [44]	North Victoria Canal [88]	Werner Dredger Cut [138]
Fourteenmile Slough [45]	Old River [89]	West Canal [139]
Franks Tract [46]	Piper Slough [91]	Whiskey Slough [140]
Grant Line Canal [49]	Pixley Slough [92]	White Slough [141]
Highline Canal [53]	Potato Slough [93]	Woodward Canal [143]
Holland Cut [55]	Rhode Island [96]	Yosemite Lake [145]
Honker Cut [56]	Rock Slough [97]	
MOKELUMNE/COSUMNES RIVERS		
Bear Slough [5]	Dry Creek [Mokelumne R. trib.] [33]	Lost Slough [72]
Cosumnes River [20]	Grizzly Slough [50]	Mokelumne River [81]
MARSH CREEK		
Deer Creek [24]	Main Canal [Indian Slough trib.] [74]	Rock Slough [97]
Dry Creek [Marsh Creek trib.] [32]	Marsh Creek [75]	Sand Creek [102]
Kellogg Creek [61]		
SACRAMENTO RIVER		
Babel Slough [2]	Little Potato Slough [68]	Stone Lakes [115]
Beaver Slough [6]	Lost Slough [72]	Sutter Slough [117]
Cache Slough [14]	Main Canal [Duck Slough trib.] [73]	Sycamore Slough [119]
Dead Horse Cut [23]	Miner Slough [80]	Taylor Slough [Elkhorn Slough tributary] [120]
Delta Cross Channel [25]	Mokelumne River [81]	The Meadows Slough [124]
Duck Slough [34]	Morrison Creek [83]	Tomato Slough [129]
Elk Slough [36]	North Mokelumne River [87]	Upland Canal [Sycamore Slough tributary] [133]
Elkhorn Slough [37]	Sacramento River [99]	Winchester Lake [142]
Georgiana Slough [48]	Snodgrass Slough [111]	
Hog Slough [54]	South Mokelumne River [112]	
Jackson Slough [60]	Steamboat Slough [113]	

TABLE X-2: DELTA AND YOLO BYPASS WATERWAYS BY METHYLMERCURY ALLOCATION SUBAREA, *Continued*

Waterway Name [Map Label #]	Waterway Name [Map Label #]	Waterway Name [Map Label #]
SAN JOAQUIN RIVER		
Crocker Cut [21]	Middle River [78]	San Joaquin River [101]
Deuel Drain [26]	Mountain House Creek [85]	Sugar Cut [116]
Doughty Cut [30]	Old River [89]	Tom Paine Slough [128]
Fabian and Bell Canal [40]	Paradise Cut [90]	Walker Slough [135]
French Camp Slough [47]	Red Bridge Slough [95]	Walthall Slough [136]
Grant Line Canal [49]	Salmon Slough [100]	
WEST DELTA		
Big Break [7]	Horseshoe Bend [57]	San Joaquin River [101]
Broad Slough [10]	Marsh Creek [75]	Sand Mound Slough [103]
Cabin Slough [13]	Mayberry Cut [76]	Sherman Lake [108]
Donlon Island [29]	Mayberry Slough [77]	Taylor Slough [near Franks Tract] [121]
Dutch Slough [35]	Rock Slough [97]	Threemile Slough [126]
Emerson Slough [38]	Sacramento River [99]	
False River [41]		
YOLO BYPASS-NORTH [(a)]		
Cache Creek Settling Basin Outflow [A]	Toe Drain [127]/Tule Canal [C]	Sacramento Deep Water Ship Channel [98]
Knights Landing Ridge Cut [B]	Putah Creek [94(b)]	
YOLO BYPASS-SOUTH [(a)]		
Alamo Creek [1]	Liberty Cut [63]	Sweany Creek [118]
Babel Slough [2]	Lindsey Slough [64]	Sycamore Slough [119]
Barker Slough [3]	Lookout Slough [71]	The Big Ditch [123]
Cache Slough [14]	Miner Slough [80]	Toe Drain [127]
Calhoun Cut [16]	Prospect Slough [94 (a)]	Ulatis Creek [132]
Duck Slough [34]	Sacramento Deep Water Ship Channel [98]	Wright Cut [144]
Haas Slough [51]		
Hastings Cut [52]	Shag Slough [106]	

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

TABLE A
AGRICULTURE AND WETLAND METHYLMERCURY ALLOCATIONS

DELTA SUBAREA RECEIVING SOURCE INPUT	SOURCE [a]	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) [b]
Central Delta	Agriculture	37	0%	37
	Wetlands	210	0%	210
Marsh Creek	Agriculture	2.2	82%	0.40
	Wetlands	0.34	82%	0.061
Mokelumne/ Cosumnes Rivers	Agriculture	1.6	64%	0.58
	Wetlands	30	64%	11
Sacramento River	Agriculture	36	44%	20
	Wetlands	94	44%	53
San Joaquin River	Agriculture	23	75%	5.8
	Wetlands	43	75%	11
West Delta	Agriculture	4.1	0%	4.1
	Wetlands	130	0%	130
Yolo Bypass [c]	Agriculture	19[c]	81%	3.6 [d]
	Wetlands	480	81%	91

(a) The agricultural methylmercury allocations apply to agricultural return flows during the active agricultural season and do not include rainfall runoff from agricultural lands.
(b) Annual loads are expected to fluctuate with water volume and other factors. Allocations will be revised as necessary at the end of Phase 1 to include additional wet and dry year data.
(c) The Yolo Bypass subarea encompasses areas that drain to Cache Slough at the base of the Yolo Bypass flood conveyance channel, as well as the Yolo Bypass within and outside of the legal Delta boundary. The allocations for the Yolo Bypass-North and -South subareas (see Figure X.3) were combined in this and following tables.
(d) The methylmercury allocation for agriculture in the Yolo Bypass subarea does not include agricultural areas in the Yolo Bypass outside of the legal Delta boundary because agricultural return water volume data were not available for these areas at the time the Delta methylmercury TMDL was developed.

TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER METHYLMERCURY (MeHg) ALLOCATIONS BY DELTA SUBAREA

PERMITTEE [a]	NPDES PERMIT NO.	PHASE 1 LIMIT (EXISTING MeHg CONCENTRATION) (ng/l)	EXISTING MeHg LOAD (g/yr)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg CONCENTRATION (ng/l) [b]	ALLOCATED MeHg LOAD (g/yr)	2005 EFFLUENT VOLUME (mgd)
Central Delta							
Discovery Bay WWTP	CA0078590	0.20	0.42	0%		0.42	1.5
Lodi (City of) White Slough WWTP	CA0079243	0.15	0.92	0%		0.92	4.5
San Joaquin Co DPW CSA 31 - Flag City WWTP	CA0082848	0.09	0.007	0%		0.007	0.06
Unassigned allocation for new discharges	(c)	0.06	(c)	0%	0.06		3.0
Marsh Creek							
Brentwood (City of) WWTP	CA0082660	0.02	0.085	0%	0.02		3.1
Unassigned allocation for new discharges	(c)	0.06	(c)	0%	0.06		1.5
Sacramento River							
Rio Vista (City of) WWTP	CA0079588	0.16	0.11	44%		0.062	0.47
SRCSD-Elk Grove Walnut Grove WWTP	CA0078794	2.2	0.24	44%		0.13	0.08
Sacramento (City of) Combined WWTP	CA0079111	0.24	0.43	44%		0.24	1.3
SRCSD Sacramento River WWTP	CA0077682	0.73	160	44%		90	156
West Sacramento (City of) WWTP	CA0079171	0.05	0.40	0%	0.05		5.6
Unassigned allocation for new discharges	(c)	0.06	(c)	0%	0.06		82
San Joaquin River							
Deuel Vocational Inst. WWTP	CA0078093	0.02	0.013	0%	0.02		0.47
Manteca (City of) WWTP	CA0081558	0.22	1.4	72%	0.06		4.6
Oakwood Lake Subdivision Mining Reclamation	CA0082783	0.03	0.40	0%	0.03		9.2
Stockton (City of) WWTP	CA0079138	0.94	36	75%		9.0	28
Tracy (City of) WWTP	CA0079154	0.15	1.9	59%	0.06		9.5
Unassigned allocation for new discharges	(c)	0.06	(c)	0%	0.06		2.6

TABLE B
MUNICIPAL AND INDUSTRIAL WASTEWATER METHYLMERCURY ALLOCATIONS BY DELTA SUBAREA, *Continued*

PERMITTEE [a]	NPDES PERMIT NO.	PHASE 1 LIMIT (EXISTING MeHg CONCENTRATION) (ng/l)	EXISTING MeHg LOAD (g/yr)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg CONCENTRATION (ng/l) [b]	ALLOCATED MeHg LOAD (g/yr)	2005 EFFLUENT VOLUME (mgd)
West Delta							
Unassigned allocation for new discharges	(c)	0.06	(d)	0%	0.06		1.5
Yolo Bypass							
Woodland (City of) WWTP	CA0077950	0.03	0.26	0%	0.03		6.05
Unassigned allocation for new discharges	(c)	0.06	(c)	0%	0.06		3.0

(a) This table lists facilities that discharge directly to the Delta and Yolo Bypass. As of 20 March 2006, there are no permitted facilities that discharge to surface water within the Mokelumne River and West Delta subareas of the Delta other than heating/cooling and power 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.

(b) 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.

(c) To account for the projected increase in urban areas in the Delta region, Table B contains unassigned allocations for new facilities.

TABLE C
NPDES PERMITTED FACILITIES IN THE DELTA AND ITS TRIBUTARY WATERSHEDS DOWNSTREAM OF MAJOR DAMS REQUIRED TO CONDUCT METHYLMERCURY CHARACTERIZATION AND CONTROL STUDIES

FACILITY (NPDES PERMIT NO.)	FACILITY (NPDES PERMIT NO.)
Facilities within the Delta & Yolo Bypass North of the Delta	
Discovery Bay WWTP (CA0078590) Lodi (City of) White Slough WWTP (CA0079243) Manteca WWTP (CA0081558) Mountain House CSD WWTP (CA0084271) Rio Vista (City of) Northwest WWTP (CA0083771)	Sacramento (City of) Combined WWTP (CA0079111) SRCSD Sacramento River WWTP (CA0077682) Stockton (City of) WWTP (CA0079138) Tracy (City of) WWTP (CA0079154)
Facilities in the Tributary Watersheds Downstream of Major Dams	
Anderson WWTP (CA0077704) Chico Regional WWTP (CA0079081) Davis WTP (CA0079049) DFG Nimbus Fish Hatchery (CA0004774) Galt WWTP (CA0081434) Live Oak WWTP (CA0079022) Merced WWTP (CA0079219)	Modesto WWTP (CA0079103) Olivehurst PUD WWTP (CA0077836) Oroville WWTP (CA0079235) Placer Co. SMD #1 WWTP (CA0079316) Turlock WWTP (CA0078948) Yuba City WWTP (CA0079260)

TABLE D
NPDES PERMITTED FACILITIES IN THE DELTA AND ITS TRIBUTARY WATERSHEDS DOWNSTREAM OF MAJOR DAMS WITH TOTAL MERCURY CONCENTRATION LIMITS

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

TABLE E
MS4 METHYLMERCURY WASTE LOAD ALLOCATIONS BY DELTA SUBAREA

PERMITTEE	NPDES PERMIT NO.	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) (a, b)
Central Delta				
Contra Costa (County of) (c)	CAS083313	0.75	0%	0.75
Lodi (City of)	CAS000004	0.053	0%	0.053
Port of Stockton MS4	CAS084077	0.39	0%	0.39
San Joaquin (County of)	CAS000004	0.57	0%	0.57
Stockton Area MS4	CAS083470	3.6	0%	3.6
Marsh Creek				
Contra Costa (County of) (c)	CAS083313	1.2	75%	0.30
Mokelumne River				
San Joaquin (County of)	CAS000004	0.051	64%	0.018
Sacramento River				
Rio Vista (City of)	CAS000004	0.014	44%	0.0078
Sacramento Area MS4	CAS082597	3.0	44%	1.7
San Joaquin (County of)	CAS000004	0.19	44%	0.11
Solano (County of)	CAS000004	0.074	44%	0.041
West Sacramento (City of)	CAS000004	0.62	44%	0.35
Yolo (County of)	CAS000004	0.073	44%	0.041
San Joaquin River				
Lathrop (City of)	CAS000004	0.27	75%	0.068
Port of Stockton MS4	CAS084077	0.0096	75%	0.0024
San Joaquin (County of)	CAS000004	2.6	75%	0.65
Stockton Area MS4	CAS083470	0.50	75%	0.13
Tracy (City of)	CAS000004	1.8	75%	0.45
West Delta				
Contra Costa (County of) (c)	CAS083313	3.3	0%	3.3
Yolo Bypass				
Solano (County of)	CAS000004	0.085	75%	0.021
West Sacramento (City of)	CAS000004	1.1	75%	0.28
Yolo (County of)	CAS000004	0.33	75%	0.083

Table E Footnotes:

(a) Some MS4s service areas span multiple Delta subareas 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. 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. Allocations will be revised at the end of Phase 1 to include available wet year data.

(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) The Contra Costa County MS4 discharges to both the Delta and San Francisco Bay. The above allocations apply only to the portions of the MS4 service area that discharge to the Delta within the Central Valley Water Quality Control Board's jurisdiction. Most of the MS4's service area falls within the San Francisco Bay Regional Water Quality Control Board's jurisdiction. Therefore, during Phase 1 of the Delta mercury control program, the mercury control requirements approved by the San Francisco Bay Regional Water Quality Control Board (Resolution R2-2006-0052) for the Contra Costa County MS4 will be applied to its service area within the Central Valley Regional Water Quality Control Board's jurisdiction. The methylmercury allocation for the Contra Costa County MS4 service area within the Delta will be reevaluated during Phase 2 of the Delta mercury control program.

TABLE F
MS4S IN THE DELTA AND ITS TRIBUTARY WATERSHEDS DOWNSTREAM OF MAJOR DAMS REQUIRED TO IMPLEMENT BEST MANAGEMENT PRACTICES TO CONTROL TOTAL MERCURY DISCHARGES

MS4 (NPDES PERMIT NO.)	MS4 (NPDES PERMIT NO.)
Butte (County of) (CAS000004)	Rio Vista (City of) (CAS000004)
CalTrans (CAS000003)	Ripon (City of) (CAS000004)
Ceres (City of) (CAS000004)	Riverbank (City of) (CAS000004)
Chico (City of) (CAS000004)	Rocklin (City of) (CAS000004)
Contra Costa (County of) (CAS083313)	Roseville (City of) (CAS000004)
Dixon (City of) (CAS000004)	Sacramento Area MS4 (CAS082597)
Hughson (City of) (CAS000004)	San Joaquin (County of) (CAS000004)
Lathrop (City of) (CAS000004)	Solano (County of) (CAS000004)
Lincoln (City of) (CAS000004)	Stanislaus (County of) (CAS000004)
Lodi (City of) (CAS000004)	Stockton Area MS4 (CAS083470)
Loomis (City of) (CAS000004)	Sutter (County of) (CAS000004)
Manteca (City of) (CAS000004)	Tracy (City of) (CAS000004)
Marysville (City of) (CAS000004)	Turlock (City of) (CAS000004)
Modesto (City of) (CAS083526)	Vacaville (City of) (CAS000004)
Oakdale (City of) (CAS000004)	West Sacramento (City of) (CAS000004)
Patterson (City of) (CAS000004)	Yolo (County of) (CAS000004)
Port of Stockton MS4 (CAS084077)	Yuba City (City of) (CAS000004)

TABLE G
OPEN WATER METHYLMERCURY LOAD ALLOCATIONS

DELTA SUBAREA	EXISTING LOAD (g/yr)	PERCENT REDUCTION REQUIRED	LOAD ALLOCATION (g/yr) (a)
Central Delta	370	0%	370
Marsh Creek	0.18	82%	0.032
Mokelumne River	4.0	0%	4.0
Sacramento River	140	0%	140
San Joaquin River	48	0%	48
West Delta	190	0%	190
Yolo Bypass (b)	165	80%	33

(a) Open water methylmercury load allocations are based on methylmercury flux from sediment in open water habitat. The data were collected in May 2000 and October 2001, relatively dry periods. Methylmercury flux may fluctuate with water volume and other factors during wet years. Allocations will be revised as necessary at the end of Phase 1 to include available wet period data.

(b) Reductions will be needed in the open water methylmercury contributions to the Marsh Creek and Yolo Bypass subareas. These reductions will be achieved through reductions in tributary total mercury inputs.

TABLE H
TRIBUTARY WATERSHED METHYLMERCURY (MeHg) ALLOCATIONS (a)

DELTA SUBAREA	TRIBUTARY	EXISTING MeHg CONCEN-TRATION (ng/l)	EXISTING MeHg LOAD (g/yr)	PERCENT REDUCTION REQUIRED	ALLOCATED MeHg LOAD (g/yr) (b)	ALLOCATED MeHg CONCEN-TRATION (ng/l)
Central Delta	Calaveras River	0.14	25	0%	25	0.14
	Bear/Mosher Creeks	0.31	11	0%	11	0.31
	Bethany Reservoir Area	(c)	(c)	0%	(c)	(c)
Marsh Creek	Marsh Creek	0.22	1.7	78%	0.37	0.05
Mokelumne River	Mokelumne River	0.17	110	66%	37	0.06
Sacramento River	Sacramento River	0.10	2,000	48%	1,048	0.05
	Morrison Creek	0.10	8.1	44%	4.5	0.06
San Joaquin River	San Joaquin River	0.16	360	69%	112	0.05
	French Camp Slough	0.14	11	65%	3.9	0.05
	Manteca-Escalon, Mountain House & Corral Hollow Creeks Areas	(c)	(c)	0%	(c)	(c)
West Delta	Antioch & Montezuma Hills Areas	(c)	(c)	0%	(c)	(c)
Yolo Bypass	Cache Creek Settling Basin	0.59	160	92%	13	0.05
	Cache Slough/Lindsey Slough & Dixon Areas	(c)	(c)	(c)	(c)	(c)
	Fremont Weir	0.12	150	57%	65	0.05
	Knights Landing Ridge Cut	0.18	52	71%	15	0.05
	Putah Creek	0.18	9.2	67%	3.0	0.06
	Ulatis Creek	0.24	8.9	75%	2.2	0.06
	Willow Slough	0.24	18	75%	4.5	0.06
	Prospect Slough	0.42	540	86%	76	0.06

(a) Mercury control programs designed to achieve the allocations for tributaries listed in Table H will be implemented by future Basin Plan amendments.
(b) Methylmercury allocations are assigned to tributary inputs to the Delta and Yolo Bypass. Methylmercury load allocations are based on water years 2000 through 2003, a relative dry period. Annual loads are expected to fluctuate with water volume and other factors. Allocations will be revised at the end of Phase 1 to include available wet year data.
(c) To be determined.