Final Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions

II. BENEFICIAL USES

[Text to be added to Chapter II (Beneficial Uses) of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan).]

The Regional Water Quality Control Boards (Regional Water Boards) shall use the beneficial uses and abbreviations listed below, to the extent such activities are defined in a water quality control plan after June 28, 2017.

For the State Water Resources Control Board (State Water Board) or the Regional Water Boards to designate the Tribal Tradition and Culture or Tribal Subsistence Fishing beneficial uses in a water quality control plan for a particular waterbody segment and time(s) of year, a CALIFORNIA NATIVE AMERICAN TRIBE[1] must confirm the designation is appropriate.

The Tribal Subsistence Fishing and Subsistence Fishing beneficial uses, and the consumption of fish and shellfish component of the Tribal Tradition and Culture beneficial use, relate to the risks to human health from the consumption of noncommercial fish or shellfish. The two subsistence fishing beneficial uses normally involve higher rates of consumption of fish or shellfish than those protected under the Commercial and Sport Fishing and the Tribal Tradition and Culture beneficial uses. The functions of the Tribal Tradition and Culture, Tribal Subsistence Fishing, and Subsistence Fishing beneficial uses are not to protect or enhance fish populations or aquatic habitats. Fish populations and aquatic habitats are protected and enhanced by other beneficial uses, including but not limited to, Fish Spawning, Migration of Aquatic Organisms, Aquaculture, Warm Freshwater Habitat, and Cold Freshwater Habitat, that are designed to support aquatic habitats for the reproduction or development of fish.

1) Tribal Tradition and Culture (CUL):

Uses of water that support the cultural, spiritual, ceremonial, or traditional rights or LIFEWAYS of CALIFORNIA NATIVE AMERICAN TRIBES, including, but not limited to: navigation, ceremonies, or fishing, gathering, or consumption of natural aquatic resources, including fish, shellfish, vegetation, and materials.

2) Tribal Subsistence Fishing (T-SUB):

Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities of California Native American Tribes to meet needs for sustenance.

3) Subsistence Fishing (SUB):

Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities, to meet needs for sustenance.

[1] Terms in “all caps” font (excepting the beneficial use abbreviations) are defined in Attachment A (Glossary).

III. WATER QUALITY OBJECTIVES

[Text to be added to Chapter III (Water Quality Objectives) of the ISWEBE Plan.]

D. Mercury

1. Applicability

Chapter III.D.2 establishes water quality objectives for the reasonable protection of people and wildlife that consume fish and apply to all the inland surface waters, enclosed bays and estuaries of the State that have the applicable beneficial uses. The water quality objectives that protect people who consume fish apply to waters with the COMM, CUL, T-SUB, and SUB[2] beneficial uses. The water quality objectives that protect wildlife that consume fish apply to waters with WILD, MAR, RARE, WARM, COLD, EST, and SAL beneficial uses.[3]

2. Mercury Water Quality Objectives

Chapter III.D.2 contains five mercury fish tissue water quality objectives, which are formulated for one or more of the applicable beneficial uses, depending on the consumption pattern (which includes consumption rate, fish size, and species) by individuals and wildlife. Additionally, different sizes and species of fish contained at a water body will, in some cases, affect whether a particular water quality objective may be utilized to evaluate whether one or more beneficial uses are supported. Therefore, the fish in a particular water body would dictate which water quality objective(s) must be evaluated to ensure all the applicable wildlife beneficial uses are supported, as discussed below and illustrated in the flow chart in Attachment B. For any of the mercury fish tissue water quality objectives, measurements of total mercury concentrations in fish tissue may be substituted for methylmercury concentrations in fish tissue.

a. Sport Fish Water Quality Objective

1) Application of the Sport Fish Water Quality Objective

The Sport Fish Water Quality Objective for mercury applies to waters with the beneficial uses of COMM, CUL[4], WILD, or MAR.

With respect to the WILD and MAR beneficial uses, the Sport Fish Water Quality Objective may be used to evaluate whether all species are supported only when

[2] The water quality objective applicable to the SUB beneficial use (see Chapter III.D.2.c) also applies to the Subsistence Fishing (FISH) beneficial use contained in the North Coast Regional Water Quality Control Board's water quality control plan. (Water Quality Control Plan for the North Coast (May 2011), p. 2-3.00.)

[3] Any explicit reference in the MERCURY PROVISIONS to the WILD and MAR beneficial uses shall hereinafter include the WARM, COLD, EST, and SAL beneficial uses.

[4] If site-specific studies indicate a consumption pattern under the CUL beneficial use higher than the consumption rate used for the objective to support the COMM beneficial use, then the Regional Water Board should consider adopting a site-specific objective to protect consumption of fish under the CUL beneficial use.

applied to TROPHIC LEVEL 4 fish, except with respect to the California least tern (as discussed in Chapter III.D.2.e). If the objective is measured using TROPHIC LEVEL 3 fish, protection of all wildlife species within the WILD and MAR beneficial uses is not ensured. Therefore, if TROPHIC LEVEL 3 fish are used, then the Prey Fish Water Quality Objective (as described in Chapter III.D.2.d) shall be used, but if the water body is habitat for California least tern, then the California Least Tern Prey Fish Objective (as described in Chapter III.D.2.e) shall be used. However, if the Sport Fish Water Quality Objective is exceeded when applied to TROPHIC LEVEL 3 fish, that is sufficient evidence to indicate that the Prey Fish Water Quality Objective or, if applicable, the California Least Tern Prey Fish Objective is also exceeded without having to measure the two latter objectives (see flow chart in Attachment B).

2) Sport Fish Water Quality Objective

The Sport Fish Water Quality Objective is: The average methylmercury concentrations shall not exceed 0.2 milligrams per kilogram (mg/kg) fish tissue within a CALENDAR YEAR[5]. The water quality objective applies to the WET WEIGHT concentration in skinless fillet in TROPHIC LEVEL 3 or TROPHIC LEVEL 4 fish, whichever is the HIGHEST TROPHIC LEVEL FISH in the water body. Freshwater TROPHIC LEVEL 3 fish are between 150 to 500 millimeters (mm) in total length and TROPHIC LEVEL 4 fish are between 200 to 500 mm in total length, except for sizes specified in Attachment C, or as additionally limited in size in accordance with the LEGAL SIZE LIMIT for the species caught. Estuarine fish shall be within the LEGAL SIZE LIMIT and greater than 150 mm, or as otherwise specified in Attachment C.

b. Tribal Subsistence Fishing Water Quality Objective

1) Application of the Tribal Subsistence Fishing Water Quality Objective

The Tribal Subsistence Fishing Water Quality Objective applies to waters with the T-SUB beneficial use.

2) Tribal Subsistence Fishing Water Quality Objective

The Tribal Subsistence Fishing Water Quality Objective is: The average methylmercury concentrations shall not exceed 0.04 mg/kg fish tissue within a CALENDAR YEAR. The objective applies to the WET WEIGHT concentration in skinless fillet from a mixture of 70 percent TROPHIC LEVEL 3 fish and 30 percent TROPHIC LEVEL 4 fish as detailed in Attachment C.

c. Subsistence Fishing Water Quality Objective

1) Application of the Subsistence Fishing Water Quality Objective

The Subsistence Fishing Water Quality Objective applies to waters with the SUB beneficial use or to waters with the FISH beneficial use (see footnote 2).

[5] Any explicit reference in the MERCURY PROVISIONS to "CALENDAR YEAR" means a fixed period of twelve CALENDAR MONTHS (i.e., the period of months would not be moving or rolling).

2) Subsistence Fishing Water Quality Objective

The Subsistence Fishing Water Quality Objective is: Waters with the Subsistence Fishing (SUB) beneficial use shall be maintained free of mercury at concentrations which accumulate in fish and cause adverse biological, reproductive, or neurological effects in people.

The fish consumption rate used to evaluate this objective shall be derived from water body- and population-specific data and information on the subsistence fishers' rate and form (e.g. whole, fillet with skin, skinless fillet) of fish consumption.[6]

When a water quality control plan designates a water body or water body segment with the Subsistence Fishing (SUB) beneficial use, development of a region-wide or site-specific numeric fish tissue mercury water quality objective is recommended to account for the wide variation of consumption rate and fish species encompassed by the SUB beneficial use.

d. Prey Fish Water Quality Objective

1) Application of the Prey Fish Water Quality Objective

The Prey Fish Water Quality Objective applies to waters with the WILD or MAR beneficial uses. However, the objective does not apply to water body segments where the California Least Tern Prey Fish Water Quality Objective applies (see Chapter III.D.2.e). As discussed in Chapter III.D.2.a, it is not necessary to measure the Prey Fish Water Quality Objective if the Sport Fish Water Quality Objective applies to the same water body and is evaluated using TROPHIC LEVEL 4 fish. However, if the Sport Fish Water Quality Objective is exceeded when applied to TROPHIC LEVEL 3 fish, that is sufficient evidence to indicate that the Prey Fish Water Quality Objective is also exceeded without having to measure the latter objective (see flow chart in Attachment B).

2) Prey Fish Water Quality Objective

The Prey Fish Water Quality Objective is: The average methylmercury concentrations shall not exceed 0.05 mg/kg in WET WEIGHT whole fish tissue of any species between 50 to 150 mm in total length during the breeding season. The breeding season is February 1 through July 31, unless site-specific information indicates another appropriate breeding period.

e. California Least Tern Prey Fish Water Quality Objective

1) Application of the California Least Tern Prey Fish Water Quality Objective

The California Least Tern Prey Fish Water Quality Objective applies to water with the WILD, MAR, or RARE beneficial uses at water bodies where the least tern or

[6] U.S. EPA recommended national subsistence fishing consumption rate of 142 grams per day (4 to 5 meals per week) shall be used to translate the narrative objective unless a site-specific numeric water quality objective is developed or an external peer-reviewed consumption study uses a different methodology to translate the narrative water quality objective.

least tern habitat exists, including but not limited to the water bodies identified in Attachment D.

2) California Least Tern Prey Fish Water Quality Objective

The California Least Tern Prey Fish Water Quality Objective is: The average methylmercury concentrations shall not exceed 0.03 mg/kg fish tissue from April 1 through August 31. The objective applies to the WET WEIGHT concentration in whole fish less than 50 mm total length.

3. Interaction of Mercury Water Quality Objectives with Basin Plans

The MERCURY WATER QUALITY OBJECTIVES do not supersede any site-specific numeric mercury water quality objectives established in a Basin Plan, except (i) the freshwater mercury water quality objective for chronic effects to aquatic life (0.025 µg/L) established in the San Francisco Bay Basin Water Quality Control Plan (Table 3-4 and corresponding note); and (ii) the total body burden of 0.5 µg/g wet weight established for the mercury water quality objective for aquatic organisms in the Water Quality Control Plan for the Central Coastal Basin (see note accompanying Table 3-5).

IV. IMPLEMENTATION OF WATER QUALITY OBJECTIVES

[Text to be added to Chapter IV (Implementation of Water Quality Objectives) of the ISWEBE Plan.]

D. Mercury

1. General Applicability of the Mercury Implementation Provisions

The implementation provisions of Chapter IV.D, which apply only to discharges identified in Chapters IV.D.2 through IV.D.7 below, shall be implemented through NPDES permits issued pursuant to section 402 of the Clean Water Act, water quality certifications issued pursuant to section 401 of the Clean Water Act, waste discharge requirements (WDRs), and waivers of WDRs, where any of the MERCURY WATER QUALITY OBJECTIVES apply. The implementation provisions pertaining to a particular beneficial use (Chapter IV.D.2) do not apply to dischargers that discharge to receiving waters for which a mercury or methylmercury total maximum daily load (TMDL) is established pertaining to the same beneficial use or uses. Such "receiving waters" are those for which a mercury or methylmercury TMDL is approved and does not include upstream water bodies, even if the TMDL contains waste load allocations for the dischargers to the upstream water bodies to be implemented as effluent limitations to achieve the downstream water quality standard. For such upstream dischargers, the implementation provisions of Chapter IV.D apply. In the case where both the TMDL and application of the procedure at Chapter IV.D.2.c require an effluent limitation, then the more stringent requirement shall apply to the discharge.

EXISTING MERCURY TMDLs which examine and address the water quality problems associated with mercury that adversely affect the COMM, WILD, or RARE beneficial uses are in effect for numerous water bodies throughout the State. Such TMDLs identify sources of mercury which may include but are not limited to runoff from historic mines, urban runoff, wastewater discharges, atmospheric deposition, natural erosion, and resuspension of historic deposits of mercury-laden sediment.

A Regional Water Board may adopt a new mercury TMDL associated with the CUL, T-SUB, or SUB beneficial uses that substantially relies on the assumptions, technical and scientific basis, and requirements of an EXISTING MERCURY TMDL, if the analyses and assumptions underlying the EXISTING MERCURY TMDL remain valid. In such circumstances, the new mercury TMDL may effectively include the same actions and waste load allocations of the EXISTING MERCURY TMDL with the exception of including a longer period of time to ensure the water quality objective associated with the CUL, T-SUB, or SUB beneficial use is attained. Such EXISTING MERCURY TMDL and new mercury TMDL may be utilized to establish interim and final effluent limitations in permits in accordance with Chapter IV.D.2.c.2.ii, as applicable.

2. Municipal Wastewater and Industrial Discharges

a. Applicability

Chapter IV.D.2 applies to dischargers issued individual non-STORM WATER National Pollutant Discharge Elimination System (NPDES) permits for municipal wastewater or industrial discharges. The PERMITTING AUTHORITY shall incorporate the following

requirements, as applicable, into NPDES permits during every permit issuance or renewal.

b. Water Column Translations

Because the Mercury Water Quality Objectives (Chapter III.D) are fish tissue based and not water column based, fish tissue based water quality objectives were converted to water column values (denoted as "C") to be used for reasonable potential analysis and development of effluent limitations. The applicable value of C that corresponds with the water body/beneficial use designations in Table 1 shall be used to determine a discharger's REASONABLE POTENTIAL and any applicable effluent limitation (see Chapter IV.D.2.c). The PERMITTING AUTHORITY shall use its best judgement to assign the most appropriate water body type (in Table 1) based on the receiving water's potential for methylation during the period of discharge(s). Alternatively, a site-specific water column concentration value for C can be developed as described in Chapter IV.D.2.b.1, below.

Table 1. Values for C (water column concentration) based on water body type and beneficial use.

Beneficial Use of the Receiving Water	**COMM, CUL, WILD, MAR, RARE**	**COMM, CUL, WILD, MAR, RARE**	**COMM, CUL, T-SUB, WILD, MAR, RARE**	**T-SUB**	**T-SUB**	**SUB**
Water body type	Flowing water bodies (generally, rivers, creeks, streams, and waters with tidal mixing)	Slow moving water bodies** (generally, lagoons, closed estuaries, and marshes)	Lakes and reservoirs	Flowing water bodies (generally, rivers, creeks, streams, and waters with tidal mixing)	Slow moving water bodies** (generally, lagoons, closed estuaries, and marshes)	Any
Value for "C"	12 ng/L total mercury	4 ng/L total mercury	Case-by-case*	4 ng/L total mercury	1 ng/L total mercury	Case-by-case*

*The PERMITTING AUTHORITY shall calculate C from the water quality objective, and may use available data, including U.S. EPA's recommended national bioaccumulation factors and chemical translators.

**Slow moving water bodies are stationary or relatively still water bodies that are expected to have higher potential to methylate mercury than flowing water bodies.

1) Site-Specific Water Column Translations

The PERMITTING AUTHORITY may develop a site-specific water column concentration value (C) by utilizing a site-specific BIOACCUMULATION FACTOR, linear regression model[7], or peer-reviewed model, derived from a study of the receiving water downstream of the discharge. The study must consider seasonal

[7] The linear regression analysis is a fish tissue based analysis that directly correlates water-body specific mercury fish tissue concentration to mercury water column concentrations.

variation including, at a minimum, data from three separate time points. Data collected at each time point must all be collected on the same day from within the same vicinity and must include a minimum of: 1) four total mercury water column samples, 2) four dissolved methylmercury water column samples, and 3) ten mercury fish tissue samples. The fish tissue samples shall be from TROPHIC LEVEL 4 FISH, but if TROPHIC LEVEL 4 FISH are not the HIGHEST TROPHIC LEVEL FISH in the water body, then the samples shall be from the size of fish that corresponds with the Prey Fish Water Quality Objective or California Least Tern Prey Fish Water Quality Objective, whichever is applicable (see Chapter III.D.2). The sampling time points shall be at least 90 days apart. If TROPHIC LEVEL 4 FISH are not the HIGHEST TROPHIC LEVEL FISH in the water body, then two of the sampling time points shall occur during the breeding season for the applicable water quality objective. A site-specific BIOACCUMULATION FACTOR shall be calculated as the mean methylmercury tissue concentration in one trophic level divided by the mean methylmercury concentration in water. Multiple bioaccumulation factors from different time points or different species shall be combined using a geometric mean. To derive water column concentration in the form of total mercury, a chemical translator must also be used to convert form methylmercury to total mercury.[8]

c. Determining Whether a Discharge Requires an Effluent Limitation for Mercury

1) Reasonable Potential Analysis

A PERMITING AUTHORITY is required to apply section 1.3 of the State Water Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (generally referred to as the SIP) (pages 5-8), to determine whether a discharge has REASONABLE POTENTIAL, in which case the permit must contain a water quality-based effluent limitation.

To determine REASONABLE POTENTIAL, the PERMITTING AUTHORITY shall apply Steps 1-8 of section 1.3 of the SIP, as modified by the following:

Step 1: Replace Step 1 of the SIP with the following: Identify the applicable water column concentration (C) for the lowest (most stringent) mercury water quality objective applicable to the receiving water in accordance with Chapter IV.D.2.b.

Step 3: Replace Step 3 of the SIP with the following: Determine the mercury concentration for the effluent using the highest observed annual average effluent mercury concentration. The annual average shall be calculated as an arithmetic mean of all effluent mercury samples during a CALENDAR YEAR. For any sample reported as below the detection limit, one half of the detection limit shall be used to calculate the arithmetic mean. For any sample reported as below the quantitation limit and above the detection limit, the estimated concentration shall be used to calculate the arithmetic mean. The annual average concentration is used to account for the long-term nature of the methylmercury bioaccumulation process,

[8] See U.S. EPA, Water Quality Criteria for the Protection of Human Health: Methylmercury (EPA-823-R-01-001, Jan. 2001), app. A, pp. A-19 to A-25 (describes the chemical translators and provides national translators to convert form methylmercury to total mercury).

which may not otherwise be reflected using the maximum concentration as required by the SIP.

Step 4: Apply as set forth in the SIP, but utilize the annual average mercury concentration from Step 3 (rather than an MEC) to compare to the C from Step 1.

Step 5: Apply as set forth in the SIP, but replace the determination of the "maximum" ambient background concentration for mercury (denoted as B in the SIP), with the highest observed annual average ambient background concentration. The annual average shall be calculated as an arithmetic mean, as described in Section 1.4.3.2 of the SIP, except if the sample is below the reported detection limit, then one half of the detection limit shall be used, using all ambient background total mercury samples collected during a CALENDAR YEAR.

Step 6: Replace Step 6 of the SIP with the following: A water quality-based effluent limitation is not required unless the highest observed annual effluent mercury concentration is greater than C. However, if B is greater than C, and mercury is detected in the effluent, effluent monitoring is required. Regardless as to whether B is greater or less than C, and whether mercury is detected in the effluent, proceed to Step 7 of the SIP.

2) Calculation of the Effluent Limitations

If, upon the completion of applying the REASONABLE POTENTIAL analysis set forth in Chapter IV.D.2.c.1, and the Permitting Authority does not establish effluent limitations for mercury in accordance with section 1.4.4 of the SIP (Intake Water Credits), a water quality based effluent limitation is required, then the PERMITTING AUTHORITY shall calculate the effluent limitation as follows:

The PERMITTING AUTHORITY shall apply Steps 1-7 contained in part B of section 1.4 of the SIP as modified by Chapter IV.D.2.c.2.i, below. If, however, an EXISTING MERCURY TMDL is in effect for the applicable water body that implements a water quality objective other than one of the MERCURY WATER QUALITY OBJECTIVES, as applicable, for CUL, T-SUB, or SUB, the PERMITTING AUTHORITY may apply Chapter IV.D.2.c.2.ii, below. In applying Chapter IV.D.2.c.2.ii, the Permitting Authority may utilize an EXISTING MERCURY TMDL and a new mercury TMDL as described in the last paragraph in Chapter IV.D.1.

i. Steps 1 through 7.
Step 1: Replace Step 1 of the SIP with the following: Use the same value for C as used for the REASONABLE POTENTIAL analysis in Chapter IV.D.2.c.1, Step 1, rather than the applicable fish tissue mercury water quality objective. If data are insufficient to calculate the effluent limitation, the PERMITTING AUTHORITY shall establish interim requirements in accordance with section 2.2.2 of the SIP.

Step 2: Apply as set forth in the SIP, except the ambient background concentration (referred to as B in the SIP) shall be calculated as an arithmetic mean as described in Section 1.4.3.2 of the SIP. A dilution credit should be denied if the mercury concentration in fish tissue from fish in the receiving water exceeds the applicable MERCURY WATER QUALITY OBJECTIVES and other information indicates a lack of assimilative capacity, including the

hydraulics of the water body, potential for bioaccumulation, or other pertinent factors.

Steps 3-5: Skip Steps 3-5.

Step 6: Apply as set forth in the SIP but set the effluent limitation as an average of the total mercury concentration in a CALENDAR YEAR equal to the effluent concentration allowance (ECA) (from Step 2).

Step 7: Skip Step 7.

ii. Existing Mercury TMDL

If the discharger is assigned a waste load allocation by the EXISTING MERCURY TMDL, the interim effluent limitation and final effluent limitation may be established as follows:

Interim effluent limitations. If the discharger demonstrates that the discharger is not immediately able to achieve compliance with the effluent limitation calculated by applying Chapter IV.D.2.c.2.i, above, the interim effluent limitation may be based on the requirements of the applicable waste load allocation in the EXISTING MERCURY TMDL applicable to the discharger, so long as: (a) the discharger is subject to a time schedule to complete FEASIBLE tasks to control mercury, if any, in addition to those currently underway, including the development of a proposed schedule for future source control tasks, and (b) the discharger makes a commitment to support, participate in, and expedite the development of a TMDL to implement any of the MERCURY WATER QUALITY OBJECTIVES and associated beneficial uses (CUL, T-SUB, SUB) (i.e., referred to herein as the new mercury TMDL). The time schedule to complete the additional tasks shall be specified in the permit and shall reflect a realistic assessment of the shortest practicable time required to perform each task.

The interim effluent limitation may apply until the new mercury TMDL is in effect, provided the new mercury TMDL is in effect within ten years from the effective date of the first permit that included the interim effluent limitation.

Final effluent limitations. If no new mercury TMDL is in effect within ten years from the effective date of the first permit that included the interim effluent limitation, the final effluent limitation shall be calculated in accordance with Chapter IV.D.2.c.2.i and shall take effect ten years from the effective date of the first permit that included the interim effluent limitation. If a new mercury TMDL is in effect within ten years from the effective date of the first permit that included the interim effluent limitation, the final effluent limitation shall be based on the applicable waste load allocation assigned to the discharger by the new mercury TMDL for the water quality standard under evaluation.

d. Methods, Routine Monitoring, and Compliance Schedules

1) Methods. For monitoring total mercury in effluent, the discharger shall use any U.S. EPA-approved method that has a quantitation limit lower than the effluent limitation. For monitoring receiving water, the discharger shall use any U.S. EPA-approved method that has a quantitation limit lower than 0.5 ng/L for total mercury, and lower than 0.06 ng/L for methylmercury.

2) Routine Monitoring. The following are the minimum monitoring requirements for dischargers assigned an effluent limitation, but the PERMITTING AUTHORITY may require dischargers to conduct additional monitoring. The rationale for requiring additional mercury monitoring must be documented in the NPDES fact sheet or equivalent document.

   i. Dischargers with mercury effluent limitations that are authorized to discharge at a rate equal to or greater than five million gallons per day are required to conduct routine total mercury monitoring in the effluent at a frequency no less than once each CALENDAR QUARTER for the duration of the permit.

   ii. Dischargers with mercury effluent limitations that are authorized to discharge at a rate less than five million gallons per day are required to conduct routine total mercury monitoring in the effluent at a frequency no less than once each year for the duration of the permit.

   iii. Dischargers without mercury effluent limitations are required to conduct total mercury monitoring in the effluent at a frequency of no less than once per permit term.

3) Compliance Determination. The annual average mercury concentration in the effluent shall be calculated as an arithmetic mean of all mercury effluent samples collected during a CALENDAR YEAR. For any sample reported as below the detection limit, one half of the detection limit shall be used to calculate the arithmetic mean. For any sample reported as below the quantitation limit and above the detection limit, the estimated concentration shall be used to calculate the arithmetic mean.

4) Compliance Schedule. The PERMITTING AUTHORITY may include a compliance schedule in NPDES permits to achieve the mercury effluent limitation in accordance with the Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits (State Water Board Resolution No. 2008-0025). (Compliance Schedule Policy). The duration of the compliance schedule in a permit may not exceed ten years from the date of the adoption, revision, or new interpretation of the applicable water quality objective, except where a compliance schedule in a permit is established in a "single permitting action" or implements or is consistent with the waste load allocations specified in a TMDL, as provided by the Compliance Schedule Policy. If a compliance schedule is authorized in a permit, interim requirements and final effluent limitation shall be included, as provided by the Compliance Schedule Policy. The compliance schedule may also include requirements consistent with Chapter IV.D.2.c.2.ii, if applicable.

e. Exceptions to the Reasonable Potential Analysis

1) Small Disadvantaged Communities. The PERMITTING AUTHORITY is authorized to exempt POTWs only serving SMALL DISADVANTAGED COMMUNITIES from some or all of the provisions of Chapter IV.D.2 if the PERMITTING AUTHORITY makes a finding that the discharge will have no REASONABLE POTENTIAL[9] with respect the applicable MERCURY WATER QUALITY OBJECTIVES. For POTWs

[9] The PERMITTING AUTHORITY is not required to follow the prescriptive requirements of Chapter IV.D.2.c to make a finding that the discharge has no REASONABLE POTENTIAL.

only serving SMALL DISADVANTAGED COMMUNITIES that do not have an effluent discharge prior to permit issuance or renewal that is representative of the quality of the proposed discharge, the PERMITTING AUTHORITY is authorized to make this determination and exempt the POTW only after the first year of effluent discharge.

If exempt, the PERMITTING AUTHORITY shall have the discretion to assign routine monitoring as necessary. Routine monitoring schedules for POTWs only serving SMALL DISADVANTAGED COMMUNITIES shall not exceed the applicable frequency specified in Chapter IV.D.2.d.2 for the discharger's authorized rate of discharge.

2) Insignificant Discharges. The PERMITTING AUTHORITY is authorized to exempt certain dischargers from some or all of the provisions of Chapter IV.D.2 if the PERMITTING AUTHORITY makes a finding that the discharge will have no REASONABLE POTENTIAL[10] with respect to the applicable MERCURY WATER QUALITY OBJECTIVES.

If exempt, the PERMITTING AUTHORITY shall have the discretion to assign routine monitoring as necessary. Routine monitoring schedules for INSIGNIFICANT DISCHARGES shall not exceed the applicable frequency specified in Chapter IV.D.2.d.2 for the discharger's authorized rate of discharge.

3) Intake Water. The PERMITTING AUTHORITY is authorized to exempt a facility from some or all of the provisions of Chapter IV.D.2 if the PERMITTING AUTHORITY makes a finding that the sole source of the mercury in the effluent is shown to be from intake water from surface water and the facility discharges to the source water body.

3. Storm Water Discharges

a. Applicability

Chapter IV.D.3 applies to storm water dischargers regulated under general and individual NPDES STORM WATER permits issued pursuant to Clean Water Act section 402, subsection (p). The PERMITTING AUTHORITY shall include the requirements in Chapter IV.D.3.b in individual and general NPDES STORM WATER permits when adopting or re-issuing the permits.

b. Municipal Separate Storm Sewer Systems

1) Phase I and Phase II MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) permits shall include a combination of the following mercury pollution prevention and pollution control measures to reduce total mercury or methylmercury discharges:12 All of the following control measures are required, except, at the discretion of the PERMITTING AUTHORITY, additional measure(s) may be substituted for one or more measures if the substituted measure(s) would provide an equivalent level of control or prevent total mercury or methylmercury pollution. If the PERMITTING AUTHORITY substitutes other measures, the justification shall be documented in the permit fact sheet or equivalent document.

[10] See footnote [9].

The effort involved in each of the required measures shall be proportional to the size and population of the MS4.

i. Thermometer exchange programs and fluorescent lamp recycling programs, or enhancement of household hazardous waste collection programs to better address mercury-containing waste products (potentially including thermometers and other gauges, batteries, fluorescent and other lamps, switches, relays, sensors and thermostats).

ii. Public education and outreach on disposal of household mercury-containing products and use of non-mercury containing alternatives.

iii. Education of auto dismantlers on how to remove, store, and dispose of mercury switches in autos.

iv. Survey of use, handling, and disposal of mercury-containing products used by the MS4 discharger agencies and development of a policy and time schedule for eliminating the use of mercury containing products by the discharger.

2) The PERMITTING AUTHORITY may include best management practices to control erosion in MS4 permits. However, the MS4 permit shall contain best management practices for AREAS WITH ELEVATED MERCURY CONCENTRATIONS.

c. Industrial Activities

Upon reissuance, the State Water Board shall revise the existing Numeric Action Level (NAL) for total mercury in the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit) from 1400 ng/L to 300 ng/L or lower.

4. Mine Site Remediation

The PERMITTING AUTHORITY shall require dischargers to implement erosion and sediment control measures to prevent or control mercury in discharges when adopting, re-issuing, or modifying WDRs or waivers of WDRs for dischargers subject to the requirements of Title 27 of the California Code of Regulations, section 22510 (closure and post-closure of mining sites), from land where mercury was mined or mercury was used during ore processing.

5. Nonpoint Source Discharges

The PERMITTING AUTHORITY has discretion under existing law to require dischargers to implement erosion and sediment control measures in WDRs or waivers of WDRs, and should consider requiring such measures in AREAS WITH ELEVATED MERCURY CONCENTRATIONS when adopting, re-issuing, or modifying a WDRs or waiver of WDRs.

6. Dredging Activities

The PERMITTING AUTHORITY has discretion under existing law to require dischargers to implement total mercury monitoring and procedures to control the disturbance and

discharge of mercury-contaminated material during dredging and disposal of dredged material, and should consider requiring such measures in AREAS WITH ELEVATED MERCURY CONCENTRATIONS when adopting, re-issuing, or modifying a water quality certification, WDRs, or waiver of WDRs.

7. Wetland Projects

The PERMITTING AUTHORITY has discretion under existing law to require project applicants that establish (create) or restore wetlands to include design features or management measures to reduce the production of methylmercury in the wetland, including minimizing the wetting and drying of soil by keeping the wetland flooded and sediment control measures to reduce the transport of total mercury or methylmercury out of the wetland, and should consider requiring such measures in AREAS WITH ELEVATED MERCURY CONCENTRATIONS, when adopting, re-issuing, or modifying water quality certifications, WDRs, or waivers of WDRs.

Attachment A. Glossary

AREAS WITH ELEVATED MERCURY CONCENTRATIONS: Areas with elevated mercury concentrations include the following areas:

1) Areas located in the Coast Range mountains with naturally mercury-enriched soil or sediments with total mercury concentrations of 1 mg/kg or higher;
2) Areas located in an industrial area with soil or sediments with total mercury concentrations of 1 mg/kg or higher;
3) Areas located within historic mercury, silver, or gold mine tailings;
4) Areas located within historic hydraulic gold mining pits in the Sierra Nevada mountain range;
5) Any other area(s) determined and documented by the PERMITTING AUTHORITY in the applicable order.

BIOACCUMULATION: A process in which an organism's body burden of a pollutant exceeds that of its surrounding environment as a result of chemical uptake through all routes of chemical exposure: dietary and dermal absorption and transport across the respiratory surface.

BIOACCUMULATION FACTOR: The ratio of the concentration of a contaminant in the tissue of the organism to the concentration of the contaminant in the surrounding ambient water (see BIOACCUMULATION). A bioaccumulation factor (BAF) can be used to estimate the concentration of the chemical in water (C_{water}) that corresponds to concentration of chemical in fish tissue (C_{tissue}) using the following equation:

$$\mathrm{BAF} = \frac{C_{tissue}}{C_{water}}$$

CALENDAR MONTH: A period of time from a day of one month to the corresponding day of the next month if such exists, or if not to the last day of the next month (e.g., from January 3 to February 3 or from January 31 to February 29).

CALENDAR QUARTER: A period of time defined as three consecutive calendar months.

CALENDAR YEAR: A period of time defined as twelve consecutive CALENDAR MONTHS.

CALIFORNIA NATIVE AMERICAN TRIBE(S): A federally-recognized California tribal government listed on the most recent notice of the Federal Register or a non-federally recognized California tribal government on the California Tribal Consultation List maintained by the California Native American Heritage Commission.

EXISTING MERCURY TMDL: A total maximum daily load for mercury approved by U.S. EPA for a COMM, WILD, or RARE beneficial use.

FEASIBLE: Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

HIGHEST TROPHIC LEVEL FISH: Either TROPHIC LEVEL 3 or TROPHIC LEVEL 4 fish, whichever is the highest trophic level in the water body that is caught during monitoring, assessment, or other studies, that meet applicable quality assurance requirements.

INSIGNIFICANT DISCHARGES: NPDES discharges that are determined to be a very low threat to water quality by the PERMITTING AUTHORITY.

LEGAL SIZE LIMIT: The size limits of fish species for recreational fishing, established by title 14, California Code of Regulations sections 5.00 through 5.95.

LIFEWAYS: Any customs, practices, or art of a CALIFORNIA NATIVE AMERICAN TRIBE.

MERCURY PROVISIONS: The MERCURY WATER QUALITY OBJECTIVES and the implementation of those water quality objectives contained in Chapters III and IV, respectively.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4s): Same meaning as set forth in 40 Code of Federal Regulations, section 122.26(b)(8).

PERMITTING AUTHORITY: The State Water Board or Regional Water Board, whichever issues the permit or water quality certification.

PUBLICLY OWNED TREATMENT WORKS (POTWs): Facilities owned by a state or municipality that store, treat, recycle, and reclaim municipal sewage or industrial wastes of a liquid nature.

REASONABLE POTENTIAL: A designation used for a waste discharge that is projected or calculated to cause or contribute to an excursion above a water quality standard.

SMALL DISADVANTAGED COMMUNITIES: Municipalities with populations of 20,000 persons or less, or a reasonably isolated and divisible segment of a larger municipality encompassing 20,000 persons or less, with an annual median household income that is less than 80 percent of the statewide annual median household income.

STORM WATER: Same meaning as set forth in 40 Code of Federal Regulations section 122.26(b)(13).

TROPHIC LEVEL 3 FISH (TL3): Fish that consume mainly zooplankton, benthic invertebrates, and small, phytoplankton-dependent fish. Species include rainbow and brook trout, blue gill, sunfishes, suckers, and bullhead. Examples are shown in Attachment C.

TROPHIC LEVEL 4 FISH (TL4): Fish that consume TROPHIC LEVEL 3 fish and other aquatic organisms. Species include largemouth, smallmouth, spotted, and striped bass; brown and lake trout; catfish, and Sacramento pikeminnow. Examples are shown in Attachment C.

WET WEIGHT: Wet weight is part of the format for expressing the concentration of methylmercury in fish tissue. The mercury water quality objectives are expressed as a mass of methylmercury per mass of fresh or “wet” fish tissue. Concentrations expressed as methylmercury in dry weight of fish are not equivalent and must be converted to concentration on a wet weight basis if being compared with the objectives and targets.

Attachment B. Mercury Prey Fish Decision Diagram

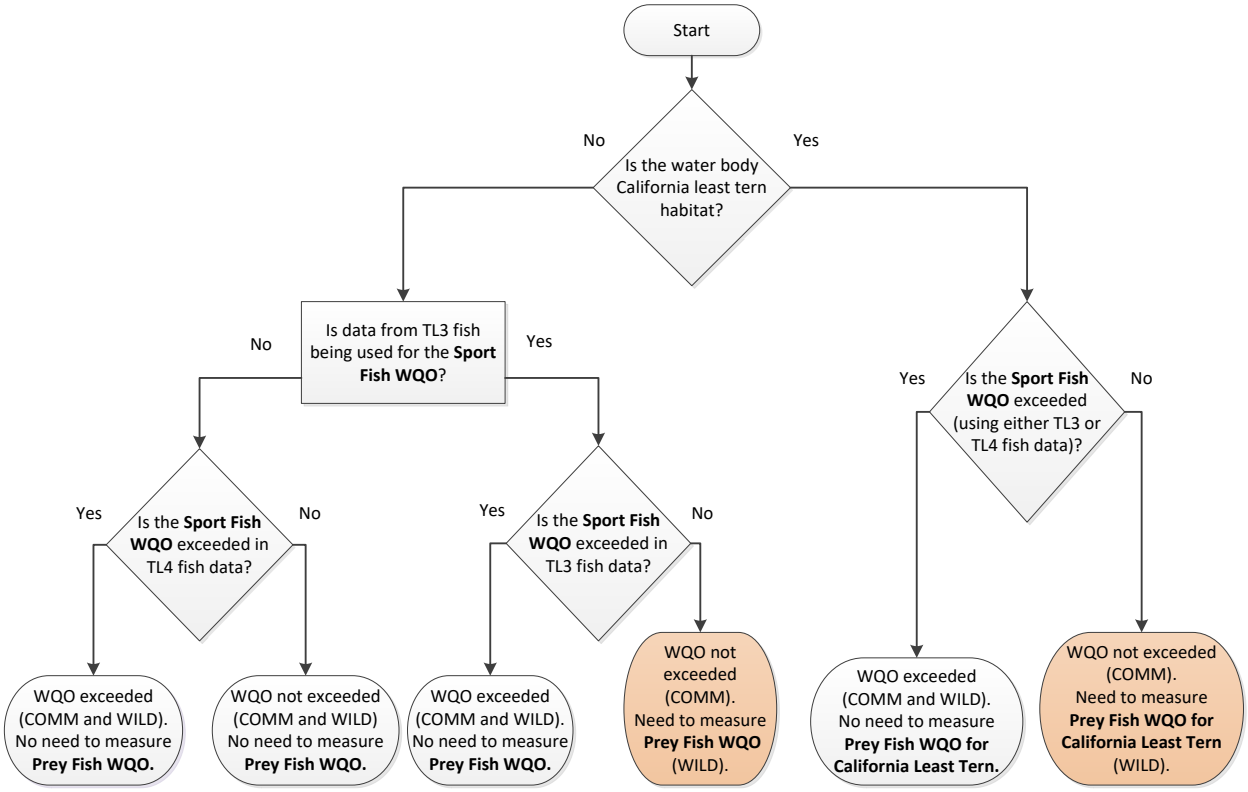

Figure B-1. Determining the need for application of mercury prey fish water quality objectives.

In some water bodies, the Sport Fish Water Quality Objective will not be sufficient to ensure wildlife beneficial uses are protected and one of the prey fish objectives needs to be measured (orange ovals, see also Chapter III.D.2.a.1). This decision depends on whether data from TROPHIC LEVEL 3 (TL3) or TROPHIC LEVEL 4 (TL4) fish are used and other factors as shown in the diagram. The wildlife-related beneficial uses are noted as WILD (Wildlife Habitat) in this diagram, but the applicable use may be Marine Habitat (MAR) or others. The Sport Fish Water Quality Objective protects beneficial use of Commercial and Sport Fishing (COMM) as well as Tribal Tradition and Culture (CUL) and wildlife beneficial uses. See Chapter III.D.2 for full details.

Attachment C. Fish Trophic Level Classifications

Table C-1 and Table C-2 show trophic level classifications for common species and sizes for comparison with the Sport Fish Water Quality Objective, the Tribal Subsistence Fishing Water Quality Objective, and the Subsistence Fishing Water Quality Objective. These tables do not include all possible species.

Table C-1. Freshwater trophic level classifications.

Freshwater Fish Trophic Levels	
TROPHIC LEVEL 4 **Unless other size is noted, fish must be within the LEGAL SIZE LIMIT and 200 to 500 mm total length**	**TROPHIC LEVEL 3** **Unless other size is noted, fish must be within the LEGAL SIZE LIMIT and 150 to 500 mm total length**
Black Crappie	Black Bullhead
Brown Trout	Bluegill
Channel Catfish	Brook trout
Lake Trout	Brown Bullhead
Largemouth Bass	Chinook salmon*
Sacramento Pikeminnow	Common Carp
Smallmouth Bass	Crayfish (> 30 mm)
Spotted Bass	Kokanee
Striped Bass	Pumpkinseed
White Catfish	Rainbow Trout
White sturgeon*	Redear Sunfish
	Sacramento Sucker
	Tule Perch
*Acceptable if longer than 500 mm, as long as within the LEGAL SIZE LIMIT	

Table C-2. Marine and estuarine trophic level classifications.

Marine/Estuarine Fish Trophic Levels	
TROPHIC LEVEL 4 **Unless size is noted, fish must be within the LEGAL SIZE LIMIT longer than 150 mm total length**	**TROPHIC LEVEL 3** **Unless size is noted, fish must be within the LEGAL SIZE LIMIT and longer than 150 mm total length**
Barred Sand Bass*	Black Perch
Gopher Rockfish*, and various other rockfish*, except Blue Rockfish	Blue Rockfish*
Kelp Bass*	Chub Mackerel
Leopard Shark	Opaleye
Spotted Sand Bass*	Pile Perch
Striped Bass	Rainbow Surfperch
Yellowfin Croaker*	Striped Mullet
	Shiner Surfperch
*Basses (Serranidae), Rockfish (Sebastidae), and Croaker (Sciaenidae) shall be within the LEGAL SIZE LIMIT and 150 to 500 mm total length for comparison with Sport Fish Water Quality Objective	

Attachment D. Waters Protected by the Mercury California Least Tern Prey Fish Water Quality Objective

Table D-1. Applicable waters for the California Least Tern Prey Fish Water Quality Objective.

RB*	MA**	County	U.S. FWS Site Name	Applicable Inland Surfaces Waters, Enclosed Bays and Estuaries
2	A	Alameda	Alameda Naval Air Station	A water quality objective that is protective of California least tern has already been adopted for Lower San Francisco Bay
		Alameda	Alvarado Salt Ponds	
		Alameda	Oakland Airport	
		San Mateo	Bair Island	Bair Island Marsh
3	B	San Luis Obispo	Pismo Beach	Pismo Creek Estuary, Pismo Creek, Arroyo Grande Estuary, Arroyo Grande Creek, downstream (Oceano Lagoon, Meadow Creek, Pismo Marsh (Lake), Los Berros Creek), Big Pocket Lakes (Dune Lakes)
		San Luis Obispo	Oso Flaco Lake	Oso Flaco Lake, Oso Flaco Creek
3	C	Santa Barbara	Santa Maria River	Santa Maria Estuary, Santa Maria River (except Corralitos Canyon Creek, Sisquoc River, downstream), Orcutt Creek
3	D	Santa Barbara	San Antonio Creek	San Antonio Creek, San Antonio Creek Estuary
		Santa Barbara	Purisima Point (North, South)	None (only ocean waters)
		Santa Barbara	Santa Ynez River	Santa Ynez River Estuary, Santa Ynez River, downstream
4	E	Ventura	Santa Clara River	Santa Clara River Estuary, Santa Clara River Reach 1,
4	F	Ventura	Ormond Beach	Ormond Beach Wetlands
		Ventura	Mugu Lagoon	Calleguags Creek Reach 1 (also called Mugu Lagoon)
4	G	Los Angeles	Venice Beach	Ballona lagoon, Marina Del Rey (except Harbor),
		Los Angeles	Playa del Rey	Ballona Wetlands, Ballona Creek Estuary
4	H	Los Angeles	Terminal Island	Los Angeles/Long Beach Inner Harbor, Los Angeles/Long Beach Outer Harbor
		Los Angeles	San Gabriel River	Alamitos Bay: Los Cerritos Wetlands, San Gabriel Estuary, Los Cerritos Channel Estuary, Long Beach Marina
4	I	Los Angeles	Cerritos Lagoon	
		Los Angeles	Costa Del Sol	
8	J	Orange	Anaheim Bay	Anaheim Bay
		Orange	Surfside Beach	Anaheim Bay
8	K	Orange	Bolsa Chica (North, South)	Bolsa Bay, Bolsa Chica Ecological Reserve
8	L	Orange	Huntington Beach	Santa Ana River Salt Marsh, Tidal Prism of Santa Ana River (to within 1000' of Victoria Street) and Newport Slough
8	M	Orange	Upper Newport Bay	Upper Newport Bay
9	N	San Diego	San Mateo Creek	San Mateo Creek Mouth

		San Diego	Aliso Creek	Aliso Canyon (in San Onofre Creek Watershed. Not in Orange County)
		San Diego	Santa Margarita River	Santa Margarita Lagoon
9	**O**	San Diego	Buena Vista Lagoon	Buena Vista Creek
9	**P**	San Diego	Agua Hedionda Lagoon	Agua Hedionda Lagoon
9	**Q**	San Diego	Batiquitos Lagoon	Batiquitos Lagoon
9	**R**	San Diego	San Elijo Lagoon	San Elijo Lagoon
9	**S**	San Diego	San Dieguito Lagoon	San Dieguito Lagoon
		San Diego	Whispering Palms Encinitas	None (no longer suitable habitat)
9	**T**	San Diego	Los Penasquitos Lagoon	Los Penasquitos Lagoon
9	**U**	San Diego	FAA Island	Mission Bay
		San Diego	North Fiesta Island	Mission Bay
		San Diego	Stony Point	Mission Bay
		San Diego	South Sea World Drive	Mission Bay, San Diego River Estuary
		San Diego	Clover Leaf	Mission Bay, San Diego River Estuary
9	**V**	San Diego	Naval Training Center	San Diego Bay
		San Diego	San Diego Int. Airport	San Diego Bay
		San Diego	Chula Vista Wildlife Reserve	San Diego Bay
		San Diego	Sweetwater River	Sweetwater River, Hydrologic Unit Basin Number 9.21, San Diego Bay
		San Diego	North Island	San Diego Bay
		San Diego	Delta Beach	San Diego Bay
		San Diego	Coronado Cays	San Diego Bay
		San Diego	Saltworks	San Diego Bay
9	**W**	San Diego	Tijuana River Mouth	Tijuana River Estuary

* Regional Water Board

**US FWS California Least Tern Coastal Management Areas (US FWS 2006).