# APPENDIX B

## SUISUN MARSH:

## PROPOSED BASIN PLAN AMENDMENT

showing changes since January 12, 2018

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*Changes to the January 12, 2018, version circulated for public comment are shown in double underline and ~~double strike~~ through mode. Double underline represents new text, and double strike through represents newly deleted text.*

# PROPOSED BASIN PLAN AMENDMENT

*The following text is to be inserted into Section 3.3.5 Dissolved Oxygen.*

For Suisun Marsh, the following objectives shall apply:

| DO Objectives | DO concentrations | Applicability |
|---|---|---|
| Acute objective | 3.8 mg/l minimum (daily average) | Year-round in all sloughs and channels |
| Chronic objectives | 5.0 mg/l minimum (30-day running average) | Year-round in all sloughs and channels |
| | 6.4 mg/l minimum (30-day running average) | January 1 through April 30 in Montezuma, Nurse, and Denverton sloughs only |

*The following text is to be inserted into Chapter 7: Water Quality Attainment Strategies Including Total Maximum Daily Loads.*

### 7.9.1 Suisun Marsh Low Dissolved Oxygen/Organic Enrichment TMDL

The following sections establish the ~~total maximum daily load (~~TMDL~~)~~ for dissolved oxygen (DO) in Suisun Marsh ~~sloughs~~ wetlands. The numeric targets, allocations, and implementation plan are designed to attain the numeric water quality objectives set forth in Section 3.3.5, reduce occurrences of anthropogenically-induced low DO in Suisun Marsh wetlands, specifically in sloughs and channels, and protect beneficial uses for aquatic life (i.e., EST, MIGR, RARE, and SPWN).

#### 7.9.1.1 Problem Statement

Low DO events resulting from environmental conditions and management actions in some managed wetlands adversely impact the aquatic life beneficial uses in Suisun Marsh. These problems are particularly evident in the slow-flowing, low-mixing, back-end sloughs that dominate the western portion of the marsh. In fall, these sloughs experience low DO conditions caused by bacterial decomposition of vegetation in managed wetlands (e.g., duck clubs), leading to surface water that is anaerobic or has low levels of DO. When this water is drained from managed wetland properties, receiving waters in sloughs become degraded. Fish kills were observed in the western marsh with associated low DO conditions between 2000 and 2009. The extent of the environmental impacts of water released from managed wetlands depends on the residence time of the low DO water in the receiving water. Residence time is dependent on the amount of tidal circulation within the sloughs. Large tidal sloughs, such as Montezuma or Nurse sloughs, exchange water rapidly and thus are not as prone to low DO problems. Small and especially dead-end sloughs experience less tidal exchange and longer residence times and, consequently, are particularly susceptible to low DO problems.

This TMDL focuses on resolving DO impairment of named and unnamed sloughs and channels in the western part of Suisun Marsh, including but not limited to Peytonia, Boynton, Sheldrake, Cordelia, and Goodyear sloughs.

#### 7.9.1.2 Numeric Targets

The TMDL targets in Table 7.9.1-1 are the water quality objectives for dissolved oxygen designed to protect sensitive fish and invertebrates, thereby generally protecting aquatic organisms in Suisun Marsh sloughs and channels.

**Table 7.9.1-1 Numeric Targets and TMDL for Suisun Marsh**

| Waterbody/Timeframe | Dissolved Oxygen Concentrations | |
|---|---|---|
| Suisun Marsh - All sloughs and channels / year-round | acute | ≥ 3.8 mg/L [a] |
| | chronic | ≥ 5.0 mg/L [b] |
| Montezuma, Nurse, and Denverton sloughs / January through April | chronic | ≥ 6.4 mg/L [b] |

[a] Expressed as 1-day average

[b] Expressed as 30-day running average

The acute DO objective (3.8 mg/L) ensures protection of juvenile and adult fish survival, and the chronic objective (5 mg/L) ensures protection of larval and juvenile growth effects under long-term exposure. The 6.4 mg/L chronic objective protects listed juvenile salmonids using the marsh as a migratory path. The acute objective is attained when the average daily DO concentrations are at or above 3.8 mg/L, and the chronic objectives are attained when average monthly (30-day) DO concentrations are at or above 5.0 mg/L or 6.4 mg/L in the applicable waterbodies. Continuous data collected at regular intervals (every 15 to 60 minutes) are needed to fully evaluate whether the objectives are met. A daily average is the arithmetic average of all DO measurements collected within a 24-hour period. The 30-day running average is the arithmetic average of daily averages for any 30 consecutive days. Each subsequent 30-day average is computed by sliding the averaging window by one day. Attainment of these objectives will ensure that conditions in the sloughs support the most sensitive aquatic life beneficial uses present.

### 7.9.1.3 Sources

Low dissolved oxygen is a common aquatic system response to elevated organic matter inputs. Tidal marshes and managed wetlands are naturally rich in organic matter due to the growth of wetland plants and their subsequent decay, which consumes oxygen. The natural tendency for organic enrichment in wetland environments is exacerbated in Suisun Marsh due to wetland management activities. Flooding and draining cycles and vegetation management practices at managed wetlands induce releases of organic carbon from wetland soils and vegetation beyond what would naturally occur. Other sources of organic oxygen demanding substances (carbon and nutrients) include the treated wastewater discharge from the Fairfield-Suisun ~~Sanitary~~ Sewer District treatment plant (municipal wastewater), municipal stormwater runoff, and natural biotic processes in the marsh.

### 7.9.1.4 Total Maximum Daily Load and Allocations

The TMDL is equivalent to the TMDL targets in Table 7.9.1-1. The TMDL allocations are summarized in Table 7.9.1-2. These allocations apply year-round. Marsh landowners, the Suisun Resource Conservation District (SRCD), California Department of Fish and Wildlife (CDFW), California Department of Water Resources (DWR), and U.S. Bureau of Reclamation (USBR) are collectively responsible for meeting the managed wetlands allocations.

**Table 7.9.1-2 Wasteload and Load Allocations**

| Source | Allocations |
|---|---|
| | **Wasteload Allocations** |
| Fairfield-Suisun Sewer District (FSSD) NPDES Permit No. CA0038024 | Discharge shall not cause DO concentrations in receiving waters to decrease below 5.0 mg/L June 1-November 15 and 7.0 mg/L during all other times of the year (as 30-day running average) |
| Municipal stormwater runoff in tributaries draining to Suisun Marsh NPDES Permit No. CAS612008 | DO concentrations in local tributaries draining urban areas and discharging to Suisun Marsh shall be ≥ 5 mg/L (as 30-day running average) |
| | **Load Allocations** |
| Managed wetlands | Discharges from managed wetlands shall not cause the DO concentrations in the sloughs to decrease below 3.8 mg/L (as daily average) and 5 mg/L (as 30-day running average) |

### 7.9.1.5 Implementation Plan

The Suisun Marsh wetlands provide habitat for dozens of fish and aquatic invertebrate species, as well as a variety of resident and migratory waterfowl and shorebirds. The intended outcome of the implementation plan is to improve habitat conditions for aquatic organisms and wildlife and to minimize or avoid adverse effects of low DO concentrations. This implementation plan provides directions for implementing the TMDL and allocations and focuses on the following:

- Actions to control internal sources of low DO at managed wetlands;
- Actions to control external sources of low DO from municipal wastewater and municipal stormwater runoff; and
- Actions resulting from Estuary-wide plans and policies.

***Internal sources at managed wetlands***

Load allocations from managed wetlands will be implemented through Clean Water Act section 401 certifications and/or waste discharge requirements issued to responsible parties to attain DO concentrations in sloughs receiving discharges from managed wetlands. The Water Board will continue to require implementation of best management practices (BMPs) and DO monitoring in sloughs to attain the load allocations as part of the 401 certification of the U.S. Army Corps of Engineers' Regional General Permit (RGP). The RGP authorizes managed wetland operation and maintenance activities, including levee stability improvements and maintenance of water control facilities and structures in the marsh. These activities are conducted by private land owners and public entities (CDFW, DWR, and USBR) and coordinated by SRCD. All aforementioned entities are collectively responsible for implementing the provisions required by the 401 certification to achieve the load allocations. The RGP also authorizes the cleaning of interior ditches, including the Goodyear Slough outfall managed by DWR. Maintaining good flow circulation in Goodyear Slough is essential to improving DO conditions in the western marsh. DWR is responsible for conducting the cleaning of the outfall as often as necessary to maintain water circulation and specifically should inspect and clean the outfall before the fall flood up begins at the managed wetlands.

Understanding of DO conditions across the entire marsh slough complex will improve with additional monitoring data over time and space. The information gained through the implementation of BMPs at the managed wetlands in the western portion of the marsh will be

used to refine selection and deployment of BMPs in the future. As a result of adaptive management and monitoring, additional implementation of BMPs could be required in the western marsh or elsewhere depending on implementation progress or if water quality conditions decline in the eastern marsh.

***External sources: municipal stormwater runoff and municipal wastewater***

Municipal stormwater runoff and municipal wastewater discharges have been identified as potential sources of organic material into the marsh sloughs and a potential conveyer of other pollutants that may affect DO (e.g., nutrients). This TMDL does not require new implementation actions because the existing regulatory programs for municipal stormwater runoff and municipal wastewater are in place and will continue to address mercury and dissolved oxygen.

The wasteload allocations for ~~the~~ municipal stormwater shall be implemented through the Municipal Regional Stormwater NPDES permit (MRP) as receiving water limitations. These allocations apply to the City of Fairfield and Suisun City.

The wasteload allocation for the FSSD wastewater treatment plant shall be implemented through ~~the~~ its NPDES permit as receiving water limitations.

***Estuary-wide plans and policies***

Future large-scale tidal marsh restoration efforts, mitigation projects, and new flow and salinity objectives for the Delta and Sacramento and San Joaquin Rivers may result in a more productive aquatic food web in Suisun Marsh and in localized and system-wide changes to DO concentrations. The Water Board will work with the State Water Board and other State and federal agencies managing Suisun Marsh to protect fish and wildlife beneficial uses, and to better manage and improve water quality in Suisun Marsh.

***Evaluation and Monitoring***

Implementing parties are responsible for developing monitoring plans and conducting monitoring sufficient to assess compliance with the wasteload allocations, load allocations, and DO numeric targets established for Suisun Marsh sloughs. ~~The~~ SRCD, together with the managed wetland owners and other agencies (CDFW, DWR, USBR), are required to conduct DO monitoring in the sloughs receiving discharge from managed wetlands, including continuous DO monitoring at compliance points, in order to evaluate whether they are achieving the load allocation and site specific objectives. These entities shall report monitoring results annually to the Water Board, document their efforts to improve water quality, describe the BMPs implemented during the fall discharge period, and coordinate~~ion~~ details among adjacent managed wetlands, with a focus on efforts in the western marsh.

The Water Board will collaborate with other agencies, especially DWR, which operates a network of monitoring sites for the purpose of mitigating adverse impacts on salinity from the State Water Project and Central Valley Project, to identify opportunities to collect additional DO data in Suisun Marsh sloughs. This information will be used to enhance our understanding of DO variability and the extent to which deviations from the DO objectives occur under natural and anthropogenic conditions.

The MRP shall continue to require monitoring of DO to identify stormwater pollutant sources and to evaluate attainment of water quality objectives in ~~the~~ receiving waters.

The FSSD NPDES permit shall continue to require monitoring of DO in receiving waters and implementation of BMPs to maintain optimal treatment performance in relation to DO.

The National Estuarine Research Reserve (NERR) conducts water quality monitoring in the First and Second Mallard sloughs, which represent minimally impacted tidal sloughs. Continued data collection by NERR will assist the Water Board in evaluating the potential effects of climate on the marsh and trends in DO conditions.

*Amend the language of Section 7.2.2 San Francisco Bay Mercury TMDL as follows:*

*Note: since the addition initially proposed will not be added, Section 3.3.21 will not be changed by the proposed Basin Plan amendment and is no longer shown in Appendix A.*

**3.3.21 Objectives for Specific Water Quality Constituents**

The Water Board intends to work towards the derivation of site-specific objectives for the Bay-Delta estuarine system. Site-specific objectives to be considered by the Water Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation. Pending the adoption of site-specific objectives, the objectives in Tables 3-3 and 3-4 apply throughout the region except as otherwise indicated in the tables or when site-specific objectives for the pollutant parameter have been adopted. Site-specific objectives have been adopted for copper in segments of San Francisco Bay (see Figure 7.2.1-01), for nickel in South San Francisco Bay (Table 3-3A), and for cyanide in all San Francisco Bay segments (Table 3-3C). Objectives for mercury that apply to San Francisco Bay ~~and Suisun Marsh~~ are listed in Table 3-3B. Objectives for mercury that apply to Walker Creek, Soulajule Reservoir, and their tributaries, and to waters of the Guadalupe River watershed are listed in Table 3-4A.

**7.2.2 San Francisco Bay Mercury TMDL**

The following sections establish the allowable annual mercury load (Total Maximum Daily Load [TMDL]) to San Francisco Bay, and actions and monitoring necessary to implement the TMDL. The numeric targets, allocations, and associated implementation plan will ensure that all San Francisco Bay segments and Suisun Marsh attain applicable water quality standards, including the mercury water quality objectives set forth in Table 3-3B, established to protect and support beneficial uses.

The TMDL allocations and implementation plan focus on controlling the amount of mercury that reaches the Bay and identifying and implementing actions to minimize mercury bioavailability. The organic form of mercury (methylmercury) is toxic and bioavailable, but information on ways of controlling methylmercury production is limited. However, this is an area of active research and strategies for controlling this process are forthcoming. The effectiveness of implementation actions, monitoring to track progress toward targets, and the scientific understanding pertaining to mercury will be periodically reviewed and the TMDL may be adapted as warranted.

**7.2.2.1 Problem Statement**

San Francisco Bay and Suisun Marsh are ~~is~~ impaired because mercury contamination is adversely affecting existing beneficial uses, including sport fishing, preservation of rare and endangered species, and wildlife habitat. Mercury concentrations in San Francisco Bay fish are high enough to threaten the health of humans who consume them. In addition, mercury concentrations in some bird eggs harvested from the shores of San Francisco Bay are high enough to account for abnormally high rates of eggs failing to hatch.

### 7.2.2.6 Mercury TMDL Implementation

### Wetlands

Wetlands may contribute substantially to methylmercury production and biological exposure to mercury within the Bay. Plans for extensive wetland restoration in the San Francisco Bay region raise the concern that mercury methylation may increase, thereby increasing the amount of mercury entering the food web. Implementation tasks related to wetlands focus on managing existing wetlands and ensuring that new constructed wetlands are designed to minimize methylmercury production and subsequent transfer to the food web. Implementation actions identified in the Suisun Marsh TMDL for dissolved oxygen (Section 7.9.1) are expected to reduce methylmercury production and the overall load of mercury into the Bay.

The Water Board issues Waste Discharge Requirements and Clean Water Act section 401 certifications that set forth conditions related to Bay filling and the construction and management of wetlands. To implement the San Francisco Bay mercury TMDL, the Waste Discharge Requirements and section 401 certifications for wetland projects shall include provisions that the restored wetland region be designed and operated to minimize methylmercury production and biological uptake, and result in no net increase in mercury or methylmercury loads to the Bay. Additionally, ~~projects must include pre- and post-restoration monitoring~~ to demonstrate compliance with the provisions, projects must conduct mercury monitoring or cause such monitoring to be conducted, to determine how tidal wetlands and wetlands restoration impact net methylmercury production and/or bioaccumulation into the food web. Monitoring may be conducted on a project or regional basis. A regional approach to measuring and understanding patterns of ~~in~~ mercury in biosentinel species (e.g., fish) conducted by a discharger-funded regional monitoring program is desirable and should be coordinated across individual restoration projects.

There is much active research on mercury cycling in wetlands. Information about how to manage wetlands to suppress or minimize mercury methylation will be adaptively incorporated into this implementation plan as it becomes available.

*Amend the language of Section 2.2.1, 2.2.2, and Tables 2-2, 2-3, 3-3 and 3-3A as follows:*

## 2.2 EXISTING AND POTENTIAL BENEFICIAL USES

### 2.2.1 SURFACE WATERS

Inland surface waters support or could support most of the beneficial uses described above. The specific beneficial uses for inland streams include municipal and domestic supply (MUN), agricultural supply (AGR), commercial and sport fishing (COMM), freshwater replenishment (~~FRESH~~FRSH), industrial process supply (PRO<u>C</u>), groundwater recharge (GWR), preservation of rare and endangered species (RARE), water contact recreation (REC1), noncontact water recreation (REC2), wildlife habitat (WILD), cold freshwater habitat (COLD), warm freshwater habitat (WARM), fish migration (MIGR), and fish spawning (SPWN).

### 2.2.2 GROUNDWATER

Existing and potential beneficial uses applicable to groundwater in the Region include municipal and domestic water supply (MUN), industrial ~~water~~service supply (IND), industrial process supply (PRO<u>C</u>), agricultural water supply (AGR), groundwater recharge (GWR), and freshwater replenishment to surface waters (~~FRESH~~FRSH). Table 2-2 lists the 28 identified groundwater basins and seven sub-basins located in the Region and their existing and potential beneficial uses.

## Table 2-2: Existing and Potential Beneficial Uses in Groundwater in Identified Basins

| County | Groundwater Basin Name1 | Groundwater Sub-Basin1 | Basin Number1 | MUN[2] | PROC[3] | IND[4] | AGR[5] | FRESH[6] |
|---|---|---|---|---|---|---|---|---|

Notes:

1. Department of Water Resources (DWR) Bulletin 118 "California Groundwater", 2003.
2. MUN = Municipal and domestic water supply.
3. PROC = Industrial process ~~water~~ supply.
4. IND = Industrial service ~~water~~ supply.
5. AGR = Agricultural water supply.
6. FR~~E~~ESH = Freshwater replenishment to surface water; designation will be determined at a later date; for the interim, a site-by-site determination will be made.
7. The existing and potential beneficial uses for groundwater basins listed in the 1995 Basin Plan (Table 2-3) were assigned to the new groundwater basins based on the geographic location of the old basins compared to the new basins. The basin names, such as Westside A, and Westside B, etc., are informal names assigned by the Water Board to preserve the beneficial use designations in the 1995 Basin Plan and do not represent sub-basins identified by the Department of Water Resources.
8. The Santa Clara Valley groundwater basin/Santa Clara groundwater sub-basin is also known as Coyote Valley.
9. This groundwater basin is also located in the North Coast Region (RB1); beneficial uses of groundwater are specified in the Basin Plan for RB1.
10. This groundwater basin is also located in the Central Coast Region (RB3); beneficial uses of groundwater are specified in the Basin Plan for RB3.

E = Existing beneficial uses; based on best available information.

P = Potential beneficial uses; based on best available information.

X = This groundwater basin was not listed in the 1995 Basin Plan; designation will be determined at a later date; for the interim, a site-by-site determination will be made.

See DWR Bulletin 118 (2003) for groundwater basin characteristics.

**Table 2-3: Examples of Existing and Potential Beneficial Uses of Selected Wetlands**

| | TYPE OF WETLAND | | | | |
|---|---|---|---|---|---|
| BENEFICIAL USE | MARINE | ESTUARINE | RIVERINE | LACUSTRINE | PALUSTRINE |
| AGR | | o | o | o | o |
| COLD | | | o | o | o |
| COMM | o | o | | | |
| EST | | o | | | |
| FRESH | | | o | o | o |
| GWR | o | o | o | o | o |
| IND | | o | - | - | |
| MAR | o | | | | |
| MIGR | o | o | o | o | |
| NAV | o | o | o | o | o |
| PROC | | | | | |
| REC-1 | o | o | o | o | o |
| REC-2 | o | o | o | o | o |
| SHELL | o | o | o | | |
| SPWN | o | o | o | o | o |
| WARM | | | o | o | o |
| WILD | o | o | o | o | o |
| RARE | o | o | o | o | o |

NOTE:
o Existing beneficial use
- Potential beneficial use

**Table 3-3: Marine[a] Water Quality Objectives for Toxic Pollutants for Surface Waters (all values in µg/l)**

| Compound | 4-day Average | 1-hr Average | 24-hr Average |
|---|---|---|---|
| Arsenic[b, c, d] | 36 | 69 | |
| Cadmium[b, c, d] | 9.3 | 42 | |
| Chromium VI[b, c, d, e] | 50 | 1100 | |
| Copper[c, d, f, l] | | | |
| Cyanide[g] | | | |
| Lead[b, c, d] | 8.1 | 210 | |
| Mercury[h] | 0.025 | 2.1 | |
| Nickel[b, c, d, l] | 8.2 | 74 | |
| Selenium[i] | | | |
| Silver[b, c, d] | | 1.9 | |
| Tributyltin[j] | | | |
| Zinc[b, c, d] | 81 | 90 | |
| PAHs[k] | | | 15 |

Notes:

a. Marine waters are those in which the salinity is equal to or greater than 10 parts per thousand 95% of the time, as set forth in Chapter 4 of the Basin Plan. Unless a site-specific objective has been adopted, these objectives shall apply to all marine waters except for the South Bay south of Dumbarton Bridge (where the California Toxics Rule (CTR) applies) or as specified in note h (below). For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater (Table 3-4) or marine objectives.

b. Source: 40 CFR Part 131.38 (California Toxics Rule or CTR), May 18, 2000.

c. These objectives for metals are expressed in terms of the dissolved fraction of the metal in the water column.

d. According to the CTR, these objectives are expressed as a function of the water-effect ratio (WER), which is a measure of the toxicity of a pollutant in site water divided by the same measure of the toxicity of the same pollutant in laboratory dilution water. The 1-hr. and 4-day objectives = table value X WER. The table values assume a WER equal to one.

e. This objective may be met as total chromium.

f. Water quality objectives for copper were promulgated by the CTR and may be updated by U.S. EPA without amending the Basin Plan. Note: at the time of writing, the values are 3.1 µg/l (4-day average) and 4.8 µg/l (1-hr. average). The most recent version of the CTR should be consulted before applying these values.

g. Cyanide criteria were promulgated in the National Toxics Rule (NTR) (Note: at the time of writing, the values are 1.0 µg/l (4-day average) and 1.0 µg/l (1-hr. average)) and apply,

except that site-specific marine water quality objectives for cyanide have been adopted for San Francisco Bay as set forth in Table 3-3C.

h. Source: U.S. EPA Ambient Water Quality Criteria for Mercury (1984). The 4-day average value for mercury does not apply to San Francisco Bay; instead, the water quality objectives specified in Table 3-3B apply. The 1-hour average value continues to apply to San Francisco Bay.

i. Selenium criteria were promulgated for all San Francisco Bay/Delta waters in the National Toxics Rule (NTR). The NTR criteria specifically apply to San Francisco Bay upstream to and including Suisun Bay and Sacramento-San Joaquin Delta. Note: at the time of writing, the values are 5.0 µg/l (4-day average) and 20 µg/l (1-hr. average).

j. Tributyltin is a compound used as an antifouling ingredient in marine paints and toxic to aquatic life in low concentrations. ~~U.S. EPA has published draft criteria for protection of aquatic life (Federal Register: December 27, 2002, Vol. 67, No. 249, Page 79090-79091). These criteria are cited for advisory purposes. The draft criteria may be revised.~~ Ambient Aquatic Life Water Quality Criteria for Tributytin (TBT) – Final (EPA 822-R-03-031, December 2003).

k. The 24-hour average aquatic life protection objective for total PAHs is retained from the 1995 Basin Plan. Source: U.S. EPA 1980. The U.S. EPA (1980) Water Quality Criteria document indicates acute toxicity concentrations for salt water at or below 300 µg/l. An acute-to-chronic ratio of 20 yields an objective of 15 µg/l. Total PAHs are those compounds identified by EPA method 610.

l. Table 3-3A contains site-specific water quality objectives for copper and nickel applicable to ~~all~~ San Francisco Bay segments.

**Table 3-3A: Water Quality Objectives for Copper and Nickel in San Francisco Bay Segments (µg/L)[1]**

| Compound | 4-day Average (CCC)[12] | 1-hr Average (CMC)[23] | Extent of Applicability |
|---|---|---|---|
| **Copper** | 6.9 | 10.8 | The portion of Lower San Francisco Bay south of the line representing the Hayward Shoals shown on Figure 7.2.1-1. and South San Francisco Bay |
| **Copper** | 6.0 | 9.4 | The portion of the delta located in the San Francisco Bay Region, Suisun Bay, Carquinez Strait, San Pablo Bay, Central San Francisco Bay, and the portion of Lower San Francisco Bay north of the line representing the Hayward Shoals on Figure 7.2.1-1. |
| **Nickel** | 11.9 | 62.4* | South San Francisco Bay |

[1]The Site-Specific Water Quality Objectives in this table already include the Water Effects Ratio appropriate for each San Francisco Bay segment. See Basin Plan Section 7.2.1.2 for information on translating the dissolved metal concentrations shown in this table to total metal concentrations, if required for NPDES permits.

[12]Criteria Continuous Concentration

[23]Criteria Maximum Concentration

*Handbook of Water Quality Standards, 2nd ed. 1994 in Section 3.7.6 states that the CMC = Final AcuteValue/2; 62.4 is the Final Acute Value (resident species database)/2; so the site-specific CMC is lower than the California Toxics Rule value because we are using the resident species database instead of the National Species Database.