

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA



2009

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



State of California

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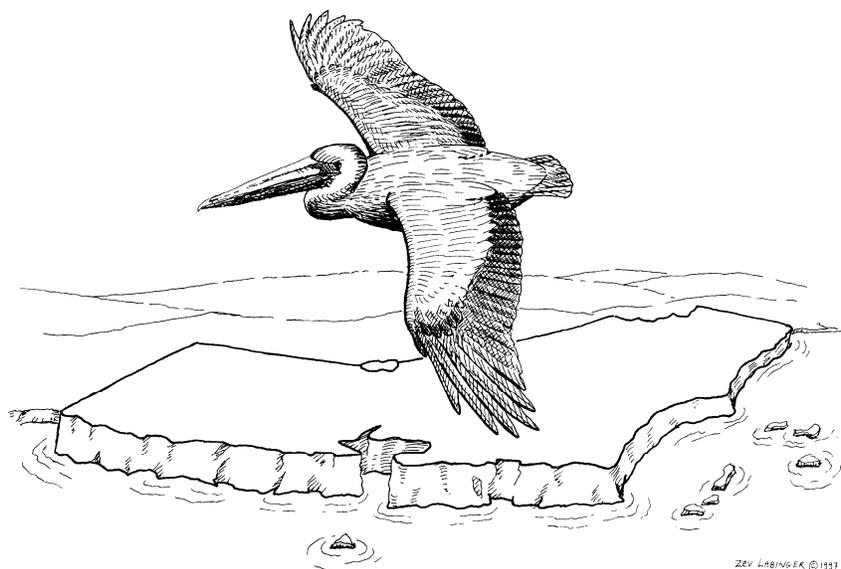
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State of California
STATE WATER RESOURCES CONTROL BOARD



2009

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

Effective March 10, 2010

Adopted September 15, 2009

Approved by the Office of Administrative Law on March 10, 2010

Approved by the US Environmental Protection Agency on October 8, 2010

**STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2009-0072**

**ADOPTION OF PROPOSED AMENDMENTS TO
THE CALIFORNIA OCEAN PLAN**

WHEREAS:

1. The California Ocean Plan (Ocean Plan) was adopted by the State Water Resources Control Board (State Water Board) in 1972 and amended in 1978, 1983, 1988, 1990, 1997, 2001, and 2005.
2. The State Water Board is responsible for reviewing Ocean Plan water quality standards and for modifying and adopting standards in accordance with section 303(c)(1) of the federal Clean Water Act and section 13170.2 of the California Water Code.
3. On May 5, 2005, the State Water Board held a public hearing for the triennial review of the Ocean Plan to receive additional public comment for potential revisions of the Ocean Plan.
4. On June 26, 2007, the State Water Board held a scoping meeting regarding potential Ocean Plan amendments.
5. State Water Board staff is proposing non-substantive amendments to the Ocean Plan, and staff has prepared and circulated a draft Staff Report on April 3, 2009 that describes the proposed amendments, the basis for proposing the amendments, and legal requirements for reviewing and adopting those amendments.
6. The proposed amendments include adding maps of California's ocean waters and bays and estuaries, clarifying that metals are expressed as total recoverable metals, removing Section III (F)(1) on compliance schedules, correcting toxicity definitions and references in Appendix I, and updating the list of exceptions to the Ocean Plan in Appendix VII.
7. The draft Final Staff Report includes responses to the comments received prior to the close of the comment period on August 31, 2009. The specific proposed amendments to the Ocean Plan are in Appendix A to the draft Final Staff Report.
8. Adoption of the proposed amendments is not subject to the California Environmental Quality Act, Public Resources Code §21000 et seq., because there is no possibility that adoption of the amendments may have a significant effect on the environment.
9. These amendments to the Ocean Plan do not become effective until approved by the Office of Administrative Law (OAL).

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Adopts the amendments to the Ocean Plan as shown in Appendix A.
2. Approves the draft Final Staff Report with Responses to Comments as the Final Staff Report.
3. Directs State Water Board staff to submit the amended Ocean Plan to OAL for final approval.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Board held on September 15, 2009.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
NAY: None
ABSENT: Board Member Arthur G. Baggett, Jr.
ABSTAIN: None



Jeanine Townsend
Clerk to the Board

CALIFORNIA OCEAN PLAN

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CALIFORNIA OCEAN PLAN
WATER QUALITY CONTROL PLAN FOR
OCEAN WATERS OF CALIFORNIA

INTRODUCTION

A. Purpose and Authority

1. In furtherance of legislative policy set forth in Section 13000 of Division 7 of the California Water Code (CWC) (Stats. 1969, Chap. 482) pursuant to the authority contained in Section 13170 and 13170.2 (Stats. 1971, Chap. 1288) the State Water Resources Control Board hereby finds and declares that protection of the quality of the ocean* waters for use and enjoyment by the people of the State requires control of the discharge of waste* to ocean* waters in accordance with the provisions contained herein. The Board finds further that this plan shall be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation* to marine species or posing a threat to public health.

B. Principles

1. Harmony Among Water Quality Control Plans and Policies.
 - a. In the adoption and amendment of water quality control plans, it is the intent of this Board that each plan will provide for the attainment and maintenance of the water quality standards of downstream waters.
 - b. To the extent there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where pursuant to Chap. III.J of this Plan, the SWRCB has approved an exception to the Plan requirements.

C. Applicability

1. This plan is applicable, in its entirety, to point source discharges to the ocean*. Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses, Chapter II - WATER QUALITY OBJECTIVES (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters) and Chapter III - PROGRAM OF IMPLEMENTATION Parts A.2, D, E, and I.
2. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters, nor is it applicable to vessel wastes, or the control of dredged* material.
3. Provisions regulating the thermal aspects of waste* discharged to the ocean* are set forth in the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed* Bays and Estuaries* of California.

* See Appendix I for definition of terms.

4. Within this Plan, references to the State Board or SWRCB shall mean the State Water Resources Control Board. References to a Regional Board or RWQCB shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, USEPA, or EPA shall mean the federal Environmental Protection Agency.

* See Appendix I for definition of terms.

I. BENEFICIAL USES

- A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

* See Appendix I for definition of terms.

II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.
2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.
3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste field where initial* dilution is completed.

B. Bacterial Characteristics

1. Water-Contact Standards

Both the SWRCB and the California Department of Public Health (DPH) have established standards to protect water contact recreation in coastal waters from bacterial contamination. Subsection a of this section contains bacterial objectives adopted by the SWRCB for ocean waters used for water contact recreation. Subsection b describes the bacteriological standards adopted by DPH for coastal waters adjacent to public beaches and public water contact sports areas in ocean waters.

a. SWRCB Water-Contact Standards

- (1) Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp* beds, the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

- i. Total coliform density shall not exceed 1,000 per 100 ml;
- ii. Fecal coliform density shall not exceed 200 per 100 ml; and
- iii. Enterococcus density shall not exceed 35 per 100ml.

Single Sample Maximum:

- i. Total coliform density shall not exceed 10,000 per 100 ml;
- ii. Fecal coliform density shall not exceed 400 per 100ml;
- iii. Enterococcus density shall not exceed 104 per 100 ml; and

* See Appendix I for definition of terms.

iv. Total coliform density shall not exceed 1,000 per 100 ml when the fecal coliform/total coliform ratio exceeds 0.1.

(2) The "Initial* Dilution Zone" of wastewater outfalls shall be excluded from designation as "kelp* beds" for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the SWRCB (for consideration under Chapter III.I.). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp* beds for purposes of bacterial standards.

b. DPH Standards

DPH has established minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean waters. These standards are found in the California Code of Regulations, title 17, section 7958, and they are identical to the objectives contained in subsection a. above. When a public beach or public water-contact sports area fails to meet these standards, DPH or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The DPH regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

For beaches not covered under AB 411 regulations, DPH imposes the same standards as contained in Title 17 and requires weekly sampling but allows the county health officer more discretion in making posting and closure decisions.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

(1) The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.
2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.
3. Natural* light shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste*.
4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded*.

* See Appendix I for definition of terms.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.
2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.
4. The concentration of substances set forth in Chapter II, Table B, in marine sediments shall not be increased to levels which would degrade* indigenous biota.
5. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade* marine life.
6. Nutrient materials shall not cause objectionable aquatic growths or degrade* indigenous biota.
7. Numerical Water Quality Objectives
 - a. Table B water quality objectives apply to all discharges within the jurisdiction of this Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.
 - b. Table B Water Quality Objectives

* See Appendix I for definition of terms.

**TABLE B
WATER QUALITY OBJECTIVES**

| | <u>Units of Measurement</u> | <u>Limiting Concentrations</u> | | |
|---|--|--------------------------------|----------------------|------------------------------|
| | | <u>6-Month Median</u> | <u>Daily Maximum</u> | <u>Instantaneous Maximum</u> |
| OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE | | | | |
| Arsenic | ug/l | 8. | 32. | 80. |
| Cadmium | ug/l | 1. | 4. | 10. |
| Chromium (Hexavalent) (see below, a) | ug/l | 2. | 8. | 20. |
| Copper | ug/l | 3. | 12. | 30. |
| Lead | ug/l | 2. | 8. | 20. |
| Mercury | ug/l | 0.04 | 0.16 | 0.4 |
| Nickel | ug/l | 5. | 20. | 50. |
| Selenium | ug/l | 15. | 60. | 150. |
| Silver | ug/l | 0.7 | 2.8 | 7. |
| Zinc | ug/l | 20. | 80. | 200. |
| Cyanide (see below, b) | ug/l | 1. | 4. | 10. |
| Total Chlorine Residual (For intermittent chlorine sources see below, c) | ug/l | 2. | 8. | 60. |
| Ammonia (expressed as nitrogen) | ug/l | 600. | 2400. | 6000. |
| Acute* Toxicity | TUa | N/A | 0.3 | N/A |
| Chronic* Toxicity | TUc | N/A | 1. | N/A |
| Phenolic Compounds (non-chlorinated) | ug/l | 30. | 120. | 300. |
| Chlorinated Phenolics | ug/l | 1. | 4. | 10. |
| Endosulfan | ug/l | 0.009 | 0.018 | 0.027 |
| Endrin | ug/l | 0.002 | 0.004 | 0.006 |
| HCH* | ug/l | 0.004 | 0.008 | 0.012 |
| Radioactivity | Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to Section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect. | | | |

* See Appendix I for definition of terms.

Table B Continued

| <u>Chemical</u> | <u>30-day Average (ug/l)</u> | |
|---|------------------------------|----------------------------|
| | <u>Decimal Notation</u> | <u>Scientific Notation</u> |
| OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS | | |
| acrolein | 220. | 2.2×10^2 |
| antimony | 1,200. | 1.2×10^3 |
| bis(2-chloroethoxy) methane | 4.4 | 4.4×10^0 |
| bis(2-chloroisopropyl) ether | 1,200. | 1.2×10^3 |
| chlorobenzene | 570. | 5.7×10^2 |
| chromium (III) | 190,000. | 1.9×10^5 |
| di-n-butyl phthalate | 3,500. | 3.5×10^3 |
| dichlorobenzenes* | 5,100. | 5.1×10^3 |
| diethyl phthalate | 33,000. | 3.3×10^4 |
| dimethyl phthalate | 820,000. | 8.2×10^5 |
| 4,6-dinitro-2-methylphenol | 220. | 2.2×10^2 |
| 2,4-dinitrophenol | 4.0 | 4.0×10^0 |
| ethylbenzene | 4,100. | 4.1×10^3 |
| fluoranthene | 15. | 1.5×10^1 |
| hexachlorocyclopentadiene | 58. | 5.8×10^1 |
| nitrobenzene | 4.9 | 4.9×10^0 |
| thallium | 2. | $2. \times 10^0$ |
| toluene | 85,000. | 8.5×10^4 |
| tributyltin | 0.0014 | 1.4×10^{-3} |
| 1,1,1-trichloroethane | 540,000. | 5.4×10^5 |
| OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS | | |
| acrylonitrile | 0.10 | 1.0×10^{-1} |
| aldrin | 0.000022 | 2.2×10^{-5} |
| benzene | 5.9 | 5.9×10^0 |
| benzidine | 0.000069 | 6.9×10^{-5} |
| beryllium | 0.033 | 3.3×10^{-2} |
| bis(2-chloroethyl) ether | 0.045 | 4.5×10^{-2} |
| bis(2-ethylhexyl) phthalate | 3.5 | 3.5×10^0 |
| carbon tetrachloride | 0.90 | 9.0×10^{-1} |
| chlordane* | 0.000023 | 2.3×10^{-5} |
| chlorodibromomethane | 8.6 | 8.6×10^0 |

* See Appendix I for definition of terms.

Table B Continued

| <u>Chemical</u> | <u>30-day Average (ug/l)</u> | |
|---|------------------------------|----------------------------|
| | <u>Decimal Notation</u> | <u>Scientific Notation</u> |
| OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS | | |
| chloroform | 130. | 1.3×10^2 |
| DDT* | 0.00017 | 1.7×10^{-4} |
| 1,4-dichlorobenzene | 18. | 1.8×10^1 |
| 3,3'-dichlorobenzidine | 0.0081 | 8.1×10^{-3} |
| 1,2-dichloroethane | 28. | 2.8×10^1 |
| 1,1-dichloroethylene | 0.9 | 9×10^{-1} |
| dichlorobromomethane | 6.2 | 6.2×10^0 |
| dichloromethane | 450. | 4.5×10^2 |
| 1,3-dichloropropene | 8.9 | 8.9×10^0 |
| dieldrin | 0.00004 | 4.0×10^{-5} |
| 2,4-dinitrotoluene | 2.6 | 2.6×10^0 |
| 1,2-diphenylhydrazine | 0.16 | 1.6×10^{-1} |
| halomethanes* | 130. | 1.3×10^2 |
| heptachlor | 0.00005 | 5×10^{-5} |
| heptachlor epoxide | 0.00002 | 2×10^{-5} |
| hexachlorobenzene | 0.00021 | 2.1×10^{-4} |
| hexachlorobutadiene | 14. | 1.4×10^1 |
| hexachloroethane | 2.5 | 2.5×10^0 |
| isophorone | 730. | 7.3×10^2 |
| N-nitrosodimethylamine | 7.3 | 7.3×10^0 |
| N-nitrosodi-N-propylamine | 0.38 | 3.8×10^{-1} |
| N-nitrosodiphenylamine | 2.5 | 2.5×10^0 |
| PAHs* | 0.0088 | 8.8×10^{-3} |
| PCBs* | 0.000019 | 1.9×10^{-5} |
| TCDD equivalents* | 0.0000000039 | 3.9×10^{-9} |
| 1,1,2,2-tetrachloroethane | 2.3 | 2.3×10^0 |
| tetrachloroethylene | 2.0 | 2.0×10^0 |
| toxaphene | 0.00021 | 2.1×10^{-4} |
| trichloroethylene | 27. | 2.7×10^1 |
| 1,1,2-trichloroethane | 9.4 | 9.4×10^0 |
| 2,4,6-trichlorophenol | 0.29 | 2.9×10^{-1} |
| vinyl chloride | 36. | 3.6×10^1 |

* See Appendix I for definition of terms.

Table B Notes:

- a) Dischargers may at their option meet this objective as a total chromium objective.
- b) If a discharger can demonstrate to the satisfaction of the Regional Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR PART 136, as revised May 14, 1999.
- c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in ug/l) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded*.
2. The natural taste, odor, and color of fish, shellfish*, or other marine resources used for human consumption shall not be altered.
3. The concentration of organic materials in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste* shall not degrade* marine life.

* See Appendix I for definition of terms.

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. Effective Date
 - a. The *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan* was adopted and has been effective since 1972. There have been multiple amendments of the Ocean Plan since its adoption.
2. General Requirements For Management Of Waste Discharge To The Ocean*
 - a. Waste* management systems that discharge to the ocean* must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
 - b. Waste discharged* to the ocean* must be essentially free of:
 - (1) Material that is floatable or will become floatable upon discharge.
 - (2) Settleable material or substances that may form sediments which will degrade* benthic communities or other aquatic life.
 - (3) Substances which will accumulate to toxic levels in marine waters, sediments or biota.
 - (4) Substances that significantly* decrease the natural* light to benthic communities and other marine life.
 - (5) Materials that result in aesthetically undesirable discoloration of the ocean* surface.
 - c. Waste* effluents shall be discharged in a manner which provides sufficient initial* dilution to minimize the concentrations of substances not removed in the treatment.
 - d. Location of waste* discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:
 - (1) Pathogenic organisms and viruses are not present in areas where shellfish* are harvested for human consumption or in areas used for swimming or other body-contact sports.
 - (2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.
 - (3) Maximum protection is provided to the marine environment.

* See Appendix I for definition of terms.

- e. Waste* that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing* and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

3. Areas of Special Biological Significance

- a. ASBS* shall be designated by the SWRCB following the procedures provided in Appendix IV. A list of ASBS* is available in Appendix V.

- 4. Combined Sewer Overflow: Notwithstanding any other provisions in this plan, discharges from the City of San Francisco's combined sewer system are subject to the US EPA's Combined Sewer Overflow Policy.

B. Table A Effluent Limitations

**TABLE A
EFFLUENT LIMITATIONS**

| | Unit of <u>Measurement</u> | Limiting Concentrations | | |
|-------------------|-------------------------------|-------------------------------------|--|--------------------------------|
| | | <u>Monthly (30-day Average)</u> | <u>Weekly (7-day Average)</u> | <u>Maximum at any time</u> |
| Grease and Oil | mg/l | 25. | 40. | 75. |
| Suspended Solids | | | See below + | |
| Settleable Solids | MI/l | 1.0 | 1.5 | 3.0 |
| Turbidity | NTU | 75. | 100. | 225. |
| PH | Units | | Within limit of 6.0 to 9.0 at all times | |

Table A Notes:

- + Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean*, except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Boards may recommend that the SWRCB (Chapter IIIJ), with the concurrence of the Environmental Protection Agency, adjust the lower effluent concentration limit (the 60 mg/l above) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Boards should evaluate effects on existing and potential water* reclamation projects.

If the lower effluent concentration limit is adjusted, the discharger shall remove 75% of suspended solids from the influent stream at any time the influent concentration exceeds four times such adjusted effluent limit.

- 1. Table A effluent limitations apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to Sections 301, 302, 304, or 306 of the Federal Clean Water Act.

* See Appendix I for definition of terms.

2. Table A effluent limitations shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.
3. The SWRCB is authorized to administer and enforce effluent limitations established pursuant to the Federal Clean Water Act. Effluent limitations established under Sections 301, 302, 306, 307, 316, 403, and 405 of the aforementioned Federal Act and administrative procedures pertaining thereto are included in this plan by reference. Compliance with Table A effluent limitations, or Environmental Protection Agency Effluent Limitations Guidelines for industrial discharges, based on Best Practicable Control Technology, shall be the minimum level of treatment acceptable under this plan, and shall define reasonable treatment and waste control technology.

C. Implementation Provisions for Table B

1. Effluent concentrations calculated from Table B water quality objectives shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.
2. If the Regional Water Board determines, using the procedures in Appendix VI, that a pollutant is discharged into ocean* waters at levels which will cause, have the reasonable potential to cause, or contribute to an excursion above a Table B water quality objective, the Regional Water Board shall incorporate a water quality-based effluent limitation in the Waste Discharge Requirement for the discharge of that pollutant.
3. Effluent limitations shall be imposed in a manner prescribed by the State Water Board such that the concentrations set forth below as water quality objectives shall not be exceeded in the receiving water upon completion of initial* dilution, except that objectives indicated for radioactivity shall apply directly to the undiluted waste* effluent.
4. Calculation of Effluent Limitations
 - a. Effluent limitations for water quality objectives listed in Table B, with the exception of acute* toxicity and radioactivity, shall be determined through the use of the following equation:

Equation 1: $C_e = C_o + D_m (C_o - C_s)$

where:

C_e = the effluent concentration limit, ug/l

C_o = the concentration (water quality objective) to be met at the completion of initial* dilution, ug/l

C_s = background seawater concentration (see Table C below, with all metals expressed as total recoverable concentrations), ug/l

D_m = minimum probable initial* dilution expressed as parts seawater per part wastewater.

* See Appendix I for definition of terms.

TABLE C
BACKGROUND SEAWATER CONCENTRATIONS (Cs)

| Waste Constituent | Cs (ug/l) |
|-------------------|-----------|
| Arsenic | 3. |
| Copper | 2. |
| Mercury | 0.0005 |
| Silver | 0.16 |
| Zinc | 8. |

For all other Table B parameters, Cs = 0.

b. Determining a Mixing Zone for the Acute* Toxicity Objective

The mixing zone for the acute* toxicity objective shall be ten percent (10%) of the distance from the edge of the outfall structure to the edge of the chronic mixing zone (zone of initial dilution). There is no vertical limitation on this zone. The effluent limitation for the acute* toxicity objective listed in Table B shall be determined through the use of the following equation:

Equation 2: $C_e = C_a + (0.1) D_m (C_a)$

where:

C_a = the concentration (water quality objective) to be met at the edge of the acute mixing zone.

D_m = minimum probable initial* dilution expressed as parts seawater per part wastewater (This equation applies only when $D_m > 24$).

c. Toxicity Testing Requirements based on the Minimum Initial* Dilution Factor for Ocean Waste Discharges

- (1) Dischargers shall conduct acute* toxicity testing if the minimum initial* dilution of the effluent is greater than 1,000:1 at the edge of the mixing zone.
- (2) Dischargers shall conduct either acute* or chronic* toxicity testing if the minimum initial* dilution ranges from 350:1 to 1,000:1 depending on the specific discharge conditions. The RWQCB shall make this determination.
- (3) Dischargers shall conduct chronic* toxicity testing for ocean waste discharges with minimum initial* dilution factors ranging from 100:1 to 350:1. The RWQCBs may require that acute toxicity testing be conducted in addition to chronic as necessary for the protection of beneficial uses of ocean waters.
- (4) Dischargers shall conduct chronic toxicity testing if the minimum initial* dilution of the effluent falls below 100:1 at the edge of the mixing zone.

d. For the purpose of this Plan, minimum initial* dilution is the lowest average initial* dilution within any single month of the year. Dilution estimates shall be based on observed waste flow characteristics, observed receiving water density structure,

* See Appendix I for definition of terms.

and the assumption that no currents, of sufficient strength to influence the initial* dilution process, flow across the discharge structure.

- e. The Executive Director of the SWRCB shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste discharges. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such methods upon verification of its accuracy and applicability.
- f. The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
- g. The daily maximum shall apply to flow weighted 24 hour composite samples.
- h. The instantaneous maximum shall apply to grab sample determinations.
- i. If only one sample is collected during the time period associated with the water quality objective (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.
- j. Discharge requirements shall also specify effluent limitations in terms of mass emission rate limits utilizing the general formula:

Equation 3: $\text{lbs/day} = 0.00834 \times C_e \times Q$

where:

C_e = the effluent concentration limit, ug/l

Q = flow rate, million gallons per day (MGD)

- k. The six-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration as C_e and the observed flow rate Q in millions of gallons per day. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as C_e and the observed flow rate Q in millions of gallons per day.
 - l. Any significant change in waste* flow shall be cause for reevaluating effluent limitations.
5. Minimum* Levels

For each numeric effluent limitation, the Regional Board must select one or more Minimum* Levels (and their associated analytical methods) for inclusion in the permit. The "reported" Minimum* Level is the Minimum* Level (and its associated analytical method) chosen by the discharger for reporting and compliance determination from the Minimum* Levels included in their permit.

- a. Selection of Minimum* Levels from Appendix II

* See Appendix I for definition of terms.

The Regional Board must select all Minimum* Levels from Appendix II that are below the effluent limitation. If the effluent limitation is lower than all the Minimum* Levels in Appendix II, the Regional Board must select the lowest Minimum* Level from Appendix II.

b. Deviations from Minimum* Levels in Appendix II

The Regional Board, in consultation with the State Water Board’s Quality Assurance Program, must establish a Minimum* Level to be included in the permit in any of the following situations:

1. A pollutant is not listed in Appendix II.
2. The discharger agrees to use a test method that is more sensitive than those described in 40 CFR 136 (revised May 14, 1999).
3. The discharger agrees to use a Minimum* Level lower than those listed in Appendix II.
4. The discharger demonstrates that their calibration standard matrix is sufficiently different from that used to establish the Minimum* Level in Appendix II and proposes an appropriate Minimum* Level for their matrix.
5. A discharger uses an analytical method having a quantification practice that is not consistent with the definition of Minimum* Level (e.g., US EPA methods 1613, 1624, 1625).

6. Use of Minimum* Levels

- a. Minimum* Levels in Appendix II represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum* Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples are given below:

| <u>Substance or Grouping</u> | <u>Method-Specific Treatment</u> | <u>Most Common Factor</u> |
|------------------------------|------------------------------------|---------------------------|
| Volatile Organics | No differential treatment | 1 |
| Semi-Volatile Organics | Samples concentrated by extraction | 1000 |
| Metals | Samples diluted or concentrated | ½ , 2 , and 4 |
| Pesticides | Samples concentrated by extraction | 100 |

- b. Other factors may be applied to the Minimum* Level depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported Minimum* Level.
- c. Dischargers are to instruct their laboratories to establish calibration standards so that the Minimum* Level (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no

* See Appendix I for definition of terms.

time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with Section 4b, above, the discharger's laboratory may employ a calibration standard lower than the Minimum* Level in Appendix II.

7. Sample Reporting Protocols

- a. Dischargers must report with each sample result the reported Minimum* Level (selected in accordance with Section 4, above) and the laboratory's current MDL*.
- b. Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:
 - (1) Sample results greater than or equal to the reported Minimum* Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).
 - (2) Sample results less than the reported Minimum* Level, but greater than or equal to the laboratory's MDL*, must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").
 - (3) Sample results less than the laboratory's MDL* must be reported as "Not Detected", or ND.

8. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations

Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant (see Section 7c, below) in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum* Level.

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

c. Multiple Sample Data Reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum* Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the

* See Appendix I for definition of terms.

multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

d. Powerplants and Heat Exchange Dischargers

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table B objectives on a routine basis. Effluent concentration values (C_e) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all inplant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute* (if applicable per Section (3)(c)) and chronic* toxicity and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table B objective for radioactivity shall apply to the undiluted combined final effluent.

9. Pollutant Minimization Program

a. Pollutant Minimization Program Goal

The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan, required in accordance with CA Water Code Section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

b. Determining the need for a Pollutant Minimization Program

1. The discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the reported Minimum* Level
 - (b) The concentration of the pollutant is reported as DNQ
 - (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
2. Alternatively, the discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the Method Detection Limit*.
 - (b) The concentration of the pollutant is reported as ND.
 - (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

* See Appendix I for definition of terms.

- c. Regional Boards may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:
 - 1. health advisories for fish consumption,
 - 2. presence of whole effluent toxicity,
 - 3. results of benthic or aquatic organism tissue sampling,
 - 4. sample results from analytical methods more sensitive than methods included in the permit (in accordance with Section 4b, above).
 - 5. the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL

d. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

- 1. An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;
- 2. Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;
- 3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;
- 4. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,
- 5. An annual status report that shall be sent to the Regional Board including:
 - (a) All Pollutant Minimization Program monitoring results for the previous year;
 - (b) A list of potential sources of the reportable pollutant;
 - (c) A summary of all action taken in accordance with the control strategy; and,
 - (d) A description of actions to be taken in the following year.

10. Toxicity Reduction Requirements

- a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table B, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the source of toxicity. Once the source(s) of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.

* See Appendix I for definition of terms.

- b. The following shall be incorporated into waste discharge requirements: (1) a requirement to conduct a TRE if the discharge consistently exceeds its toxicity effluent limitation, and (2) a provision requiring a discharger to take all reasonable steps to reduce toxicity once the source of toxicity is identified.

D. Implementation Provisions for Bacterial Characteristics

1. Water-Contact Monitoring

- a. Weekly samples shall be collected from each site. The geometric mean shall be calculated using the five most recent sample results.
- b. If a single sample exceeds any of the single sample maximum (SSM) standards, repeat sampling at that location shall be conducted to determine the extent and persistence of the exceedance. Repeat sampling shall be conducted within 24 hours of receiving analytical results and continued until the sample result is less than the SSM standard or until a sanitary survey is conducted to determine the source of the high bacterial densities.
 - i) Total coliform density will not exceed 10,000 per 100 ml; or
 - ii) Fecal coliform density will not exceed 400 per 100 ml; or
 - iii) Total coliform density will not exceed 1,000 per 100 ml when the ratio of fecal/total coliform exceeds 0.1;
 - iv) enterococcus density will not exceed 104 per 100 ml.

When repeat sampling is required because of an exceedance of any one single sample density, values from all samples collected during that 30-day period will be used to calculate the geometric mean.

- c. It is state policy that the geometric mean bacterial objectives are strongly preferred for use in water body assessment decisions, for example, in developing the Clean Water Act section 303(d) list of impaired waters, because the geometric mean objectives are a more reliable measure of long-term water body conditions. In making assessment decisions on bacterial quality, single sample maximum data must be considered together with any available geometric mean data. The use of only single sample maximum bacterial data is generally inappropriate unless there is a limited data set, the water is subject to short-term spikes in bacterial concentrations, or other circumstances justify the use of only single sample maximum data.
- d. For monitoring stations outside of the defined water-contact recreation zone (REC-1), samples will be analyzed for total coliform only.

E. Implementation Provisions For Areas* of Special Biological Significance (ASBS)

1. Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.
2. Regional Boards may approve waste discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS*. Limited-term

* See Appendix I for definition of terms.

activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing water quality. Water quality degradation shall be limited to the shortest possible time. The activities must not permanently degrade water quality or result in water quality lower than that necessary to protect existing uses, and all practical means of minimizing such degradation shall be implemented.

F. Revision of Waste* Discharge Requirements

1. The Regional Boards may establish more restrictive water quality objectives and effluent limitations than those set forth in this Plan as necessary for the protection of beneficial uses of ocean* waters.
2. Regional Boards may impose alternative less restrictive provisions than those contained within Table B of the Plan, provided an applicant can demonstrate that:
 - a. Reasonable control technologies (including source control, material substitution, treatment and dispersion) will not provide for complete compliance; or
 - b. Any less stringent provisions would encourage water* reclamation;
3. Provided further that:
 - a. Any alternative water quality objectives shall be below the conservative estimate of chronic* toxicity, as given in Table D (with all metal concentrations expressed as total recoverable concentrations), and such alternative will provide for adequate protection of the marine environment;
 - b. A receiving water quality toxicity objective of 1 TUc is not exceeded; and
 - c. The State Board grants an exception (Chapter III.J.) to the Table B limits as established in the Regional Board findings and alternative limits.

G. Compliance Schedules in National Pollutant Discharge Elimination System (NPDES) Permits

1. Compliance schedules in NPDES permits are authorized in accordance with the provisions of the State Water Board's Policy for Compliance Schedules in [NPDES] Permits (2008).

TABLE D
CONSERVATIVE ESTIMATES OF CHRONIC TOXICITY

* See Appendix I for definition of terms.

| Constituent | Estimate of Chronic Toxicity (ug/l) |
|--------------------------------------|--|
| Arsenic | 19. |
| Cadmium | 8. |
| Hexavalent Chromium | 18. |
| Copper | 5. |
| Lead | 22. |
| Mercury | 0.4 |
| Nickel | 48. |
| Silver | 3. |
| Zinc | 51. |
| Cyanide | 10. |
| Total Chlorine Residual | 10.0 |
| Ammonia | 4000.0 |
| Phenolic Compounds (non-chlorinated) | a) (see below) |
| Chlorinated Phenolics | a) |
| Chlorinated Pesticides and PCB's | b) |

Table D Notes:

- a) There are insufficient data for phenolics to estimate chronic toxicity levels. Requests for modification of water quality objectives for these waste* constituents must be supported by chronic toxicity data for representative sensitive species. In such cases, applicants seeking modification of water quality objectives should consult the Regional Water Quality Control Board to determine the species and test conditions necessary to evaluate chronic effects.
- b) Limitations on chlorinated pesticides and PCB's shall not be modified so that the total of these compounds is increased above the objectives in Table B.

H. Monitoring Program

1. The Regional Water Boards shall require dischargers to conduct self-monitoring programs and submit reports necessary to determine compliance with the waste* discharge requirements, and may require dischargers to contract with agencies or persons acceptable to the Regional Water Board to provide monitoring reports. Monitoring provisions contained in waste discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendices III and VI.
2. The Regional Water Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Water Board on the basis of demonstrated value in waste* discharge monitoring.

I. Discharge Prohibitions

* See Appendix I for definition of terms.

1. Hazardous Substances
 - a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.
 2. Areas Designated for Special Water Quality Protection
 - a. Waste* shall not be discharged to designated Areas* of Special Biological Significance except as provided in Chapter III. E. Implementation Provisions For Areas of Special Biological Significance.
 3. Sludge
 - a. Pipeline discharge of sludge to the ocean* is prohibited by federal law; the discharge of municipal and industrial waste* sludge directly to the ocean*, or into a waste* stream that discharges to the ocean*, is prohibited by this Plan. The discharge of sludge digester supernatant directly to the ocean*, or to a waste* stream that discharges to the ocean* without further treatment, is prohibited.
 - b. It is the policy of the SWRCB that the treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment. Therefore, if federal law is amended to permit such discharge, which could affect California waters, the SWRCB may consider requests for exceptions to this section under Chapter III. I. of this Plan, provided further that an Environmental Impact Report on the proposed project shows clearly that any available alternative disposal method will have a greater adverse environmental impact than the proposed project.
 4. By-Passing
 - a. The by-passing of untreated wastes* containing concentrations of pollutants in excess of those of Table A or Table B to the ocean* is prohibited.
- J. State Board Exceptions to Plan Requirements
1. The State Water Board may, in compliance with the California Environmental Quality Act, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions where the Board determines:
 - a. The exception will not compromise protection of ocean* waters for beneficial uses, and,
 - b. The public interest will be served.
 2. All exceptions issued by the State Water Board and in effect at the time of the Triennial Review will be reviewed at that time. If there is sufficient cause to re-open or revoke any exception, the State Water Board may direct staff to prepare a report and to schedule a public hearing. If after the public hearing the State Water Board decides to re-open, revoke, or re-issue a particular exception, it may do so at that time.

* See Appendix I for definition of terms.

APPENDIX I
DEFINITION OF TERMS

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) are those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHRONIC TOXICITY: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

* See Appendix I for definition of terms.

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix III, Table III-1.

DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

DEGRADE: Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents.

DREDGED MATERIAL: Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil".

ENCLOSED BAYS are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

ENDOSULFAN shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

ESTUARIES AND COASTAL LAGOONS are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

* See Appendix I for definition of terms.

INITIAL DILUTION is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

KELP BEDS, for purposes of the bacteriological standards of this plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

MARICULTURE is the culture of plants and animals in marine waters independent of any pollution source.

MATERIAL: (a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of this Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

MDL (Method Detection Limit) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR PART 136 Appendix B.

MINIMUM LEVEL (ML) is the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

NATURAL LIGHT: Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

OCEAN WATERS are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

* See Appendix I for definition of terms.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

SHELLFISH are organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

SIGNIFICANT difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

STATE WATER QUALITY PROTECTION AREAS (SWQPAs) are nonterrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All Areas of Special Biological Significance (ASBS) that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by this Plan.

TCDD EQUIVALENTS shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

| <u>Isomer Group</u> | <u>Toxicity Equivalence Factor</u> |
|---------------------|--|
| | 1.0 |
| 2,3,7,8-tetra CDD | |
| 2,3,7,8-penta CDD | 0.5 |
| 2,3,7,8-hexa CDDs | 0.1 |
| 2,3,7,8-hepta CDD | 0.01 |
| octa CDD | 0.001 |
| 2,3,7,8 tetra CDF | 0.1 |
| 1,2,3,7,8 penta CDF | 0.05 |
| 2,3,4,7,8 penta CDF | 0.5 |
| 2,3,7,8 hexa CDFs | 0.1 |
| 2,3,7,8 hepta CDFs | 0.01 |
| octa CDF | 0.001 |

WASTE: As used in this Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

WATER RECLAMATION: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

* See Appendix I for definition of terms.

APPENDIX II MINIMUM* LEVELS

The Minimum* Levels identified in this appendix represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum* Levels were derived from data provided by state-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the California Ocean Plan and shall be used until new values are adopted by the SWRCB. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCB's. "No Data" is indicated by "--".

**TABLE II-1
MINIMUM* LEVELS – VOLATILE CHEMICALS**

| Volatile Chemicals | CAS Number | Minimum* Level (ug/L) | |
|--------------------------------|------------|------------------------|--------------------------|
| | | GC Method ^a | GCMS Method ^b |
| Acrolein | 107028 | 2. | 5 |
| Acrylonitrile | 107131 | 2. | 2 |
| Benzene | 71432 | 0.5 | 2 |
| Bromoform | 75252 | 0.5 | 2 |
| Carbon Tetrachloride | 56235 | 0.5 | 2 |
| Chlorobenzene | 108907 | 0.5 | 2 |
| Chlorodibromomethane | 124481 | 0.5 | 2 |
| Chloroform | 67663 | 0.5 | 2 |
| 1,2-Dichlorobenzene (volatile) | 95501 | 0.5 | 2 |
| 1,3-Dichlorobenzene (volatile) | 541731 | 0.5 | 2 |
| 1,4-Dichlorobenzene (volatile) | 106467 | 0.5 | 2 |
| Dichlorobromomethane | 75274 | 0.5 | 2 |
| 1,1-Dichloroethane | 75343 | 0.5 | 1 |
| 1,2-Dichloroethane | 107062 | 0.5 | 2 |
| 1,1-Dichloroethylene | 75354 | 0.5 | 2 |
| Dichloromethane | 75092 | 0.5 | 2 |
| 1,3-Dichloropropene (volatile) | 542756 | 0.5 | 2 |
| Ethyl benzene | 100414 | 0.5 | 2 |
| Methyl Bromide | 74839 | 1. | 2 |
| Methyl Chloride | 74873 | 0.5 | 2 |
| 1,1,2,2-Tetrachloroethane | 79345 | 0.5 | 2 |
| Tetrachloroethylene | 127184 | 0.5 | 2 |
| Toluene | 108883 | 0.5 | 2 |
| 1,1,1-Trichloroethane | 71556 | 0.5 | 2 |
| 1,1,2-Trichloroethane | 79005 | 0.5 | 2 |
| Trichloroethylene | 79016 | 0.5 | 2 |
| Vinyl Chloride | 75014 | 0.5 | 2 |

Table II-1 Notes

a) GC Method = Gas Chromatography

b) GCMS Method = Gas Chromatography / Mass Spectrometry

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter III, "Use of Minimum* Levels").

**TABLE II-2
MINIMUM* LEVELS – SEMI VOLATILE CHEMICALS**

| Semi-Volatile Chemicals | CAS Number | Minimum* Level (ug/L) | | | |
|------------------------------------|------------|--------------------------|----------------------------|----------------------------|---------------------------|
| | | GC Method ^{a,*} | GCMS Method ^{b,*} | HPLC Method ^{c,*} | COLOR Method ^d |
| Acenaphthylene | 208968 | -- | 10 | 0.2 | -- |
| Anthracene | 120127 | -- | 10 | 2 | -- |
| Benzidine | 92875 | -- | 5 | -- | -- |
| Benzo(a)anthracene | 56553 | -- | 10 | 2 | -- |
| Benzo(a)pyrene | 50328 | -- | 10 | 2 | -- |
| Benzo(b)fluoranthene | 205992 | -- | 10 | 10 | -- |
| Benzo(g,h,i)perylene | 191242 | -- | 5 | 0.1 | -- |
| Benzo(k)floranthene | 207089 | -- | 10 | 2 | -- |
| Bis 2-(1-Chloroethoxy) methane | 111911 | -- | 5 | -- | -- |
| Bis(2-Chloroethyl)ether | 111444 | 10 | 1 | -- | -- |
| Bis(2-Chloroisopropyl)ether | 39638329 | 10 | 2 | -- | -- |
| Bis(2-Ethylhexyl) phthalate | 117817 | 10 | 5 | -- | -- |
| 2-Chlorophenol | 95578 | 2 | 5 | -- | -- |
| Chrysene | 218019 | -- | 10 | 5 | -- |
| Di-n-butyl phthalate | 84742 | -- | 10 | -- | -- |
| Dibenzo(a,h)anthracene | 53703 | -- | 10 | 0.1 | -- |
| 1,2-Dichlorobenzene (semivolatile) | 95504 | 2 | 2 | -- | -- |
| 1,3-Dichlorobenzene (semivolatile) | 541731 | 2 | 1 | -- | -- |
| 1,4-Dichlorobenzene (semivolatile) | 106467 | 2 | 1 | -- | -- |
| 3,3-Dichlorobenzidine | 91941 | -- | 5 | -- | -- |
| 2,4-Dichlorophenol | 120832 | 1 | 5 | -- | -- |
| 1,3-Dichloropropene | 542756 | -- | 5 | -- | -- |
| Diethyl phthalate | 84662 | 10 | 2 | -- | -- |
| Dimethyl phthalate | 131113 | 10 | 2 | -- | -- |
| 2,4-Dimethylphenol | 105679 | 1 | 2 | -- | -- |
| 2,4-Dinitrophenol | 51285 | 5 | 5 | -- | -- |
| 2,4-Dinitrotoluene | 121142 | 10 | 5 | -- | -- |
| 1,2-Diphenylhydrazine | 122667 | -- | 1 | -- | -- |
| Fluoranthene | 206440 | 10 | 1 | 0.05 | -- |
| Fluorene | 86737 | -- | 10 | 0.1 | -- |
| Hexachlorobenzene | 118741 | 5 | 1 | -- | -- |
| Hexachlorobutadiene | 87683 | 5 | 1 | -- | -- |
| Hexachlorocyclopentadiene | 77474 | 5 | 5 | -- | -- |

Table II-2 continued on next page...

Table II-2 (Continued)
Minimum* Levels – Semi Volatile Chemicals

| Semi-Volatile Chemicals | CAS Number | Minimum* Level (ug/L) | | | |
|----------------------------|------------|--------------------------|----------------------------|----------------------------|---------------------------|
| | | GC Method ^{a,*} | GCMS Method ^{b,*} | HPLC Method ^{c,*} | COLOR Method ^d |
| Hexachloroethane | 67721 | 5 | 1 | -- | -- |
| Indeno(1,2,3-cd)pyrene | 193395 | -- | 10 | 0.05 | -- |
| Isophorone | 78591 | 10 | 1 | -- | -- |
| 2-methyl-4,6-dinitrophenol | 534521 | 10 | 5 | -- | -- |
| 3-methyl-4-chlorophenol | 59507 | 5 | 1 | -- | -- |
| N-nitrosodi-n-propylamine | 621647 | 10 | 5 | -- | -- |
| N-nitrosodimethylamine | 62759 | 10 | 5 | -- | -- |
| N-nitrosodiphenylamine | 86306 | 10 | 1 | -- | -- |
| Nitrobenzene | 98953 | 10 | 1 | -- | -- |
| 2-Nitrophenol | 88755 | -- | 10 | -- | -- |
| 4-Nitrophenol | 100027 | 5 | 10 | -- | -- |
| Pentachlorophenol | 87865 | 1 | 5 | -- | -- |
| Phenanthrene | 85018 | -- | 5 | 0.05 | -- |
| Phenol | 108952 | 1 | 1 | -- | 50 |
| Pyrene | 129000 | -- | 10 | 0.05 | -- |
| 2,4,6-Trichlorophenol | 88062 | 10 | 10 | -- | -- |

Table II-2 Notes:

- a) GC Method = Gas Chromatography
- b) GCMS Method = Gas Chromatography / Mass Spectrometry
- c) HPLC Method = High Pressure Liquid Chromatography
- d) COLOR Method= Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 1000 (see Chapter III, "Use of Minimum* Levels").

**TABLE II-3
MINIMUM* LEVELS - INORGANICS**

| Inorganic Substances | CAS Number | Minimum* Level (ug/L) | | | | | | | | |
|----------------------|------------|---------------------------|-------------------------|-------------------------|--------------------------|-----------------------------|-------------------------|---------------------------|----------------------------|--------------------------|
| | | COLOR Method ^a | DCP Method ^b | FAA Method ^c | GFAA Method ^d | HYDRIDE Method ^e | ICP Method ^f | ICPMS Method ^g | SPGFAA Method ^h | CVAA Method ⁱ |
| Antimony | 7440360 | -- | 1000. | 10. | 5. | 0.5 | 50. | 0.5 | 5. | -- |
| Arsenic | 7440382 | 20. | 1000. | -- | 2. | 1. | 10. | 2. | 2. | -- |
| Beryllium | 7440417 | -- | 1000. | 20. | 0.5 | -- | 2. | 0.5 | 1. | -- |
| Cadmium | 7440439 | -- | 1000. | 10. | 0.5 | -- | 10. | 0.2 | 0.5 | -- |
| Chromium (total) | -- | -- | 1000. | 50. | 2. | -- | 10. | 0.5 | 1. | -- |
| Chromium (VI) | 18540299 | 10. | -- | 5. | -- | -- | -- | -- | -- | -- |
| Copper | 7440508 | -- | 1000. | 20. | 5. | -- | 10. | 0.5 | 2. | -- |
| Cyanide | 57125 | 5. | -- | -- | -- | -- | -- | -- | -- | -- |
| Lead | 7439921 | -- | 10000. | 20. | 5. | -- | 5. | 0.5 | 2. | -- |
| Mercury | 7439976 | -- | -- | -- | -- | -- | -- | 0.5 | -- | 0.2 |
| Nickel | 7440020 | -- | 1000. | 50. | 5. | -- | 20. | 1. | 5. | -- |
| Selenium | 7782492 | -- | 1000. | -- | 5. | 1. | 10. | 2. | 5. | -- |
| Silver | 7440224 | -- | 1000. | 10. | 1. | -- | 10. | 0.2 | 2. | -- |
| Thallium | 7440280 | -- | 1000. | 10. | 2. | -- | 10. | 1. | 5. | -- |
| Zinc | 7440666 | -- | 1000. | 20. | -- | -- | 20. | 1. | 10. | -- |

Table II-3 Notes

- a) COLOR Method = Colorimetric
- b) DCP Method = Direct Current Plasma
- c) FAA Method = Flame Atomic Absorption
- d) GFAA Method = Graphite Furnace Atomic Absorption
- e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
- f) ICP Method = Inductively Coupled Plasma
- g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
- h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., US EPA 200.9)
- i) CVAA Method = Cold Vapor Atomic Absorption

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see Chapter III, "Use of Minimum* Levels").

TABLE II-4
MINIMUM* LEVELS – PESTICIDES AND PCBs

| Pesticides – PCB's | CAS Number | Minimum* Level (ug/L) |
|-----------------------------------|---------------|--------------------------|
| | | GC Method ^{a,*} |
| Aldrin | 309002 | 0.005 |
| Chlordane | 57749 | 0.1 |
| 4,4'-DDD | 72548 | 0.05 |
| 4,4'-DDE | 72559 | 0.05 |
| 4,4'-DDT | 50293 | 0.01 |
| Dieldrin | 60571 | 0.01 |
| a-Endosulfan | 959988 | 0.02 |
| b-Endosulfan | 33213659 | 0.01 |
| Endosulfan Sulfate | 1031078 | 0.05 |
| Endrin | 72208 | 0.01 |
| Heptachlor | 76448 | 0.01 |
| Heptachlor Epoxide | 1024573 | 0.01 |
| a-Hexachlorocyclohexane | 319846 | 0.01 |
| b-Hexachlorocyclohexane | 319857 | 0.005 |
| d-Hexachlorocyclohexane | 319868 | 0.005 |
| g-Hexachlorocyclohexane (Lindane) | 58899 | 0.02 |
| PCB 1016 | -- | 0.5 |
| PCB 1221 | -- | 0.5 |
| PCB 1232 | -- | 0.5 |
| PCB 1242 | -- | 0.5 |
| PCB 1248 | -- | 0.5 |
| PCB 1254 | -- | 0.5 |
| PCB 1260 | -- | 0.5 |
| Toxaphene | 8001352 | 0.5 |

Table II-4 Notes

a) GC Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML by 100 (see Chapter III, "Use of Minimum* Levels").

APPENDIX III

STANDARD MONITORING PROCEDURES

The purpose of this appendix is to provide direction to the Regional Boards on the implementation of the California Ocean Plan and to ensure the reporting of useful information. It is not feasible to cover all circumstances and conditions that could be encountered by all dischargers. Therefore, this appendix should be considered as the basic component of any discharger monitoring program. Regional Boards can deviate from the procedures required in the appendix only with the approval of the State Water Resources Control Board unless the Ocean Plan allows for the selection of alternate protocols by the Regional Boards. If no direction is given in this appendix for a specific provision of the Ocean Plan, it is within the discretion of the Regional Board to establish the monitoring requirements for the provision.

The following text is referenced by applicable chapter in the Ocean Plan. All references to 40 CFR PART 136 are to the revised edition of May 14, 1999.

Ocean Plan Chapter II. B. Bacterial Standards:

For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000. The detection methods used for each analysis shall be reported with the results of the analysis.

Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR PART 136, unless alternate methods have been approved in advance by US EPA pursuant to 40 CFR PART 136.

Detection methods used for enterococcus shall be those presented in EPA publication EPA 600/4-85/076, Test Methods for *Escherichia coli* and Enterococci in Water By Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate.

Ocean Plan Chapter II. H Table B. Compliance with Table B Objectives:

Procedures, calibration techniques, and instrument/reagent specifications used to determine compliance with Table B shall conform to the requirements of federal regulations (40 CFR PART 136). All methods shall be specified in the monitoring requirement section of waste discharge requirements.

Where methods are not available in 40 CFR PART 136, the Regional Boards shall specify suitable analytical methods in waste discharge requirements. Acceptance of data should be predicated on demonstrated laboratory performance.

Laboratories analyzing monitoring data shall be certified by the Department of Public Health, in accordance with the provisions of Section 13176 CWC, and must include quality assurance quality control data with their reports.

The State or Regional Board may, subject to EPA approval, specify test methods which are more sensitive than those specified in 40 CFR PART 136. Total chlorine residual is likely to be a method detection limit effluent limitation in many cases. The limit of detection of total chlorine residual in standard test methods is less than or equal to 20 ug/l.

Monitoring for the substances in Table B shall be required periodically. For discharges less than 1 MGD (million gallons per day), the monitoring of all the Table B parameters should consist of at least one complete scan of the Table B constituents one time in the life of the waste discharge requirements. For discharges between 1 and 10 MGD, the monitoring frequency shall be at least one complete scan of the Table B substances annually. Discharges greater than 10 MGD shall be required to monitor at least semiannually.

Compliance monitoring for the acute toxicity objective (TUa) in Table B shall be determined using an US EPA approved protocol as provided in 40 CFR PART 136. Acute toxicity monitoring requirements in permits prepared by the Regional Boards shall use marine test species instead of freshwater species when measuring compliance.

The Regional Board shall require the use of critical life stage toxicity tests specified in this Appendix to measure TUc. Other species or protocols will be added to the list after SWRCB review and approval. A minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

Use of critical life stage bioassay testing shall be included in waste discharge requirements as a monitoring requirement for all discharges greater than 100 MGD by January 1, 1991 at the latest. For other major dischargers, critical life stage bioassay testing shall be included as a monitoring requirement one year before the waste discharge requirement is scheduled for renewal.

The tests presented in Table III-1 shall be used to measure TUc. Other tests may be added to the list when approved by the State Board.

**TABLE III-1
APPROVED TESTS – CHRONIC TOXICITY (TUc)**

| <u>Species</u> | <u>Effect</u> | <u>Tier</u> | <u>Reference</u> |
|--|--|--------------------|-------------------------|
| giant kelp, <i>Macrocystis pyrifera</i> | percent germination; germ tube length | 1 | 1,3 |
| red abalone, <i>Haliotis rufescens</i> | Abnormal shell development | 1 | 1,3 |
| oyster, <i>Crassostrea gigas</i> ; mussels, <i>Mytilus spp.</i> | Abnormal shell development; percent survival | 1 | 1,3 |
| urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i> | Percent normal development | 1 | 1,3 |
| urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i> | Percent fertilization | 1 | 1,3 |
| shrimp, <i>Holmesimysis costata</i> | Percent survival; growth | 1 | 1,3 |
| shrimp, <i>Mysidopsis bahia</i> | Percent survival; growth; fecundity | 2 | 2,4 |
| topsmelt, <i>Atherinops affinis</i> | Larval growth rate; percent survival | 1 | 1,3 |
| Silversides, <i>Menidia beryllina</i> | Larval growth rate; percent survival | 2 | 2,4 |

Table III-1 Notes

The first tier test methods are the preferred toxicity tests for compliance monitoring. A Regional Board can approve the use of a second tier test method for waste discharges if first tier organisms are not available.

Protocol References

1. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. U.S. EPA Report No. EPA/600/R-95/136.
2. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving water to marine and estuarine organisms. U.S. EPA Report No. EPA-600-4-91-003.
3. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ.
4. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.

APPENDIX IV
PROCEDURES FOR THE NOMINATION AND DESIGNATION OF
AREAS* OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS).

1. Any person may nominate areas of ocean waters for designation as ASBS by the SWRCB. Nominations shall be made to the appropriate RWQCB and shall include:
 - (a) Information such as maps, reports, data, statements, and photographs to show that:
 - (1) Candidate areas are located in ocean waters as defined in the "Ocean Plan".
 - (2) Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.
 - (3) Candidate areas need protection beyond that offered by waste discharge restrictions or other administrative and statutory mechanisms.
 - (b) Data and information to indicate whether the proposed designation may have a significant effect on the environment.
 - (1) If the data or information indicate that the proposed designation will have a significant effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant environmental effects.
2. The SWRCB or a RWQCB may also nominate areas for designation as ASBS on their own motion.
3. A RWQCB may decide to (a) consider individual ASBS nominations upon receipt, (b) consider several nominations in a consolidated proceeding, or (c) consider nominations in the triennial review of its water quality control plan (basin plan). A nomination that meets the requirements of 1. above may be considered at any time but not later than the next scheduled triennial review of the appropriate basin plan or Ocean Plan.
4. After determining that a nomination meets the requirements of paragraph 1. above, the Executive Officer of the affected RWQCB shall prepare a Draft Nomination Report containing the following:
 - (a) The area or areas nominated for designation as ASBS.
 - (b) A description of each area including a map delineating the boundaries of each proposed area.
 - (c) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the Draft Nomination Report recommends approval of the proposed designation, the Draft Nomination Report shall comply with the CEQA documentation requirements for a water quality control plan amendment in Section 3777, Title 23, California Code of Regulations.

5. The Executive Officer shall, at a minimum, seek informal comment on the Draft Nomination Report from the SWRCB, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties. Upon incorporation of responses from the consulted agencies, the Draft Nomination Report shall become the Final Nomination Report.
6.
 - (a) If the Final Nomination Report recommends approval of the proposed designation, the Executive Officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in Section 3778, Title 23, California Code of Regulations and proceed to step 7 below.
 - (b) If the Final Nomination Report recommends against approval of the proposed designation, the Executive Officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the RWQCB itself.
7. The RWQCB shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste discharges within the area.
8. The RWQCB shall respond to comments as required in Section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).
9. The RWQCB shall consider the nomination after completing the required public review processes required by CEQA.
 - (a) If the RWQCB supports the recommendation for designation, the board shall forward to the SWRCB its recommendation for approving designation of the proposed area or areas and the supporting rationale. The RWQCB submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.
 - (b) If the RWQCB does not support the recommendation for designation, the Executive Officer shall notify interested parties of the decision, and no further action need be taken.
10. After considering the RWQCB recommendation and hearing record, the SWRCB may approve or deny the recommendation, refer the matter to the RWQCB for appropriate action, or conduct further hearing itself. If the SWRCB acts to approve a recommended designation, the SWRCB shall amend Appendix V, Table V-1, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and US EPA. In addition, after the effective date of a designation, the affected RWQCB shall revise its water quality control plan in the next triennial review to include the designation.
11. The SWRCB Executive Director shall advise other agencies to whom the list of designated areas is to be provided that the basis for an ASBS designation is limited to protection of marine life from waste discharges.

APPENDIX V
STATE WATER QUALITY PROTECTION AREAS
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE

TABLE V-1
STATE WATER QUALITY PROTECTION AREAS
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

| No. | ASBS Name | Date Designated | SWRCB Resolution No. | Region No. |
|-----|--|-----------------|----------------------|------------|
| 1. | Jughandle Cove | March 21, 1974, | 74-28 | 1 |
| 2. | Del Mar Landing | March 21, 1974, | 74-28 | 1 |
| 3. | Gerstle Cove | March 21, 1974, | 74-28 | 1 |
| 4. | Bodega | March 21, 1974, | 74-28 | 1 |
| 5. | Saunders Reef | March 21, 1974, | 74-28 | 1 |
| 6. | Trinidad Head | March 21, 1974, | 74-28 | 1 |
| 7. | King Range | March 21, 1974, | 74-28 | 1 |
| 8. | Redwoods National Park | March 21, 1974, | 74-28 | 1 |
| 9. | James V. Fitzgerald | March 21, 1974, | 74-28 | 2 |
| 10. | Farallon Islands | March 21, 1974, | 74-28 | 2 |
| 11. | Duxbury Reef | March 21, 1974, | 74-28 | 2 |
| 12. | Point Reyes Headlands | March 21, 1974, | 74-28 | 2 |
| 13. | Double Point | March 21, 1974, | 74-28 | 2 |
| 14. | Bird Rock | March 21, 1974, | 74-28 | 2 |
| 15. | Año Nuevo | March 21, 1974, | 74-28 | 3 |
| 16. | Point Lobos | March 21, 1974, | 74-28 | 3 |
| 17. | San Miguel, Santa Rosa, and Santa Cruz Islands | March 21, 1974, | 74-28 | 3 |
| 18. | Julia Pfeiffer Burns | March 21, 1974, | 74-28 | 3 |
| 19. | Pacific Grove | March 21, 1974, | 74-28 | 3 |
| 20. | Salmon Creek Coast | March 21, 1974, | 74-28 | 3 |
| 21. | San Nicolas Island and Begg Rock | March 21, 1974, | 74-28 | 4 |
| 22. | Santa Barbara and Anacapa Islands | March 21, 1974, | 74-28 | 4 |
| 23. | San Clemente Island | March 21, 1974, | 74-28 | 4 |

Table V-1 Continued on next page...

Table V-1 (Continued)
Areas of Special Biological Significance
(Designated or Approved by the State Water Resources Control Board)

| No. | ASBS Name | Date Designated | SWRCB Resolution No. | Region No. |
|------------|---------------------------------|------------------------|-----------------------------|-------------------|
| 24. | Laguna Point to Latigo Point | March 21, 1974, | 74-28 | 4 |
| 25. | Northwest Santa Catalina Island | March 21, 1974, | 74-28 | 4 |
| 26. | Western Santa Catalina Island | March 21, 1974, | 74-28 | 4 |
| 27. | Farnsworth Bank | March 21, 1974, | 74-28 | 4 |
| 28. | Southeast Santa Catalina | March 21, 1974, | 74-28 | 4 |
| 29. | La Jolla | March 21, 1974, | 74-28 | 9 |
| 30. | Heisler Park | March 21, 1974, | 74-28 | 9 |
| 31. | San Diego-Scripps | March 21, 1974, | 74-28 | 9 |
| 32. | Robert E. Badham | April 18, 1974 | 74-32 | 8 |
| 33. | Irvine Coast | April 18, 1974 | 74-32 | 8,9 |
| 34. | Carmel Bay | June 19, 1975 | 75-61 | 3 |

APPENDIX VI

Reasonable Potential Analysis Procedure for determining which Table B Objectives require effluent limitations

In determining the need for an effluent limitation, the Regional Water Board shall use all representative information to characterize the pollutant discharge using a scientifically defensible statistical method that accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and (unless otherwise demonstrated) assumes a lognormal distribution of the facility-specific effluent data.

The purpose of the following procedure (see also Figure VI-1) is to provide direction to the Regional Water Boards for determining if a pollutant discharge causes, has the reasonable potential to cause, or contributes to an excursion above Table B water quality objectives in accordance with 40 CFR 122.44 (d)(1)(iii). The Regional Water Board may use an alternative approach for assessing reasonable potential such as an appropriate stochastic dilution model that incorporates both ambient and effluent variability. The permit fact sheet or statement of basis will document the justification or basis for the conclusions of the reasonable potential assessment. This appendix does not apply to permits or any portion of a permit where the discharge is regulated through best management practices (BMP) unless such discharge is also subject to numeric effluent limitations.

Step 1: Identify C_o , the applicable water quality objective from Table B for the pollutant.

Step 2: Does information about the receiving water body or the discharge support a reasonable potential assessment (RPA) without characterizing facility-specific effluent monitoring data? If yes, go to *Step 13* to conduct an RPA based on best professional judgment (BPJ). Otherwise, proceed to *Step 3*.

Step 3: Is facility-specific effluent monitoring data available? If yes, proceed to *Step 4*. Otherwise, go to *Step 13*.

Step 4: Adjust all effluent monitoring data C_e , including censored (ND or DNQ) values to the concentration X expected after complete mixing. For Table B pollutants use $X = (C_e + D_m C_s) / (D_m + 1)$; for acute toxicity use $X = C_e / (0.1 D_m + 1)$; where D_m is the minimum probable initial dilution expressed as parts seawater per part wastewater and C_s is the background seawater concentration from Table C. For ND values, C_e is replaced with "<MDL;" for DNQ values C_e is replaced with "<ML." Go to *Step 5*.

Step 5: Count the total number of samples n , the number of censored (ND or DNQ) values, c and the number of detected values, d , such that $n = c + d$.

Is any *detected* pollutant concentration after complete mixing greater than C_o ? If yes, the discharge causes an excursion of C_o ; go to *Endpoint 1*. Otherwise, proceed to *Step 6*.

Step 6: Does the effluent monitoring data contain three or more detected observations ($d \geq 3$)? If yes, proceed to *Step 7* to conduct a parametric RPA. Otherwise, go to *Step 11* to conduct a nonparametric RPA.

Step 7: Conduct a parametric RPA. Assume data are lognormally distributed, unless otherwise demonstrated. Does the data consist entirely of detected values ($c/n = 0$)? If yes,

- calculate summary statistics M_L and S_L , the mean and standard deviation of the natural logarithm transformed effluent data expected after complete mixing, $\ln(X)$,
- go to *Step 9*.

Otherwise, proceed to *Step 8*.

Step 8: Is the data censored by 80% or less ($c/n \leq 0.8$)? If yes,

- calculate summary statistics M_L and S_L using the censored data analysis method of Helsel and Cohn (1988),
- go to *Step 9*.

Otherwise, go to *Step 11*.

Step 9: Calculate the UCB i.e., the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent distribution after complete mixing. For lognormal distributions, use $UCBL_{(.95,.95)} = \exp(M_L + S_L g'_{(.95,.95,n)})$, where g' is a normal tolerance factor obtained from the table below (Table VI-1). Proceed to *Step 10*.

Step 10: Is the UCB greater than C_o ? If yes, the discharge has a reasonable potential to cause an excursion of C_o ; go to *Endpoint 1*. Otherwise, the discharge has no reasonable potential to cause an excursion of C_o ; go to *Endpoint 2*.

Step 11: Conduct a non-parametric RPA. Compare each data value X to C_o . Reduce the sample size n by 1 for each tie (i.e., inconclusive censored value result) present. An adjusted ND value having $C_o < MDL$ is a tie. An adjusted DNQ value having $C_o < ML$ is also a tie.

Step 12: Is the adjusted $n > 15$? If yes, the discharge has no reasonable potential to cause an excursion of C_o ; go to *Endpoint 2*. Otherwise, go to *Endpoint 3*.

Step 13: Conduct an RPA based on BPJ. Review all available information to determine if a water quality-based effluent limitation is required, notwithstanding the above analysis in *Steps 1* through *12*, to protect beneficial uses. Information that may be used includes: the facility type, the discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information.

Is data or other information unavailable or insufficient to determine if a water quality-based effluent limitation is required? If yes, go to *Endpoint 3*. Otherwise, go to either *Endpoint 1* or *Endpoint 2* based on BPJ.

Endpoint 1: An effluent limitation must be developed for the pollutant. Effluent monitoring for the pollutant, consistent with the monitoring frequency in Appendix III, is required.

Endpoint 2: An effluent limitation is not required for the pollutant. Appendix III effluent monitoring is not required for the pollutant; the Regional Board, however, may require occasional monitoring for the pollutant or for whole effluent toxicity as appropriate.

Endpoint 3: The RPA is inconclusive. Monitoring for the pollutant or whole effluent toxicity testing, consistent with the monitoring frequency in Appendix III, is required. An existing effluent limitation for the pollutant shall remain in the permit, otherwise the permit shall include a

reopener clause to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a Table B water quality objective.

Appendix VI References:

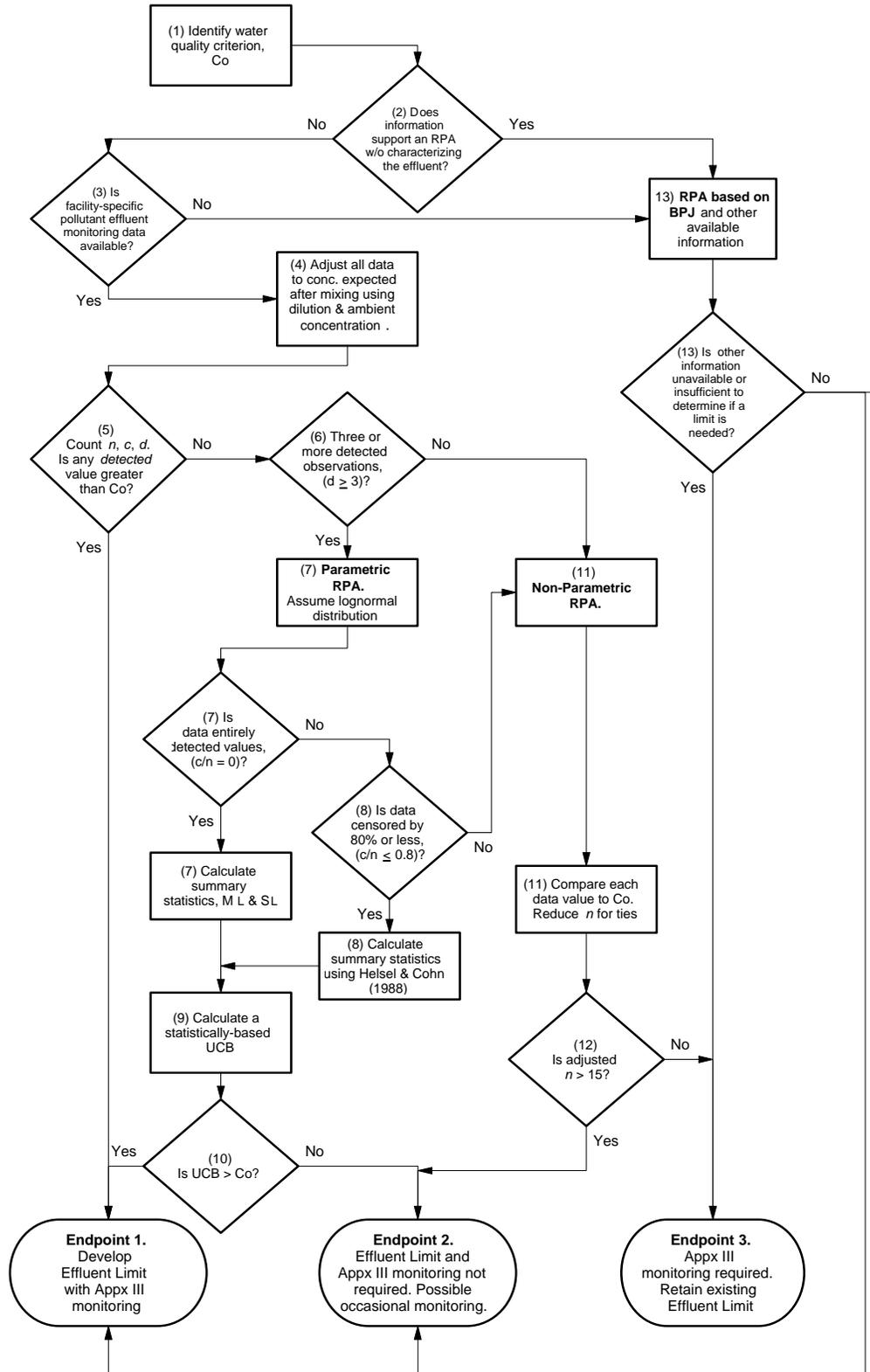
Helsel D. R. and T. A. Cohn. 1988. Estimation of descriptive statistics for multiply censored water quality data. *Water Resources Research*, Vol 24(12):1977-2004.

Hahn J. H. and W. Q. Meeker. 1991. *Statistical Intervals, A guide for practitioners*. J. Wiley & Sons, NY.

Table VI-1: Tolerance factors $g'_{(.95,.95,n)}$ for calculating normal distribution one-sided upper 95 percent tolerance bounds for the 95th percentile (Hahn & Meeker 1991)

| n | $g'_{(.95,.95,n)}$ | n | $g'_{(.95,.95,n)}$ |
|-----|--------------------|----------|--------------------|
| 2 | 26.260 | 21 | 2.371 |
| 3 | 7.656 | 22 | 2.349 |
| 4 | 5.144 | 23 | 2.328 |
| 5 | 4.203 | 24 | 2.309 |
| 6 | 3.708 | 25 | 2.292 |
| 7 | 3.399 | 26 | 2.275 |
| 8 | 3.187 | 27 | 2.260 |
| 9 | 3.031 | 28 | 2.246 |
| 10 | 2.911 | 29 | 2.232 |
| 11 | 2.815 | 30 | 2.220 |
| 12 | 2.736 | 35 | 2.167 |
| 13 | 2.671 | 40 | 2.125 |
| 14 | 2.614 | 50 | 2.065 |
| 15 | 2.566 | 60 | 2.022 |
| 16 | 2.524 | 120 | 1.899 |
| 17 | 2.486 | 240 | 1.819 |
| 18 | 2.453 | 480 | 1.766 |
| 19 | 2.423 | ∞ | 1.645 |
| 20 | 2.396 | | |

Figure VI-1. Reasonable potential analysis flow chart



APPENDIX VII

EXCEPTIONS TO THE CALIFORNIA OCEAN PLAN

**TABLE VII-1
EXCEPTIONS TO THE OCEAN PLAN**

(GRANTED BY THE STATE WATER RESOURCES CONTROL BOARD)

| Year | Resolution | Applicable Provision | Discharger |
|------|------------|--|--|
| 1977 | 77-11 | Discharge Prohibition, ASBS #23 | US Navy San Clemente Island |
| 1979 | 79-16 | Discharge Prohibition for wet weather discharges from combined storm and wastewater collection system. | The City and County of San Francisco |
| 1983 | 83-78 | Discharge Prohibition, ASBS #7 | Humboldt County Resort Improvement District No.1 |
| 1984 | 84-78 | Discharge Prohibition, ASBS #34 | Carmel Sanitary District |
| 1988 | 88-80 | Total Chlorine Residual Limitation | Haynes Power Plant Harbor Power Plant Scattergood Power Plant Alamitos Power Plant El Segundo Power Plant Long Beach Power Plant Mandalay Power Plant Ormond Beach Power Plant Redondo Power Plant |
| 1990 | 90-105 | Discharge Prohibition, ASBS #21 | US Navy San Nicolas Island |
| 2004 | 2004-0052 | Discharge Prohibition, ASBS #31 | UC Scripps Institution of Oceanography |
| 2006 | 2006-0013 | Discharge Prohibition, ASBS #25 | USC Wrigley Marine Science Center |
| 2007 | 2007-0058 | Discharge Prohibition, ASBS #4 | UC Davis Bodega Marine Laboratory |

APPENDIX VIII MAPS OF THE OCEAN, COAST, AND ISLANDS

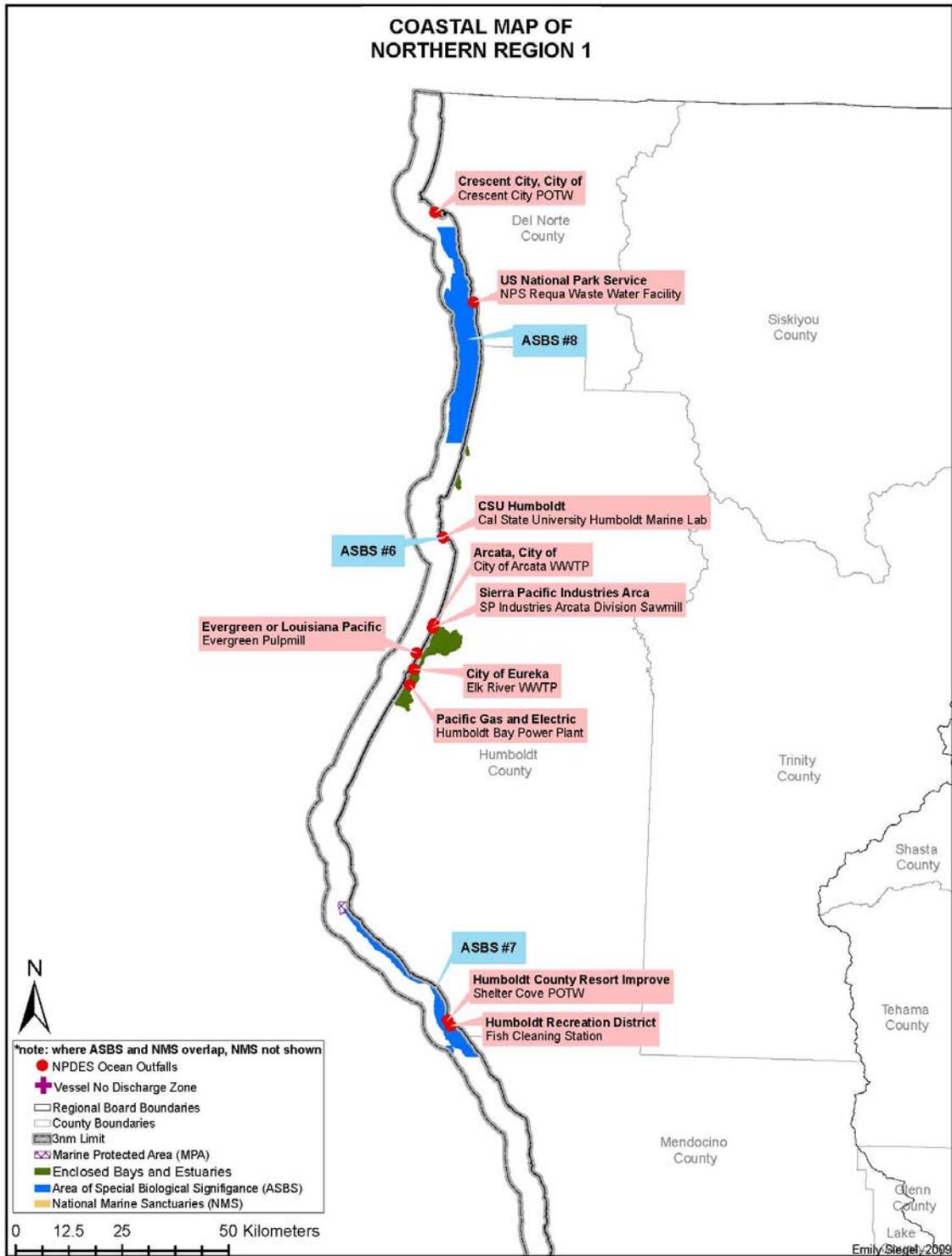


Figure VIII-1. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 1.

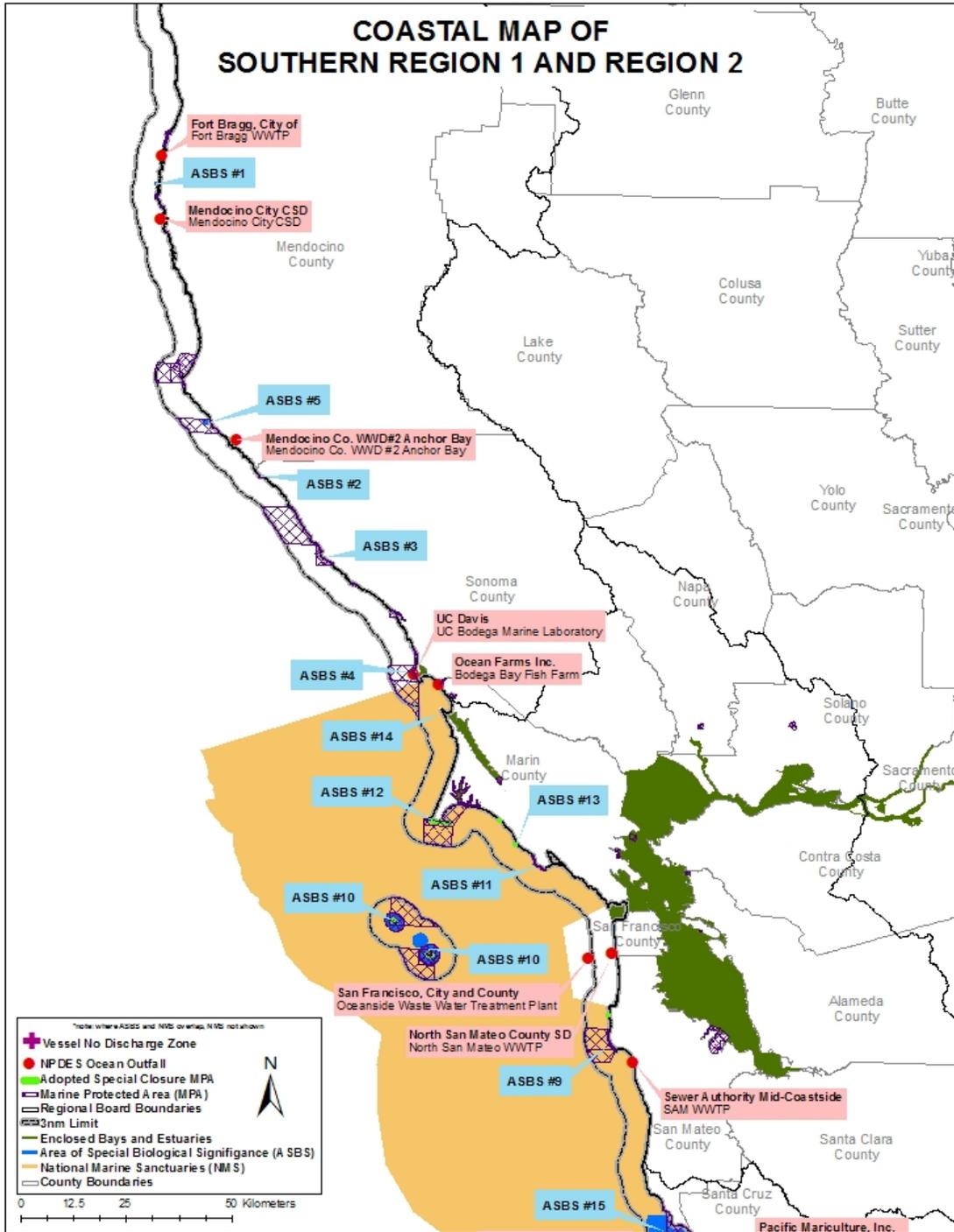


Figure VIII-2. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 1 and Region 2.

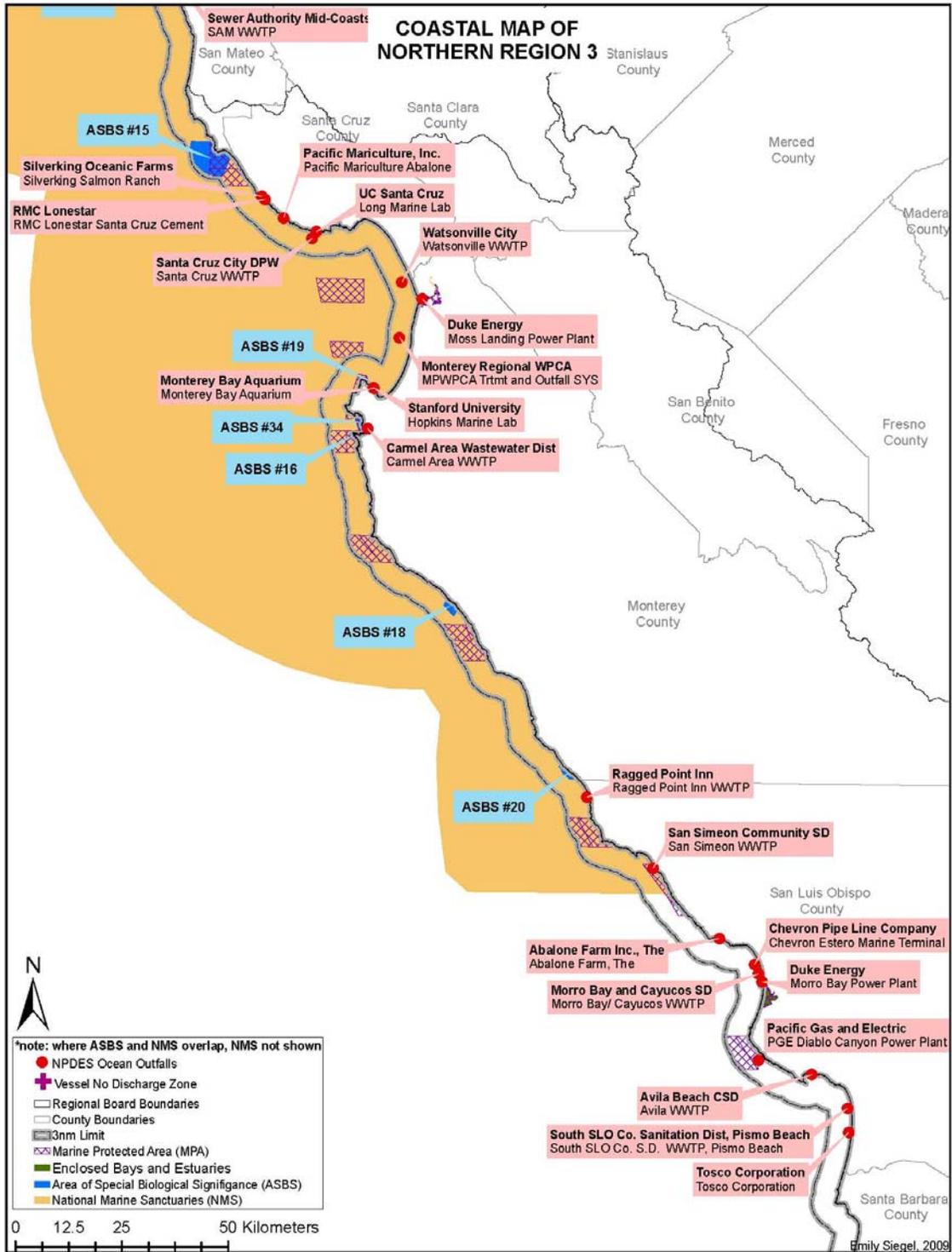


Figure VIII-3. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 3.

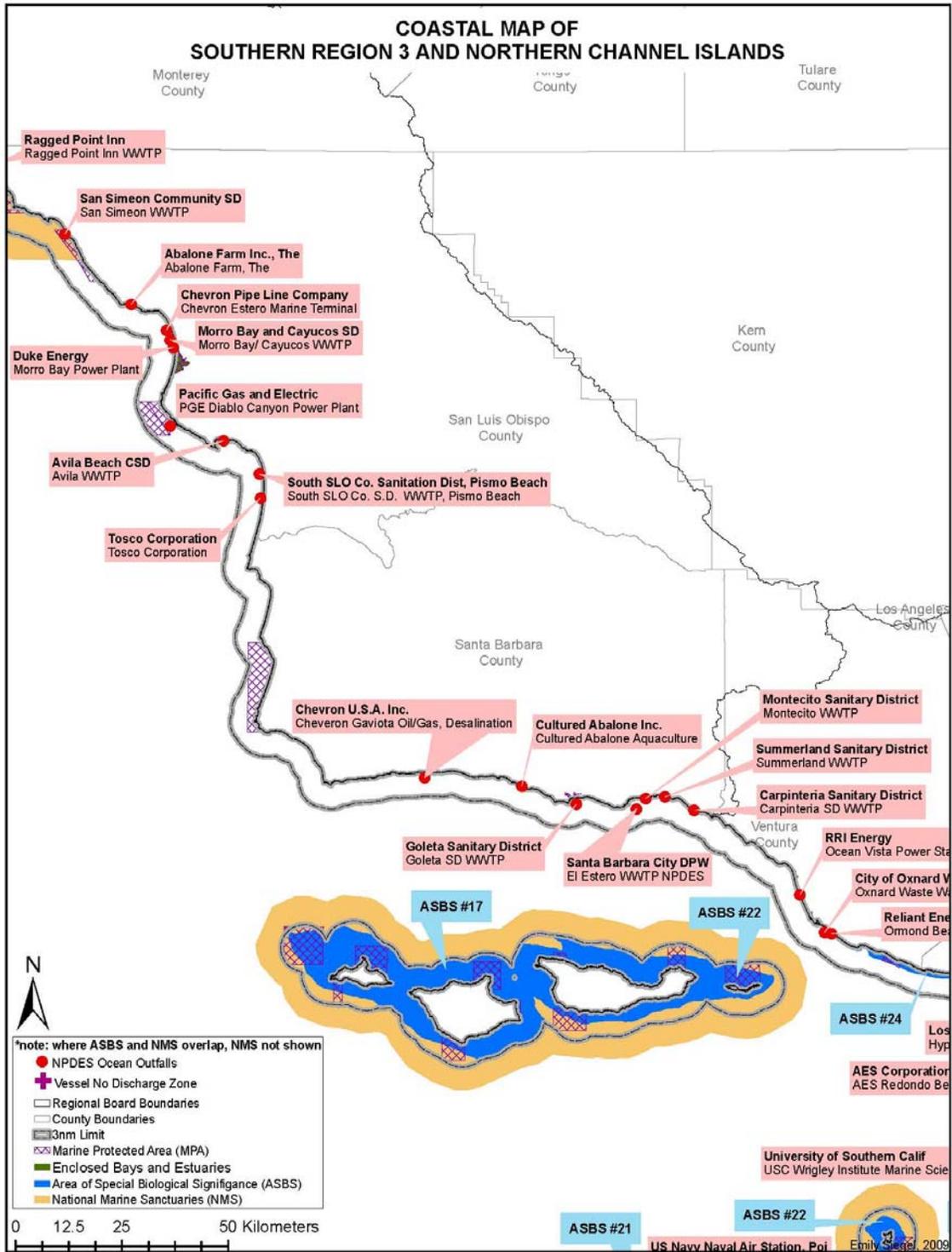


Figure VIII-4. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 3 and northern Channel Islands.

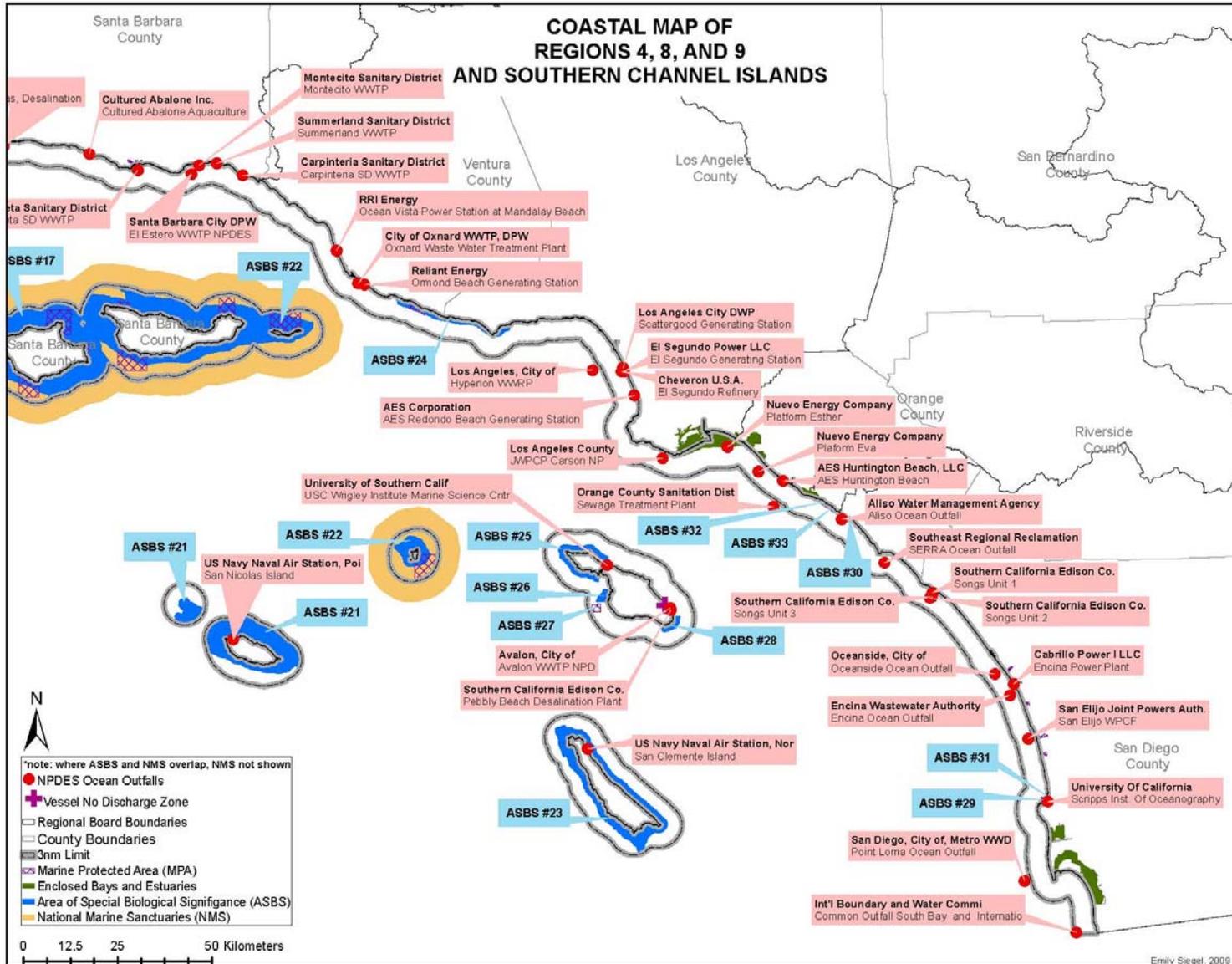


Figure VIII-5. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Channel Islands and Regions 4, 8 and 9.