

**Scoping Document**  
**Amendment of**  
**The Water Quality Control Plan**  
**Ocean Waters of California**  
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# **SCOPING DOCUMENT**

## **Amendment of The Water Quality Control Plan Ocean Waters of California**

### **REGULATORY BACKGROUND**

The California Water Code (CWC), Article 4 (commencing with Section 13160) of Chapter 3 of Division 7 requires the State Water Resources Control Board (State Water Board) to formulate and adopt a water quality control plan for the ocean waters of the state known as the California Ocean Plan (Ocean Plan). The Ocean Plan is the State's water quality control plan for ocean waters. It sets forth a program of implementation (including waste discharge limitations, monitoring, and enforcement) to ensure that water quality objectives are met. The State Water Board adopted the Ocean Plan in 1972, and has since periodically revised the Plan. The Ocean Plan was most recently amended in 2005.

Federal law [Section 303(c) (1) of the Clean Water Act (CWA)] and State law [Section 13170.2(b) of the CWC] require that ocean water quality standards be reviewed at least once every three years. The purpose of the triennial review of the Ocean Plan is to assure the continued adequacy of water quality standards. According to State Water Board direction in Resolution No. 2005-0080, regarding the California Ocean Plan Triennial Review and Work Plan 2005-2008, staff is required to develop amendments to address higher priority issues.

### **PROPOSED PROJECT**

The project is the State Water Board adoption of the proposed amendments to the Ocean Plan. The proposed amendments include the high priority issues as listed in the Triennial Review Work Plan 2005-2008. Each Issue is described in detail including a description of the issue, a listing of alternative measures, an analysis of the alternatives measures, and staff recommendations.

## **PROJECT DESCRIPTION**

This project, if approved by the State Water Board, will amend the 2005 Ocean Plan. According to Table 3 in the California Ocean Plan Triennial Review and Workplan 2005-2008, the following proposed amendments, separated into issues, are designated as having the highest priority for adoption:

Issue 2: Fecal Coliform Standard for Shellfish

Issue 6: Vessel Discharges

Issue 10: Desalination Facilities and Brine Disposal

Issue 13: Review Table B Water Quality Objectives

Issue 14: Regional Ambient Water Quality Monitoring

Issue: 15: Standard Monitoring and Reporting Requirements

Issue 17: Storm Water Discharges

Issue 18: Nonpoint Source

Issue 19: Expression of Metals in Ocean Plan

Issue 22: Suspended Solids Regulation in Table A

Issue 23: Plastic Debris Regulation

Issue 24: Acute Toxicity Definition

Issue 25: Non-Substantive Administrative Changes

Because Issues 14, 15, 17 and 18 all relate directly to ocean monitoring, these issues are addressed collectively as one amendment to Appendix III of the Ocean Plan. In addition, staff proposes to recommend non-substantive amendments (Issue 25 in the Triennial Review) originally designated in the Triennial Review Workplan as a medium priority.

## **ISSUE SUMMARIES**

### **Issue 2. FECAL COLIFORM STANDARD FOR SHELLFISH**

#### **PROBLEM**

Chapter II of the 2001 Ocean Plan contains bacterial water quality standards for areas where the designated beneficial uses of water include contact recreational water and shellfish harvesting. Currently there is no fecal coliform standard for areas where mariculture is a designated beneficial use and shellfish are harvested for human consumption.

#### **Regulatory Background**

In 1992, the Department of Health Services (DHS) suggested that the Ocean Plan be amended to add a fecal coliform standard of 14 organisms per 100 ml for waters of all areas where shellfish may be harvested for human consumption. The addition of a fecal coliform standard would make the Ocean Plan consistent with the National Shellfish Sanitation Program (NSSP) guidelines for commercial shellfish growing areas. Although the NSSP allows the regulating agency to use either total coliform or fecal coliform to regulate commercial shellfish growing areas, adding fecal coliform would make the Ocean Plan consistent with recreational and/or commercial shellfish growing water requirements of other coastal states, and consistent with California's regulations for commercial shellfish growing waters.

The U.S. Environmental Protection Agency (USEPA), in its 2002 Draft Implementation Guidance for Ambient Water Quality Criteria for Bacteria, continues to recommend the use of fecal coliform to protect shellfishing waters. The USEPA states that "If, at such time, data and information are compiled that support the use of these indicators (enterococcus and *Escherichia coli*) in shellfishing waters, the USEPA will revisit this issue and consider the development of a revised criterion that appropriately takes into account the exposure pathways associated with the consumption of shellfish. In the meantime, the USEPA continues to recommend the use of fecal coliforms for the protection of shellfishing waters."

#### **Addressing Non-Human Source of Bacteria**

USEPA approach for addressing non-human sources of bacteria in coastal recreational waters is described in the Code of Federal Regulations (CFR), in 40 CFR 131.41 (c) (1). The states must apply the *Escherichia coli* and *enterococci* criteria to all coastal recreational waters unless sanitary surveys and epidemiological studies show the source of indicator bacteria to be non-human and the indicator densities do not indicate a human health risk. In that case, it is reasonable for the state not to consider those natural sources of fecal contaminants in determining whether the standard is being attained. It should be

noted that USEPA has addressed this approach for recreation waters and has not applied it to the State's shellfish beneficial use.

### Current Regulatory Activities

An initial review of coastal Regional Water Quality Control Boards' (Regional Water Boards') Water Quality Control Plans (Basin Plans) show that vast sections of the near coastal ocean waters are designated as shellfish growing areas. Often, areas are listed both for shellfishing and for water contact recreational water. In these situations, the more stringent shellfish bacterial standard would supersede the water contact recreation standard, and could potentially result in an increase in 303(d) listings. The Shellfish Protection Act of 1993, described in detail below, affects commercial shellfish growing areas. As such, these areas have increased levels of monitoring, usually by DHS and the commercial growers, as well as by the Regional Water Boards.

### The Shellfish Protection Act of 1993

The Shellfish Protection Act (Act) of 1993 added sections 14950 through 14958 to the CWC. Whenever a commercial shellfish growing area is identified as threatened under the terms of the Act, the appropriate Regional Water Board is required to form a technical advisory committee (TAC) to investigate the problem and suggest remedial action. Current efforts to identify and remediate fecal contamination to shellfish growing waters have been directed toward commercial operations. Four of the six coastal commercial shellfish harvesting areas have been identified as threatened, and the Regional Water Boards have subsequently formed TACs. However, these areas are all in enclosed bays and not in near coastal ocean waters.

### Assembly Bill 459

Assembly Bill 459 (Chapter 770, Statutes of 1997) amended the California Health and Safety Code to require the DHS, as a pilot project, to conduct sanitary surveys for areas containing naturally occurring populations of shellfish that are harvested for human consumption. These areas were limited to: Pismo Beach, Morro Bay, Humboldt Bay, Tomales Bay, San Francisco Bay, Mission Bay, Little River Beach, Carpinteria State Beach, Padrero Lane Beach, Ventura Silver Strand, Holiday Beach, Palos Verdes Peninsula, Huntington Beach, Oceanside State Beach, Aqua Hedionda Lagoon, Batiquitos Lagoon, South San Diego Bay, and the mouth of the Ventura River. Many (but not all) of these areas are located in ocean waters. The surveys were to assess water quality and shellfish quality, and determine areas that are unfit for recreational shellfish harvesting based on NSSP standards. The pilot program was required during years when the Legislature designated sufficient funding, and remained in effect until January 1, 2004. The program was never funded.

### Development of Viral Standards

Prior to the use of wastewater treatment and disinfection, most water-borne illnesses were caused by bacterial agents. However, recent water-borne illness

outbreaks have been the result of viruses. It is widely recognized that bacterial indicator organisms and viruses differ in size, physiology, and susceptibility to physical treatment and disinfection. These differences limit the use of bacterial organisms (such as total and fecal coliform) as indicators of viral pathogens. With advances in technology, it is now feasible to detect various human viruses in both waters and shellfish tissue. However, analytical methods for viruses are not yet suitable for routine monitoring, as the sample collection and analyses are time-consuming and expensive. Also, staff does not have enough information on viral concentration and survivability in wastewater and receiving water to set a standard.

## ALTERNATIVES

1. No Action. Do not change the existing Ocean Plan standard for bacteria.
2. Amend the Ocean Plan by adding the DHS fecal coliform standard of 14 organisms per 100 ml for waters where shellfish may be harvested for human consumption, and amend the Ocean Plan to address non-human sources of indicator bacteria for all beneficial uses.
3. Add the DHS fecal coliform standard of 14 organisms per 100 ml in all areas.

## ANALYSIS

Alternative 1: No Action. Do not change the existing Ocean Plan standard for bacteria. This alternative would keep the Ocean Plan as it currently exists. This option provides inadequate protection to area where shellfish may be harvested for human consumption.

Alternative 2: Amend the Ocean Plan by adding the DHS fecal coliform standard of 14 organisms per 100 ml for waters where shellfish may be harvested for human consumption, and amend the Ocean Plan to address non-human sources of indicator bacteria for all beneficial uses. This change would make the Ocean Plan consistent with recreational and/or commercial shellfish growing water requirements of other coastal states, and consistent with California's regulations for commercial shellfish growing waters. The addition of a fecal coliform standard would make the Ocean Plan consistent with NSSP guidelines for commercial shellfish growing areas. The new fecal coliform standard would apply both in commercial shellfish growing waters and in those areas where recreational shellfish harvesting takes place. The standard would not be applicable where shellfish are not harvested for recreational or commercial purposes.

Addressing the natural background would assist when the indicator bacteria is determined to be non-human and the indicator densities do not indicate a human health risk; therefore, the State would not consider those non-human sources of fecal contaminants in determining whether the standard is being attained.

Alternative 3: Add the DHS fecal coliform standard of 14 organisms per 100 ml in all areas. This alternative would use the DHS fecal coliform standard of 14 organisms per 100 ml. However, this alternative would apply the new standard in all of the State's near-coastal ocean waters out to three nautical miles from shore regardless of whether shellfish is actually harvested or not. Furthermore non-human source of indicator bacteria (natural background) would not be considered in determining if standards are attained. The more stringent shellfish bacterial standard would effectively supersede the water contact recreation standard, and could potentially result in an increase in 303(d) listings without consideration of source of bacteria or the threat posed.

## PRELIMINARY RECOMMENDATION

Alternative 2: Amend the Ocean Plan by adding the DHS fecal coliform standard of 14 organisms per 100 ml for waters where shellfish may be harvested for human consumption, and amend the Ocean Plan to address non-human sources of indicator bacteria for all beneficial uses.

## Issue 6. VESSEL DISCHARGES

### PROBLEM

The 2005 Ocean Plan is specifically not applicable to the regulation of vessel discharges. The Introduction of the Ocean Plan, in Section C (2) specifically states: "This plan is not applicable...to vessel wastes..." The Ocean Plan could be revised to delete this exclusion and to incorporate, as appropriate, current law.

Pollutants associated with and/or directly attributed to vessel discharges include, but may not be limited to:

- non-indigenous, sometimes invasive, species from biofouling communities on vessel hulls and ballast water discharges;
- microbial pathogen contamination from sewage and gray water discharges;
- trash and garbage disposal, including plastic debris;
- a variety of other pollutants including, but not limited to, oily bilgewater, hazardous wastes, medical waste, photographic film processing waste, and dry-cleaning wastes; and

- antifouling hull coatings, such as those containing copper, and sacrificial zinc anodes designed to prevent corrosion, which continuously leach into receiving waters.

### Regulatory Background

Until recently, various waste streams discharged by cruise ships and large oceangoing vessels were largely unregulated. However, in recent years there has been a growing trend toward regulating these discharges under international treaties, in addition to increasing interest in regulation under the federal CWA and state law.

In October 2006, the State Water Board approved a revised 303(d) list that included listings of invasive species attributed to ballast water discharges. The Marine Invasive Species Act (as amended in SB 497, Simitian, 2006) in the California Public Resources Code requires the State Lands Commission, on or before January 1, 2008, to adopt regulations that require an owner or operator of a vessel carrying, or capable of carrying, ballast water which operates in the waters of the state to implement certain interim and final performance standards for the discharge of ballast water.

In general, the states are preempted from regulating sewage discharges from vessels under the CWA. Instead, pursuant to CWA section 312, USEPA, in consultation with the U.S. Coast Guard, has established standards for the “marine sanitation devices” (MSDs). CWA section 312 also authorizes the states, with USEPA approval, to establish areas in which the discharge of sewage from vessels is prohibited. State law currently requires the State Water Board to seek permission from USEPA to prohibit sewage discharges from large passenger vessels (cruise ships) and other oceangoing ships (300 gross tons or more) to ocean waters. The State Water Board has submitted an official request to USEPA for approval of the requested prohibition.

The Public Resources Code (PRC) also prohibits cruise ships and other oceangoing ships from discharging hazardous wastes, oily bilgewater, medical wastes, photographic film-processing wastes, and dry-cleaning wastes. Gray water discharges from cruise ships are banned, and gray water discharges from other large commercial vessels are subject to discharge restrictions.

### ALTERNATIVES

1. No Action. Do not change the existing Ocean Plan.
2. Amend the Ocean Plan to delete the exclusion for vessel wastes and to reflect current state and federal requirements governing vessel wastes.
3. Prohibit all waste discharges from all vessels, regardless of size or type (e.g., commercial, private recreational, barges, military vessels, etc.), with the exception of passive discharges from hulls.



## ANALYSIS

Alternative 1: No Action. Do not change the existing Ocean Plan: As noted above, the current Ocean Plan is outdated and is not protective of beneficial uses. If the Ocean Plan is not amended it will not be consistent with water quality laws governing vessel waste discharges. Inconsistency between the plan and state and federal laws will pose substantial difficulties for both dischargers and water quality regulators in interpretation, implementation, and compliance with these regulatory requirements.

Alternative 2: Amend the Ocean Plan to delete the exclusion for vessel wastes and to reflect current state and federal requirements governing vessel wastes. This option provides a much greater degree of protection for beneficial uses than is currently required in the Ocean Plan. This approach is consistent with the statutes and would ameliorate inconsistencies between the Ocean Plan and state and federal laws. This would aid both dischargers and water quality regulators in interpretation, implementation, and compliance, and thus ensure that the Ocean Plan's provisions facilitate discharger compliance. Furthermore, this option would not be disruptive to the State's marine economy.

Alternative 3: Prohibit all waste discharges from all vessels, regardless of size or type (e.g., commercial, private recreational, barges, military vessels, etc.), with the exception of passive discharges from hulls. This alternative would be difficult if not impossible for the regulated community to fully comply with due to excessive costs, absence of suitable replacement vessels, or technological retrofit solutions designed to prevent the discharge of the various waste streams described above.

For example, container vessels are generally designed to carefully manage ballast water loads to maintain stability while the vessel is being off-loaded, on-loaded, and while underway (e.g., due to swells and adverse weather conditions at sea). Commercial vessels generally have a useful life of 20-30 years, and each vessel costs millions of dollars to replace.

## PRELIMINARY RECOMMENDATION

Alternative 2: Amend the Ocean Plan to delete the exclusion for vessel wastes and to reflect current state and federal requirements governing vessel wastes.

## Issue 10. DESALINATION FACILITIES AND BRINE DISPOSAL

### PROBLEM

Currently, there is no Ocean Plan objective that applies specifically to brine waste discharges from desalination plants or groundwater desalination facilities. Untreated brine waste discharges into the ocean have different physical and

chemical properties than either wastewater treatment plant freshwater effluent or brine waste-freshwater mixtures. Brine wastes discharged into the ocean may form a dense plume that tends to settle to the ocean floor prior to eventual mixing with ocean water. The resulting effect of exposing benthic marine life to a dense, highly saline plume is not well understood, but staff is concerned about potential harmful effects.

Average ocean salinity worldwide is about 35 parts per thousand, or grams per kilogram (g/kg). The coastal marine waters of California generally have lower salinity than open ocean waters, due to runoff. 33.5 g/kg may be used as an approximate ocean salinity for California near coastal marine waters.

Preliminary studies on the effect of increased salinity to marine species were conducted by the Southern California Coastal Water Research Project (SCCWRP) in 1992. Percent normal development of purple sea urchin (*Strongylocentrotus purpuratus*) embryos were reduced 56 to 75 percent in salinities of 36.5 g/kg.

## ALTERNATIVES

1. No Action. Do not change the existing Ocean Plan.
2. Establish a narrative water quality objective where salinity should not exceed a certain percentage of natural background.
3. Establish a numeric water quality objective.

## ANALYSIS

Alternative 1: No Action. Do not change the existing Ocean Plan. This alternative would keep the Ocean Plan as it currently exists and it would not provide guidance for brine waste discharges necessary for protection of beneficial uses.

Alternative 2: Establish a narrative water quality objective where salinity should not exceed a certain percentage of natural background. Additional toxicological studies would need to be reviewed by staff from the scientific literature to firmly determine a percentage of natural background that is protective of beneficial uses. This option would provide protection for benthic marine organisms and other beneficial uses while also providing flexibility to Regional Water Boards for addressing the natural background, or where a site-specific desalination water quality objective is needed.

Alternative 3: Establish a numeric water quality objective. This alternative would set an absolute upper limit on saline discharges. A preliminary numeric water quality objective of 36.5 g/kg may be justified from the SCCWRP 1992 sea urchin embryo study. Additional toxicological studies would need to be reviewed by staff from the scientific literature. This option may be too prescriptive for Regional Water Boards in addressing the natural background (different in different portions of the State's ocean waters).

## PRELIMINARY RECOMMENDATION

Alternative 2: Establish a narrative water quality objective where salinity should not exceed a certain percentage of natural background.

### Issue 13. REVIEW TABLE B WATER QUALITY OBJECTIVES

#### PROBLEM

Staff considered the Table B objectives in order to identify any obvious deficiencies, and has determined that the radioactivity objective is not adequate. The Table B marine aquatic life objective for radioactivity in the 2005 Ocean Plan states: “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.” However the citation in Title 17 refers to human exposure (through occupational exposure) and references federal regulations on the same subject. The referenced section may have originally contained the radioactivity criteria for drinking water, which has since been moved to Title 22.

The current objective therefore may not provide protection for aquatic life, is instead applicable to human health, and is difficult to follow. A new objective is needed.

#### ALTERNATIVES

1. No Action. Do not amend the numeric radioactivity objective.
2. Adopt human health based objectives.
3. Adopt water quality objectives for aquatic life based on the standards proposed by the U.S. Department of Energy in 10 CFR Part 834.
4. Review literature and independently develop standards.

#### ANALYSIS

Alternative 1: No Action. Do not amend the numeric radioactivity objective. This alternative would keep the Ocean Plan as it currently exists and it would perpetuate the inadequate and confusing nature of this objective.

Alternative 2: Adopt human health based objectives. These are readily available in both federal and state regulatory standards. State and federal drinking water regulations have both gross radiation and specific isotope standards. USEPA approved (40 CFR) test methods exist for these parameters and the standards are in units applicable to water analysis. However, these existing regulations do

not address marine life. Other existing state and federal human health regulations are less applicable to water quality testing, requiring conversions based on nominal masses for aquatic life, but do cover many more isotopes than drinking water standards. Applying existing human health regulatory criteria to marine life protection would require significant work. In addition significant supporting information would need to be developed in order to bring those regulations into a framework suitable for aquatic life protection and normal test practices.

Alternative 3: Adopt water quality objectives for aquatic life based on the standards proposed by the U.S. Department of Energy in 10 CFR Part 834. The U.S. Department of Energy (DOE) expended a significant amount of effort to examine the literature (in 1993) and review public comments received as recently as 1996. It is not known if the state can obtain the support records, but the effort would save the state much work in re-finding the information. Some additional work may be needed by the state in finding new information generated since the last effort by DOE. The state would lack a simple citation of a federal regulation, but the product would be more scientifically sound than adopting human health criteria. The state would also have to devise a monitoring system that would work with the analytical units cited in the proposed federal regulation.

Alternative 4: Review literature and independently develop standards. This effort is much like the above in that the state would expend work examining literature, but the end product may not be the same. This alternative would allow the state greater flexibility in the selection of appropriate endpoints, choice of indicators and threshold selection, assuming that the literature composed of studies and supporting information are available. This Alternative would require the Water Board to devote significant resources and time to this effort. In addition, staff from other agencies such as the Office of Environmental Health Hazard Assessment would need to make a significant contribution as well for this Alternative to be successful. Also as above, the state would have to devise an implementation and monitoring program.

#### PRELIMINARY RECOMMENDATION

Alternative 3: Adopt water quality objectives for aquatic life based on the standards proposed by the U.S. Department of Energy in 10 CFR Part 834. This approach is most directly applicable to aquatic life and is scientifically supportable.

Issue 14. REGIONAL AMBIENT WATER QUALITY MONITORING

Issue 15. STANDARD MONITORING AND REPORTING REQUIREMENTS

Issue 17. STORM WATER DISCHARGES

Issue 18. NONPOINT SOURCE

The proposed monitoring amendment addresses four high priority issues: Regional Ambient Water Quality Monitoring, Standard Monitoring and Reporting Requirements, Storm Water Discharges, and Nonpoint Source.

Background: Appendix III of the Ocean Plan includes standard monitoring procedures that provide direction to the Regional Water Boards in developing monitoring programs to accompany discharge permits. These standard monitoring procedures reference analytical methods required for compliance with the bacterial, chemical, and toxicity requirements. Staff are considering additional consistent monitoring elements to be included in Appendix III.

USEPA recommended that any modifications to the Appendix III standard monitoring requirements should be worded carefully so as not to lock in sampling, monitoring, or data management protocols that may quickly become outdated. Therefore, a model monitoring approach is proposed.

Staff conducted a series of public workshops to consider consistent monitoring elements for ocean discharge monitoring programs to provide effective protections for valuable marine resources in a cost effective manner. The first Model Ocean Discharge Monitoring Workshop was held on May 5, 2005. Staff presented the 2005 Ocean Plan monitoring standards and considered stakeholder verbal comments. A second stakeholder meeting was held in February 7, 2006. Stakeholders recommended that staff put together a “straw man” preliminary proposal for amending the monitoring procedures. Staff circulated the preliminary straw man proposal. Three stakeholder meetings were held in August 2006, where staff presented the straw man proposal and solicited comments. Staff received verbal and written comments on the straw man proposal. To address these comments, staff drafted a new preliminary draft amendment including reorganization of the current Appendix III of the Ocean Plan. This proposal incorporates a model ocean discharge monitoring approach, including regional monitoring. It also includes minimum standard monitoring and reporting requirements for traditional point sources, storm water point sources, and nonpoint source monitoring

## ALTERNATIVES

1. No Action. Do not change the existing monitoring procedures.
2. Use a Model Monitoring Approach providing flexibility in implementing standard monitoring procedures, but without minimum requirements.
3. Use a Model Monitoring Approach providing flexibility in implementing standard monitoring procedures, with minimum requirements to provide consistent statewide ocean monitoring.
4. Use a prescriptive approach to all ocean discharges from all sources.

## ANALYSIS

Alternative 1: No Action. Do not change the existing monitoring procedures. This alternative would keep the Ocean Plan as it currently exists and it would not provide up-to-date guidance necessary for Regional Water Boards' and dischargers' implementation of the Ocean Plan. This option will not result in consistent monitoring information necessary to manage storm water point source and nonpoint source discharges into the marine environment.

Alternative 2: Use a Model Monitoring Approach providing flexibility in implementing standard monitoring procedures, but without minimum requirements. Standard Monitoring Procedures, Appendix III would be amended to include a model monitoring framework. The model monitoring framework is question-driven and recognizes three components of model monitoring that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) special studies. The new monitoring requirements would include the basic model monitoring framework. This approach would provide maximum flexibility when designing the monitoring for National Pollutant Discharge Elimination System (NPDES) permits, Waste Discharge Requirements (WDRs) and Waivers of WDRs. However, a major drawback to this approach is that it would not set minimum requirements. This would very likely result in an undesirable lack of consistency between ocean discharger monitoring programs in different regions.

Alternative 3: Use a Model Monitoring Approach providing flexibility in implementing standard monitoring procedures, with minimum requirements to provide consistent statewide ocean monitoring. Standard Monitoring Procedures, Appendix III of Ocean Plan would be reorganized using a model monitoring framework to provide flexibility and consistency. Again, the model monitoring framework is question-driven and recognizes three components of model monitoring that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) special studies. The new monitoring requirements would include the basic model monitoring framework, and would provide guidance for applying this framework to traditional point sources, storm water point sources, and nonpoint source agricultural and golf course discharges. Minimum monitoring requirements would be identified. This approach still provides flexibility when designing the monitoring for NPDES permits, Waste Discharge Requirements (WDRs) and Waivers of WDRs, and provides a consistent statewide ocean monitoring program.

Alternative 4: Use a prescriptive approach to all ocean discharges from all sources. This alternative would include specific elements for the design of monitoring programs including the frequency of monitoring, type of monitoring, and list of constituents for each source of discharges. This approach is not question-driven and would likely result in unnecessary monitoring. The overriding disadvantage to this approach is that flexibility would not be allowed in designing a monitoring programs based on site-specific needs.

## PRELIMINARY RECOMMENDATION

Ocean Unit staff recommends adopting Alternative 3. This approach will provide information to effectively manage discharges in order to protect valuable marine resources. (See Attachment 1 for the preliminary draft amendment to Appendix III.)

## Issue 19. EXPRESSION OF METALS IN OCEAN PLAN

### PROBLEM:

The Ocean Plan does not explicitly specify whether metal concentrations in Tables B, C, and D apply as total recoverable metals or as the dissolved metals fraction.

Historically, State Water Board staff documents provide an implicit understanding that all metals objectives in the Ocean Plan are to be expressed as total recoverable concentrations.

### ALTERNATIVES:

1. No Action: Do not amend the Ocean Plan.
2. Amend the Ocean Plan to clarify that metals are expressed as total recoverable concentrations.

### ANALYSIS

Alternative 1: No Action. Do not amend the Ocean Plan. If the Ocean Plan is not amended the metal concentrations stated in Tables B, C, and D will remain unclear, whether total or dissolved metals are required, especially to those without historical experience in complying with the Ocean Plan.

Alternative 2: Amend the Ocean Plan to clarify that metals are expressed as total recoverable concentrations. The Ocean Plan should be amended with the statement “unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.” Amending the Ocean Plan to clearly state that all metals concentrations are expressed as total recoverable concentrations

would accurately reflect the historic record. This approach would allow for more explicit direction for the users to ensure the correct analyses of metals are conducted.

#### PRELIMINARY RECOMMENDATION:

Alternative 2: Amend the Ocean Plan to clarify that metals are expressed as total recoverable concentrations.

#### Issue 22. SUSPENDED SOLIDS REGULATION IN TABLE A

##### PROBLEM:

The suspended solids effluent limitation in Table A was adopted in 1983 and is applicable to both publicly owned treatment works (POTWs) and industrial discharges. One year later, in 1984, USEPA promulgated secondary treatment standards for suspended solids at 40 CFR 133 applicable to all municipal wastewater treatment plants. The current Table A suspended solids effluent limitation, however, is not consistent with the US EPA secondary treatment standards. The Table A suspended solids effluent limitation is as follows: "Dischargers shall, as a 30-day average removes 75 percent 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."

USEPA has promulgated a minimum level of suspended solids effluent quality in the secondary treatment standards in 40 CFR 133.102: the 30-day average shall not exceed 30 mg/L and shall not be less than 85 percent removal. This regulation is more stringent than the 2005 Ocean Plan.

Most municipal wastewater treatment facilities discharging to the ocean are now required in NPDES permits to meet these secondary treatment standards. However, there are still five ocean dischargers that discharge only primary treated wastewater for at least some portion of the year: Morro Bay, Goleta, Orange County, San Diego Point Loma, and the International Sewage Treatment Plant (four of these, Morro Bay, Goleta, Orange County, and San Diego Point Loma have CWA 301(h) waivers issued by USEPA). While there are plans to convert many of these primary treated discharges to secondary treatment, not all are committed at this point.

##### ALTERNATIVES

1. No Action. Do not change the Ocean Plan Table A suspended solids effluent limitations.
2. Amend the Ocean Plan Table A suspended solids effluent limitations using the 40 CFR 133.102 treatment standards, to be effective upon adoption.



3. Amend the Ocean Plan Table A suspended solids effluent limitations using the 40 CFR 133.102 treatment standards, to be effective within five years after adoption.
4. Clarify that Table A suspended solids effluent limitations do not apply to POTWs.
5. Delete the Ocean Plan Table A suspended solids effluent limitations entirely.

## ANALYSIS

Alternative 1: No Action. Do not change the Ocean Plan Table A suspended solids effluent limitations. This approach would not be consistent with current USEPA technological standards.

Alternative 2: Amend the Ocean Plan Table A suspended solids effluent limitations using the 40 CFR 133.102 treatment standards, to be effective upon adoption. This approach would be consistent with the currently recognized technology standards, secondary treatment, which provides higher quality effluent. This approach is more immediately protective of beneficial uses. However, this approach would require permittees to install, design, and construct full secondary sewage treatment facilities to be operable during their next permit cycle. It may be unreasonable to expect immediate compliance, and immediate compliance may also result in an economic hardship for some dischargers.

Alternative 3: Amend the Ocean Plan Table A suspended solids effluent limitations using the 40 CFR 133.102 treatment standards, to be effective within five years after adoption. This approach would be consistent with the currently recognized technology standards, secondary treatment, which provides higher quality effluent. This approach is protective of beneficial uses. However, it allows permittees to plan for, design, and construct full secondary sewage treatment facilities in a more reasonable timeframe.

Alternative 4: Clarify that Table A suspended solids effluent limitations do not apply to POTWs. The CWA imposes secondary treatment requirements as a minimum technology for POTWs unless the discharger obtains a CWA section 301(h) variance. This secondary treatment regulation obviates the need for the Table A suspended solids effluent limitation to apply to POTWs. If language is added to clarify that the Table A effluent limitation does not apply to POTWs, the effluent limitation will still apply to industrial discharges for which Effluent Limitations Guidelines have not been established.

Alternative 5: Delete the Ocean Plan Table A suspended solids effluent limitations entirely. This option will defer the regulation of suspended solids to the existing federal regulation at 40 CFR 130 for POTWs. Industrial discharges without Effluent Limitations Guidelines will no longer have a statewide suspended solids effluent limitation.

## PRELIMINARY RECOMMENDATION:

The State Water Board's Ocean Unit staff recommends adopting Alternative 3. The Ocean Plan would be amended to modify suspended solids effluent limitation for secondary treatment consistent with 40 CFR 133, but compliance would be required within five years of adoption. The revised suspended solids effluent limitation would continue to be applicable to both POTWs and industrial dischargers.

## Issue 23. PLASTIC DEBRIS REGULATION

### PROBLEM

The Ocean Plan has water quality objectives in Table B for specific phthalate compounds that may be used as additives to plastic products. The Ocean Plan also has narrative objectives for floating particulates (“...shall not be visible.”) and on inert solids (“...sediments shall not be changed such that benthic communities are degraded.”) with corresponding implementation provisions. The general provisions of the Water Quality Objectives of the Ocean Plan “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.” However, these water quality objectives do not specifically address plastic debris or other trash. Therefore the Ocean Plan is not fully protective of beneficial uses, and does not reflect the importance of protecting the ocean from trash.

### Background

There are estimates that approximately 60 to 80 percent of marine debris in the world's oceans originates from land-based sources. Large pieces of plastic debris (e.g., derelict fishing gear and discarded plastic packaging) cause entanglement; this may constrict the animals' movements, or kill through starvation, exhaustion, or infection from deep wounds. Worldwide, millions of seabirds, sea turtles, fish, and marine mammals are estimated to become entangled in discarded plastic debris each year.

Other forms of plastic debris are ingested by marine life. Plastics in the marine environment may concentrate persistent hydrophobic pollutants and may have the potential to transport them throughout the marine food web. Plastic polymers, depending on their chemical composition, also leach toxic compounds such as phthalate esters, phenolics, and vinyl chloride monomer. Plastic debris may have the ability to accumulate toxins. As they drift through the sea, plastic pellets and plastic debris may accumulate non-water soluble toxins orders of magnitude greater in concentration than the seawater itself. Once ingested certain pollutants may then bioaccumulate as they pass through successive trophic levels.

On February 8, 2007, the California Ocean Protection Council (OPC) adopted a resolution affirming the State's commitment to reducing plastic and other marine debris. In that resolution the OPC promoted fundamental state policy changes to prioritize the issue of marine debris reduction. The resolution specifically included the State Water Board's prioritization of a plastic debris amendment to the Ocean Plan.

## ALTERNATIVES

1. No Action. Do not amend the Ocean Plan.
2. Amend the Ocean Plan narrative objectives to state that ocean water shall not contain trash including, but not limited to, plastic debris to the extent that it would cause nuisance or adversely affect beneficial uses, and require that all waste streams be essentially free of trash including plastic debris.
3. Amend the Ocean Plan narrative objectives to state that ocean water shall absolutely not contain trash including, but not limited to, plastic debris, and require an absolute prohibition of trash, including plastic debris, in all waste streams (i.e. zero discharge).

## ANALYSIS

Alternative 1: No Action. Do not amend the Ocean Plan. The current Ocean Plan will remain outdated. If the Ocean Plan is not amended as described above in Alternative 1, its requirements will not address the growing waste stream of plastic and other trash impacting beneficial uses in our near coastal waters.

Alternative 2: Amend the Ocean Plan narrative objectives to state that ocean water shall not contain trash including, but not limited to, plastic debris to the extent that it would cause nuisance or adversely affect beneficial uses, and require that all waste streams be essentially free of trash including plastic debris. This Alternative would require that trash, including plastic debris, shall not be present in our marine environment so as to result in a nuisance condition or to the extent that beneficial uses are impacted. Levels of trash in our ocean waters and on the beach that affect aesthetics or provide a danger to marine life would not be allowed. The requirement that all waste streams including runoff be essentially free of trash would implement that objective. "Essentially free" does not mean a zero discharge prohibition. Incidental very low levels of trash would not result in violations if Regional Water Boards find that such levels do not cause a nuisance or impact beneficial uses.

Alternative 3: Amend the Ocean Plan narrative objectives to state that ocean water shall absolutely not contain trash including, but not limited to, plastic debris, and require an absolute prohibition of trash, including plastic debris, in all waste streams (i.e., zero discharge): This alternative would result in a zero discharge prohibition. This would be extremely difficult to meet. Even under the best circumstances and intentions, a discharger may never be able to comply with such a stringent standard, resulting in potential penalties even when

beneficial uses are being completely protected and there is no nuisance condition resulting from de minimis levels of trash that escape treatment or other controls. This would place a heavy burden on the regulated community yet may not provide a significant benefit to the environment.

## PRELIMINARY RECOMMENDATION

Alternative 2: Amend the Ocean Plan narrative objectives to state that ocean water shall not contain trash including, but not limited to, plastic debris to the extent that it would cause nuisance or adversely affect beneficial uses, and require that all waste streams be essentially free of trash including plastic debris.

## Issue 24. ACUTE TOXICITY DEFINITION

### PROBLEM

Two problems arise from the equation found in the acute toxicity ( $T_{Ua}$ ) definition in Appendix 1 of the Ocean Plan,

$$T_{Ua} = \log(100 - S) / 1.7$$

First, the equation does not account for mortality in the control concentration. Most acute toxicity protocols allow all toxicity responses to be adjusted for control mortality. Second, the equation produces a  $T_{Ua}$  value of zero when survival in undiluted effluent is greater than 99 percent. This zero value creates computation problems when performing a reasonable potential assessment using the recently promulgated procedures in Appendix IV.

### ALTERNATIVES

1. No Action. Do not change the Appendix I definition of acute toxicity.
2. Revise the definition as follows:

$$S_a = 100 * S / S_c, \quad S_c > S \text{ and } S_c > \text{minimum TAC}$$

$$\begin{aligned} T_{Ua} &= \log(100 - S_a) / 1.7, & 50 \leq S_a \leq 98 \\ T_{Ua} &< 0.18, & S_a > 98 \end{aligned}$$

where,

$S_a$  = percent survival in 100 percent effluent *adjusted* for control response.

$S$  = percent survival in 100 percent effluent unadjusted for control response.

$S_c$  = percent survival in control, i.e., 0 percent effluent.

## ANALYSIS

Alternative 1: No Action. Do not change the Appendix I definition of acute toxicity. This approach would not rectify the current problems in the acute toxicity definition in the Ocean Plan.

Alternative 2: Revise the acute toxicity definition. This approach would correct the problem. The adjustment works by first defining the adjusted survival in 100 percent effluent. Next, the adjusted survival is entered into the existing equation. Adjusted percent survivals greater than 98 percent will result in a TUa value of “< 0.18.”

## PRELIMINARY RECOMMENDATION

Alternative 2. Revise the acute toxicity equation to let any survival of more than 98 percent be equal to “no toxicity.”

## Issue 25. NON-SUBSTANTIVE ADMINISTRATIVE CHANGES

### PROBLEM

The Ocean Plan has evolved considerably over time, addressing many important and substantive issues. However, certain typographical corrections need to be made, anachronisms need to be corrected, overall format needs improvement, and certain non-substantive features may need to be added. Some examples are:

1. There is currently no map of the coastline in the Ocean Plan identifying ocean waters and enclosed bays.
2. Section III (F) (1) is out-dated.
3. Toxicity definitions need correcting.
4. The list of “Exceptions” in Appendix VII needs updating.

### PRELIMINARY RECOMMENDATION

Make non-substantive improvements including but not limited to:

The addition of a map(s) of the coastline identifying ocean waters and enclosed bays that compliments the existing definitions and applicability of the Ocean Plan. This would be an improvement for the users of the Ocean Plan.

Section III (F) (1) should be deleted. It was first included in the Ocean Plan in 1972, to ensure that permits for existing dischargers be amended to ensure compliance with the 1972 plan, and with the CWA deadlines for technology and

water quality-based requirements. The provision should be removed because it is no longer necessary and it is confusing.

In the Acute Toxicity definition in Appendix I, there is a reference to Appendix III, Chapter II, which is circular and confusing. Chapter II is in the main body of the Ocean Plan and is not part of Appendix III. This should be corrected. Also, the Chronic Toxicity definition references critical life stage tests in Appendix II instead of Appendix III, Table III-1. The Chronic Toxicity definition's reference to critical life stage tests should be changed to Appendix III, Table III-1.

The list of exceptions in Appendix VII should be updated to reflect the exception approved in 2006 for the University of Southern California Wrigley Institute's Area of Special Biological Significance discharge, and any other exceptions granted prior to the adoption of further amendments to the Ocean Plan.