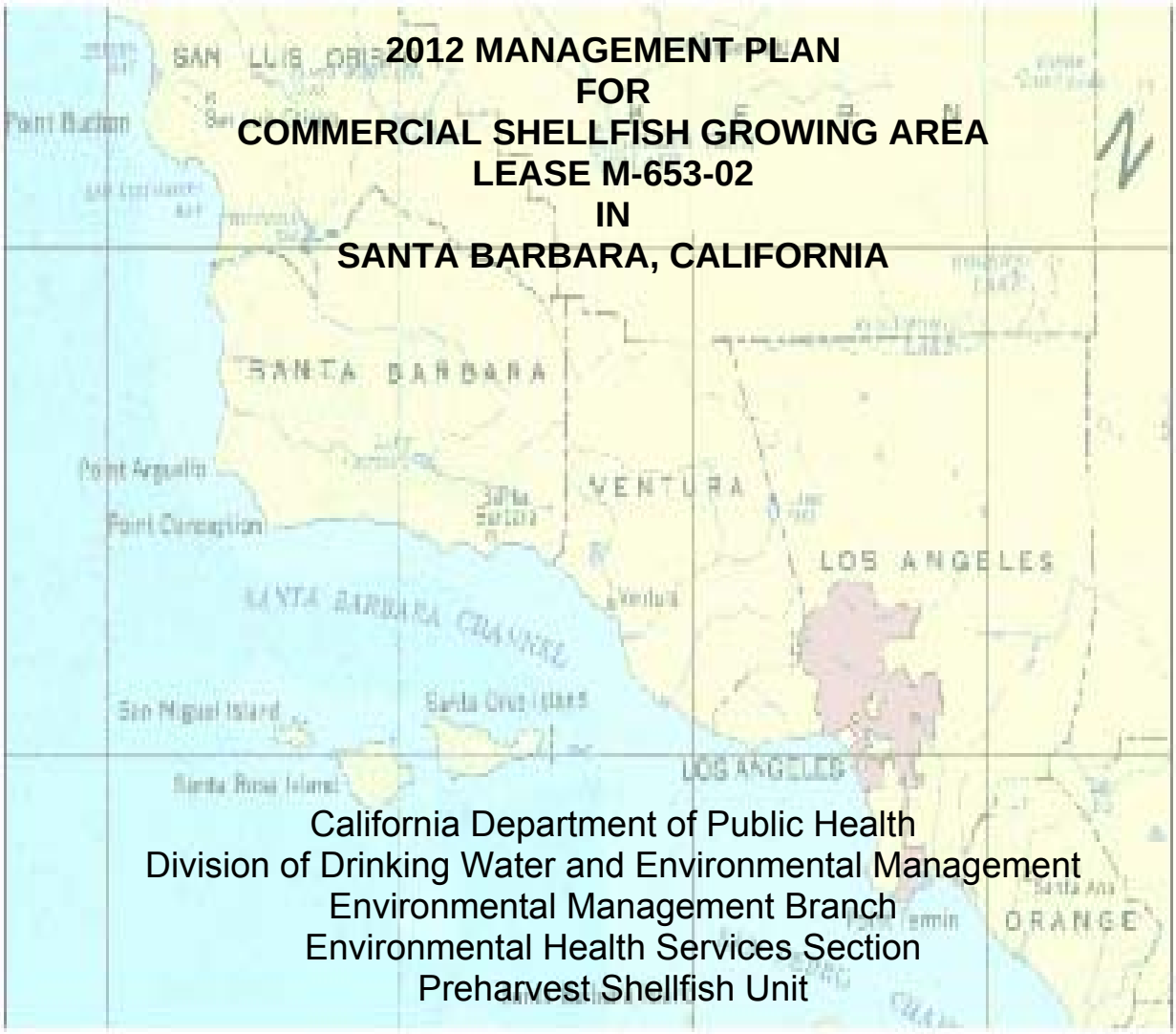
Technical Report # 12-03

2012 MANAGEMENT PLAN
FOR
COMMERCIAL SHELLFISH GROWING AREA
LEASE M-653-02
IN
SANTA BARBARA, CALIFORNIA



California Department of Public Health
Division of Drinking Water and Environmental Management
Environmental Management Branch
Environmental Health Services Section
Preharvest Shellfish Unit

January 2012

I. EXECUTIVE SUMMARY

This Management Plan for the commercial shellfish growing on state aquaculture Lease M-653-02 in the Santa Barbara Channel, California, was developed pursuant to the National Shellfish Sanitation Program (NSSP) Model Ordinance, Chapter IV (2009). The Management Plan has been prepared for adoption in accordance with the procedures set forth in Division 104, Part 6, Chapter 5 of the California Health and Safety Code Section 112150 et seq. Any temporary closures to shellfish harvesting that may be declared pursuant to this Management Plan after its adoption shall be deemed to meet the requirements of Section 112160, Health and Safety Code, pertaining to notice and opportunity to submit data, views, or arguments. This Management Plan establishes the standards and procedures used to regulate commercial shellfish harvesting at the Lease M-653-02 Aquaculture area.

The primary purpose of the Management Plan is to define the criteria and procedures used by the State shellfish authority for determining when bivalve shellfish can be harvested for marketing from a shellfish growing area classified as *Conditionally Approved.* Harvest activities may only occur during times when the respective growing area is open to shellfish harvesting as described in this document.

The California Department of Public Health (CDPH) is the lead agency in the State shellfish sanitation program, which certifies and regulates sanitary procedures followed in the harvesting, handling, processing, storage, and distribution of bivalve molluscan shellfish intended for sale for human consumption. Within CDPH, the Environmental Management Branch in the Division of Drinking Water and Environmental Management regulates water quality and shellfish sanitation in the growing waters, while the Food and Drug Branch in the Division of Food, Drug, and Radiation Safety regulates shellfish sanitation after harvest. This Management Plan was prepared and is administered by the Environmental Management Branch's Environmental Health Services Section, Preharvest Shellfish Unit, in cooperation with shellfish growers, wastewater treatment plant operators, public agencies, and other involved parties. The National Shellfish Sanitation Program requires that the shellfish growers, the wastewater treatment plants involved, and the applicable local and State agencies agree with the Management Plan. The "failure of any one party to agree shall constitute justification to deny the application of the conditional classification to the growing area." (Model Ordinance, 2009).

Lease M-653-02 is located in the Santa Barbara Channel, about one-half mile offshore from Arroyo Burro Beach. The California Department of Fish and Game has issued an Aquaculture lease for this area to. Mr. Bernard Friedman, owner and operator of the Santa Barbara Mariculture Company, for the purpose growing and harvesting oysters, clams, mussels, and/or scallops. Based on the findings of the latest sanitary survey conducted by CDPH and the applicant, Lease M-653-02 area is classified as *Conditionally Approved*. The purpose of the *Conditionally Approved* classification is to provide a mechanism for the declaration of harvest closures during predictable periods when the shellfish growing area may not meet the National Shellfish Sanitation Program standards for harvesting shellfish for direct marketing for human consumption. *The Conditionally Approved* classification is based on rainfall and on the location of the outfalls from the wastewater treatment plants in the vicinity of the growing area. Non-point sources associated with rainfall have the potential to affect the water quality in this area. The wastewater treatment plants disinfect their effluent prior to discharging into the Santa Barbara Channel, and have demonstrated the ability to meet the operational requirements of their Waste

Discharge Requirements for total coliform. However, due to the possibility for an accidental spill or a discharge of effluent that has not been properly disinfected, the *Conditionally Approved* classification is warranted. The removal of shellstock from the growing waters constitutes harvesting, which is prohibited during any closure. Shellstock shall not be removed from the growing area for sorting, culling, or movement to another growing area during a closure except with written permission by the CDPH Preharvest Shellfish Unit (CDPH/PSU).

This Management Plan specifies that Lease M-653-02 area will be closed for harvesting whenever rainfall exceeds three inches within a 24-hr period. The fecal coliform result from a single water sample collected not less than 24 hours after the conclusion of rainfall is required prior to reopening. The Management Plan establishes the procedures for emergency notification and harvest closures during those periods, and requires the Santa Barbara Mariculture Company to conduct water quality monitoring at Lease M-653-02 at least monthly during periods open to harvesting. The growing area classification and closure rules are reevaluated at least annually based on the water quality monitoring results.

The Management Plan establishes procedures for emergency notification and harvest closures after discharges of inadequately treated sewage or other hazardous substance spills that may threaten the safety of harvested shellfish. Procedures are established for temporary harvest closures of this *Conditionally Approved* growing area based on rainfall measurements recorded by a National Weather Service rain gauge, or other approved rain gauge designated by CDPH/PSU.

The Management Plan also stipulates that shellstock should not be removed from the growing areas during any closure except with written permission from CDPH. Each shellfish grower is responsible for water quality monitoring monthly during open harvest periods. The water quality monitoring data collected by the commercial shellfish growers are analyzed annually to determine the appropriate growing area classifications.

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III. ABBREVIATIONS AND DEFINITIONS

This document contains many acronyms and abbreviations. In general, an abbreviation will be given in parentheses () following the first time a title or term is used, and the abbreviation will be used in almost all cases in place of that term later. The following alphabetical list of abbreviations used in this document is provided to assist the reader:

ABBREVIATION	DESCRIPTION
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CDPH/DDWEM	Division of Drinking Water and Environmental Management
CDPH/EHSS	Environmental Health Services Section (within CDPH/EMB)
CDPH/EMB	Environmental Management Branch (within CDPH/DDWEM)
CDPH/FDB	Food and Drug Branch (within CDPH)
CDPH/PSU	California Department of Public Health, Preharvest Shellfish Unit
ELAP	Environmental Laboratory Accreditation Program
FDA	U.S. Food and Drug Administration
GIL	Growers' Information Line
H & S §	Section of the California Health and Safety Code
MGD	Million Gallons per Day
mL	Milliliters
MOU	Memorandum of Understanding
MPN	Most Probable Number
NSSP	National Shellfish Sanitation Program
OES	Office of Emergency Services
PSP	Paralytic Shellfish Poisoning
RDO	Rainfall Duty Officer (a designated staff person in CDPH/PSU)
RWQCB	California Regional Water Quality Control Board, Central Coast Region
SBCEHS	Santa Barbara County Environmental Health Services
SBMC	Santa Barbara Mariculture Company
SOP	Standard Operating Procedures
SRS	Systematic Random Sampling
SSP	Shellfish Sanitation Program
WDRs	Waste Discharge Requirements (adopted by RWQCB)
WWTP	Waste Water Treatment Plant

The following definitions shall apply to this document:

Harvest. The act of removing shellstock from growing areas and its placement on or in a manmade conveyance or other means of transport.

Shall. The term "shall" is used in this plan in its legal or regulatory sense to denote a mandatory requirement.

Shellfish grower or harvester. For the purposes of this plan, the terms "grower" and "harvester" refer to the same persons or firms and may be used interchangeably. Because the plan relates primarily to the management of shellfish harvesting, the term "harvester" will be found most frequently.

Direct marketing. Direct marketing means the sale of shellfish harvested without undergoing purification (relaying or depuration).

IV. INTRODUCTION

Lease M-653-02 is located in the Santa Barbara Channel, approximately 3200 feet from the shore at its nearest point off of Arroyo Burro Beach in Santa Barbara County. The growing area is approximately 72 acres, 2500 feet long by 1250 feet wide, with the length running approximately parallel to the shore (Figure 1). The California Department of Fish and Game (CDFG) has issued an Aquaculture lease for this area to Mr. Bernard Friedman, owner and operator of the Santa Barbara Mariculture Company (SBMC), for the purpose growing and harvesting oysters, clams, mussels, and scallops. Non-point sources of contamination from the watershed for this area have the potential for impacting the growing area, mainly during rainfall related runoff from local drainages. There are also five municipal wastewater treatment plants (WWTPs) in the area that disinfect their effluent prior to disposal in the Santa Barbara Channel. These WWTPs include the City of Santa Barbara's El Estero Wastewater Treatment Plant, and the collection, treatment, and disposal systems of the Montecito Sanitary District, the Carpinteria Sanitary District, the Summerland Sanitary District, and the Goleta Sanitary District. Spills or malfunctions of the disinfection process could impact the growing area.

Because Lease M-653-02 may be subject to intermittent microbiological pollution from various sources, the commercial shellfish growing area is classified as *Conditionally Approved*. The National Shellfish Sanitation Program (NSSP) Model Ordinance (2009), Chapter IV, requires development of a Management Plan for any *Conditionally Approved* growing area. This Management Plan sets forth the standards and criteria necessary to manage the harvesting of bivalve molluscan shellfish intended for human consumption.

This Management Plan establishes the standards and procedures used to regulate commercial shellfish harvesting at the Lease M-653-02 Aquaculture area and has been prepared for adoption in accordance with the procedures set forth in Sanitary Control of Shellfish, (Division 104, Part 6, Chapter 5 of the California Health and Safety Code Section (H & S §) 112150 et seq.) and will constitute an order of the Director of the California Department of Public Health (CDPH) as described in Section 112160(c).

A key part of this Management Plan is the establishment of standards, conditions, and procedures for closure of the growing area at times of predictable elevated pollution following periods of significant rainfall, as well as for emergency closures established for unpredictable events such as sewage spills or oil spills. They have been set forth in this plan such that when the specified events occur, then predetermined actions are implemented. Any temporary closure to shellfish harvesting resulting from these pollution events that may be declared pursuant to this Management Plan shall be deemed to meet the requirements of Section 112160(d) pertaining to notice and opportunity to submit data, views, or arguments. Rainfall closures declared under this Management Plan are not considered "emergency actions" referred to in H & S § 112160(e), but instead are dealt with as part of the Director's order establishing this plan. Compliance by the certified shellfish grower/harvester with the conditions and procedures set forth in this Management Plan is mandatory as a condition of the Shellfish Growing Area Certificate issued for the aquaculture growing area.

V. ORGANIZATION AND RESPONSIBILITIES

Numerous agencies and individuals are involved parties to the management of the Lease M-653-02 Aquaculture Area. A detailed contact list is provided in Appendix A.

A. CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

CDPH is the lead agency for the State shellfish sanitation program (SSP) and is the agency responsible for growing area classification, issuing growing area certificates and for decision making regarding harvest closures and reopening of commercial shellfish growing areas. Within CDPH, the Deputy Director for Prevention Services has overall responsibility for the California SSP. Two major program segments are housed in the following branches:

1. Environmental Management Branch

The Chief of the Environmental Management Branch (EMB), through the Chief of the Environmental Health Services Section (EHSS), is responsible for the CDPH Preharvest Shellfish Unit (CDPH/PSU). The Chief of the CDPH/PSU heads a staff of several Environmental Scientists and coordinates activities as it relates to the evaluation, classification, and certification of commercial shellfish growing areas as well as routine monitoring for marine biotoxins.

2. Food and Drug Branch

The Chief of the Food and Drug Branch (FDB) is responsible for the postharvest shellfish program as it relates to the regulation of shellfish handling, processing, storage, and distribution after harvest, including the labeling and identification of shellfish moving in commerce. FDB provides assistance in the area of patrol and prevention of illegal shellfish harvesting.

B. U.S. FOOD AND DRUG ADMINISTRATION

A primary responsibility of the U.S. Food and Drug Administration (FDA) is to ensure conformity of state shellfish sanitation programs with the guidelines and procedures for the classification and management of shellfish growing areas as outlined in the NSSP Model Ordinance (2009). Conformity with the Model Ordinance ensures national uniformity of state programs, and the health and safety of shellfish products in intra- and interstate commerce. FDA conducts annual reviews and evaluations of the SSP, and provides recommendations, technical assistance, and training designed to improve the effectiveness of those programs.

C. CALIFORNIA DEPARTMENT OF FISH AND GAME

The California Department of Fish and Game (CDFG) participates in the shellfish program through the terms of a Memorandum of Understanding (MOU) between the Department of Fish and Game (CDFG) and the Department of Public Health regarding the California Shellfish and Paralytic Shellfish Poisoning Prevention Program." Within DFG, the Conservation, Education, and Enforcement Branch, with its game wardens, provides assistance to CDPH/PSU in the area of patrol and prevention of illegal shellfish harvesting by both sport and commercial harvesters.

In addition, DFG's Marine Resources Division issues and administers State aquaculture leases for the California Fish and Game Commission.

D. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION

The RWQCB is responsible for regulating dischargers of wastes to any body of water in the region. The RWQCB sets standards for waste dischargers, issues permits to them in the form of Waste Discharge Requirements (WDR) and Monitoring and Reporting Program (MRP), and monitors their performance.

E. SANTA BARBARA COUNTY ENVIRONMENTAL HEALTH SERVICES

The County Health Officer is responsible for all matters pertaining to public health within Santa Barbara County, including the county's incorporated cities. The Director of Santa Barbara County Environmental Health Services (SBCEHS) is responsible for enforcing the laws and regulations pertaining to environmental health, including the proper handling and disposal of sewage from private premises.

F. MONTECITO SANITARY DISTRICT

The Montecito Sanitary District operates a wastewater collection, treatment, and disposal system that provides service to the Montecito area. Montecito is situated at the City of Santa Barbara's eastern border. The outfall from the WWTP is approximately 6.3 miles from the aquaculture area.

G. CARPINTERIA SANITARY DISTRICT

The Carpinteria Sanitary District operates a wastewater collection, treatment, and disposal system that provides service to the City of Carpinteria and portions of Santa Barbara County. The City of Carpinteria is located approximately twelve miles to the east of Santa Barbara. The end of the outfall from the WWTP is approximately 13.1 miles from the aquaculture area.

H. SUMMERLAND SANITARY DISTRICT

The Summerland Sanitary District operates a wastewater collection, treatment, and disposal system that provides service to the unincorporated community of Summerland. Summerland is situated on Montecito's eastern border. The end of the outfall from the WWTP is approximately 9.1 miles from the aquaculture area.

I. GOLETA SANITARY DISTRICT

The Goleta Sanitary District operates a wastewater collection, treatment, and disposal system that provides service to Goleta Sanitary District, Goleta West Sanitary District, University of California at Santa Barbara, Santa Barbara Municipal Airport, and facilities of Santa Barbara County. The City of Goleta is located approximately eight miles to the west of Santa Barbara. The end of the outfall from the WWTP is approximately 4.1 miles from the aquaculture area.

J. CITY OF SANTA BARBARA, EL ESTERO WASTEWATER TREATMENT PLANT

The City of Santa Barbara, El Estero Wastewater Treatment Plant is a wastewater collection, treatment, and disposal system that provides service to the City of Santa Barbara and portions of Santa Barbara County. The end of the outfall from the WWTP is approximately 4.7 miles from the aquaculture area.

K. SANTA BARBARA MARICULTURE COMPANY

Mr. Bernard Friedman, Santa Barbara Mariculture Company, is the commercial shellfish grower for Lease M-653-02 Aquaculture Area and was issued a Shellfish Growing Area Certificate by CDPH for commercial shellfish growing and harvesting of oysters, clams, mussels, and scallops at this location.

VI. GROWING AREA CLASSIFICATION

A. CONDITIONALLY APPROVED AREA

The Santa Barbara Lease M-653-02 Aquaculture Area is classified as *Conditionally Approved* for commercial shellfish production in accordance with the NSSP Model Ordinance, Chapter IV (2009). A *Conditionally Approved* area is one that meets the NSSP water quality standards for an *Approved* area (an area from which shellfish may be harvested for direct marketing for human consumption), except during relatively short periods of time when the area does not meet the standards and must be closed to harvesting. Direct marketing means the sale of shellfish harvested without having to undergo purification (relaying or depuration). The factors determining closed periods must be known, predictable, and not excessively complex. The purpose of the *Conditionally Approved* classification is to provide a mechanism, through this Management Plan, for the declaration of harvest closures when pollution impacts to the growing area would cause water and shellfish quality to potentially exceed the standards for an *Approved* growing area.

B. CLASSIFICATION MAINTENANCE

1. Water Quality Sampling

To maintain the *Conditionally Approved* classification, the operator of the Lease M-653-02 growing area shall take a minimum of one water sample per month when in an open status at the primary sample site. The grower shall follow the systematic random sampling (SRS) schedule provided in the Sampling Plan. The samples shall be tested at a CDPH approved laboratory for fecal coliform assay of water and shellfish, and the results sent directly to CDPH/PSU. See Section XII.A for additional information on water quality sampling requirements.

2. Grower Classification

Growers will be evaluated on an annual basis to ensure that they are performing all tasks associated with water quality sampling properly. During these annual field audits new employees can also be trained to perform water quality sampling.

VII. PERFORMANCE STANDARDS

A. POTENTIAL NON-POINT SOURCES OF POLLUTION

Non-point sources of pollution are those sources that cannot be attributed to a specific discharge location. Water quality samples obtained for the 1998 sanitary survey of the area immediately to the east of Lease M-653-02 (i.e., closer to shore) confirmed that fecal coliform bacteria from onshore sources of pollution could impact the offshore shellfish growing areas. Limited data was collected during rainfall events, thus the relationship between precipitation and runoff and the resultant degradation of water and shellfish quality has not been fully established. Additional rainfall data was collected during the 2002–2003 and the 2003–2004 rain season to establish a threshold of three (3) inches of rainfall within any 24-hour period. CDPH/PSU also closely monitors the County's beach monitoring data to determine if the growing area should be closed to harvesting of shellfish. A beach closure in the vicinity of the lease area could cause the closure and/or additional sampling of the growing area.

B. POTENTIAL POINT SOURCES OF POLLUTION

Sources of pollution that can be attributed to a specific site or location are known as "point sources". Wastewater Treatment Plants fall into this category. The RWQCB issues WDRs to all major discharge facilities in the Santa Barbara area. CDPH/PSU reviews proposed WDR and makes recommendations when necessary regarding the shellfish growing areas. The RWQCB provides copies of the WDRs and annual reports for these dischargers to the CDPH/PSU office in Richmond. These documents are reviewed by CDPH/PSU staff and maintained in the program's files. There are five WWTPs that discharge treated municipal wastewater to the Pacific Ocean in the Santa Barbara Channel close enough to the Lease M-653-02 Aquaculture Area to have the potential to adversely impact the shellfish growing water quality (Figure 2). Section V of the Management Plan lists the five treatment plants and provides the location of each treatment plant's outfall with respect to the growing area. All of these facilities have WDRs that have effluent limitations on constituents and properties for protection of marine life and human health (Tables 1 and 2). Although effluent monitoring for coliform is conducted at each of these WWTPs, this information does not allow for the rapid detection of problems in plant performance because the lengthy time required to complete the assay (48 – 72 hours) is greater than the transport time from the outfalls to the growing area. Therefore, each plant should have in place an adequate monitoring and reporting plan to ensure rapid detection of plant disruptions and subsequent rapid notification of any certified shellfish grower in the vicinity, as well as CDPH (similar to the Memorandum of Understanding between CDPH and the City of Santa Barbara, Appendix B). The RWQCB has agreed to include a notification procedure in each WDR/MRP.

C. PROHIBITED AREAS ESTABLISHED

Prohibited areas are those areas were the commercial harvesting of shellfish is not allowed. Water quality in these areas either has not been determined, or does not meet the NSSP standards for shellfish growing waters as determined during the sanitary survey of the area. The size of the *Prohibited* area for the specific areas identified below was based on calculations of potential fecal coliform levels and the amount of dilution required to reduce the fecal coliform to acceptable levels.

1. Montecito, Carpinteria, Summerland, and Goleta Wastewater Treatment Plants

Prohibited area with a radius of one mile is established around the ocean outfall of the Montecito, Carpinteria, Summerland, and Goleta wastewater treatment plants.

2. City of Santa Barbara's El Estero Wastewater Treatment Plant

Prohibited area with a radius of three miles is established around the ocean outfall of the City of Santa Barbara's El Estero Wastewater Treatment Plant.

3. City of Santa Barbara Harbor

Prohibited area is established inside the City of Santa Barbara harbor and within a one-half mile radius around the mouth of the harbor.

4. Unclassified Areas

All parts of the Santa Barbara coast area not specifically designated as a certified aquaculture lease are unclassified and therefore considered *Prohibited* areas.

5. Violation of State Laws and Regulations

It is a violation of State laws and regulations to culture, harvest, or hold shellfish intended for sale for human food except in or from areas that have been specifically identified in a valid Shellfish Growing Area Certificate issued by CDPH/PSU. The holding of shellfish in any other waters prior to on-shore processing, storage, and marketing is a prohibited activity. Any shellfish held in uncertified waters, or in water-filled tanks or containers that have not been specifically approved by CDPH/PSU for that purpose, are subject to embargo and/or destruction by CDPH/PSU.

VIII. HARVEST CLOSURE AND NOTIFICATION PROCEDURES

This section provides the closure criteria and notification procedures to be followed by the certified commercial shellfish harvester, and by appropriate State and local agencies, to ensure prompt notification and subsequent closure of the Santa Barbara Lease M-653-02 Aquaculture Area by CDPH/PSU to shellfish harvesting. These procedures shall be followed whenever any pollution event or condition occurs as described below, that is likely to degrade the water quality

in the C*onditionally Approved* shellfish growing area to the degree that it does not meet the NSSP minimum standards for an *Approved* area.

A. RAINFALL CLOSURES

Since rainfall closures are an important management tool for the growing area, the grower should call the Growers' Information line (GIL) prior to harvesting during any period of rainfall. If the grower is still unsure as to the status of the growing area, he should contact the rainfall duty officer (RDO) at (510) 412-4633 to determine if the GIL is in the process of being updated (on weekends and off-hours, leave a message on the GIL). CDPH/PSU staff will make all reasonable efforts to ensure that the GIL is current and accurate. However, the GIL is not updated on a continuous basis, and changes that occur in the growing area status due to overnight rainfall will not be updated on the GIL until business hours the following day. If there has been rainfall in the past 24 hours, the grower shall not harvest unless there is an updated message on the GIL, CDPH/PSU staff states that the growing area is open, or the grower is able to obtain reliable information that the growing area is open. If the grower harvests before obtaining current information on the growing area status, and the growing area is closed, the grower shall be responsible to return all harvested shellfish to the same location it was harvested from.

1. Closure Rules

The M-653-02 shellfish growing area will be closed for harvesting of shellfish for human consumption immediately after a 24-hour cumulative rainfall of 3.0 inches is exceeded as indicated at the National Weather Service rain gauge located at the Santa Barbara Airport in (www.crh.noaa.gov/data/obhistory/KSBA.html) or an alternate rain gauge selected by CDPH/PSU if this one is unavailable.

2. Extreme Environmental Conditions

If unusual heavy or prolonged rainfall, overloading of wastewater collection or treatment facilities, or other factors occur that exceed the conditions documented in the Sanitary Survey upon which this Management Plan is based, CDPH/PSU may order the closure period extended beyond the time set forth above. If an extended closure is imposed, CDPH/PSU will determine the reopening criteria and develop a data collection strategy based on the nature and severity of the event and in consultation with the affected grower(s).

3. Movement of Shellstock

The harvest of shellstock during a closure is prohibited. Harvesting is defined as the act of removing shellstock from growing waters and placing it on or in a manmade conveyance or other means of transport. There are two conditions outlined in this section when shellfish may be "harvested" during a shellfish closure solely for the purposes of sorting and culling prior to returning to the growing area, and not for market.

Rainfall closures are necessary for shellstock to depurate to acceptable levels after rainfall events. Closure times are based on depuration studies performed in the growing area and the

time required for adequate depuration of contaminants. Depuration does not occur when shellstock is out of the water. Shellstock removed from growing waters during closure periods shall have the number of hours and minutes that the shellstock is out of the water added onto its respective closure time before it can be harvested for market. All shellfish must be in water for the entire length of time that it would otherwise have been had it not been removed from the growing waters before the end of the rainfall closure. If shellstock is removed from the growing waters during closed periods, it must be tagged to ensure that the shellstock is not harvested for market prior to the required depuration time.

In an effort to protect public health, CDPH has established procedures to prevent illegal harvesting of shellfish from closed growing areas. To verify compliance with the rainfall closure rules, CDPH conducts or arranges for patrols of closed growing areas, and audits the shellfish growers' harvest records. Growers shall maintain additional documentation for shellstock that is taken out of the water during a closure to ensure that the shellstock is traceable if an illness event occurs in the growing areas.

There are two identified conditions in which shellstock may be removed from the growing waters during a closure: 1) the shellstock is harvested and worked on (e.g., sorted, culled) on-site without leaving the specific lease/parcel; and 2) the shellstock is harvested from the lease/parcel, transported to another area where it is worked on, then transported back to the same lease/parcel.

The following actions are required by the grower when harvesting shellstock during a rainfall closure.

Condition 1: Shellstock is harvested but is worked on on-site, and is NOT removed from the area of the grower's lease/parcel.

Required Action: Notification by the grower to CDPH is not required. The grower must label the bag in such a manner to ensure that it will not be harvested until the number of hours it was out of the water has been added onto the reopening time for the growing area. Shellstock that has been moved shall be tagged to differentiate it from shellstock that has not been moved. The amount of time that shellstock is out of the water shall be recorded to ensure that the correct depuration time has occurred. Records of all these operations shall be maintained by the shellfish grower and made available to CDPH upon request.

Condition 2: Shellstock is harvested from the grower's lease/parcel during a closure, transported off the lease/parcel to be worked on, and then returned to the original lease/parcel. NOTE: Shellstock shall not be placed in, or come in contact with, uncertified growing waters.

Required Action: The grower must obtain written permission prior to the start of work. The grower shall contact the CDPH/PSU Richmond office in writing, using the attached form in Appendix C, a minimum of two working days prior to the start of work, or as soon as possible. Written permission from CDPH/PSU must be on site while working with shellstock that has been temporarily removed from the growing

water. Removed shellstock shall have the number of hours that shellstock was out of the water added onto the reopening times for harvest purposes in the same manner as described in Condition 1 above. Shellstock that has been moved shall be tagged to differentiate it from shellstock that has not been moved. Records of all these operations shall be maintained by the shellfish and made available to CDPH upon request.

B. EMERGENCY CLOSURES: SEWAGE COLLECTION SYSTEM UPSETS

Accidental sewage releases from wastewater collection systems servicing the Santa Barbara area may adversely affect the water quality in shellfish growing areas. The potential for these sewage “upsets” to adversely impact shellfish growing waters is related to the estimated volume of the discharge, the location of the discharge with respect to the growing areas, the prevailing ocean current, and the timing of the discharge with respect to rainfall closures of the growing areas. Criteria for determining whether an emergency closure will be implemented as a result of a sewage spill and criteria for reopening growing areas are presented in Appendix D.

C. EMERGENCY CLOSURES: WWTP MALFUNCTIONS

The *Conditionally Approved* classification of this area is also dependent upon wastewater treatment plant performance. Harvesting of shellfish for human consumption would be determined in part by the performance of the wastewater treatment plants. Discharges of effluent that do not meet current standards shall cause closure of the commercial harvesting area until the impacts can be evaluated. In the event of a sewage spill, or malfunction of a wastewater treatment facility’s disinfection process which results in a potential or actual discharge of inadequately treated effluent into the Santa Barbara Channel, the responsible agency will notify the RWQCB, the Santa Barbara Mariculture Company, and CDPH/PSU. CDPH/PSU will then determine the status of the growing area and will notify the grower when the determination has been made. Harvesting shall not occur until after CDPH/PSU has evaluated the event and determined the required actions. Criteria for determining whether an emergency closure will be implemented as a result of a sewage spill and criteria for reopening growing areas are presented in Appendix D.

D. EMERGENCY CLOSURES: HAZARDOUS SUBSTANCE SPILLS

In the event of a reported hazardous substance spill that could impact a shellfish growing area, the Office of Emergency Services (OES) is notified, who in turn will contact the CDPH Duty Officer (on call 24 hours a day). The CDPH Duty Officer will notify the CDPH/PSU supervisor or the next manager in the chain of command. Additional involved agencies will have their own reporting requirements.

Upon notification of a hazardous substance spill CDPH/PSU will determine the status of the growing area and will notify the grower if a closure is warranted. A harvest closure resulting from a hazardous substance spill shall remain in effect while CDPH/PSU evaluates the event and determines the required actions. See Section X for reopening requirements.

E. OTHER EMERGENCY CLOSURES

Other emergency situations in which the discharge of a hazardous or deleterious substance to shellfish growing waters is presumed to be likely, but during which communications with CDPH/PSU may be compromised, such as after a natural or man-made disaster, will be evaluated by CDPH/PSU for possible closure of the growing areas.

F. NOTIFICATION PROCEDURES:

1. Department of Public Health

a. CDPH is the agency responsible for making decisions regarding harvest closures and reopening of shellfish growing areas.

b. CDPH/PSU will maintain a telephone message recorder (the GIL) at the Richmond office, (510) 412-4644, to provide information about closures to commercial shellfish harvesters during non-business hours. CDPH/PSU will update the recorded message as needed and will monitor the line at least twice each day for recorded messages from the harvesters.

c. If CDPH/PSU decides to close a shellfish growing area to commercial shellfish harvesting, CDPH/PSU will notify each affected certified harvester by telephone of that decision. When CDPH/PSU decides to reopen a shellfish growing area to commercial shellfish harvesting, CDPH/PSU will notify each affected certified harvester by telephone of that decision. In the case of rainfall closures there are times when storm activities can interfere with the ability of CDPH/PSU to obtain current rainfall information. Beyond normal business hours and weekends CDPH/PSU may not be able to update the closure or reopening information immediately. If a harvester has any question or uncertainty regarding a closure or a reopening, they shall contact the GIL ((510) 412-4644) for guidance prior to resuming any harvest activities. If additional rainfall has occurred since the last GIL update, or if the grower is unsure about the harvest status of the growing area, they shall consider the area closed to harvest and contact the RDO at (510) 412-4633 for more information (on weekends and off-hours, leave a message on the GIL). The grower should also contact their shellfish growing area specialist during normal business hours for more information. If the grower harvests before obtaining current information on the growing area status, and the growing area is closed, the grower shall be responsible to return all harvested shellfish to the same location it was harvested from.

d. CDPH/PSU will maintain a current contact listing of CDPH/PSU personnel and certified commercial growers and provide this listing to the WWTPs, the RWQCB, and other applicable parties.

e. Procedures for rainfall closures.

(1) CDPH/PSU will establish a duty roster of staff specialists designated to monitor rainfall at *Conditionally Approved* growing areas, including Santa Barbara. A staff specialist will be designated to be on call for duty as an RDO for every day of the year, including weekends and holidays.

(2) The RDO will monitor weather forecasts and reports to determine whether significant rainfall is predicted or has occurred at the *Conditionally Approved* growing areas. If so, the RDO will contact designated rain gauge stations as needed to obtain current rainfall measurements to determine when the conditions requiring a rainfall closure are met. The designated rain gauge station for rainfall closures for Santa Barbara's conditionally approved growing areas is located at the Santa Barbara Airport in Goleta and can be accessed at www.crh.noaa.gov/data/obhistory/KSBA.html

(3) When the RDO determines that conditions have occurred that require a shellfish harvest closure, he/she will notify each commercial harvester immediately by telephone that the area is closed to harvesting and will inform them, if known, when it will reopen.

(4) The RDO will maintain records of rainfall measurements and harvest closure notifications.

g. Procedures for emergency closures:

(1) Upon notification of any pollution event that might be cause for an emergency closure of the Santa Barbara growing area, CDPH/PSU will consult with the responsible agency to consider the extent and severity of the pollution. If an emergency closure is needed to protect sport shellfish harvesters, CDPH/PSU will consult with CDFG and the SBCEHS to determine the location and scope of sport shellfish closures. Criteria for determining whether an emergency closure will be implemented as a result of a sewage spill and criteria for reopening growing areas are described in Appendix D.

(2) CDPH/PSU will notify the harvesters by telephone when it declares an emergency closure. When required under H & S § 112160, written confirmation will be sent to the commercial harvesters and copies will be sent to FDB, DFG, RWQCB, the FDA Regional Shellfish Specialist, and any other interested persons. Emergency closure letters shall contain the information required in H & S § 112160(d), so as to afford the recipients reasonable opportunity to submit data, views, or arguments.

(3) As soon as reasonably possible after declaring an emergency closure, CDPH/PSU will initiate an investigation of the effects of the pollution event on water and shellfish meat quality, including such factors as the volume, nature, and location of the discharge, hydrographic factors, and sampling data.

(4) CDPH/PSU will reopen the Lease M-653-02 growing area as soon as it determines that shellfish harvested from the area do not exceed NSSP standards or otherwise pose a public health risk.

(5) CDPH/PSU will notify the commercial harvesters when it decides to reopen the growing area after a closure. When required under H & S § 112160, written confirmation will be mailed to the harvester within five (5) working days after the telephone notification, and copies will be sent to FDB, DFG, RWCQB, the FDA Regional Shellfish Specialist, and other interested parties.

(6) CDPH/PSU will provide to WWTPs, the RWQCB, and to the SBCEHS, a contact list of the certified shellfish growers and CDPH/PSU personnel to be called as required in this document. This listing will be updated as needed.

2. Central Coast Regional Water Quality Control Board

The RWQCB Central Coast Region or its designee will notify CDPH/PSU as soon as possible of any pollution event that may adversely affect water and shellfish quality in the Santa Barbara Channel. Examples of such events are the following: a sewage spill; collection system bypass; malfunction of a WWTP, WWRF or any discharge of a hazardous chemical, pesticide, or petroleum product. The RWQCB will include the following mandatory notifications in its draft Waste Discharge Requirements issued to the WWTPs listed in Table 1:

The permitted discharger will notify CDPH/PSU, and SBMC immediately; and Santa Barbara County Environmental Health Services (SBCEHS) as soon as possible of any sewage spill, collection system bypass, or malfunction of a WWTP or WWRF which results in a potential or actual discharge of raw or incompletely treated sewage which may adversely affect water and shellfish quality in Santa Barbara Channel; and;

The discharger will develop and maintain written procedures incorporating the notification requirement described above, to post the procedures at the facility, and to provide a copy of the current notification procedures to RWQCB, CDPH/PSU, and SBCEHS.

3. Santa Barbara County Environmental Health Services

SBCEHS will notify CDPH/PSU as soon as possible of any discharge of sewage into the Santa Barbara Channel, directly or indirectly, when they become aware that such an event has occurred. SBCEHS monitors the water quality at public beaches for bacterial concentrations as required by H & S § 115880 (AB 411) on a weekly basis and forwards the results to CDPH/PSU. If the water adjacent to a public beach fails to meet established bacterial standards, SBCEHS will post signs alerting the public that the water does not meet health standards. The SBCEHS weekly report includes information on beach postings and closures.

4. City of Santa Barbara's El Estero Wastewater Treatment Plant and Montecito, Carpinteria, Summerland, and Goleta Sanitary Districts

a. In the event of a sewage spill, or malfunction of a wastewater treatment facility’s disinfection process which results in a potential or actual discharge of inadequately treated effluent into the Santa Barbara Channel, the responsible agency will immediately notify RWQCB, the Santa Barbara Mariculture Company, and CDPH/PSU as soon as possible after becoming aware of the event. All monitoring data related to the event shall be provided to CDPH/PSU. Note: the specific notification procedure has not been formalized at this time with Goleta, Montecito, Summerland and Carpinteria Sanitary Districts. See paragraph IX.G below for the interim procedure.

b. The agencies named above will develop and maintain written procedures incorporating the notification requirement, post the procedures at their facilities, and provide a copy of the current procedures document to RWQCB and CDPH/PSU.

c. The MOU between the City of Santa Barbara and CDPH establishes the notification procedure between the El Estero WWTP and the commercial shellfish growers in the area. CDPH does not have a similar agreement with Goleta, Montecito, Summerland, or Carpinteria, nor do their WDR/MRPs meet the notification requirements of this Management Plan. The RWQCB has agreed to include a notification procedure in each WDR/MRP. The growers shall contact the treatment plants on each harvest day as specified in section IX.G. During this interim period, CDPH/PSU has requested the General Managers at the four WWTPs to notify CDPH/PSU and each certified commercial shellfish grower in the region as soon as possible of any effluent discharge or any malfunction of the wastewater treatment facility's disinfection process which results in a potential or actual discharge of inadequately treated effluent into the Santa Barbara Channel.

5. Impact Assessment

The responsible party shall provide sufficient information to CDPH/PSU such that the magnitude of the impact to the growing area can be assessed. This information should include, but not be limited to, the location of the discharge, a detailed characterization of the discharge when petrochemicals or other hazardous materials are involved, the rate and volume of the discharge, the point of discharge into the Santa Barbara Channel, and the identification and flow rate of any receiving waters, when appropriate. It is recommended that water samples be collected for the appropriate analysis from the area of impact, as well as from nearby sites outside the zone of impact. Under some circumstances it may also be necessary to analyze shellfish tissue samples to assess the impact to the product in the growing areas.

IX. CERTIFIED SHELLFISH HARVESTER RESPONSIBILITIES

This section contains the major responsibilities of the certified shellfish harvester; additional responsibilities are included elsewhere in the Management Plan.

A. SEED

The certified shellfish grower shall obtain approval from CDPH/PSU of all sources of seed shellstock, in accordance with the NSSP.

B. HARVEST CLOSURE

The Santa Barbara Mariculture Company shall cease harvesting operations when notified by CDPH/PSU of a harvest closure or when otherwise required by the closure rules and procedures set forth in this Management Plan. Compliance with this Management Plan is mandatory as a condition of the Shellfish Growing Area Certificate issued by CDPH/PSU. Any violation of a harvest closure declared pursuant to this Management Plan may be cause for suspension or revocation of a certificate or for other disciplinary actions as provided by law. If the harvester has any questions or uncertainties regarding a rainfall closure, he should contact

CDPH/PSU for guidance or clarification prior to commencing harvesting or marketing operations. Grower procedures for closures associated with sewage spills are described in greater detail in Appendix D.

1. Business Hours

During normal State business hours, the harvester should call the CDPH/PSU field staff at (510) 412-4631. If a shellfish specialist cannot be reached the harvester should try alternate contacts on the most current CDPH staff call down list (Appendix A).

2. Non-Business Hours

During non-business hours, the harvester should call the CDPH/PSU commercial shellfish GIL. After listening to the recorded message, if more information is needed, the harvester should leave a message identifying the caller and providing the telephone number for a return call.

C. RECEIVING AND ACKNOWLEDGING NOTIFICATIONS

The Santa Barbara Mariculture Company shall maintain a 24-hour telephone line with an answering service or recorder and provide the telephone number to CDPH/PSU. If notified of a closure by CDPH/PSU via the telephone message recorder, the harvester shall acknowledge receipt of that message within 24 hours by return call to the CDPH/PSU shellfish specialist at (510) 412-4631 or the CDPH/PSU shellfish GIL at (510) 412-4644. If a recorder answers these lines, after the recorded message the commercial harvester shall leave a message acknowledging receipt of the closure notification.

D. REPORTS OF SEWAGE OR HAZARDOUS SUBSTANCE SPILLS

If the Santa Barbara Mariculture Company has knowledge of any potential sewage or hazardous substance spill which may adversely affect water and shellfish quality in the Santa Barbara lease area, or of any suspected illness resulting from the consumption of shellfish harvested from any Santa Barbara area, the commercial harvester shall close the growing area to harvesting and shall notify CDPH/PSU immediately by telephone.

1. Business Hours

During normal business hours the commercial grower shall contact CDPH/PSU staff using the call-down list provided in Appendix A.

2. Non-Business Hours

During non-business hours, or if CDPH/PSU staff cannot be reached, the grower shall call the State Office of Emergency Services in Sacramento at (800) 852-7550 or (916) 262-1621. Provide your name, firm, and telephone number, the reason for the call, and ask to be contacted by a staff person from the CDPH/PSU. The grower should also leave a message on the GIL at (510) 412-4644 regarding the details of the reported spill.

E. WASTEWATER TREATMENT PLANT NOTIFICATION

In the event of a malfunction of a wastewater treatment facility's disinfection process that results in a potential or actual discharge of inadequately treated effluent into the Santa Barbara Channel, the responsible agency will notify the harvester as soon as possible. CDPH/PSU will determine the status of the growing area and will notify the grower when the determination has been made. Harvesting shall not occur until after CDPH/PSU has evaluated the event and determined the required actions. If the harvester has been notified by a WWTP, the RWQCB, SBCEHS or any other reliable source of a sewage or hazardous substance spill which may adversely affect water and shellfish quality in the Santa Barbara Channel, and if the harvester cannot contact CDPH/PSU immediately, he shall consider the growing area closed and shall suspend harvesting operations immediately, and shall not resume such operations until approval to do so has been received from CDPH/PSU.

F. RECORDKEEPING

The Santa Barbara Mariculture Company shall keep records showing the dates and times of all harvest closures, re-openings, and harvest operations, including product movement during closures as discussed in Section VIII.A.3. These records shall be kept on a form similar to that shown in Appendix E. Completed forms shall be maintained in a file at the harvester's place of business for no less than two years. One copy of the completed form shall be submitted to the CDPH/PSU Richmond office upon request. Since rainfall closures are an important management tool for the growing area, the grower should call the GIL (510) 412-4644 prior to harvesting during any rainfall activity. Storm activities can interfere with the Department's ability to obtain current rainfall information. If the grower is still unsure as to the status of the growing area, he should contact the RDO at (510) 412-4633 to determine if the GIL is current, or, during off-hours or on weekends, leave a message on the GIL.

G. AUDITS

The grower shall comply with all field audits and harvest log reviews. The grower will accommodate CDPH in all aspects of the field audits including but not limited to: scheduling the audit, providing safe boat support to the growing area, and collecting samples at primary sites. Failure to comply with the audits could result in suspension or revocation of the shellfish Growing Area Certificate issued by CDPH/PSU.

H. INTERIM PROCEDURE FOR OBTAINING WWTP STATUS

In addition to treatment plant notification, and as additional assurance that a plant malfunction or a sewage collection system failure is identified prior to the release of shellfish product to the public, the following actions from the harvester are required:

1. Prior to Harvesting

Prior to harvesting, contact the plant operator or their designee at each of the designated WWTPs to verify that there has been no disruption in plant operations that could affect water

and shellfish quality in the growing area, and to ascertain if any sewage collection system failure as occurred. If a report is received indicating a problem, contact CDPH before harvesting.

2. At Completion of Harvesting

At the completion of a harvesting day, contact the plant operator or their designee at the applicable wastewater treatment plant(s) to verify that there has been no disruption in plant operations during the harvesting interval that could affect water and shellfish quality in the growing area, and no collection system failure has occurred that resulted in the discharge of more than 1,000 gallons of sewage reaching the ocean waters. This second contact is not required if harvesting operations are completed within two hours of the initial contact. Distribution of any harvested product shall not occur until all applicable WWTPs have been contacted and assurances have been received that the plants' disinfection systems are operating satisfactorily.

3. Recordkeeping

Complete daily entries of the phone contacts with each applicable wastewater treatment plant in a logbook similar to the one shown in Appendix F. Each entry in this log shall contain the name of the plant and person contacted, the date and time of contact, and the verification that no plant upset has occurred that could affect water and shellfish quality in the growing area. These records shall be made available to CDPH upon request.

I. LIVE-ABOARDS

SBMC shall immediately report the presence of any moored boat that is located within the safe distance allowed in Figure 3 to the growing area to the CDPH/PSU Shellfish Specialist at the Richmond office.

J. WILDLIFE

It is the growers' responsibility to take measures to prevent wildlife (including birds and marine mammals) from defecating on floating shellfish culture bags, barges, floats, or floating wet storage structures from which shellfish are suspended from, or which are within 50 feet of any cultured shellfish. All growers shall consult with the appropriate agencies to determine which measures are acceptable and legal in preventing wildlife from contaminating shellfish. All growers are responsible for any state or federal permits that may be required to prevent wildlife from contaminating shellfish.

Contamination from wildlife can be erratic and therefore unpredictable. The commercial shellfish growers must have on file with CDPH/PSU either a *Wildlife Management Plan* to prevent product contamination or an approved Standard Operating Procedure (SOP) detailing methods used to mitigate fecal contamination of the product caused by this wildlife. The SOP shall include product descriptions, areas designated for product grow-out, transfer, and harvest, and specific procedures and time frames for purposes of mitigating wildlife impact on marketable product. The SOP must have approval by CDPH/PSU prior to implementation and shall be revised yearly or as procedures change. This SOP and *Wildlife Management Plan* are part of a

pilot program intended to mitigate the impact of marine mammals and birds to shellfish and growing waters while preventative measures are being implemented, or when measures have been proven ineffective.

X. REOPENING PROCEDURES

A. RAINFALL CLOSURES

Prior to reopening following a closure due to rainfall, the grower shall contact the GIL (510 412-4644) to determine if any changes have occurred in the reopening times for each growing area. If there is any uncertainty about the message or if no message is found on the GIL the grower shall contact the RDO at (510) 412-4633. The grower is advised that reopening dates and times are subject to change. The grower shall recheck the GIL message prior to resuming harvest operations, and shall keep in mind that storm activities can interfere with the ability of CDPH/PSU to obtain current rainfall information. If the harvester has any question or uncertainty regarding a closure or a reopening, he should contact CDPH/PSU for guidance prior to resuming any harvest activities. One water sample taken a minimum of 24 hours after the end of the rainfall event (as determined by CDPH/PSU) shall be collected at the primary station and analyzed for fecal coliform. The sample results shall indicate a fecal coliform level of not greater than 14 MPN/100 mL before reopening can occur. (Once sufficient rainfall data has been obtained, CDPH will consider removing the requirement for water quality verification).

B. SEASONAL CLOSURES

There are no seasonal closures presently identified for this growing area.

C. SEWAGE OR HAZARDOUS SUBSTANCE SPILLS

1. Investigation

As soon as reasonably possible after declaring an emergency closure, CDPH/PSU will initiate an investigation of the effects of the pollution event on water and shellfish meat quality, including such factors as the volume, nature, and location of the discharge, hydrographic factors, and sampling data. Criteria for determining whether an emergency closure will be implemented as a result of a sewage spill are described in Appendix D.

2. Harvest Reopening

Criteria for reopening growing areas after a sewage spill are described in Appendix D. Due to the variable and unpredictable nature of hazardous material spills, reopening criteria for these events will be determined on a case by case basis.

3. Notification

CDPH/PSU will notify the grower and CDFG when it decides to reopen the growing area after an emergency closure. When required under H & S § 112160, written confirmation will be mailed to the harvester within five (5) working days after the telephone notification, and copies

will be sent to FDB, DFG, RWCQB, the FDA Regional Shellfish Specialist, and other interested parties.

XI. PREVENTION OF ILLEGAL HARVESTING (PATROL)

A. ILLEGAL HARVESTING OF SHELLFISH

During harvest closures implemented by CDPH, CDPH/PSU staff coordinates regular patrols of shellfish growing areas to prevent illegal harvesting activity on the part of growers or unauthorized individuals. In addition to this Management Plan, three other documents describe the activities of CDPH/PSU (including that part of the program administered by FDB) and CDFG in preventing illegal harvesting of shellfish, preventing the movement of contaminated and/or toxic shellfish into avenues of commerce, and for ensuring the proper handling and identification of shellfish after harvest. These documents are: (1) the MOU between CDFG and CDPH, signed August 1991; (2) the CDPH Patrol Policy Document; and (3) the CDPH "Contingency Plan for Marine Biotoxin in California Shellfish".

B. DEPARTMENT OF FISH AND GAME, WILDLIFE PROTECTION DIVISION

DFG's Wildlife Protection Division field office for the Santa Barbara area is headquartered at 1933 Cliff Drive, Suite 9, Santa Barbara, CA. CDFG maintains patrol of areas with significant naturally occurring shellfish resources for illegal commercial harvesting. CDFG patrol activities may occur at any time. CDFG officers have a broad range of enforcement duties, shellfish being only one part of their responsibilities.

The provisions of this Management Plan as it applies to the obligations of the commercial shellfish harvester are enforced by CDPH/PSU, not DFG. CDFG agrees to assist CDPH/PSU, when specifically requested by CDPH/PSU, by redirecting some of its patrol effort to monitor commercial harvesters for compliance with harvest closures. If CDFG patrol personnel find or suspect any commercial shellfish harvesting in violation of a harvest closure established pursuant to this plan, CDFG will report their finding to CDPH/PSU.

C. ILLEGAL MARKETING

DFG also makes periodic checks for the illegal marketing of uncertified shellfish by means of market and restaurant inspections. This activity also is carried out by local environmental health agencies. Shellfish in the marketplace are inspected for proper identification and records of purchase. The SBCEHS or the State CDPH/FDB can confiscate and destroy any shellfish that lack proper identification or have been subject to improper handling or storage. CDFG can take action on shellfish that lack proper identification.

D. HARVESTER COMPLIANCE WITH CLOSURES

(1) CDPH/PSU (or DFG patrol personnel, or FDB inspectors, upon request from CDPH/PSU) will field check the harvest area to look for harvesting activity during closure periods.

(2) CDPH/PSU will review harvester records of closure and harvesting dates.

(3) CDPH/PSU will spot check by telephone to ascertain whether harvester is conducting operations during closed periods.

(4) CDPH/PSU will maintain records of all compliance monitoring activities and findings.

XII. WATER QUALITY MONITORING

The Santa Barbara Mariculture Company is responsible for providing water quality monitoring data from its growing area, as required by the NSSP Model Ordinance, Chapter IV (2009), with coordination and oversight from the CDPH/PSU. The grower submits samples according to a sampling plan approved by CDPH/PSU. Failure to maintain the required sampling schedule is a violation of the NSSP requirements and may result in reclassification of the growing area to *Prohibited* as well as disciplinary actions including, but not limited to, the revocation and or suspension of the growing area certificate as provided for by law. The following is a summary of the requirements associated with routine monitoring of shellfish growing waters and shellfish.

A. WATER SAMPLING REQUIREMENTS

Water samples are collected at least monthly during periods when the growing area is open for harvesting. Sampling shall be accomplished using the systematic random sampling protocol in accordance the current Sampling Plan for Water Quality Monitoring. If a sampling date occurs during a closure, the sampling shall be conducted on the first open day (i.e., the day of reopening). In order to obtain data on rainfall-related impacts to water quality, additional samples should be collected whenever possible during periods of adverse pollution conditions, such as immediately following rainstorms or on the first days of reopening following a closure.

The grower shall notify CDPH/PSU in writing prior to the scheduled sampling date when sampling will not occur on the scheduled date (and the area is in the open status) and shall request an alternate date. A reason for the deviation from the sampling plan schedule must be provided. If CDPH/PSU does not approve the request, the grower will be required to sample on the original date specified in the schedule. Samples collected on incorrect dates will not be identified as a compliance sample, and will not be used in the calculations for verifying classification the area.

All compliance sampling is to be conducted by a commercial shellfish grower staff member that has been trained by the CDPH/PSU. If sampling has not been conducted by a CDPH trained staff member the sampling results may be rejected by the CDPH and the commercial shellfish grower may be asked to resample with trained staff. CDPH may evaluate all certified samplers annually. CDPH will provide training for compliance sample collection upon request from the commercial shellfish grower.

B. TRANSPORTATION

The grower provides his own boat and all necessary sampling equipment for routine water quality monitoring. Boat trips for CDPH/PSU staff may be scheduled with the grower for special sampling and survey trips, and to monitor sampling by the grower. Growers shall be responsible

for transporting samples to the certified laboratory and meeting proper holding times and temperature limitations as detailed in the sampling plans.

C. LABORATORY

The San Luis Obispo County Public Health Laboratory in San Luis Obispo, a State-certified laboratory in accordance with the Environmental Laboratory Accreditation Program (ELAP), or any other certified shellfish laboratory, shall analyze samples taken by the grower. Analytical results are to be transmitted directly from the laboratory to CDPH/PSU. The CDPH Microbial Diseases Laboratory in Richmond may analyze supplemental samples submitted under the direction and coordination of CDPH/PSU.

D. WATER SAMPLES EXCEEDING NSSP CRITERIA

Water sample results that exceed NSSP criteria may indicate a public health threat, and must be responded to immediately. A two-tiered response protocol is described in the following paragraphs. *In any case when a sample exceeding NSSP criteria results in a growing area closure, the closure shall be effective at the date and time the sample was collected. Reopening following satisfactory sample results shall be effective at the date and time that sample results are received from the laboratory.*

Any sample collected from an open area that contains fecal coliform concentrations *greater than 43 MPN/100 mL but less than or equal to107 MPN/100 mL*[1] must be re-sampled immediately at the certified grower's expense. Re-sampling must be conducted within 24-hours of notification of initial sample results. If re-sampling is not conducted within the specified time frame, the portion of the lease or growing area represented by the sampling station in question shall be closed for harvest until re-sampling is conducted and results demonstrate that fecal coliform concentrations have returned to acceptable levels. The commercial shellfish grower should refrain from harvesting from the area represented by the sampling station until re-sample results are received and are acceptable relative to commercial growing areas standards.

If re-sampling results are greater than 43 MPN/100 mL fecal coliform, the represented portion of the lease or growing area shall immediately be closed to harvest. The area will be considered for reopening when further re-sampling produces a result below 14 MPN/100 mL fecal coliform. In certain cases, CDPH staff may consider reopening based on a re-sample result equal to or below 43 MPN/100 mL combined with a declining trend in fecal coliform levels at the compliance sampling station and surrounding areas. In order to establish fecal coliform trends in surrounding areas it is recommended that re-sampling be conducted both at the primary compliance station(s) and other surrounding water quality stations. CDPH will advise the grower as to which water quality stations should be sampled.

A sample collected from an open area that contains *greater than 107 MPN/100 mL* fecal coliform shall result in immediate closure of the portion of the growing area represented by the sampling station from which the elevated sample was collected. The area will be considered for reopening when re-sampling produces a result equal to or below 14 MPN/100 mL fecal coliform

[1] The 99th percentile of a population with a geometric mean of 14 MPN/100 mL and a 90th percentile of 43 MPN/100 mL.

or a result equal to or below 43 MPN/100 mL combined with a declining trend in fecal coliform levels at the compliance sampling station and surrounding areas. Reopening criteria are as described above.

If re-sampling continues to yield elevated fecal coliform levels CDPH/PSU will conduct an investigation, which may include additional sampling, to confirm the elevated indicator levels and determine the source, and will notify all relevant regulatory agencies. If a source is identified, CDPH/PSU will refer the matter to the appropriate regulatory agency for corrective action. The commercial shellfish growing area will remain closed until the pollution problem is identified and remediated, and the commercial shellfish growing area is determined to be free of pathogens and to meet NSSP standards, or until the area is correctly reclassified by CDPH/PSU. CDPH will analyze the most recent water quality data and determine if the current shellfish growing area classification is correct or if the commercial growing area needs to be closed or reclassified.

XIII. MARINE BIOTOXIN MONITORING

A. CONDITIONS AND PROCEDURES

The Santa Barbara Mariculture Company shall comply with the following conditions and procedures for management of marine biotoxins. All samples submitted to the CDPH laboratory should be accompanied by a CDPH sample submission sheet. Biotoxin sampling described below shall be conducted during, and for at least two weeks prior to any harvest activities.

Due to the uncertainty involved with domoic acid and PSP toxicity, special management protocols were developed (Tables 3 and 4) that detail response activities for different concentrations of each biotoxin. The protocols detail the specific requirements for maximum time between sampling and harvest. This protocol may be modified as experience with domoic acid and PSP toxicity is gained.

1. Domoic Acid Analysis.

a. SBMC shall submit at least weekly samples of all harvested species to a lab certified by the CDPH Environmental Laboratory Accreditation Program (ELAP) for domoic acid analysis. A sample of each species shall be collected at the current depth of harvest. Samples shall be collected as closely as possible to the time of harvest. If the CDPH laboratory is available, all samples shall arrive at the laboratory by Tuesday or Wednesday morning but no later than Thursday morning. More frequent sampling may be required by CDPH to adequately track an impending or existing bloom.

b. SBMC shall collect a sample of each harvest lot and immediately test it for the presence of domoic acid using a commercially-available diagnostic kit. SBMC shall follow the protocol provided by CDPH (Appendix G). Assay results and other required information shall be recorded on page 2 of the sample submission form provided. The test strip shall be labeled as described in the assay protocol (Appendix G). A digital photograph of the developed test strip or a brief report of the assay result shall emailed to gregg.langlois@cdph.ca.gov and vanessa.zubkousky

@cdph.ca.gov on the day of the test. Test strips shall be shipped to CDPH with the remaining shellfish sample to the address provided on the sample submission form.

When there is a pattern of positive field tests for domoic acid and when lab resources are readily available, CDPH may permit SBMC to discontinue field testing for this toxin at the company's discretion. Testing shall resume when the event has subsided and there are two consecutive non-detect domoic results or when the grower is instructed by CDPH.

2. Paralytic Shellfish Poisoning Assays.

SBMC shall submit at least weekly samples of all harvested species to a lab certified by the CDPH Environmental Laboratory Accreditation Program (ELAP) for paralytic shellfish poisoning (PSP) assay. A sample of each species shall be collected at the current depth of harvest. Samples shall be collected as closely as possible to time of harvest. If the CDPH laboratory is available, all samples shall arrive at the laboratory by Tuesday or Wednesday morning but no later than Thursday morning. PSP samples may be combined with domoic acid samples if both analyses are to be conducted by CDPH. More frequent sampling may be required by CDPH to adequately track an impending or existing bloom.

3. Phytoplankton Observations.

It is strongly recommended that SBMC collect at least weekly samples of phytoplankton for the early detection of toxic blooms. CDPH will provide training in the sampling and field identification of the toxic species and will also provide quality control by examining samples and comparing observations with the company.

4. Field Sampling Protocol

SBMC shall follow the field sampling protocol for marine biotoxins provided by CDPH for sample collection, preparation, and submission (Appendix G).

5. Additional Sampling

SBMC shall increase the sampling frequency, expand sampling to include any other commercial shellfish species designated in the Shellfish Growing Area Certificate, and/or cease harvesting as directed by CDPH.

B. CLOSURE CRITERIA

When a sample exceeds the biotoxin alert level, the growing area shall be closed immediately, effective on the date and time the sample was collected. FDB will be notified and will be responsible for decisions regarding product recall or destruction.

1. Domoic Acid Alert Level

In compliance with the NSSP Model Ordinance, the alert level for domoic acid is reached when the concentration of the toxin in shellfish meat equals or exceeds 20 micrograms per gram of tissue (i.e., 20 parts per million [ppm]).

2. Paralytic Shellfish Poisoning Alert Level

In compliance with the NSSP Model Ordinance, the alert level for PSP toxin is reached when the concentration of the toxin in shellfish meat equals or exceeds 80 micrograms per 100 grams of tissue.

3. Samples Exceeding the Alert Level

A biotoxin concentration at or above the respective alert level in one or more samples of commercial product in the growing area prior to harvest, or in commercial channels after harvest, will trigger an immediate closure of the growing area until follow-up sampling confirms that the toxin has returned to safe levels as described in Section E below, and in Tables 3 and 4. If notified of a biotoxin-related closure or harvest restriction by CDPH/PSU via telephone message recorder, the harvester shall acknowledge receipt of the message within 24-hours by return call to the CDPH/PSU shellfish specialist at (510) 412-4631, the unit supervisor at (510) 412-4635, or the CDPH/PSU shellfish growers information line (GIL) at (510) 412-4644.

4. Failure to Submit Required Samples

It is the responsibility of SBMC to collect and ship the required samples to a certified laboratory for biotoxin analysis. Failure to submit the required samples or inability of the analytical laboratory to provide results in a timely manner may result in an immediate harvest closure. CDPH will notify FDB, who will determine if a product recall is warranted.

C. RESTRICTED HARVEST CRITERIA

The special management protocols in Tables 3 and 4 outline multiple alert stages for concentrations of biotoxins below the closure alert level. The tables identify restricted harvest criteria and sampling actions for each stage of toxin concentration. When there is an increase in alert stage, the increase will be effective on the date and time that samples are collected. Alert stages below the closure alert level will be decreased effective on the sampling date and time after the sample results are received from the laboratory. To be considered for a decrease in alert stage, successive samples collected at least three (3) days apart (i.e., 72 hours) must meet the toxin level requirements for that stage.

D. SIZE OF CLOSED AREA

The initial harvest closure or implementation of harvest restrictions will include the entirety of the certified areas within the SBMC's lease, unless otherwise determined in a signed biotoxin management agreement. In reopening any commercial area, or any part of that area located within two miles by water of any site where toxin in a shellfish sample was detected above the alert level, the criteria in section G apply.

E. SPECIES RESTRICTIONS

A closure or harvest restriction of a commercial growing area may be limited to the shellfish species determined to have reached the alert level, or it may include all species in the growing area.

F. SAMPLING DURING A MARINE BIOTOXIN CLOSURE OR HARVEST RESTRICTION

Follow-up sampling will be continued throughout a closure or harvest restriction. All commercially harvestable shellfish species in the growing area will be sampled unless otherwise specified by CDPH. CDPH will determine sampling sites and times. Sites will be selected so that no part of any certified growing area is more than two miles by water from a sampling site for the species of shellfish harvested in that growing area.

G. REOPENING CRITERIA

Prior to being considered for reopening from a biotoxin closure, The Santa Barbara Mariculture Company shall collect successive samples at least three (3) days apart (i.e., 72 hours) that are found to be below the federal alert level for the toxin of concern. Reopening shall be contingent upon these sampling results and downward trends in biotoxin levels in the surrounding area. A reopened area is still subject to the harvest restrictions set forth in Tables 3 and 4. Reopening shall be effective on the date and time that sample results are received from the laboratory.

Harvesting during a growing area closure by a certified commercial grower is a serious violation and may result in suspension or revocation of their growing area certificate.

XIV. GROWING AREA REEVALUATION

CDPH/PSU will review and reevaluate water quality and other sanitary survey data at least annually, in accordance with procedures set forth in the Model Ordinance, Chapter IV (2009), to confirm the classification of the growing area and to determine if changes are needed in the closure rules. At least once a year, CDPH/PSU will conduct an on-site audit to determine grower compliance with the water quality sampling plan. The findings will be presented in an annual growing area sanitary survey update report.

When a growing area fails to meet the water quality standards for its classification, the NSSP requires that if the annual reevaluation determined that conditions have changed based on the information and data collected during the annual review and that the growing area classification is incorrect, immediate action shall be initiated to reclassify the area. If determined that an emergency condition or situation exists, then the growing area will be immediately (within 24 hours) placed in the closed status.

XV. AGREEMENT OF INVOLVED PARTIES

The NSSP Model Ordinance, Chapter IV (2009) section @.03 C.4(a), requires that "The Management Plan shall be developed by the authority, in coordination with: the local shellfish industry, the individuals responsible for the operation of any wastewater treatment plants

involved and any local or State agencies." In addition, NSSP Model Ordinance, Chapter IV (2009) section @.03 C.4(b) states "Failure of any one party to agree shall constitute sufficient justification to deny creation of a Conditionally Approved area." This Management Plan is in effect as long as the area remains certified and may be modified when conditions warrant it, with the concurrence of the involved parties. (The Sanitary Survey Report is updated annually; any significant changes in this report will necessitate a revision to the Management Plan).

A. PUBLIC AGENCIES

Authorized persons from the following public agencies are requested to review this Management Plan and to sign and return a statement of agreement provided in Appendix H, which states that "The undersigned has read and understands the purpose of the *Conditionally Approved* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated _____, and agrees to comply with the conditions and procedures set forth in the Management Plan.

1. California Department of Fish and Game, Wildlife Protection Division

2. California Regional Water Quality Control Board, Central Coast Region

3. Santa Barbara County Environmental Health Services

B. PERMITTED FACILITIES

Authorized persons in the following agencies are requested to review this plan and to sign and return a statement of agreement provided in Appendix H, which states that "The undersigned has read and understands the purpose of the *'Conditionally Approved'* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated _____, and agrees to comply with the conditions and procedures set forth in the Management Plan."

1. City of Santa Barbara Sanitary District (alternate agreement provided due to MOU)

2. Montecito Sanitary District

3. Carpinteria Sanitary District
4. Summerland Sanitary District

5. Goleta Sanitary District

C. COMMERCIAL SHELLFISH GROWER

Compliance with this Management Plan is mandatory for the commercial shellfish grower as a condition of their Shellfish Growing Area Certificate issued by CDPH/PSU. Noncompliance may result in suspension or revocation of the certificate. The Santa Barbara Mariculture Company is requested to review this document and to sign and return the statement provided in Appendix H, which states that "The undersigned has read and understands the purpose of the '*Conditionally*

Approved" classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated _____, and understands that compliance with the conditions and procedures set forth in the Management Plan is mandatory as a condition of Shellfish Growing Area Certificate issued by the California Department of Public Health."

D. FORWARDING OF SIGNED STATEMENTS

Signed statements shall be mailed to:

Environmental Management Branch
California Department of Public Health
850 Marina Bay Parkway, #G165
Richmond, CA 94804

XVI. SUMMARY OF AGREEMENTS

A. CALIFORNIA DEPARTMENT OF FISH AND GAME

Upon request from CDPH/PSU, to field check commercial shellfish growing areas during closed periods to monitor for illegal harvesting activity, and to report compliance monitoring activities and findings to CDPH/PSU.

B. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION

1. Notification

To notify, or to require designated persons or agencies to notify, CDPH/PSU of any pollution events, as soon as they become aware of discharges which may pose a threat or adversely affect water quality in the Santa Barbara coastal area.

2. Performance Standards

To include in the Waste Discharge Requirements or Monitoring and Reporting Program for all wastewater treatment plants whose wastes discharge into the Santa Barbara Channel (including the City of Santa Barbara's El Estero Wastewater Treatment Plant, and the Montecito, Goleta, Summerland, and Carpinteria sanitary districts) performance standards designed to preserve the water quality in the Santa Barbara Channel for the beneficial use of shellfish harvesting.

3. Waste Discharge Requirements

To include the following requirements in the Waste Discharge Requirements or Monitoring and Reporting Program issued to the City of Santa Barbara's El Estero Wastewater Treatment Plant,

and the Montecito, Goleta, Summerland, and Carpinteria sanitary districts:

a. To notify RWQCB, CDPH/PSU, and the commercial shellfish growers as soon as possible (within 4 hours during regular business hours; by 10:00am the following morning if event occurs during off-business hours), of any sewage spill or malfunction of a wastewater treatment facility which results in a potential or actual discharge of sewage or inadequately treated effluent into the Santa Barbara coastal area.

b. To develop and maintain written notification procedures incorporating the notification requirement as described above, to post the procedures at the facility, and to provide a copy of the current notification procedures to RWQCB, CDPH/PSU, and SBCEHS.

c. To provide CDPH/PSU a copy of all Waste Discharge Requirements and updates or amendments, proposed or adopted, for any WWTPs whose wastes discharge to the Santa Barbara Channel.

C. Santa Barbara County Environmental Health Services

To notify CDPH/PSU of any beach postings or closures due to high coliform levels, any sewage spills or line breaks, and of any other pollution event that they are notified of which could impact the ocean waters.

TABLES

Table 1. Permitted Wastewater Treatment Plants in the Santa Barbara Area that are regulated under Waste Discharge Requirements from the California Regional Water Control Board, Central Coast Region.

FACILITY	LOCATION	WASTE (MGD)	WASTE SOURCE	TREATMENT TYPE	DISPOSAL	PERMIT EXPIRATION DATE
Carpinteria Wastewater Treatment Plant	5351 Sixth ST, Carpinteria, CA 93013	Max design: 2.5	City of Carpinteria and portions of Santa Barbara County	Screening, grit removal, primary sedimentation, aerated activated sludge tanks, chlorination/dechlorination	Into the Santa Barbara Channel through a 1000 ft outfall/diffuser, approx 25' deep	March 25, 2016
El Estero Wastewater Treatment Plant	520 East Yanonali St, Santa Barbara, CA 93103	Max design: 18, Ave: 8	City of Santa Barbara and portions of Santa Barbara County	Screening, comminution, aerated grit removal, primary sedimentation, activated sludge, secondary sedimentation, chlorination/dechlorination	Into the Santa Barbara Channel through a 8720 ft outfall/diffuser system, approx 70' deep	May 13, 2015
Goleta Wastewater Treatment Plant	1 Moffett Place, Goleta, CA 93117	Max: 25.4, Ave (dry weather): 9.0	City of Goleta, Univ of California at Santa Barbara, Santa Barbara Municipal Airport, and facilities of Santa Barbara City	Primary sedimentation, biofiltration, solids-contact, secondary clarification, chlorination/dechlorination	Into the Santa Barbara Channel through a 5912 ft outfall/diffuser system, approx 87' deep	September 1, 2015
Montecito Wastewater Treatment Plant	583 San Ysido Rd, Montecito, CA 93108	Ave (dry weather): ≤ 1.5	Community of Montecito	Comminution, activated sludge, secondary sedimentation, chlorination/dechlorination	Into the Santa Barbara Channel through a 1550 ft outfall/diffuser system, approx 35' deep	December 1, 2011
Summerland Wastewater Treatment Plant	2435 Wallace Ave, Summerland, CA 93067	Max: 0.5 Ave (dry weather): 0.15	Community of Summerland	Primary sedimentation, aeration, secondary sedimentation, filtration, chlorination/dechlorination, aerobic sludge digestion	Into the Santa Barbara Channel through a 740 ft outfall/diffuser, approx 19' deep	May 9, 2013

Table 2. Waste Discharge Requirements and Monitoring and Reporting Programs for Wastewater Treatment Plants in the Santa Barbara Area.

FACILITY	TC/FC in Effluent	Max TC/FC at Growing Area	Notification Procedure	Notes
Carpinteria Wastewater Treatment Plant	Median TC shall not exceed 23 MPN/100mL for last 7 days; TC in any one sample shall not exceed 2300 MPN/100mL.	Median TC shall not exceed 70 MPN/100mL, and 90% of the samples shall not exceed 230 MPN/100mL for TC.	Discharger shall notify RWQCB, CDPH, and any shellfish grower as soon as possible in the event of a disinfection failure. Determination of whether such an event has occurred is at the sole discretion of the discharger.	1, 2, 4
El Estero Wastewater Treatment Plant	Median TC shall not exceed 2300 MPN/100mL for last 7 days; TC in any one sample shall not exceed 16,000 MPN/100mL. Median FC shall not exceed 460 MPN/100mL for last 7 days; FC in any one sample shall not exceed 3200 MPN/100mL.	Median TC shall not exceed 70 MPN/100mL, and 90% of the samples shall not exceed a 230 MPN/100mL for TC.	Discharger shall notify RWQCB, CDPH, and any shellfish grower as soon as possible when loss of disinfection occurs or if 3 consecutive effluent total coliform bacteria tests exceed 16,000 MPN/100mL. Plus additional plant parameter notification requirements in accordance with the MOU.	1, 3, 4
Goleta Wastewater Treatment Plant	No more than 10% of the final effluent samples in any month (30-day) period shall exceed a TC of 2400 MPN/100 mL and no sample shall exceed 16,000 MPN/100 mL.	Median TC shall not exceed 70 MPN/100mL in any 60-day period. 90% of the samples in any 60-day period shall not exceed a 230 MPN/100mL for TC.	If any one sample exceeds 16,000 MPN/100 mL, the discharger shall notify within 48 hrs CDPH, RWQCB, and any certified commercial shellfish growers in the vicinity of the outfall.	1, 4, 5
Montecito Wastewater Treatment Plant	Median TC shall not exceed 23 MPN/100mL for last 7 days; TC in any one sample shall not exceed 2300 MPN/100mL.	Median TC shall not exceed 70 MPN/100mL, and 90% of the samples shall not exceed 230 MPN/100mL for TC.	Discharger shall notify RWQCB, CDPH, and any shellfish grower as soon as possible in the event of a disinfection failure or if 3 consecutive effluent total coliform bacteria tests exceed 2,300 MPN/100mL. Determination of whether such an event has occurred is at the sole discretion of the discharger.	1, 2, 4
Summerland Wastewater Treatment Plant	Median TC shall not exceed 23 MPN/100mL for last 7 days; TC in any one sample shall not exceed 2300 MPN/100mL.	Median TC shall not exceed 70 MPN/100mL, and 90% of the samples shall not exceed a 230 MPN/100mL for TC.	Discharger shall notify RWQCB, CDPH, and any shellfish grower as soon as possible in the event of a disinfection failure. Determination of whether such an event has occurred is at the sole discretion of the discharger.	1, 4

Table 2. Continued

NOTES:

1. El Estero, Goleta, Summerland, Carpinteria, and Montecito have additional coliform limits: The discharger shall not cause the following bacteriological limits to be exceeded between the shoreline and the 30-foot depth contour/a distance of 1,000 feet from the shoreline; within areas where there are kelp beds; and within areas used for body contact recreation:

Parameter	Total Coliform Organisms (MPN/100mL)	Fecal Coliform Organisms (MPN/100mL)	Enterococcus Organisms (MPN/100mL)
Geometric Mean (30 days, 5 most recent samples)	1,000	200	35
Single Sample Maximum	10,000*	400	104

*Total coliform density shall not exceed 1,000 MPN/100mL when the FC/TC ratio exceeds 0.1

2. For Carpinteria and Montecito: if 3 consecutive effluent TC bacteria tests exceed 2,300 MPN/100 mL, a minimum of five samples shall be collected at shoreline stations and analyzed for TC over a thirty-day period. Sampling will continue until effluent TC levels return to compliance.

3. For El Estero: if 3 consecutive effluent TC bacteria tests exceed 16,000 MPN/100 mL, samples shall be collected at shoreline stations and analyzed for FC and TC once a week for a minimum of 14 days until the effluent concentrations return to compliance.

4. The "Standard Provisions and Reporting Requirements of Waste Discharge Requirements", issued by the California Regional Water Quality Control Board, dated February 2004 (latest available version) contains a general requirement that "Any noncompliance that may endanger health or the environment shall be reported orally within 24 hours from the time the discharger becomes aware of the circumstances..."

5. The transport time from the Goleta outfall to the growing area under worst-case current velocity of 0.82 ft/sec is approximately eight (8) hours. For a current velocity of 0.2 ft/sec, the transport time is approximately 30 hours.

Table 3. Management decision criteria for domoic acid toxicity in bivalve shellfish.

ALERT STAGE	DOMOIC ACID CONCENTRATION[1]	ACTION[2,3]
Jellett Result Negative[4] (optional):		
No Alert	**Nondetectable: < 2.5 ppm**	- Routine Sampling; - Harvest date must be < 96 hours from sampling date.
1st Stage	**2.5 – 4.9 ppm**	- Harvest date must be < 48 hours from sampling date; - Immediate resample[5]; - Additional sampling as directed.
2nd Stage	**5 – 9.9 ppm**	- Harvest date must be < 24 hours from sampling date; - Immediate resample; - Immediate harvest closure if harvest lot laboratory results have not been obtained; - Twice-weekly sampling at minimum[5]; - Expand sampling to adjacent growing areas.
Jellett Result Positive[4] (optional):		
3rd Stage	**10 – 19.9 ppm**	- Batch release[3,5,6]; - Immediate harvest closure if harvest lot laboratory results have not been obtained; - Immediate resample; - Twice-weekly sampling at minimum[5]; - Expand sampling to adjacent growing areas.
4th Stage	**≥ 20 ppm**	- Closure of growing area; - Batch release[3,5,6] of shellstock from adjacent harvest areas that remain open; - Twice-weekly sampling[5]; - Expand sampling to adjacent growing areas.

[1] As determined by NSSP-approved analytical method. Specified concentrations are subject to change based on acquisition of new data.
[2] No harvesting can be conducted without quantitative PSP and Domoic Acid results from samples collected within 96 hours prior to harvest.
[3] For each alert stage, the alert shall be continued until either (a) a higher stage alert is declared, or (b) two successive samples taken over a minimum period of three days have domoic acid levels consistent with a lower alert stage and downward trends in biotoxin levels in the surrounding area.
[4] Applies to both the rapid extraction and methanol extraction methods.
[5] Contingent upon arrangement with certified laboratory.
[6] Batch release means that the grower must submit samples from each harvested lot of shellfish and shall not release that lot to market until CDPH has verified its safety based on satisfactory analytical results. Product must be held under appropriate temperature control while awaiting analytical results. Growers should consult the CDPH Food and Drug Branch for guidance on proper handling and storage of the batch-harvested shellstock.

Table 4. Management decision criteria for PSP toxicity in bivalve shellfish.

ALERT STAGE	PSP TOXIN CONCENTRATION[1]	ACTION[2,3]
Jellett Result Negative[4]:		
No Alert	**Nondetectable: < ~34 ug/100g**	- Routine Sampling; - Harvest date must be < 96 hours from sampling date.
Jellett Result Positive[4]:		
1st Stage	**Detectable: < 50 ug/100g**	- Harvest date must be < 48 hours from sampling date; - Immediate resample; - Additional sampling as directed.
2nd Stage	**Detectable: < 60 ug/100g**	- Harvest date must be < 24 hours from sampling date; - Immediate resample; - Immediate harvest closure if harvest lot laboratory results have not been obtained; - Twice-weekly sampling at minimum[4]; - Expand sampling to adjacent growing areas.
3rd Stage	**60 - 79 ug/100 g**	- Batch release[3,5,6] ; - Immediate harvest closure if harvest lot laboratory results have not been obtained. - Immediate resample; - Twice-weekly sampling at minimum[4]; - Expand sampling to adjacent growing areas.
4th Stage	**≥ 80 ug/100 g**	- Closure of growing area; - Batch release[3,5,6] of shellstock from adjacent harvest areas that remain open; - Twice-weekly sampling[4]; - Expand sampling to adjacent growing areas.

[1] As determined by NSSP-approved analytical method. Specified concentrations are subject to change based on acquisition of new data.
[2] No harvesting can be conducted without quantitative PSP and Domoic Acid results from samples collected within 96 hours prior to harvest.
[3] For each alert stage, the alert shall be continued until either (a) a higher stage alert is declared, or (b) two successive samples taken over a minimum period of three days have PSP toxin levels consistent with a lower alert stage and downward trends in biotoxin levels in the surrounding area (see note 4, below).
[4] Jellett results are only to be used to establish increasing alert stages, and not for declining alert stages.
[5] Contingent upon arrangement with certified laboratory.
[6] Batch release means that the grower must submit samples from each harvested lot of shellfish and shall not release that lot to market until CDPH has verified its safety based on satisfactory analytical results. Product must be held under appropriate temperature control while awaiting analytical results. Growers should consult the CDPH Food and Drug Branch for guidance on proper handling and storage of the batch-harvested shellstock.

FIGURES

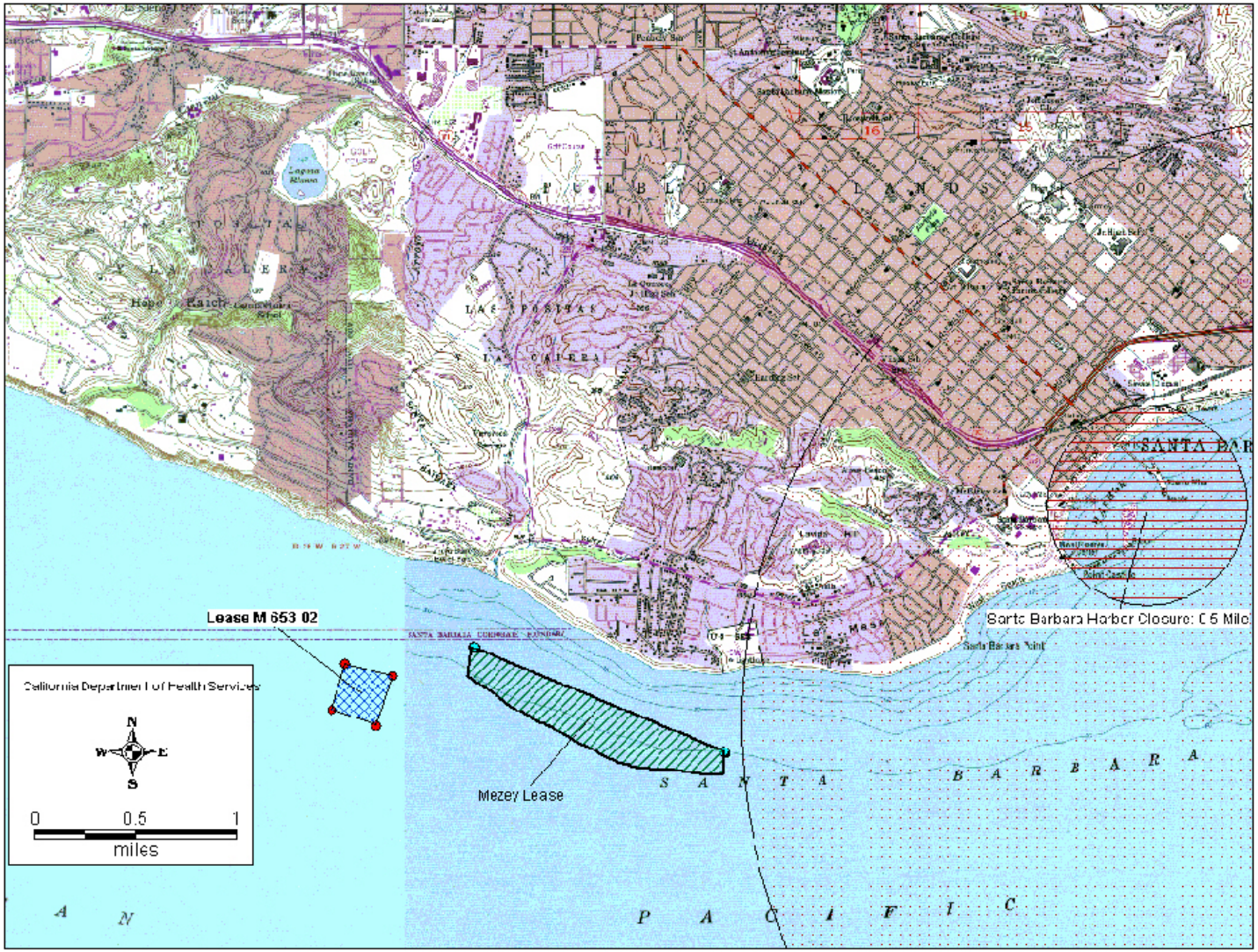


Figure 1. Location of Lease M-653-02 Aquaculture Growing Area, Santa Barbara, California

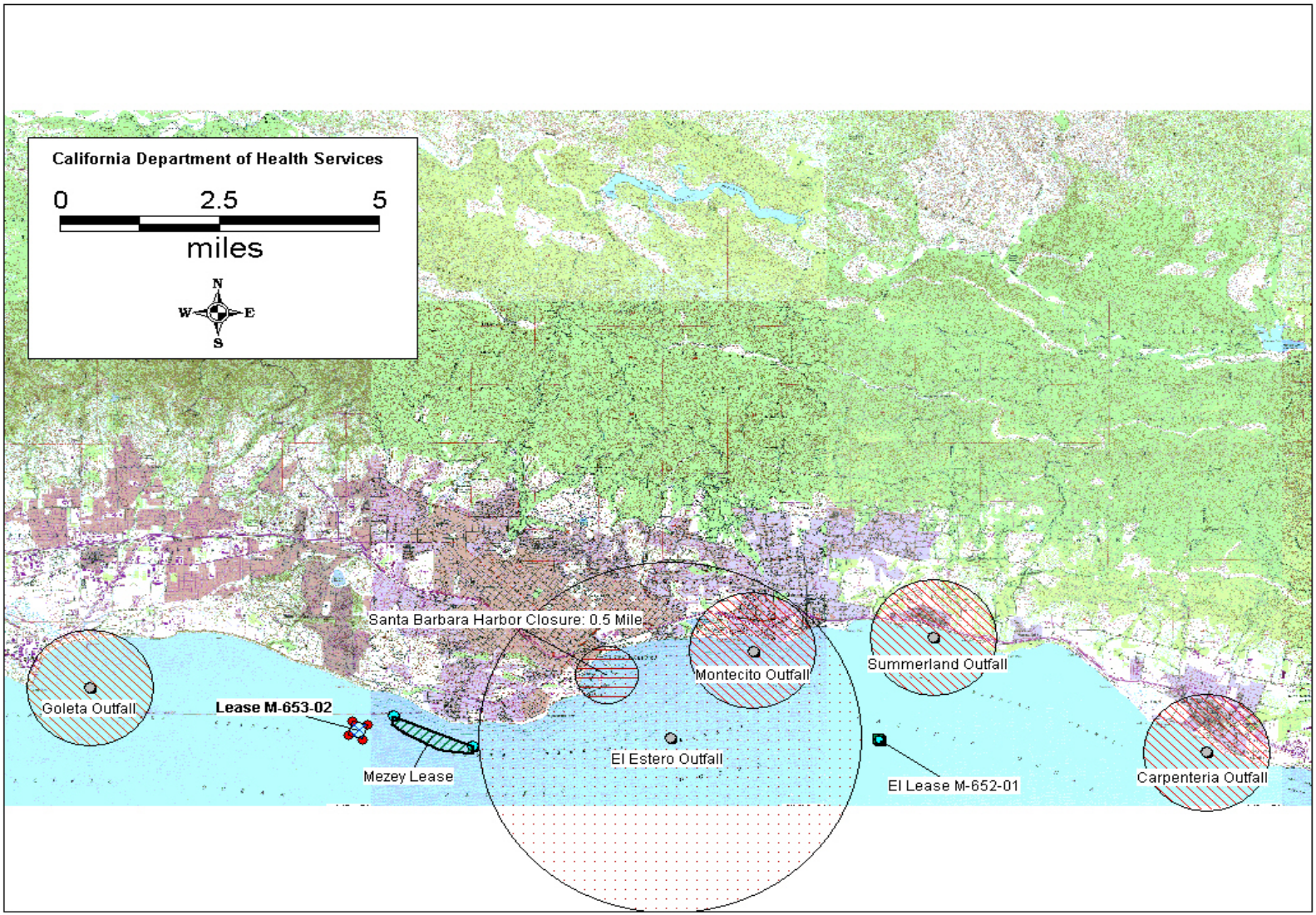
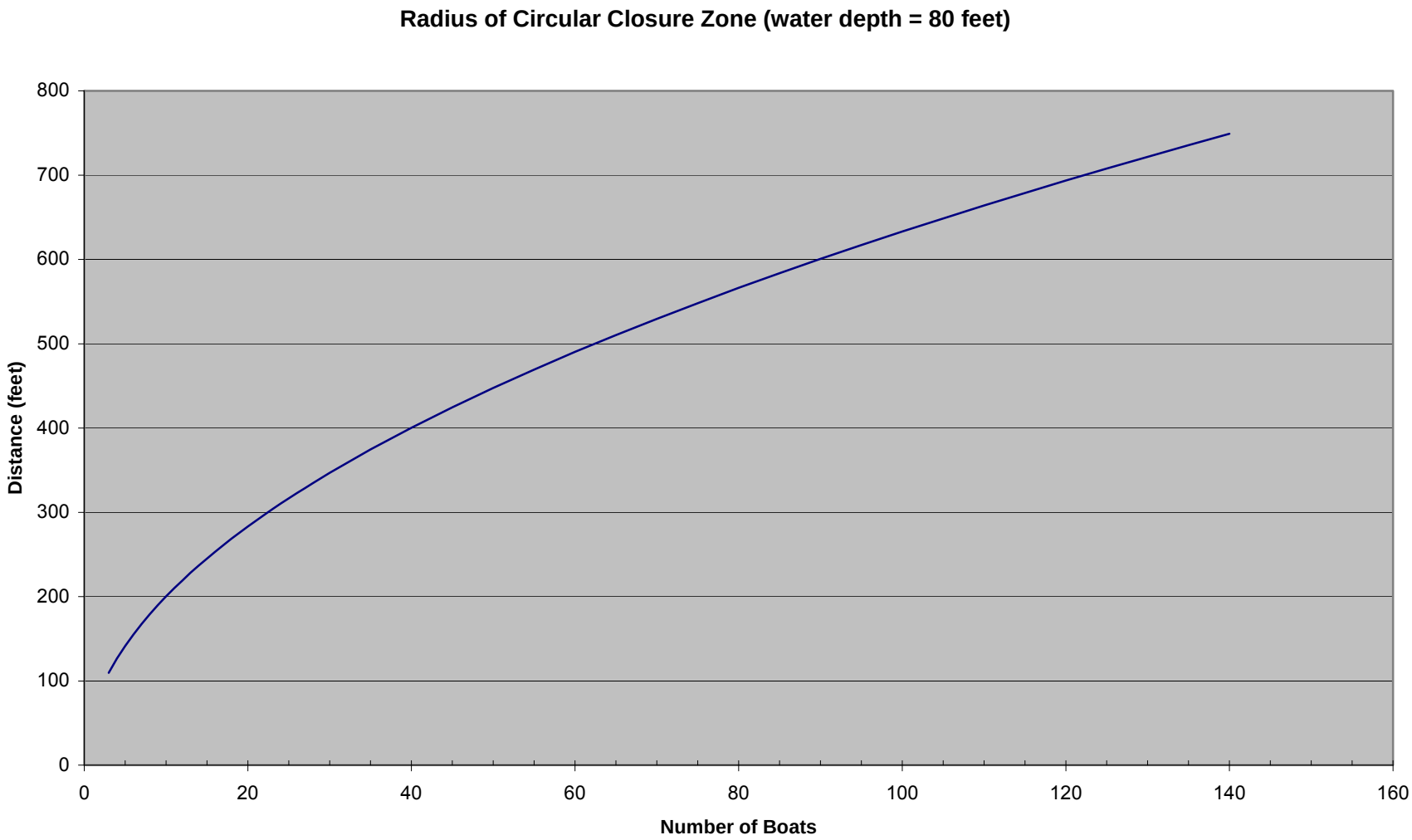


Figure 2. Locations of Closure Zones and Wastewater Treatment Plant Ocean Outfalls

Figure 3. Calculated Safe Distances in Santa Barbara Channel Between Moored Live-Aboard Boats and Shellfish Growing Areas



APPENDICES

Appendix A. Contact List for Santa Barbara Lease M-653-02

CALL-DOWN CONTACT LIST

Vanessa Zubkousky
Preharvest Shellfish Unit
Environmental Management Branch
California Department of Public Health
510-412-4631

Gregg Langlois
Chief, Preharvest Shellfish Unit
Environmental Management Branch
California Department of Public Health
510-412-4635

Jill Baltan
Preharvest Shellfish Unit
Environmental Management Branch
California Department of Public Health
510-412-4633

Eric Trevena
State Shellfish Program
Environmental Management Branch
California Department of Public Health
916-449-5695

AFTER HOURS SHELLFISH NOTIFICATION:

Office of Emergency Services
800-852-7550 or 916-262-1621

OTHER CONTACTS

Glenn Takeoka, Chief
Environmental Health Services Section
California Department of Public Health
916-449-5661

Tim Sample
Regional Shellfish Specialist
U.S. Food and Drug Administration
206-553-7001, ext 45

Bernard Friedman
Santa Barbara Mariculture Company
805-564-7884

Michael Antee
Regional Shellfish Specialist
U.S. Food and Drug Administration
206-553-7001, ext 13

Kirsten Ramey
Associate Marine Biologist
California Department of Fish and Game
707-445-5365

Jessie DeLoach
Regional Shellfish Specialist
U.S. Food and Drug Administration
206-553-7001, ext 51

Kristine Barsky
Senior Invertebrate Specialist
California Department of Fish and Game
805-985-3114

Tony Falzone
Food and Drug Branch
California Department of Public Health
916-650-6704

Jennifer Bernstein
Director, Environmental Health Services
Santa Barbara County Health Care Services Department
805-681-4900

Roger Briggs
Executive Officer
Calif. Regional Water Quality Control Board, Central Coast Region
805-549-3147

Scott Riedman
Harbormaster
City of Santa Barbara
805-564-5531

Peter von Langen
Regional Water Quality Control Board
Central Coast Region
805-549-3688

Rebecca Bjork
Water Resources Manager
City of Santa Barbara, Public Works Dept.
805-564-5387

Diane Gabriel
General Manager
Montecito Sanitary District
805-969-4200

Kamil S. Azoury
General Manager
Goleta Sanitary District
805-967-4519

Craig Murray
General Manager
Carpenteria Sanitary District
805-684-7214, ext. 12

James A. McManus
General Manager
Summerland Sanitary District
805-969-4344

Janet Hashimoto, Chief
Marine Protection
U.S. Environmental Protection Agency
415-947-8021

Appendix B. Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

BY AND BETWEEN

THE

CALIFORNIA DEPARTMENT OF HEALTH SERVICES

AND

CITY OF SANTA BARBARA

This Memorandum of Understanding (hereinafter MOU), is made and entered into by and between the California Department of Health Services (hereinafter DHS), and the City of Santa Barbara (hereinafter City).

The purpose of this MOU is to facilitate DHS's ability to manage shellfish growers in the Santa Barbara Channel in conformance with the standards and related procedures of the National Shellfish Sanitation Program (hereinafter NSSP).

WHEREAS, the U.S. Food and Drug Administration administers the NSSP; AND

WHEREAS, California statute, contained in the Health and Safety Code, requires DHS to develop and administer a shellfish sanitation and control program which conforms to the standards and related procedures of the NSSP; AND

WHEREAS, the NSSP standards and related procedures are set forth in the NSSP Model Ordinance (1997 Revision); AND

WHEREAS, the NSSP Model Ordinance provides the definitions, criteria, and requirements for classification of shellfish growing areas; AND

WHEREAS, the NSSP Model Ordinance definition, criteria, and requirements for conditional classifications of shellfish growing areas include: 1) the development of management plans based on wastewater treatment plant function and performance standards; and 2) procedures for immediate notification when wastewater treatment plant performance standards and criteria are not met; AND

WHEREAS, the City owns and operates the El Estero Wastewater Treatment Plant (hereinafter EEWWTP); AND

WHEREAS, the EEWWTP effluent outfall is located 1½ miles offshore of the Santa Barbara coast; AND

WHEREAS, the California Regional Water Quality Control Board (hereinafter CRWQCB), on September 8, 1999, adopted Waste Discharge Requirements (hereinafter WDR) Order No. 99-40 (National Pollutant Discharge Elimination System Permit No. CA0048143) for EEWWTP; AND

WHEREAS, the WDR's were adopted in part to protect beneficial uses of the Pacific Ocean, including shellfish harvesting; AND

WHEREAS, the effluent of the EEWWTP may potentially impact the water quality of nearby shellfish growers if there is a loss of effluent disinfection; AND

WHEREAS, Monitoring and Reporting Program No. 99-40 of the WDR's requires "Discharger shall notify the CRWQCB (telephone: 805 549-3147), DHS (telephone: 510-540-3423), and any Mariculture Grower as soon as possible when there is a loss of disinfection or if three consecutive effluent coliform bacteria tests exceed 16,000 MPN/100ml."; AND

WHEREAS, the City has developed and implemented the "Operator Effluent Monitoring and Early Warning Notification Procedure" at EEWWTP in accordance with the WDR's and with the concurrence of DHS as a further measure to protect the environment and public health. [A copy of the "Operator Effluent Monitoring and Early Warning Notification Procedure" (dated July 19, 2000), is attached and made a part of this MOU.]; AND

WHEREAS, both the City and DHS have an interest in protecting the environment and public health.

NOW, THEREFORE, it is mutually agreed and understood as follows:

1. The City and DHS have worked together in establishing a routine Monitoring and Early Warning Program for the purpose of providing adequate levels of safety for the shellfish growing waters through the evaluation, acceptance and implementation of the "Operator Effluent Monitoring and Early Warning Notification Procedure."

2. This MOU and the "Operator Effluent Monitoring and Early Warning Notification Procedure", may be amended as mutually agreed upon by the City and DHS.

3. The effective date of this MOU shall be the last date signed below.

4. This MOU can be terminated unilaterally by the City with 60 days written notice.

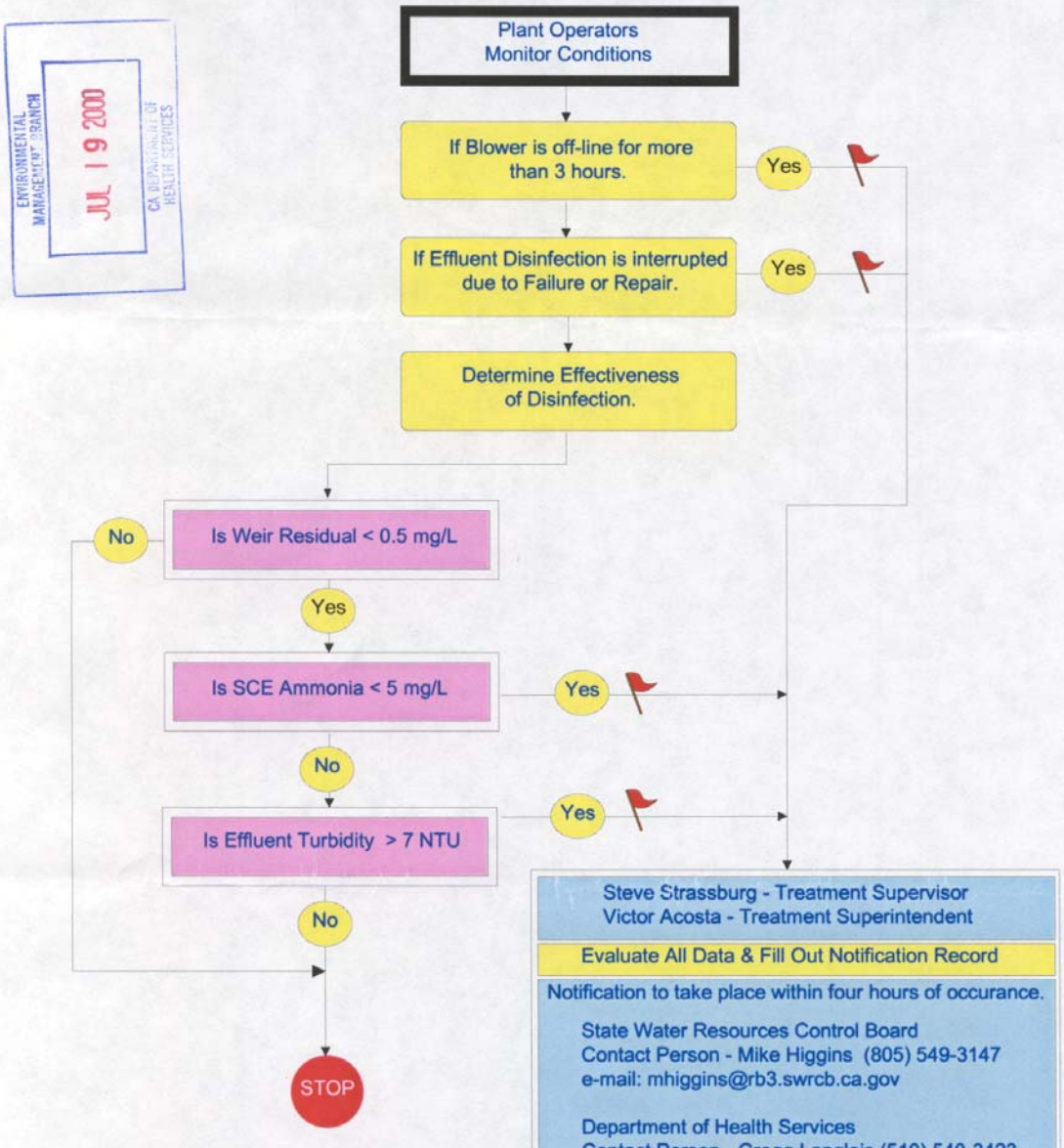
Jack McGurk
Chief
Environmental Management Branch
Department of Health Services
State of California

01-31-01
Date

David H. Johnson
Director
Public Works Department
City of Santa Barbara

01-23-01
Date

Operator Effluent Monitoring & Early Warning Notification Procedure



Operator Effluent Monitoring and Early Warning Notification Procedure

There are two primary factors influencing disinfection at the El Estero Wastewater Treatment Plant (El Estero). The first is a failure of the plant equipment; the second is a change in effluent chemistry. The attached chart considers each of these factors.

Equipment Failure

Licensed wastewater treatment plant operators shall monitor plant at all times. In the event that there is an equipment or operational failure that causes a cessation of disinfection, notification shall occurs as specified in the attached chart.

Effluent Chemistry

There are three ways in which effluent chemistry is monitored—1. Continuously reading of level of chlorine concentration (dosage); 2. Daily sampling of effluent chemistry; and 3. Periodic sampling of chlorine residual a the end of contact

.

1. Chlorine dosage is controlled by a W&T Amphometric Titration Total Chlorine Analyzer, which continuously monitors the effluent water. Total chlorine set points are determined based on the effluent chemistry and are checked several times a day by operators.
2. At lease once each day – at peak flow[1] _ the effluent is sampled and tested for chlorine residual, ammonia and turbidity. Each time they are tested, the concentration of these pollutants in the effluent is evaluated as specified on the attached chart.
3. Plant operators check chlorine residual throughout the day. If a low chlorine residual is found adjustments are made to the chlorine set point to increase the hypochlorite dosage.

If any of the flags in the attached chart are raised, operators shall immediately notify the Treatment Supervisor or Treatment Superintendent who will review all factors affecting disinfection efficiency (i.a. ammonia concentration, nitrite-ammonia ratio, hypochlorite dosage rates, bisulfite dosage rates etc.) and assess the likelihood of a violation of the effluent coliform limits. Based in his review of the data, the Treatment Supervisor or the Treatment Superintendent will determine whether to notify mariculturists of potential effluent violation. If in doubt, staff will inform mariculturists that there is a potential for a high coliform concentration and advise them to delay harvesting one day until presumptive coliform samples are received. Notification of the effluent entities on the notification list will occur within four hours of a flag being raised if in the opinion of the Treatment Supervisor or Treatment Superintendent there is a possibility of a effluent violation.

[1]The wastewater treatment process used at El Estero is a biological process; as such it is subject to fluctuations. Generally, however, there are not large or sudden shifts in effluent quality. Samples are taken at peak flows as high flows are the time at which effluent chemistry is most likely to change and this also represents the time when discharge limits are most likely to be exceeded.

Appendix C. Notification of Shellstock Movement During a Growing Area Closure

Shellstock removed from growing waters during closure periods shall have the number of hours that the shellstock was out of the water added onto its respective closure time before it can be harvested. All shellfish must be in water for the entire length of time that it would otherwise have been had it not been harvested before the end of the rainfall closure. If shellstock is removed from growing waters during closed periods, it must be tagged to ensure that the shellstock is not harvested for direct marketing prior to the required depuration time.

Email or fax this form to DHS/PSU at:
Email: Vanessa.zubkousky@cdph.ca.gov
Fax: (510) 412-4637

Company Name: _____

Date of Movement: From _____To: _____

Location of Product: _____

Species of Product Moved: _____

Reason for Movement: _____
_____

Estimated date(s) product will be returned:

_____Location: _____
_____Location: _____
_____Location: _____
_____Location: _____

Comments (Including method used to ensure shellstock requiring added holding time before harvesting is adequately identified (required for approval)) _____

_____

_____

_____

Name_____Signature_____Date_____

Preharvest Shellfish Unit acknowledgement of shellstock movement.

Signature _____Date _____

Appendix D. Wastewater Upset Response Procedures

The following procedures shall be followed in the event of a failure in the wastewater collection or treatment system resulting in a “wastewater upset”. A wastewater upset occurs whenever inadequately treated wastewater has exited the confines of the wastewater treatment or collection system and has the potential to enter the Santa Barbara Channel.

In the event of a wastewater upset that results in a potential or actual discharge of inadequately treated effluent into the Channel, the responsible agency will notify CDPH and the grower of the location and estimated volume of wastewater released to the waterbody. Upon notification of a sewage spill SBMC shall consider the growing area closed to harvesting. CDPH/PSU will contact SBMC to confirm that notification of the wastewater upset event has been received, and that the grower has ceased harvest operations after the start of the upset. Harvesting shall not occur until after CDHS/PSU has evaluated the event and determined the required actions. If harvesting has occurred after the start of the spill, the grower should consult CDPH Food and Drug Branch to determine the disposition of harvested shellstock.

Spill Volume Thresholds
CDHS/PSU will establish that the spill has been abated and determine if spill volume and location warrant closure of the growing area. Minimum spill volume thresholds that will result in closure are presented in Table D-1. For spill locations not specified in Table D-1, thresholds will be determined by interpolation or extrapolation from a nearby location in Table D-1. CDPH/PSU may modify the above procedure based on the specific conditions of the reported spill. After the determination has been made, CDPH/PSU will notify the grower of the status of the growing area.

Spill Attenuation
CDPH/CSU will conduct analyses to estimate when fecal coliform concentrations resulting from an upset will be attenuated to acceptable levels (14 MPN/100 mL). Attenuation analysis will be conducted as described in the Sanitary Survey for Commercial Shellfish Growing Area Lease M-653-02. The analysis accounts only for dispersion of the sewage spill by currents, and ignores bacterial die-off. This conservative approach is appropriate because die-off rates of many of the pathogenic viruses associated with sewage, and for which fecal coliforms serve as imperfect indicators, are unknown.

CDPH/PSU will instruct SBMC to begin collecting samples when the attenuation analysis indicates acceptable water quality. The grower should not sample until instructed to do so by CDPH.

Sampling and Opening Criteria
When instructed by CDPH, grower will collect one water quality sample at each site specified in Table D-1 and deliver samples to an ELAP-certified laboratory for fecal coliform analysis. Fecal coliform results must be equal to or lower than 14 MPN/100mL for the growing area to be considered for reopening. In addition, consistent, acceptable levels of fecal coliforms must be obtained from all sites in the surrounding area, and the source of contamination must have been abated. If results for any sampling stations are above the acceptable level, growers will be instructed to resample. Sampling will continue until all sampling stations meet the above

target. Results from all sampling stations must meet the target before the growing area can be reopened.

Table D-1. Sewage Upset Threshold Volumes

Location	Threshold Volume (Gallons)
Arroyo Burro Creek	9,000
Mission Creek	20,000
Santa Barbara Estero WWTP	20,000
Goleta WWTP	20,000
Montecito WWTP	30,000
Summerland WWTP	50,000

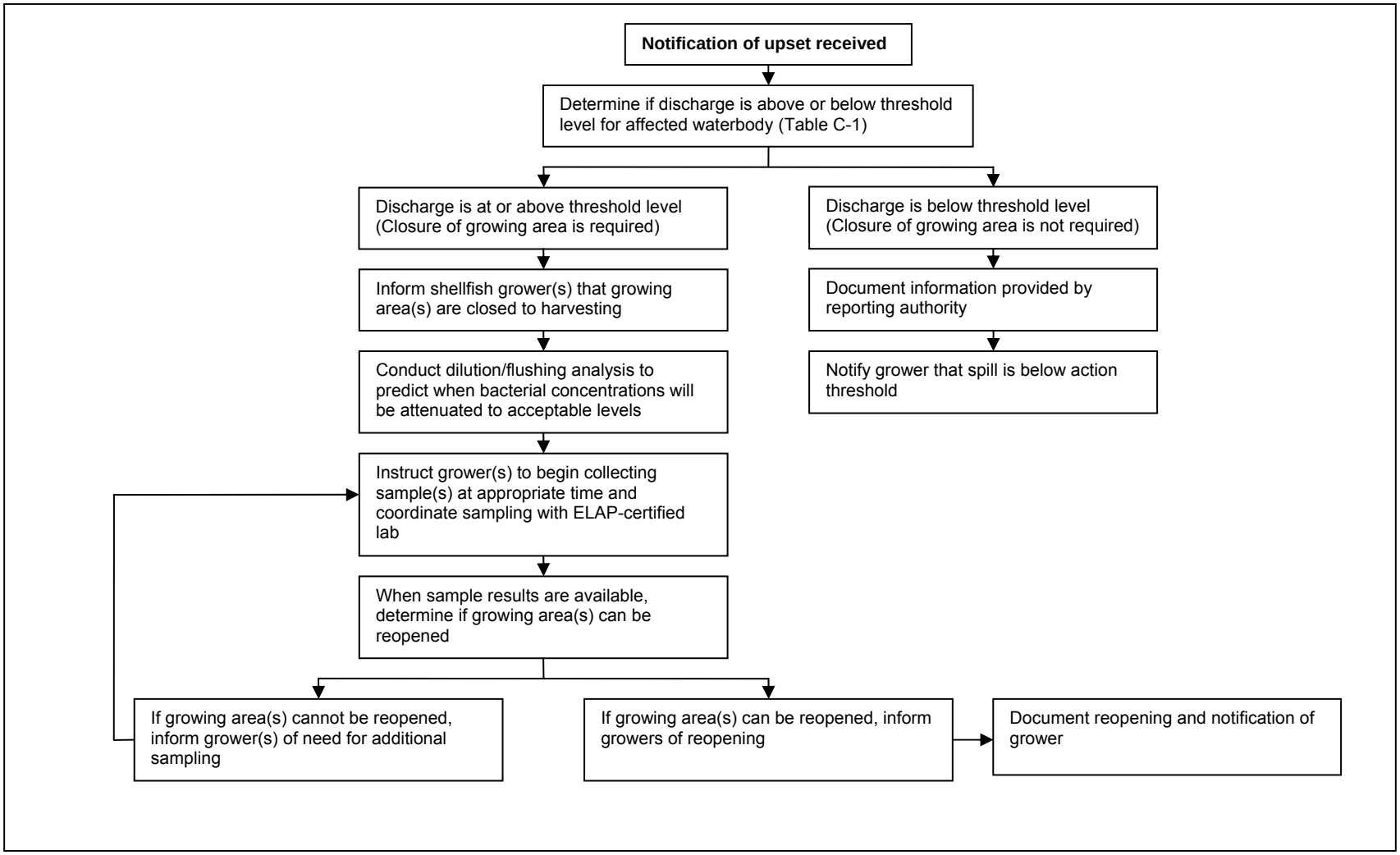


Figure D-1. Wastewater upset decision tree for California Department of Public Health.

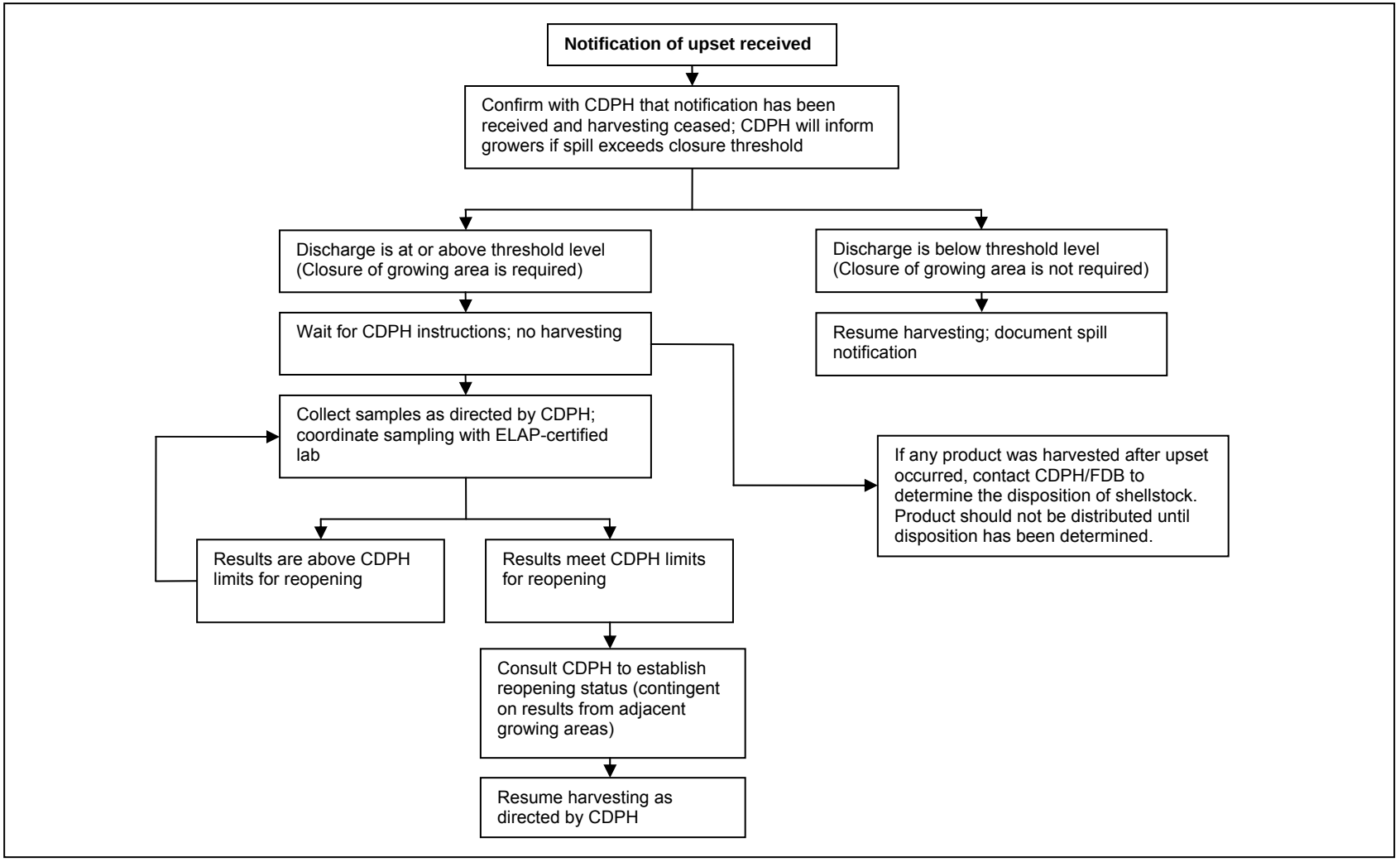


Figure D-2. Wastewater upset decision tree for growers.

Appendix E. Shellfish Harvester's Monthly Report of Rainfall and Harvest Operations

HARVESTER_____
GROWING AREA_____

MONTH/YEAR_____
RAIN GAUGE LOCATION_____

This form is for the use of California certified shellfish growers who harvest from conditionally approved areas. Growers are required to complete and file this form in accordance with the Management Plan for the conditionally approved area in which they conduct harvesting operations.

Day	Rainfall in inches	Closure & Reopening Dates and Times	Harvest Times & Amounts
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
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31			

Appendix F. Harvesting Day WWTP Contact Log

Month:					Harvester:		
Date		Time	WWTP	Contact	Disinfection Failure within last 24hrs No	Yes	If Yes, provide details (including name and time of CDPH contact)
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
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	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						
	Initial Contact:						
	Follow-up Contact:						

Appendix F – Harvesting Day WWTP Contact Log (Continued)

WWTP Contacts:

Carpinteria:	Louis Becker @ 805-684-7214, ext. 17
Goleta:	Jeff Salt @ 805-967-4519
Montecito:	Jim McManus @ 805-969-4200
Santa Barbara	Victor Acosta @ 805-897-1911 Or: (805) 897-1910 between 7:00 a.m. and 1:00 a.m. (805) 963-4286 (emergency answering service) between 1:00 a.m. and 7:00 a.m.
Summerland	Art Custer @ 805-969-4344

Appendix G. Marine Biotoxin Monitoring

This appendix contains two protocols for marine biotoxin monitoring. Procedure 1 is to be used for collecting shellfish samples to be submitted to the California Department of Public Health for biotoxin analysis. Procedure 2 should be used when performing field biotoxin analysis using Jellett test strips and when collecting phytoplankton samples. Training in both procedures will be provided to the grower by CDPH.

Procedure 1 was developed by the California Department of Public Health. Procedure 2 was developed by the California Department of Public Health and the University of California Santa Cruz as part of the Cal-PreEMPT Program, with support from the National Oceanographic and Atmospheric Administration's Monitoring and Event Response for Harmful Algal Blooms (MERHAB).

PROCEDURE 1: COLLECTING SHELLFISH SAMPLES TO BE SENT TO CDPH FOR BIOTOXIN ANALYSIS (NOT ANALYZED IN THE FIELD)

Prepared By

California Department of Public Health
Environmental Management Branch
and
Environmental Microbial Diseases Laboratory

INTRODUCTION

The following field sampling protocol will accommodate analysis for both paralytic shellfish poisoning (PSP) toxins and domoic acid (DA). Because a preservative cannot be used at the time of sample collection, it is imperative that the field collectors take care to ensure the integrity of each sample.

1. ***SAMPLING*:** A sample should consist of a single species of bivalve shellfish (mussels, oysters, clams, etc.) collected randomly from the sampling site. Each sample should include a **minimum of 15 individuals and at least 250 grams of drained shellfish meat**; this provides adequate material for both analyses with a reserve as insurance against a possible lab accident. This is equivalent to a volume of about one (1) cup of shucked meats. It takes up to 40 small sea mussels (about 2 inches shell length) to produce 250 grams of meat. Avoid collecting only a few very large specimens: this may provide misleading information on the presence or absence of toxin.

2. ***FIELD PREPARATION OF SAMPLES*:**

a. Shucked samples.

(**1**) Thoroughly clean the outside of shellfish with water.
(**2**) Open shell by cutting the adductor muscle(s). Do not use heat or anesthetic before opening shell. **Cut carefully to avoid damage to body of mollusk**.
(**3**) Rinse the opened shellfish to remove sand or other foreign materials if needed.
(**4**) For mussels, cut off byssal threads (attachment hairs) with scissors and discard, saving all meat.
(**5**) Open shell and drain off excess liquid. Remove meat from shell without damaging tissue.
(**6**) Drain shucked meat on a #10 mesh sieve without layering for five (5) minutes.
(**7**) Place drained meat into a wide-mouthed, 16-ounce sample bottle. About 1/2 to 2/3 of a sample bottle of shellfish meat provides the desired amount. NOTE: Do not overfill; be sure to leave an air space to accommodate expansion upon freezing.
(**8**) Tighten cap securely. Refrigerate immediately in the field.
(**9**) **Freeze sample** as soon as possible; ensure that sample is frozen prior to shipment.
(**10**) Fill out sample submission slip; be sure to record sample **bottle number** and **type of shellfish** (e.g., Pacific oyster, bay mussel, etc.). A list of representative sample types and their associated codes is presented in Table 1. In addition, please record the **sample location and sampling date,** and **include your name and telephone number** so that we may contact you immediately. The presence of high toxin concentrations may necessitate immediate resampling.

b. Unshucked samples: If you have been instructed or authorized to send unshucked shellfish samples, clean the outside of shellfish, wrap in newspaper to cover sharp edges, place in a heavy gauge plastic bag and seal, double bag the sample, and check for leaks. Refrigerate immediately.

3. ***SHIPPING:*** Rapid testing of samples for PSP and DA is extremely important. Samples should be shipped as soon as possible by the most rapid means available, while taking care that they arrive at the laboratory in an unspoiled condition.

a. Place frozen sample(s) in an insulated shipping container with an adequate quantity of frozen ice packs and sandwiched in absorbent materials to soak up any leakage or condensation.

b. Place sample submission slip(s) on top of the Styrofoam lid; close and seal the shipping container.

c. Containers returned to you from the laboratory will have mailing labels inside a plastic mailing envelope taped onto the lid or side. Remove the label addressed to you and reverse labels so that the box is addressed to the laboratory. Remove or cover any old UPS or other shipping label(s) that could cause confusion.

d. Package should be addressed to:

California Department of Public Health
MDL/EMDS
ATTN: Specimen Receiving MS B106
850 Marina Bay Parkway
Richmond, CA 94804

e. Send package by Courier Service, In accordance with prior arrangements.

(**1**) Next-day courier service may be provided in some locations by EMB: call (510) 412-4635 for information; or
(**2**) You may use your own courier at your own expense.

f. Avoid sending samples at the end of the week or just before holidays. Prolonged transit time causes increased risk of spoilage.

g. All questions regarding this protocol should be directed to the EMB office at (510) 412-4635.

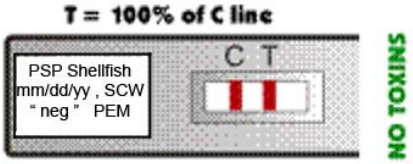
SAMPLE TYPE	CODE
Wild Sea Mussels (*Mytilus californianus*)	WSMU
Sentinel Sea Mussels	SSMU
Wild Bay Mussels (*Mytilus edulis*)	WBMU
Sentinel Bay Mussels	SBMU
Cultured Bay Mussels	CBMU
Cultured Pacific Oysters (*Crassostrea gigas*)	CPOY

Table 1. Common sample types and their respective codes.

PROCEDURE 2: PHYTOPLANKTON SAMPLING AND FIELD BIOTOXIN ANALYSIS

Labeling

Label Jellett test strips and shellfish extract vial with the following information: toxin, sample type (e.g. mussel, oyster or phytoplankton), date, location, test strip results (+/-), and your initials. Use the back of the test strip for more space, if needed. See example:



Phytoplankton Samples

Collecting & Observing Phytoplankton Sample:

1. Use plankton net to obtain 300 mL sample: retrieve net very slowly
2. Record total length of the tow (depth x number of repetitions, e.g. 30 feet x 5 tows = 150 feet)
3. Swirl net sample to resuspend, and fill 125 mL bottle containing formalin just to the shoulder
4. Pour the remaining sample into a clean bottle without formalin
5. Allow live sample to settle for 15 minutes
6. Pipette several drops of the settle material to a microscope slide and place a coverslip on the drops, or use a small flat glass capillary tube to pull up a quantity of the settle material
7. Observe the slide/capillary for the presence of *Pseudo-nitzschia* or *Alexandrium* and record estimate of percent composition or relative abundance (Absent, Rare, Present, Common, Abundant).
8. Note other most common species along with an estimate of percent composition or abundance.
9. Fill out data sheet with observations and percentages
10. Repeat steps 6 through 9 for a total of three separate observations
11. Field sheets should be photocopied before shipping to CDPH

Shellfish Samples

Collecting Shellfish Sample:

1. Collect a minimum of 15 large mussels, more if they are small
2. Rinse outside of shell, remove byssal threads, and shuck mussels placing tissue in #10 sieve and allow to drain for 5 minutes
3. Fill 600 mL beaker to at least 300 mL with shucked meat and thoroughly puree meat using blender
4. Pour approximately 10 mL pureed meat into 50 mL tube and pour remainder into 500 mL sample collection jar and refrigerate immediately

Preparing the Shellfish Extract:

1. Add 10 mL Jellett *Extraction Liquid* to tube containing 10 mL pureed shellfish and shake vigorously to ensure complete mixing

2. Place paper paint filter over a 500 mL beaker and pour shellfish mixture into filter. Allow to filter for 5 minutes
3. Transfer shellfish extract filtrate from beaker into small vial, cap, label with date, location, and initials

★ This extract can be used for BOTH the ASP and PSP tests ★

Testing the Shellfish Extract: Domoic Acid/ASP (also refer to green Jellett instructions):

1. Open sealed envelope containing Domoic Acid test strip: ensure desiccant pouch is blue (discard test strip if desiccant is pink).
2. Add 1 mL of water to the vial provided (white cap).
3. Add 100 µL of shellfish extract to vial containing 1 mL of water. Cap and shake thoroughly. Discard pipette.
4. Number the two buffer vials (red cap, green cap) "1" and "2" to avoid mixing them up
5. Tap small vials of buffer 3 times on hard surface. Place in rack and remove cap (red) from vial #1.
6. Add 100 µL of the shellfish extract to the buffer solution using the new pipette provided (fill to black line).
7. Mix shellfish extract and buffer: insert pipette and fill and empty into buffer vial 3 times.
8. Add 100 µL of the buffer/extract solution to the buffer vial #2 (green cap) using the pipette provided (black line).
9. Mix contents of second vial thoroughly: insert pipette and fill and empty into buffer vial 3 times.
10. Fill pipette to black line (100 µL) with solution from second buffer vial.
11. Dispense into sample well of test strip (S). Discard pipette.
12. Record start time and wait 45 - 75 minutes before reading results.
13. Label front of diagnostic kit as shown at beginning of this protocol.

Interpreting Test Strip (also refer to Jellett instructions):

1. When time interval has expired, record current time on shellfish field sheet and observe diagnostic kit.
2. Use the Jellett strip control card with sample strips (included in the Jellett test kit package) to interpret the test results. The T-line becomes fainter as the toxin level increases.
3. Test strip **C-line** is **equal to or fainter** than Invalid test on Control Card: your test is **Invalid**.
4. Test strip **T-line** is **darker** than Positive T-line on control card: test is **Negative**.
5. Test strip **T-line** is **equal to or fainter** than Positive T-line on control card: test is **Positive**.
6. Record results and any observations on the field sheet. Record results on front of strip.
7. Take a digital photo of the Jellett test strip.
8. Place diagnostic kit in Ziploc bag, seal, and place in envelope with shellfish field sheet.

Documentation

1. make copies of all field sheets and retain copies; ship originals as described below
2. email a digital photo of all completed test strips to gregg.langlois@cdph.ca.gov

Shipping Samples:

- Place plankton field sample bottle in a Ziploc bag. Place plankton field sheet and all test strips in another Ziploc bag. Enclose both in a third bag and label “For EMB”.
- Place shellfish field sheet in a Ziploc. Put all bags, the small vial of extract (when requested), and the 500 mL bottle of pureed shellfish in a shipping box with blue ice for shipment to CDPH via Next Business Morning delivery.

Appendix H. Statements of Agreement

STATEMENT OF AGREEMENT FOR PUBLIC AGENCIES

The undersigned has read and understands the purpose of the *Conditionally Approved* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated January 2012, and agrees to comply with the conditions and procedures set forth in the Management Plan

_____
Signature

_____
Name (print or type)

_____
Agency

_____
Date

Mail completed form to:

Environmental Management Branch
California Department of Public Health
850 Marina Bay Parkway, #G165
Richmond, CA 94804

STATEMENT OF AGREEMENT FOR PERMITTED FACILITIES
(Except El Estero WWTP)

The undersigned has read and understands the purpose of the *Conditionally Approved* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated January 2012, and concurs with the emergency notification procedures set forth in this Management Plan.

_____
Signature

_____
Name (print or type)

_____
Facility

_____
Date

Mail completed form to:

Environmental Management Branch
California Department of Public Health
850 Marina Bay Parkway, #G165
Richmond, CA 94804

STATEMENT OF AGREEMENT FOR EL ESTERO WWTP

The undersigned has read and understands the purpose of the *Conditionally Approved* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated January 2012, and has executed an MOU dated January 23, 2001, that complies with the emergency notification procedures set forth in the Management Plan.

_____
Signature

_____
Name (print or type)

_____
Facility

_____
Date

Mail completed form to:

Environmental Management Branch
California Department of Public Health
850 Marina Bay Parkway, #G165
Richmond, CA 94804

STATEMENT OF AGREEMENT FOR HARVESTER

The undersigned has read and understands the purpose of the *Conditionally Approved* classification of the commercial shellfish growing area at the Santa Barbara Lease M-653-02 Area and the conditions of its Management Plan, dated January 2012, and understands that compliance with the conditions and procedures set forth in the Management Plan is mandatory as a condition of the Shellfish Growing Area Certification issued by the California Department of Public Health.

_____
Signature

_____
Name (print or type)

_____
Agency

_____
Date

Mail completed form to:

Environmental Management Branch
California Department of Public Health
850 Marina Bay Parkway, #G165
Richmond, CA 94804

Appendix I. Record of Changes

TECHNICAL REPORT #	DATE	PAGE	REASON FOR CHANGE
03-01	4/3/2003	4	Added Appendix F: "Log of Changes to Document" to Table of Contents
03-01	4/3/2003	12	Changed location of primary rainfall gauge used to determine rainfall closures
03-01	4/3/2003	16, 17	Deleted requirement for the end-of-harvest call-in if within 2 hours of first call
03-01	4/3/2003	50	Added Appendix F – Record of Changes
04-02	2/1/2004	16	Revised rainfall closure threshold
04-02	2/1/2004	16, 19	Identified new primary rainfall gauge
04-02	2/1/2004	25	Revised reopening criteria
04-02	2/1/2004	24, 39	Added section on Live-Aboards and added Figure 3 – Calculated Safe Distances for Moored Boats
04-02	2/1/2004	24	Added section on harvester's responsibilities for wildlife prevention
04-02	2/1/2004	28, 49	Added section on Marine Biotoxin Monitoring and added Appendix E – Marine Biotoxin Monitoring
04-02	2/1/2004	35	Added Table 3 – Management Decision Criteria for Domoic Acid
04-19	10/26/2004	3, 14, 16, 25	Revised rainfall threshold and sampling requirements due to additional rainfall data evaluation
04-19	10/26/2004	45	Revised call-down contact list due to change in CDPH/PSU personnel
04-19	10/26/2004	28 – 30	Revised marine biotoxin monitoring section to reflect multiple species sampling requirements
06-03	1/6/2006	28	Added sampling requirements when a scheduled sample date is missed
06-03	1/6/2006	55	Added Appendix D - Notification of Shellstock Movement During a Growing Area Closure
07-03	1/10/07	16-17	Added language clarifying conditions and requirements for moving shellstock during rainfall closures
07-03	1/10/07	19	Clarified notification procedures for re-opening after rainfall closures and stressed growers' responsibility to obtain current, accurate information prior to resumption of harvesting.

Appendix I. Record of Changes (continued)

TECHNICAL REPORT #	DATE	PAGE	REASON FOR CHANGE
07-03	4/1/07	29-31, 40-41	Modified biotoxin sampling requirements and management criteria to reflect current protocols.
08-03	1/1/08	29	Revised protocol for samples exceeding NSSP standards to reflect current policy
08-03	1/1/08	55-58	Added Appendix D: Wastewater Upset Response Procedures
09-03	1/1/09	27	Minor clarification of protocol for samples exceeding NSSP standards
12-03	1/1/12	22	Clarification of field audit requirement