

Technical Report No. 95-12

**REEVALUATION
OF
SHELLFISH GROWING AREA CLASSIFICATIONS
FOR
DRAKES ESTERO, CALIFORNIA**

**California Department of Health Services
Division of Drinking Water and Environmental Management**

Prepared by

**Environmental Management Branch
Preharvest Shellfish Sanitation Unit
Donald E. Goms, Environmental Specialist III**

May 1995

DRAKES ESTERO REEVALUATION

EXECUTIVE SUMMARY

This annual reevaluation of the conditionally approved shellfish growing area in Drakes Estero, California, and of the "Management Plan for Commercial Shellfishing in Drakes Estero", is completed in accordance with the National Shellfish Sanitation Program Manual of Operations, Part I, Section C.4.d.

Drakes Estero, Marin County, California, is located within the Point Reyes National Seashore, approximately 50 miles northwest of San Francisco. The Estero is about 3.5 miles in length from its mouth, at Drakes Bay, to the head of its longest arm, Schooner Bay. One commercial shellfish grower, Johnson Oyster Company (JOC), operates in the Estero on two state aquaculture leases having a combined area of 1,600 acres. The leased area is classified as conditionally approved, except for a small area immediately offshore from the JOC plant, which is classified prohibited. The conditionally approved area is closed for 3 days after any rainstorm measuring over 0.75 inch within a 24 hour period.

No point sources of pollution affect Drakes Estero. The most important non-point source is rainfall runoff from cattle pasture lands in the watershed. Negative impacts from this source appear to have decreased since the original sanitary survey in 1982, especially since one major dairy was converted to a beef cattle operation. Other potential sources have minimum to no discernible impacts. The leachfield for the on-site sewage septic system at the JOC facility failed in early 1994, but no sewage flowed to the Estero. The Marin County Division of Environmental Health Services is the permitting agency for either a new system or repairs to the existing system.

Water quality sampling for fecal coliform (FC) bacteria at 11 primary and 3 secondary stations shows the growing area consistently meets its classification standards during open periods, except at the inner ends of Home, Creamery, and Barriers Bays. Additional samples collected under adverse pollution conditions are needed from the two stations in the main body of the Estero, stations #1 and 14, before this area can be evaluated for possible upgrading to approved classification. JOC has been operating in compliance with the Management Plan.

Recommendations:

- Declassify the inner reaches of Home, Creamery and Barriers Bays. This would eliminate beds 19, 26, and 36 from commercial shellfish harvesting.
- Establish a new primary WQ sampling station at the upper end of the remaining classified area in Creamery Bay.
- Conduct more WQ sampling at all stations during rainfall closures.
- Conduct more sampling at WQ stations #13 and #14 under adverse pollution conditions, including during rainfall closures.

DRAKES ESTERO REEVALUATION

CONTENTS

	<u>Page</u>
Executive Summary	i
Contents	ii
Abbreviations	ii
Introduction	1
Classification Status	1
Pollution Sources	1
Water Quality Monitoring	3
Sampling Protocol	3
Sample Analyses	4
Sampling Results	4
Compliance with the Management Plan	5
Conclusions and Recommendations	5
References	6
Tables and Figures	
Appendix A, Data, Primary Water Quality Station, Open Periods	
Appendix B, Data, Primary Water Quality Stations, Closed Periods	
Appendix C, Data, Secondary Water Quality Stations, Open Periods	
Appendix D, Data, Secondary Water Quality Stations, Closed Periods	

ABBREVIATIONS

In this report an abbreviation or acronym is shown in parentheses () following the first time the title or term is used, and the abbreviation is used in almost all cases in place of that term later. The following alphabetical list of abbreviations and acronyms used in this document is provided here for the convenience of the reader:

DEMP = Drakes Estero Management Plan
DEHS = Division of Env. Health (within Marin Co. Community Development Agency)
DFG = California Department of Fish and Game
DHS = California Department of Health Services
FC = Fecal coliform bacteria
JOC = Johnson Oyster Company
MDL = Microbial Diseases Laboratory of CDHS
MPN = Most probable number
NSSP = National Shellfish Sanitation Program
PRNS = Point Reyes National Seashore
SSU = Shellfish Sanitation Unit of DHS
WQ = Water quality

DRAKES ESTERO REEVALUATION

INTRODUCTION

This annual reevaluation of the conditionally approved shellfish growing areas in Drakes Estero, California, and of the "Management Plan for Commercial Shellfishing in Drakes Estero", is completed by the California Department of Health Services (DHS), Environmental Management Branch, Preharvest Shellfish Sanitation Unit (SSU) in accordance with the National Shellfish Sanitation Program (NSSP) Manual of Operations, Part I, Section C.4.d. The Management Plan establishes standards, conditions and procedures necessary to manage the harvesting of bivalve molluscan shellfish intended for sale for human consumption.

Drakes Estero is located in western Marin County, California, approximately 50 miles northwest of San Francisco (Figure 1). The Estero is about 3.5 miles in length, from the mouth to the north end of Schooner Bay, and consists of a main body connected to four bays, from left to right: Barries Bay, Creamery Bay, Schooner Bay, and Home Bay (Figure 2). The Estero mouth, at the south end, opens into Drakes Bay. Drakes Estero is characterized by relatively shallow water; low tide reveals several expanses of mudflats within the center of the main body as well as along the shoreline. Only one significant freshwater tributary discharges into Drakes Estero: two small unnamed creeks merge and enter the Estero at the northern end of Schooner Bay; for the purpose of this report, these are referred to as North Schooner Creek and East Schooner Creek.

One certified commercial harvester operates in Drakes Estero, the Johnson Oyster Company (JOC), which grows and harvests shellfish on two state aquaculture leases (Figure 3) having a combined area of 1600 acres. Both leases are granted by the California Fish and Game Commission and administered by the Department of Fish and Game (DFG). The onshore facilities of JOC, located at the northeastern end of Schooner Bay, consist of an algal culturing operation, an oyster seed-rearing operation, a shucking and packing plant, and 12 residential trailers that house some of the company employees and their families. These facilities, as well as the Estero itself, are within the boundaries of the Point Reyes National Seashore (PRNS). JOC was granted a lease by the National Park Service for use of the onshore property through the year 2010.

Commercial shellfish production in Drakes Estero is devoted to Pacific oysters (*Crassostrea gigas*). In addition, JOC also is conducting some research and development work on the production of rock scallops (*Hinnites giganteus*), but to date no scallops have been sold commercially.

CLASSIFICATION STATUS

The land immediately bordering Drakes Estero has been occupied historically by dairy ranches (Figure 4). At the time the original classification of growing waters in Drakes Estero was made (in 1982), it was determined that portions of the Estero were subject to intermittent microbiological pollution. The major source of contamination was determined to be associated with dairy operations in the immediate watershed, which occurs primarily during rainstorms. In 1994, the entire Estero was classified as conditionally approved (Figure 5) as recommended by the "Commercial Shellfish Growing Area Sanitary Survey Report and Reevaluation for Drakes Estero, California", dated March 1994. The Estero is closed to harvesting when rainfall exceeds 0.75-inch within a 24 hour period; the closure lasts for a period of three days (72 hours). A small area immediately offshore from the JOC plant is classified as prohibited.

POLLUTION SOURCES

No point sources of pollution discharge into Drakes Estero or its tributaries. SSU staff conducted field inspections of non-point pollution sources during 1994,

DRAKES ESTERO REEVALUATION

and evaluated the following actual and potential sources most likely to adversely affect water quality in Drakes Estero:

- Runoff from cattle pasture land entering the bay either directly (e.g., hillside runoff) or indirectly (e.g., via a tributary to the Estero).
- The septic system, located at the northeastern end of Schooner Bay, which serves JOC's commercial and residential facilities in this area.
- Birds and marine mammals.
- Boats and other watercraft.

Most of the ranches bordering the Estero have changed from dairy to beef cattle operations. The only dairy in the immediate watershed is the Horick Ranch, whose property borders portions of Barries Bay, the mouth of Drakes Estero and Drakes Bay. The dairy barn and waste pond for the Horick Ranch are located outside of the Drakes Estero watershed; spillage from this pond would enter Drakes Bay approximately one mile west of the mouth of Drakes Estero. The Nunes E Ranch, which borders portions of Barries Bay and Creamery Bay, is a holding area for dairy cattle; the actual dairy facilities are located at the Nunes A Ranch, which is located outside of the Estero watershed on the Point Reyes peninsula. The Rogers Dairy, previously implicated in the contamination of Drakes Estero via the creek to Schooner Bay, has been converted to a beef cattle operation.

The septic system for the onshore facilities at JOC was originally designed to service the plant operations and the seven residential trailers that existed at that time. The number of trailers has since increased to 12, and the Marin County Division of Environmental Health Services (DEHS) has directed JOC to increase the capacity of their sewage handling facilities. A small prohibited area has been established offshore from this location to mitigate any possible contamination from these on-shore facilities (see Figure 5).

The JOC septic system exhibited a failure of the leach field during March 1994. Staff of the SSU, the Marin Co. DEHS, and the California Regional Water Quality Control Board, San Francisco Bay Region, were notified soon after this failure was discovered by a PRNS Park Ranger. Evidence of the failure was blackish water ponding above the leach field which is located on a mesa above the Estero. The Estero was closed immediately to harvesting of oysters until SSU staff could investigate. After field investigations and water and meat samples were submitted for lab analysis, it was determined that in all likelihood no sewage reached the Estero. No visual signs of sewage flowing to the Estero were observed. This leach field is currently closed and accepts no sewage. All sewage from the JOC facility is being trucked to a disposal facility outside the DE watershed.

A report titled "Water Quality Analysis in Schooner Bay at Point Reyes National Seashore", by Mr. Jun Noda, dated August 9, 1994, was provided to SSU by John L. Sansing, Superintendent of PRNS. Mr. Noda was a graduate student of the University of California, Davis, working at the Bodega Marine Laboratory. In the report, Mr. Noda surmised that a raw sewage spill had occurred into the Estero from the JOC facility. By all facts known to DHS, this did not occur around the time of this research and the paper's summary may be misleading. Additionally, of the three sampling sites analyzed, the Schooner Bay site is the one most likely to have the highest coliform counts due to its being located near the mouth of Schooner Creek. The data for water quality presented may be accurate, but the conclusion may not. In any case, the area of the septic leach field and the JOC on shore facility area are under close scrutiny to prevent any sewage spills to the Estero. The site of the study was sampled by DHS prior to the Noda study and a water quality sampling station is located approximately 50 feet

DRAKES ESTERO REEVALUATION

offshore from the study site. This water quality sampling station will continue to be sampled regularly.

JOC is currently having all sewage hauled away in pumper trucks daily. This hauling operation is a temporary measure until JOC either rebuilds the existing system or expands to new areas. The Marin Co. DEHS is closely overseeing the operation of this septic leach field system and is the permitting agency. JOC is currently negotiating with the PRNS for the required additional land needed to expand the leach field. SSU continues to monitor the situation and will act accordingly if future problems arise.

Drakes Estero is a haven for a large number of bird species, particularly during the winter months. Likewise, it serves as an important pupping ground for harbor seals, whose population increases to approximately 1000 individuals during the winter months. The impact of birds and marine mammals on the water quality of Drakes Estero has not been determined.

Drakes Estero is accessible to boats at the JOC Schooner Bay facility and via Drakes Bay. Access from Drakes Bay is possible only during high tides, and the shallow nature of the Estero, as well as the presence of a sand bar across its mouth, discourage boaters from entering. The only watercraft on the Estero are the JOC work boats and barges, and occasional canoes and kayaks launched at Schooner Bay. None of these vessels represent a significant threat to the water quality of the Estero.

WATER QUALITY MONITORING

Sampling Protocol

Water quality (WQ) monitoring in Drakes Estero is conducted by SSU staff from Berkeley or Sacramento. SSU currently uses the fecal coliform (FC) standard, as defined in the NSSP Manual of Operations (Part I, Section C.3.c.ii.), as the primary measure of water quality within the growing areas in Drakes Estero. The conditions for routine WQ monitoring are:

- No rainfall closures are in effect (i.e., growing area is open for harvesting).
- Whenever possible, the sampling time reflects a period of maximum impact from non-point sources of pollution (adverse pollution conditions). Typically this is achieved by sampling during ebb tides, as well as during one of the following conditions: (1) shortly after a rainfall event that does not exceed the closure threshold (i.e., 0.75 inches), or (2) shortly after reopening following a rainfall closure. It is during these times that freshwater runoff will most likely affect the growing areas.

The sampling times are influenced by the climatic and navigational conditions in Drakes Estero; strong winds that often develop during the late morning and afternoon hours and the shallow areas exposed at low tide often make it unsafe to navigate the Estero.

Eleven primary sampling stations are monitored monthly and 3 secondary stations are monitored on a less frequent basis (Table 1). The primary stations are located at strategic points throughout the Estero, representing both the oyster beds and the waters immediately impacted by runoff from the surrounding watershed (Figure 6). The secondary stations represent additional sites within the shallower areas of Barriers, Creamery, and Home Bays (also shown in Figure 6).

DRAKES ESTERO REEVALUATION

In addition to the routine monthly monitoring, the Department conducts special sampling studies whenever possible:

- Follow-up sampling is conducted for stations in the growing area that exhibit FC results above 14 MPN.
- Supplemental water quality data are collected during open periods following rainstorms between 0.40 and 0.75 inch per 24 hours.
- Sampling is conducted during some rainfall closure periods.

The purpose of the latter two additional sampling events is to better define the time interval of water quality degradation associated with storm runoff, and to correlate the degree of contamination with storm-specific and cumulative rainfall totals. This information will aid in the reevaluation of the growing area classifications and refinement of the closure rules for Drakes Estero.

The grower provides a boat and operator to SSU staff for all sample collections. Samples are collected approximately one foot below the water surface in 4-ounce sterile plastic containers. Water temperatures and salinities are recorded at each station with a YSI Model 33 S-C-T (salinity, conductivity and temperature) meter. Samples are stored immediately in an insulated container and maintained at 4° C. until they are processed by the laboratory.

In the spring of 1991, JOC reached a verbal agreement with PRNS to minimize harvest and planting activities in the outer Estero during the peak harbor seal pupping season. This agreement affects the grower's activities in the area of beds 15 - 17 (Figure 5). The main channel along the eastern shoreline is closed to boat access from March 15 to May 30. The lateral channel (passing approximately between beds 15 and 16) is closed from March 15 to June 1. Seed planting activities in the affected area are minimized until June 1, with all access from the western channel, approaching the shellfish beds from the south during the pupping season. SSU received permission, however, to maintain monitoring of stations in this area for shellfish biotoxins and microbiological contamination during this sensitive period. Impact to the seal populations by SSU sampling activities is minimized by use of the channel near the western shoreline; station number six on the eastern shoreline is approached from the north.

Sample Analyses

All samples are analyzed for total coliform and fecal coliform (FC) by the DHS Microbial Diseases Laboratory (MDL) located in Berkeley. The laboratory uses the Multiple-Tube Fermentation Technique (5-tube) for estimating bacterial density (APHA, 1970). The reporting units for this method are most probable number per 100 milliliters (MPN/100 mL) for water and MPN/100 grams for shellfish or sediment samples. For the sake of simplicity, the reporting units for all data discussed in this report are abbreviated to MPN (e.g., 43 MPN may mean 43 MPN/100 mL or 43 MPN/100 g, depending on context).

Sampling Results

The results of the routine water quality monitoring program conducted between January 1993 and December 1994 are summarized in Table 2. The classification standards for the Drakes Estero growing areas require that, during open periods: (1) the geometric mean of FC densities do not exceed a value of 14 MPN, and (2) no more than 10 percent of the samples exceed 43 MPN (the standard for variability). During the 2-year period January 1993-December 1994, the primary stations on the aquaculture leases in Drakes Estero all consistently met both of these classification standards during open periods. The FC geometric mean for each sampling station was well below the MPN limit of 14, in fact all primary stations had means of 5 MPN or less.

DRAKES ESTERO REEVALUATION

At all three of the secondary water quality sampling stations, the FC concentrations of more than 10 percent of the samples exceeded 43 MPN during open periods. WQ Station 12 also exceeded the geometric mean FC density of 14 MPN, having a value of 24. During closed periods, WQ Station 10 exceeded both the mean 14 and percent over 43 limits for 7 samples, but the other two secondary stations had too few data points to evaluate.

The impact of birds and marine mammals on water quality in Drakes Estero has not been studied directly. The bacteriological data collected at each growing area suggest that these populations do not have a significant impact on coliform densities within the Estero.

As discussed above, all but one ranch in the immediate watershed have converted from dairies to beef cattle operations. The waste pond for the one remaining dairy is outside of the Estero watershed. Because of changes in land use within the Drakes Estero watershed since the 1970's, the potential for fecal contamination of the Estero appears to be reduced. Unfortunately, in the past few years very little sampling has been conducted during times of rainfall closures. This is due to both the lack of resources by SSU and the fact that closures are relatively short (3 days), requiring immediate response.

Rainfall-related sampling was conducted whenever possible. Eight samplings were conducted during conditional closures between January 1993 and December 1994. Of these eight sampling periods, four produced evidence of elevated FC densities. Primary WQ Stations 6, 7, 8, and 9 all had mean FC concentrations over 14 MPN: having 23, 16, 39 and 15, respectively (refer to Table 2). Primary WQ Stations 1, 2, 6, 7, 8, and 9 all exceeded the variability standard by having more than 10% of the samples over 43 MPN. These data validate the rainfall closure rules established for the Estero. Additional rainfall closure sampling may further assist in determining the effect of rainfall on FC in the Estero.

COMPLIANCE WITH THE MANAGEMENT PLAN

Johnson Oyster Company (JOC), the only shellfish grower in Drakes Estero, is operating in compliance with the Drakes Estero Management Plan and has cooperated fully with SSU staff. All rainfall closure notifications have been heeded; JOC has maintained a telephone answering machine for receipt of closure notifications or other related information. SSU office also maintains a dedicated phone line at its office in Berkeley with recorded commercial shellfish harvest area closure information to facilitate the transfer of information between SSU and growers. No harvesting from a closed area has been observed. JOC has submitted rainfall/harvest logs when requested to do so by SSU staff and maintains a log of rainfall and harvest dates in its files.

CONCLUSIONS AND RECOMMENDATIONS

1. The shellfish growing area in Drakes Estero meets the classification standards for conditionally approved classification during open periods, with the exception of the inner ends of Home, Creamery, and Barries Bays.
2. Secondary WQ sampling stations 10, 11, and 12, in the inner reaches of Home, Creamery, and Barries Bays, respectively, exceed the FC standards during open periods. These areas should be declassified to unclassified and therefore prohibited to commercial shellfish harvesting. Proposed new boundaries are shown in Figure 7. This proposal will eliminate JOC beds numbered 19, 26, and 36 from commercial shellfish harvesting. The areas proposed to be declassified were discussed with the operator, who stated that they have not been used for production for some years.

DRAKES ESTERO REEVALUATION

3. A new primary sampling station should be located at the upper end of the remaining classified area in Creamery Bay, near JOC beds 25 and 27.
4. Johnson Oyster Company is operating within the guidelines of the Drakes Estero Management Plan.
5. It appears that, due to significant changes in land use within the Drakes Estero watershed, fecal contamination of the Estero during rainstorm events has decreased in recent years. Significant FC concentrations, however, are still associated with high rainfall. The 1990 reevaluation recommended that data from additional sampling during rainstorms be obtained and used to either: (1) revise the rainfall closure criteria, or (2) reclassify the current conditionally approved areas to approved areas. There still is insufficient data to support either decision. More intensive sampling should be conducted during rainfall closures to assess the source and extent of this contamination and to refine the rainfall closure criteria if possible.
6. Additional data from the new water quality stations in the main body of the Estero (WQ Stations #13 and 14) is needed to determine if any part(s) of the growing area in the main body may meet the bacteriological standards after heavy rainstorms and, if so, to define what part of the area might be upgraded to approved classification.

REFERENCES

- American Public Health Association (APHA), Inc. 1970. Recommended Procedures for the Examination of Seawater and Shellfish. 4th ed.
- Noda, Jun. 1994. Water quality analysis in Schooner Bay at Point Reyes National Seashore. Unpublished report, Univ. of Calif. Bodega Marine Lab, EST-124, Aug. 9, 1994.

Survey of Kayak & Canoe use -
upstream sources -

Table 1. Water quality sampling stations for Drakes Estero.

SAMPLING STATION #	DESCRIPTION
• PRIMARY SAMPLING STATIONS •	
1	Inner Schooner Bay, between beds #34 and #2.
2	Outer Schooner Bay, between beds #8 and #9.
3	Outer Creamery Bay, near bed #24.
4	Outer Barries Bay, between beds #17 and #18.
5	South end of Drakes Estero, near the mouth to Drakes Bay.
6	East shore of Drakes Estero near bed #14.
7	Outer Home Bay, at bed #38.
8	Inner Schooner Bay, at water intake for processing plant.
9	Inner Schooner Bay, between beds #1 and #35.
13	Center of the Estero by bed #13
14	Center of the Estero by bed #14
• SECONDARY SAMPLING STATIONS •	
10	Inner Home Bay, near bed #36.
11	Inner Creamery Bay, near bed #26.
12	Inner Barries Bay, near bed #19.

Table 1. Water quality sampling stations for Drakes Estero.

SAMPLING STATION #	DESCRIPTION
• PRIMARY SAMPLING STATIONS •	
1	Inner Schooner Bay, between beds #34 and #2.
2	Outer Schooner Bay, between beds #8 and #9.
3	Outer Creamery Bay, near bed #24.
4	Outer Barries Bay, between beds #17 and #18.
5	South end of Drakes Estero, near the mouth to Drakes Bay.
6	East shore of Drakes Estero near bed #14.
7	Outer Home Bay, at bed #38.
8	Inner Schooner Bay, at water intake for processing plant.
9	Inner Schooner Bay, between beds #1 and #35.
13	Center of the Estero by bed #13
14	Center of the Estero by bed #14
• SECONDARY SAMPLING STATIONS •	
10	Inner Home Bay, near bed #36.
11	Inner Creamery Bay, near bed #26.
12	Inner Barries Bay, near bed #19.

Table 2. Summary of fecal coliform data analyses of water samples collected during the 2-year period January 1993-December 1994 from water quality monitoring stations in Drakes Estero, California. "Open Periods" and "Closed Periods" refer to status according to the rainfall closure rules established in the "Management Plan for Commercial Shellfishing in Drakes Estero, California" dated May 1991. Values underlined exceed National Shellfish Sanitation Program (NSSP) standards for an approved area.

SAMPLE STATIONS Sta. #, Classification	OPEN PERIODS			CLOSED PERIODS		
	N ¹	MEAN ²	N > 43 ³	% > 43 ⁴	N	% > 43
PRIMARY STATIONS						
WQ 1, Cond. Approved	24	2	0	0.0	8	14
WQ 2, Cond. Approved	24	3	0	0.0	8	10
WQ 3, Cond. Approved	30	4	2	6.7	2	N.S. ⁵
WQ 4, Cond. Approved	29	5	2	6.9	2	N.S.
WQ 5, Cond. Approved	30	3	1	3.3	2	N.S.
WQ 6, Cond. Approved	30	3	2	6.7	2	N.S.
WQ 7, Cond. Approved	24	3	0	0.0	8	16
WQ 8, Prohibited Zone	23	5	1	4.3	8	39
WQ 9, Cond. Approved	24	3	0	0.0	8	15
WQ 13, Cond. Approved	13	3	0	0.0	2	N.S.
WQ 14, Cond. Approved	11	2	0	0.0	2	N.S.
SECONDARY STATIONS						
WQ 10, Cond. Approved	4	7	1	25.0	7	78
WQ 11, Cond. Approved	10	12	3	30.0	1	N.S.
WQ 12, Cond. Approved	10	24	4	40.0	1	N.S.

1. Number of samples.
2. Expressed as most probable number (MPN) of fecal coliform bacteria per 100 milliliters (mL) of water. The geometric mean is the antilog of the mean of the logs of the sample fecal coliform MPN values. NSSP maximum standard for this value is 14 MPN/100 mL.
3. The number of samples exceeding 43 MPN/100 mL.
4. The percentage of samples exceeding 43 MPN/100 mL. NSSP maximum standard for this value is 10%.
5. Sample numbers not sufficient for statistical analysis.

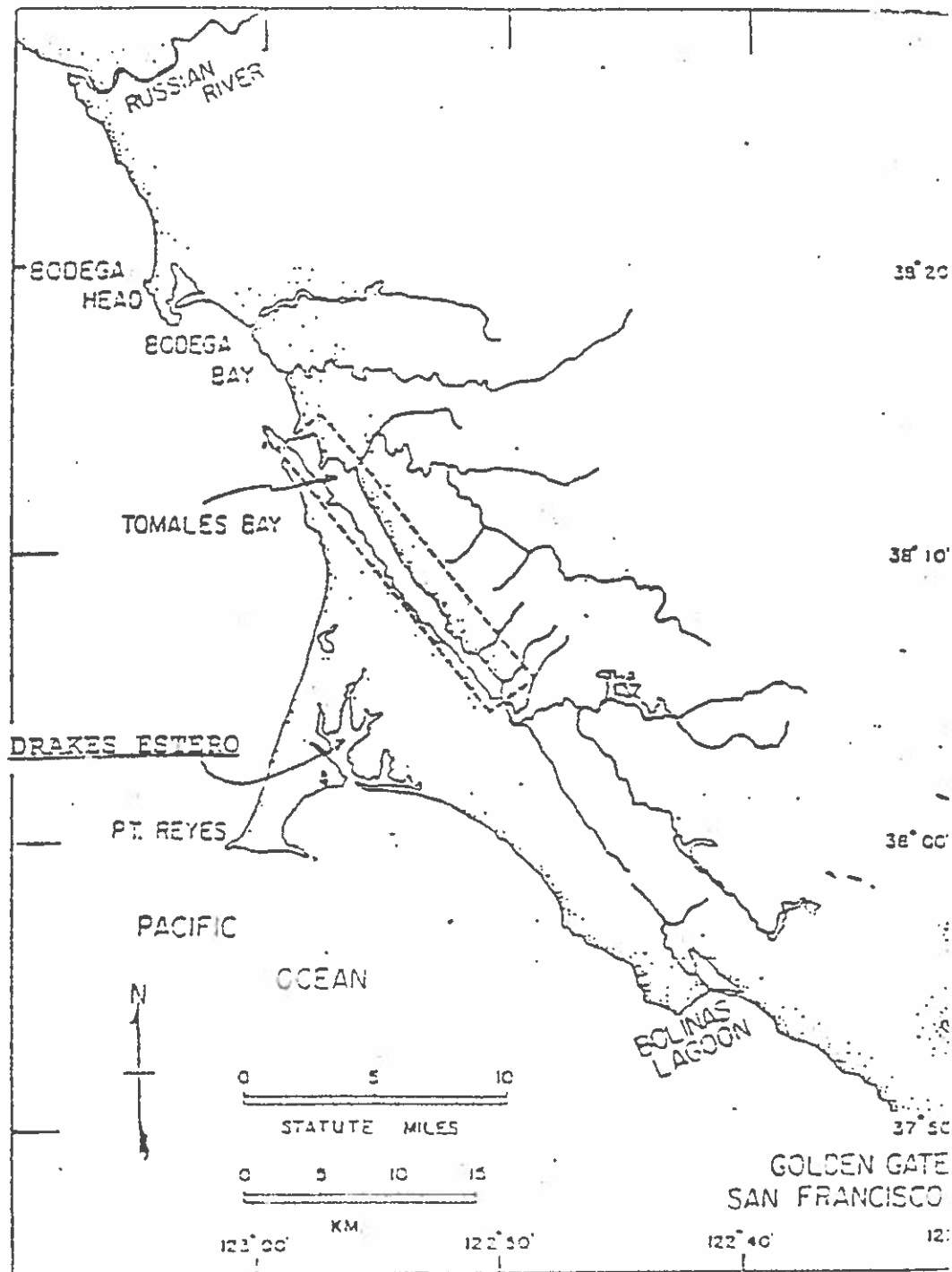


Figure 1. Location of Drakes Estero in western Marin County, California.

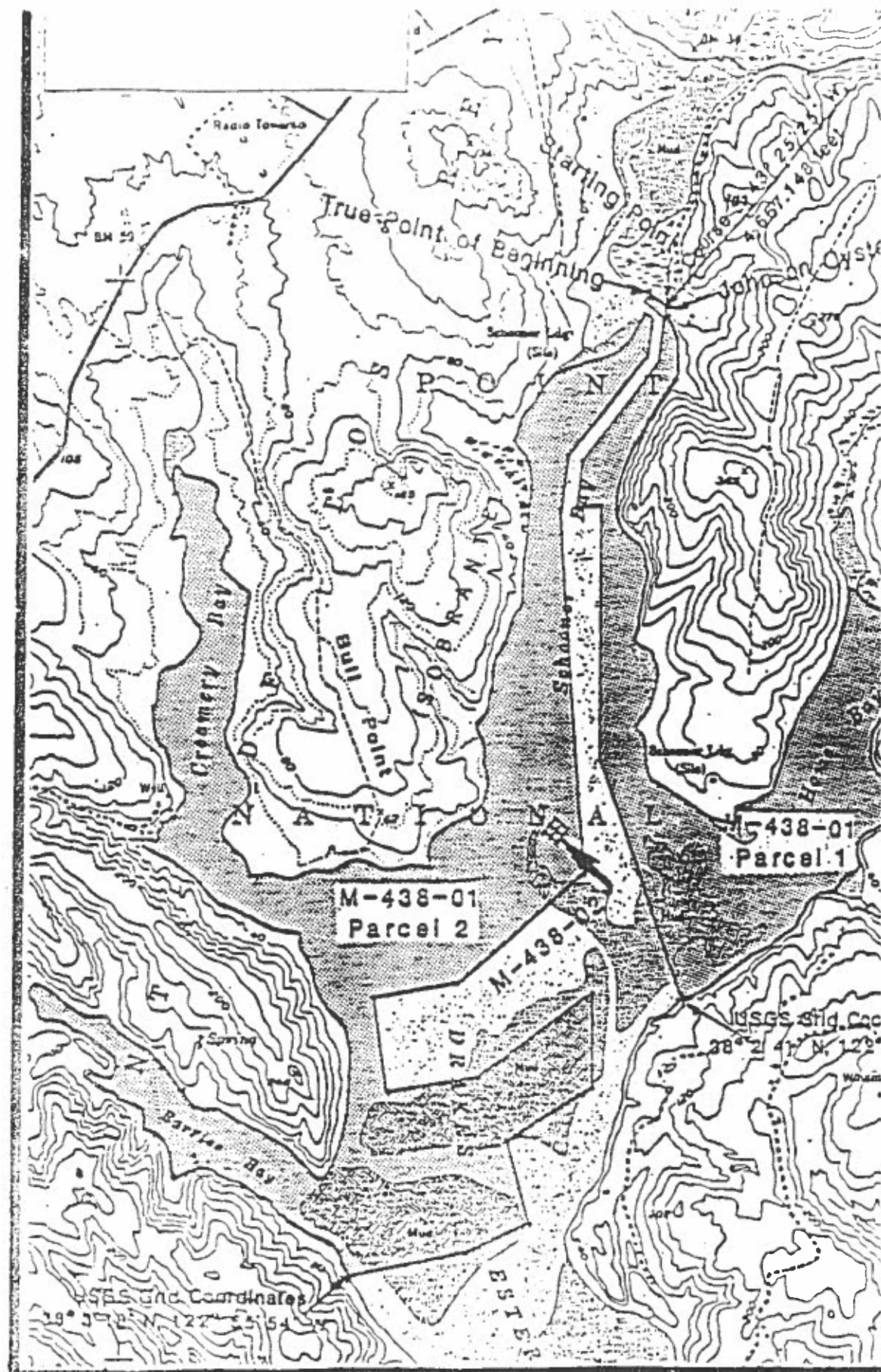


Figure 3. State water bottom aquaculture leases in Drakes Estero, Marin County, California. (From California Department of Fish and Game, Marine Resources Division.)



Figure 4. Map of Drakes Estero, Marin County, California, and its watershed (dashed line). (Reduced 10% from U.S. Geological Survey 1:48,000 scale topographical map, Point Reyes National Seashore and Vicinity, Calif., 1973.)

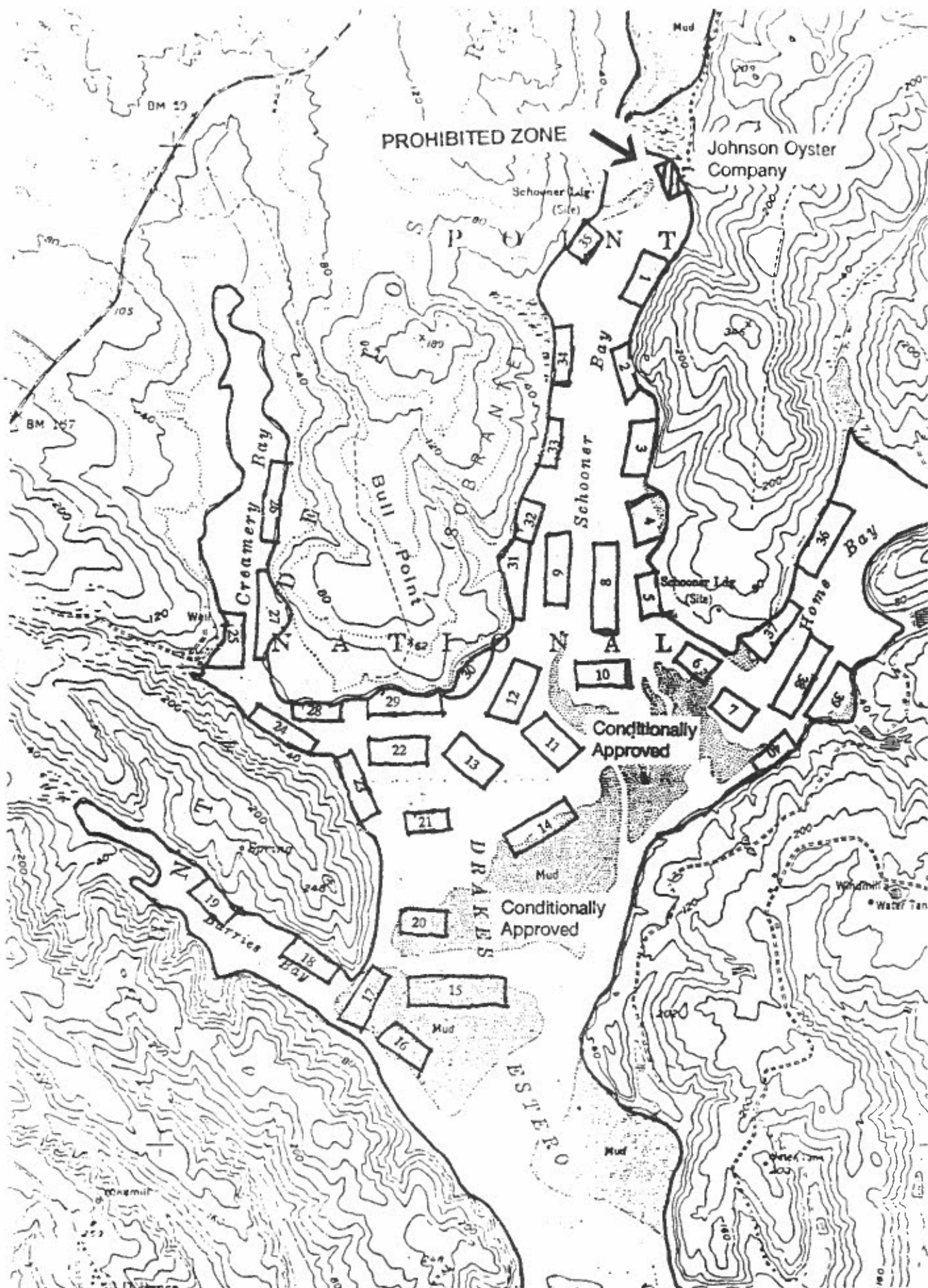
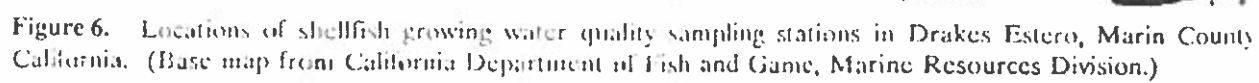


Figure 5. Classifications of shellfish growing areas in Drakes Estero, M. County, California. - Shellfish Bed.



○ = Primary Sampling Station. □ = Secondary Sampling Station. Δ = Tributary Sampling Station

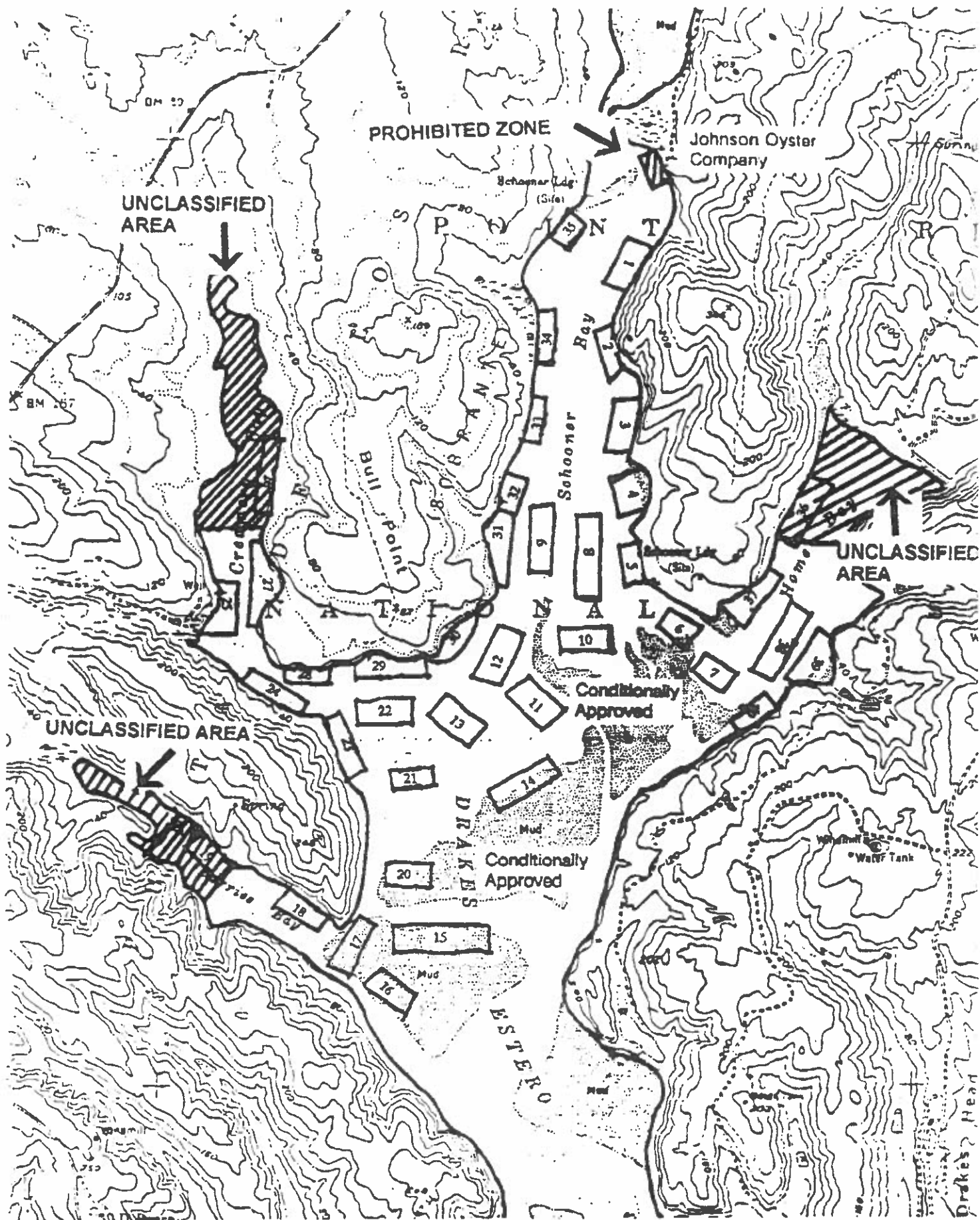


Figure 7. Proposed boundaries for unclassified areas of Barrie, Home, and Creamery Bays, Drakes Estero, Marin County, California.

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #1

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)						RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day	
92-1239-02	01/12/93	2	<	2	0	0	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1530-02	03/09/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-02	04/21/93	<	2	<	2	0	0	0.0	0.0	0.0	0.3	0.2	0.5
92-2108-02	05/19/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-02	06/16/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-04	07/14/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-02	08/12/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-02	09/15/93	7	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-02	10/06/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.1
93-0768-02	10/27/93	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
93-1007-04	12/08/93	8	<	8	0	0	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0335-02	03/10/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-02	03/22/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-0586-12	04/20/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-07	04/27/94	<	2	<	2	0	0	0.0	0.1	0.6	0.0	0.4	1.1
94-0802-02	05/18/94	<	2	<	2	0	0	0.0	0.3	0.0	0.0	0.0	0.3
94-1032-07	06/28/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-04	07/20/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-02	08/02/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-02	09/27/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-02	10/11/94	<	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-05	11/21/94	2	<	2	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-04	12/07/94	5	<	2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-02	12/13/94	33	<	2	0	0	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 24
> 43 = 0

2 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 24

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #2

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN T	
				Inner	Outer	24	48	72	96	120	5-Day	1
92-1239-03	01/12/93	13	13	0	0	0.2	0.2	0.2	0.4	0.7	1.6	
92-1530-03	03/09/93	23	23	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
92-1937-03	04/21/93	2	2	0	0	0.0	0.0	0.0	0.3	0.2	0.5	
92-2108-03	05/19/93	5	5	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
92-2333-03	06/16/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0098-05	07/14/93	13	13	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0290-03	08/12/93	7	7	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0478-03	09/15/93	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0629-03	10/06/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0768-03	10/27/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-1007-05	12/08/93	11	11	0	0	0.4	0.0	0.0	0.0	0.0	0.4	
94-0335-04	03/10/94	5	5	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0396-03	03/22/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0586-13	04/20/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0661-08	04/27/94	2	2	0	0	0.0	0.1	0.6	0.0	0.4	1.1	
94-0802-03	05/18/94	< 2	< 2	0	0	0.0	0.3	0.0	0.0	0.0	0.3	
94-1032-08	06/28/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1180-05	07/20/94	5	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1239-03	08/02/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1617-03	09/27/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1709-03	10/11/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1929-06	11/21/94	2	2	0	0	0.0	0.0	0.0	0.1	0.0	0.2	
94-2032-05	12/07/94	23	2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	
94-2044-03	12/13/94	13	2	0	0	0.2	0.5	0.1	0.0	0.0	0.7	

n = 24
 # > 43 = 0

3 = Geometric Mean (FC MPN)
 0.0% > 43 (FC MPN)

Records printed: 24

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #3

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1239-04	01/12/93	31	23	O	O	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1291-08	01/22/93	330	130	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-04	02/09/93	8	2	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-04	02/11/93	7	2	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-04	02/18/93	330	110	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-04	03/09/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-04	04/21/93	8	8	O	O	0.0	0.0	0.0	0.3	0.2	0.5	0.5
92-2108-04	05/19/93	33	23	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-04	06/16/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-06	07/14/93	5	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-04	08/12/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-04	09/15/93	5	5	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-04	10/06/93	790	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
93-0768-04	10/27/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0941-04	11/30/93	17	2	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
93-1007-06	12/08/93	17	11	O	O	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0089-04	01/25/94	2	2	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-0335-05	03/10/94	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-05	03/22/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0586-14	04/20/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-09	04/27/94	2	< 2	O	O	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-04	05/18/94	< 2	< 2	O	O	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-09	06/28/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-06	07/20/94	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-04	08/02/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-04	09/27/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-05	10/11/94	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-07	11/21/94	< 2	< 2	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-06	12/07/94	2	< 2	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-04	12/13/94	2	< 2	O	O	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 30
> 43 = 2

4 = Geometric Mean (FC MPN)
6.7% > 43 (FC MPN)

Records printed: 30

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #4

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1239-05	01/12/93	11	5	O	O	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1291-10	01/22/93	490	130	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-06	02/09/93	13	2	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-06	02/11/93	330	33	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-06	02/18/93	79	33	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-06	03/09/93	5	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-05	04/21/93	2	2	O	O	0.0	0.0	0.0	0.3	0.2	0.5	0.5
92-2108-05	05/19/93	13	13	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-05	06/16/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-07	07/14/93	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-05	08/12/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-05	09/15/93	4	4	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-05	10/06/93	17	17	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
93-0768-05	10/27/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0941-06	11/30/93	5	< 2	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
93-1007-08	12/08/93	130	79	O	O	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0089-07	01/25/94	14	11	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-0335-07	03/10/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-08	03/22/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-02	04/27/94	< 2	< 2	O	O	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-06	05/18/94	< 2	< 2	O	O	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-01	06/28/94	13	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-09	07/20/94	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-06	08/02/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-07	09/27/94	2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-06	10/11/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-12	11/21/94	8	8	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-11	12/07/94	5	2	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-06	12/13/94	79	17	O	O	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 29
 # > 43 = 2

5 = Geometric Mean (FC MPN)
 6.9% > 43 (FC MPN)

Records printed: 29

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #5

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1239-06	01/12/93	4	2	O	O	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1291-01	01/22/93	49	33	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-08	02/09/93	< 2	< 2	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-08	02/11/93	< 2	< 2	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-08	02/18/93	23	13	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-08	03/09/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-06	04/21/93	7	7	O	O	0.0	0.0	0.0	0.3	0.2	0.5	0.5
92-2108-06	05/19/93	11	11	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-06	06/16/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-08	07/14/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-06	08/12/93	13	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-06	09/15/93	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-06	10/06/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
93-0768-06	10/27/93	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0941-08	11/30/93	< 2	< 2	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
93-1007-09	12/08/93	17	5	O	O	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0089-08	01/25/94	< 2	< 2	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-0335-08	03/10/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-09	03/22/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0586-08	04/20/94	49	49	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-03	04/27/94	< 2	< 2	O	O	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-08	05/18/94	< 2	< 2	O	O	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-03	06/28/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-10	07/20/94	5	5	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-07	08/02/94	11	8	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-08	09/27/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-08	10/11/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-13	11/21/94	< 2	< 2	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-12	12/07/94	7	< 2	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-08	12/13/94	11	5	O	O	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 30
> 43 = 1

3 = Geometric Mean (FC MPN)
3.3% > 43 (FC MPN)

Records printed: 30

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #6

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTAL	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1239-07	01/12/93	6	2	O	O	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1291-02	01/22/93	79	23	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-09	02/09/93	2	2	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-09	02/11/93	110	70	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-09	02/18/93	180	46	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-09	03/09/93	7	<	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-07	04/21/93	2	2	O	O	0.0	0.0	0.0	0.3	0.2	0.5	0.5
92-2108-07	05/19/93	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-07	06/16/93	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-09	07/14/93	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-07	08/12/93	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-07	09/15/93	2	<	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-07	10/06/93	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
93-0768-07	10/27/93	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0941-09	11/30/93	49	2	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
93-1007-10	12/08/93	7	4	O	O	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0089-09	01/25/94	<	2	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-0335-10	03/10/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-10	03/22/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0586-09	04/20/94	2	<	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-04	04/27/94	<	2	O	O	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-09	05/18/94	<	2	O	O	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-04	06/28/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-11	07/20/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-08	08/02/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-09	09/27/94	<	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-09	10/11/94	2	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-14	11/21/94	2	2	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-13	12/07/94	<	2	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-09	12/13/94	5	<	O	O	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 30
> 43 = 2

3 = Geometric Mean (FC MPN)
6.7% > 43 (FC MPN)

Records printed: 30

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #7

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)						RAIN TOTA	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day	
92-1239-08	01/12/93	5	5	0	0	0.2	0.2	0.2	0.4	0.7	1.6	2.1	
92-1530-10	03/09/93	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.2	
92-1937-08	04/21/93	<	<	2	0	0	0.0	0.0	0.0	0.3	0.2	0.5	
92-2108-08	05/19/93	5	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
92-2333-08	06/16/93	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0098-10	07/14/93	2	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0290-08	08/12/93	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0478-08	09/15/93	2	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0623-08	10/06/93	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.1	
93-0768-08	10/27/93	2	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
93-1007-11	12/08/93	49	17	2	0	0	0.4	0.0	0.0	0.0	0.4	0.4	
94-0336-01	03/10/94	4	4	2	0	0	0.0	0.0	0.0	0.0	0.0	0.1	
94-0396-11	03/22/94	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0586-10	04/20/94	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0661-05	04/27/94	<	<	2	0	0	0.0	0.1	0.6	0.0	0.4	1.1	
94-0802-10	05/18/94	5	<	2	0	0	0.0	0.3	0.0	0.0	0.3	0.3	
94-1032-05	06/28/94	17	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1180-12	07/20/94	2	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1239-09	08/02/94	2	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1617-10	09/27/94	79	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1709-10	10/11/94	<	<	2	0	0	0.0	0.0	0.0	0.0	0.0	0.2	
94-1929-15	11/21/94	11	11	2	0	0	0.0	0.0	0.0	0.1	0.0	0.2	
94-2032-14	12/07/94	2	<	2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	
94-2044-10	12/13/94	240	<	2	0	0	0.2	0.5	0.1	0.0	0.0	0.7	

n = 24
#>43 = 0

3 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 24

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #8

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1239-09	01/12/93	330	5	0	0	0.2	0.2	0.2	0.4	0.7	1.6	2.1
92-1530-12	03/09/93	4	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
92-1937-09	04/21/93	11	11	0	0	0.0	0.0	0.0	0.3	0.2	0.5	0.5
92-2108-09	05/19/93	33	33	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92-2333-09	06/16/93	<	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0098-11	07/14/93	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0290-09	08/12/93	17	17	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0478-09	09/15/93	7	7	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93-0623-09	10/06/93	<	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
93-1007-13	12/08/93	350	49	0	0	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0335-03	03/10/94	<	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0345-01	03/10/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-12	03/22/94	<	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-11	04/27/94	17	17	0	0	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-11	05/18/94	17	17	0	0	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-11	06/28/94	8	8	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-13	07/20/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1239-10	08/02/94	8	5	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-11	09/27/94	23	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-11	10/11/94	<	<	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-03	11/21/94	<	<	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-02	12/07/94	130	4	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-11	12/13/94	1600	17	0	0	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 23
 # > 43 = 1

5 = Geometric Mean (FC MPN)
 4.3% > 43 (FC MPN)

Records printed: 23

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

• **SAMPLE SITE:**Drakes Estero, WQ Station #9

• **SAMPLE TYPE:**Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)						RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day	
92-1239-01	01/12/93	5	5	0	0	0.2	0.2	0.2	0.4	0.7	1.6	2.1	
92-1530-01	03/09/93	11	11	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
92-1937-01	04/21/93	< 2	< 2	0	0	0.0	0.0	0.0	0.3	0.2	0.5	0.5	
92-2108-01	05/19/93	8	8	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
92-2333-01	06/16/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0098-03	07/14/93	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0290-01	08/12/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0478-01	09/15/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
93-0623-01	10/06/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
93-0768-01	10/27/93	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
93-1007-03	12/08/93	70	33	0	0	0.4	0.0	0.0	0.0	0.0	0.4	0.4	
94-0335-01	03/10/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
94-0396-01	03/22/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0586-11	04/20/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0661-06	04/27/94	< 2	< 2	0	0	0.0	0.1	0.6	0.0	0.4	1.1	1.1	
94-0802-01	05/18/94	< 2	< 2	0	0	0.0	0.3	0.0	0.0	0.0	0.3	0.3	
94-1032-06	06/28/94	8	8	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1180-03	07/20/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1239-01	08/02/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1617-01	09/27/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1709-01	10/11/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
94-1929-04	11/21/94	2	2	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0	
94-2032-03	12/07/94	7	< 2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8	
94-2044-01	12/13/94	330	8	0	0	0.2	0.5	0.1	0.0	0.0	0.7	2.3	

n = 24
 # > 43 = 0

3 = Geometric Mean (FC MPN)
 0.0% > 43 (FC MPN)

Records printed: 24

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #13

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)						RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day	
94-0335-06	03/10/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
94-0396-06	03/22/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0586-15	04/20/94	5	5	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-0661-10	04/27/94	< 2	< 2	0	0	0.0	0.1	0.6	0.0	0.4	1.1	1.1	
94-0802-05	05/18/94	< 2	< 2	0	0	0.0	0.3	0.0	0.0	0.0	0.3	0.3	
94-1032-10	06/28/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1180-07	07/20/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1239-05	08/02/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1617-05	09/27/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94-1709-04	10/11/94	8	8	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
94-1929-09	11/21/94	22	14	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0	
94-2032-08	12/07/94	2	2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8	
94-2044-05	12/13/94	17	5	0	0	0.2	0.5	0.1	0.0	0.0	0.7	2.3	

n = 13
 # > 43 = 0

3 = Geometric Mean (FC MPN)
 0.0% > 43 (FC MPN)

Records printed: 13

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #14

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-0335-09	03/10/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
94-0396-07	03/22/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-0661-01	04/27/94	9	7	0	0	0.0	0.1	0.6	0.0	0.4	1.1	1.1
94-0802-07	05/18/94	< 2	< 2	0	0	0.0	0.3	0.0	0.0	0.0	0.3	0.3
94-1032-02	06/28/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1180-08	07/20/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1617-06	09/27/94	2	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1709-07	10/11/94	< 2	< 2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
94-1929-10	11/21/94	2	2	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-09	12/07/94	7	4	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8
94-2044-07	12/13/94	11	2	0	0	0.2	0.5	0.1	0.0	0.0	0.7	2.3

n = 11
#>43 = 0

2 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 11

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

ADJ
 Data from Prim
 Quality Sampling S
 Drakes Estero, Mari
 California, during rainf
 periods, Januar
 Decem

SAMPLE SITE:Drakes Estero, WQ Station #1

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTAL	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-12	01/22/93	3500	330	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-02	02/09/93	130	13	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-02	02/11/93	8	5	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-02	02/18/93	33	8	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
93-0941-02	11/30/93	26	7	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-02	01/25/94	8	5	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-04	11/07/94	330	17	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-01	11/09/94	13	13	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 8
 #>43 = 1

14 = Geometric Mean (FC MPN)
 12.5% > 43 (FC MPN)

Records printed: 8

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #2

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(In./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-07	01/22/93	790	130	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-03	02/09/93	17	5	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-03	02/11/93	5	5	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-03	02/18/93	140	31	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
93-0941-03	11/30/93	7	5	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-03	01/25/94	6	6	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-05	11/07/94	32	14	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-02	11/09/94	2	2	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 8
 # > 43 = 1

10 = Geometric Mean (FC MPN)
 12.5% > 43 (FC MPN)

Records printed: 8

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #3

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1865-06	11/07/94	17	8	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-03	11/09/94	21	11	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 2
 # > 43 = 0

9 = Geometric Mean (FC MPN)
 0.0% > 43 (FC MPN)

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #4

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1865-08	11/07/94	7	< 2	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-04	11/09/94	17	5	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 2
 # > 43 = 0

3 = Geometric Mean (FC MPN)
 0.0% > 43 (FC MPN)

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #5

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	43	72	96	120	5-Day	10-Day
94-1865-10	11/07/94	1100	2	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-05	11/09/94	2	2	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0
n = 2				2 = Geometric Mean (FC MPN)								
# > 43 = 0				0.0% > 43 (FC MPN)								

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

• **SAMPLE SITE:**Drakes Estero, WQ Station #6

• **SAMPLE TYPE:**Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTAL	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1865-11	11/07/94	490	110	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-06	11/09/94	11	5	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 2
> 43 = 1

23 = Geometric Mean (FC MPN)
50.0% > 43 (FC MPN)

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #7

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-03	01/22/93	3500	330	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-10	02/09/93	40	5	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-10	02/11/93	110	49	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-10	02/18/93	490	79	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
93-0941-10	11/30/93	34	13	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-10	01/25/94	2	< 2	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-12	11/07/94	9	2	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-07	11/09/94	11	11	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 8
 # > 43 = 3

16 = Geometric Mean (FC MPN)
 37.5% > 43 (FC MPN)

Records printed: 8

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #8

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTAL	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-05	01/22/93	490	130	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-12	02/09/93	220	13	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-12	02/11/93	94	17	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-12	02/18/93	790	330	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
93-0941-11	11/30/93	700	11	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-12	01/25/94	220	46	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-15	11/07/94	790	49	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-08	11/09/94	49	23	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0
n = 8				39 = Geometric Mean (FC MPN)								
# > 43 = 4				50.0% > 43 (FC MPN)								

Records printed: 8

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #9

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-06	01/22/93	1100	130	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-01	02/09/93	64	17	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-01	02/11/93	17	11	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-01	02/18/93	790	130	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
93-0941-01	11/30/93	11	5	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-01	01/25/94	4	2	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-14	11/07/94	220	7	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-09	11/09/94	11	11	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

$\bar{n} = 8$
 # > 43 = 2

15 = Geometric Mean (FC MPN)
 25.0% > 43 (FC MPN)

Records printed: 8

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #13

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTAL	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1865-07	11/07/94	49	4	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-13	11/09/94	14	14	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 2
#>43 = 0

7 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

• **SAMPLE SITE:**Drakes Estero, WQ Station #14

• **SAMPLE TYPE:**Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1865-09	11/07/94	8	< 2	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-14	11/09/94	5	5	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 2
> 43 = 0

3 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 2

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #10

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1530-11	03/09/93	5	2	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
93-1007-12	12/08/93	280	70	0	0	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-1929-16	11/21/94	7	7	0	0	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-15	12/07/94	17	< 2	0	0	0.1	0.0	0.1	1.3	0.1	1.6	1.8

n = 4
 #>43 = 1

7 = Geometric Mean (FC MPN)
 25.0% > 43 (FC MPN)

Records printed: 4

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #11

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-09	01/22/93	790	330	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-05	02/09/93	230	33	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-05	02/11/93	5	2	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-05	02/18/93	2200	140	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-05	03/09/93	5	2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
93-0941-05	11/30/93	330	< 2	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
93-1007-07	12/08/93	490	110	O	O	0.4	0.0	0.0	0.0	0.0	0.4	0.4
94-0089-05	01/25/94	20	9	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1929-08	11/21/94	< 2	< 2	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-07	12/07/94	17	2	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8

n = 10
 # > 43 = 3

12 = Geometric Mean (FC MPN)
 30.0% > 43 (FC MPN)

Records printed: 10

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

• **SAMPLE SITE:**Drakes Estero, WQ Station #12

• **SAMPLE TYPE:**Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
92-1291-11	01/22/93	1700	700	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-07	02/09/93	21	5	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-07	02/11/93	130	130	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-07	02/18/93	1700	330	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
92-1530-07	03/09/93	49	5	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.2
93-0941-07	11/30/93	9	5	C	O	0.9	1.0	0.4	0.0	0.0	2.4	2.4
94-0089-06	01/25/94	790	490	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-0396-04	03/22/94	< 2	< 2	O	O	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94-1929-11	11/21/94	4	2	O	O	0.0	0.0	0.0	0.1	0.0	0.2	1.0
94-2032-10	12/07/94	9200	7	O	O	0.1	0.0	0.1	1.3	0.1	1.6	1.8

n = 10
#>43 = 4

24 = Geometric Mean (FC MPN)
40.0% > 43 (FC MPN)

Records printed: 10

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 ENVIRONMENTAL MANAGEMENT BRANCH
 Preharvest Shellfish Sanitation Program
 Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #10

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOT	
				Inner	Outer	24	48	72	96	120	5-Day	10-D
92-1291-04	01/22/93	1300	230	C	O	0.7	1.9	0.0	0.8	0.5	3.8	6.4
92-1385-11	02/09/93	34	7	C	O	0.3	0.6	0.0	0.1	0.2	1.2	1.2
92-1407-11	02/11/93	1100	170	C	O	0.2	0.0	0.3	0.6	0.0	1.1	1.4
92-1438-11	02/18/93	2400	790	C	O	0.9	0.5	0.0	0.0	0.0	1.3	1.8
94-0089-11	01/25/94	70	33	C	O	0.6	0.7	0.0	0.0	0.0	1.3	1.3
94-1865-13	11/07/94	180	22	C	C	0.4	3.2	0.4	0.0	0.0	4.0	4.0
94-1893-10	11/09/94	170	110	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 7
 # > 43 = 4

78 = Geometric Mean (FC MPN)
 57.1% > 43 (FC MPN)

Records printed: 7

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

· **SAMPLE SITE:**Drakes Estero, WQ Station #11

· **SAMPLE TYPE:**Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1893-11	11/09/94	33	33	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 1
> 43 = 0

33 = Geometric Mean (FC MPN)
0.0% > .43 (FC MPN)

Records printed: 1

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL MANAGEMENT BRANCH
Preharvest Shellfish Sanitation Program
Summary Reevaluation Report

SAMPLE SITE:Drakes Estero, WQ Station #12

SAMPLE TYPE:Shellfish Growing Water

ID #	COLLECTED	TC MPN	FC MPN	STATUS		RAINFALL(IN./24 HRS)					RAIN TOTALS	
				Inner	Outer	24	48	72	96	120	5-Day	10-Day
94-1893-12	11/09/94	33	33	C	C	0.0	0.0	0.4	3.2	0.4	4.0	4.0

n = 1
> 43 = 0

33 = Geometric Mean (FC MPN)
0.0% > 43 (FC MPN)

Records printed: 1