

BEACH CLOSURE REPORT
1996,1997,1998

DRAFT

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Overview

When people across the country think of California, they think of Hollywood and San Francisco, the climate, and of course, the spectacular beaches. Going to the beach is not only important to our quality of life as residents of the State, it is the basis of a major tourist industry. California has more beach usage days than the rest of the United States combined, including Hawaii. But visiting the beach can be a problem if the water is polluted. To protect public health, beaches are closed whenever contamination or pollution is bad enough to pose a significant risk to beach users.

Monitoring beaches and recreational waters is important for protecting the public from microbial contamination. However, posting or closing beaches can have other consequences. Closing a beach because of bacterial contamination can have major impacts on a basic reason that some of us live here or vacation here. Closing the beach will also affect the local hamburger stand, motel, and surf shop. The good news is that in 1999 the California Department of Health Services issued new regulations that will standardize the way counties monitor the quality of beaches and determine whether they should be posted or closed. This will lead to better protection for us all. The bad news is that this consistent approach will lead to more beach postings and closures, especially in Southern California.

Since 1994, the State Water Resources Control Board (SWRCB) has been collecting beach closure information from the coastal counties and publishing it in the Beach Closures Report. Section 115910 of the California Health and Safety Code requires each county health officer to submit to the SWRCB a survey documenting all beach postings and closures due to public health threats that occurred during the previous year. Because the Beach Closure Report was not published for the last two years, this report includes data for 1996, 1997, and 1998.

Recent Initiatives

The importance of clean beaches is increasing the need to reduce the number of sewage spills and to reduce pathogens in urban runoff. How will we decide which areas require the most attention? How will we know if our efforts are producing results? Is water quality at the beach improving? To answer these questions we need information that allows us to compare one beach to another and one year to another. The information collected through 1998 provides partial, but not complete, answers to these questions. For example, current data will let you know the number of beaches closed, but not how many miles were closed. Now, through the efforts of staff from southern California County Environmental Health Departments, the Southern California Coastal Water Research Project, and the SWRCB, a new standardized method of reporting this vital information has been developed.

The new method provides information on the extent of closures and postings in miles or yards rather than by beach name only. The reporting method was designed by the Beach Water Quality Workgroup, an ad hoc committee drawn from agencies responsible for the protection and reporting of beach water quality. The Workgroup includes staff from County Environmental Health Departments, environmental groups, sewage treatment plants that discharge to coastal waters, the Coastal Commission, California Department of Health Services, State and Regional Water Boards, and U.S. EPA Region IX.

The new reporting method includes a database that captures information on the sources and causes of the postings and closures and the number of days and length of beach affected. This database will make it possible to report beach postings and closures by beach-mile-days. The pilot database was sent to all coastal counties June 1, 1999. Information collected in the new database should better inform the public of conditions at their beaches and identify areas of frequent postings and closures.

How do we identify the sources of beach contamination?

Beaches are closed when certain kinds of bacteria are found in the water at levels that are considered a problem. These indicator bacteria imply the potential presence of microscopic disease-causing organisms originating from human and animal wastes. Indicator bacteria are carried to coastal waters in a variety of ways, including sewage spills, overflows from sewage-treatment plants and sanitary sewers, and from stormwater runoff from urban, suburban, and rural areas. An ideal indicator would show up only when disease causing agents were present at levels that could cause problems. Actual indicators are not this precise. Rather, these bacteria are produced by many types of animals and represent a range of potential risk of disease. For example, water birds can excrete indicator bacteria in amounts that would suggest a potential risk to human health. But the birds do not carry the same types of pathogens as do people. The risk of illness to people will be lower if the indicator bacteria are from birds than if the bacterial indicators are from people.

Beach closures can also be caused by other events such as a leaking sewage pipe or an oil spill. In addition, advisories often are issued when it rains, because rain water carries pollution to the beach.

Storm Water

Storm sewers are designed to carry rainwater from the streets to prevent flooding. Storm sewers also collect the water that runs off of when we over water the lawns and wash our cars. These drains carry the water that runs off parking lots, streets, and parks, as well as construction and industrial sites. Usually, storm sewers deliver this water untreated to the beach. Storm water and urban runoff contain oil and grease, heavy metals, pesticides, pollutants from car tires, brakes and exhaust, and wastes from pets and other animals. There may also be illegal connections to the storm drain systems, cross connections with the sanitary sewer, and instances of illegal dumping. In rural areas, runoff water may also contain wastes from farms, feedlots, and dairies.

Recent studies by the Southern California Coastal Water Research Project and the Santa Monica Bay Restoration Project have shown that discharges from the storm sewer system, both in dry weather and wet weather, are significant contributors to coastal pollution and often are the dominant sources affecting beaches. Discharges from urban storm sewer systems are regulated through NPDES permits issued by the Regional Water Quality Control Board. These NPDES permits require the owner/operator of the storm sewer system to identify the pollutants in the discharge and their sources. Control of the pollutants has been achieved mainly through public education and outreach. However, in some cities dry weather runoff is now diverted from the storm sewer to the sewage treatment plant.

Until we have confidence in our abilities to eliminate pollution from storm drains, swimmers should steer clear of flowing storm drains. An epidemiological study by the Santa Monica Bay Restoration Project, found that individuals who swam in front of flowing storm drains were 50 percent more likely to develop flu-like symptoms, including vomiting, fever, diarrhea, skin rashes and sinus or ear infections than those who swam at least 400 yards away from the same drains.

What is bacterial sampling?

Water samples are collected in the surf zone to determine if recreational waters contain indicator bacteria (total coliform, fecal coliform, and enterococcus bacteria). Generally, levels of indicator bacteria correlate with the incidence of illness. If indicator bacteria are above State standards, the beach is posted or closed to notify the public of the potential health risk. When further sampling confirms that bacteria levels have dropped below State standards, the beach is reopened.

What's the difference between a posting , closure, and advisory?

Closure: A beach closure occurs as a result of a sewage spill or repeated incidences of exceedances of bacteriological standards from an unknown source. A closure is a warning to the public that the water is unsafe for contact and that there is a high risk of getting ill if you swim in the water. Closure occurs when health risks are considered greater than those associated with posting. Closure is required by Health and Safety Code Section 115885(f) when untreated sewage is known to have reached recreational waters.

Posting: Posting with warning signs alerts the public of a possible risk of illness associated with water contact. Posting means that at least one bacterial standard has been exceeded but there is no known source of human sewage. The placement of signs may be temporary, as a result of monitoring that indicates a single microbiological indicator standard is exceeded, or more permanent, where monitoring indicates repeated contamination (e.g., from a storm drain), or where sources of contamination are identifiable and can be explained as not of human origin (e.g., storm drain water, or residential marine mammals or seabirds). Posting is required by Health and Safety Code Section 115915(a) for certain public beaches whenever standards for microbiological indicator organisms are exceeded.

Rain Advisory: Rain advisories are issued during rain storms. Rain advisories are issued by radio or newspaper to warn people to avoid areas where storm drains carry rain water to the beach.

Figure 1 shows the suggested protocol for posting and closure based on the results of a monitoring sample or a reported sewage spill. This suggested flow diagram was prepared by the Monitoring and Reporting Subcommittee of the Beach Water Quality Workgroup. The suggested decision diagram shows the process by which the County Health staff can determine whether a beach should be posted or closed. The decision on posting or closure is defined by law for beaches near storm drains; however, there is discretion as to whether to post or to close beaches in areas away from the influence of storm drains. The key to the discretionary area is how certain the county staff are that high levels of bacterial indicators will be repeated at a beach (resulting in a beach closure) or that the high bacterial levels will not be repeated (area posted).

New legislation - AB411

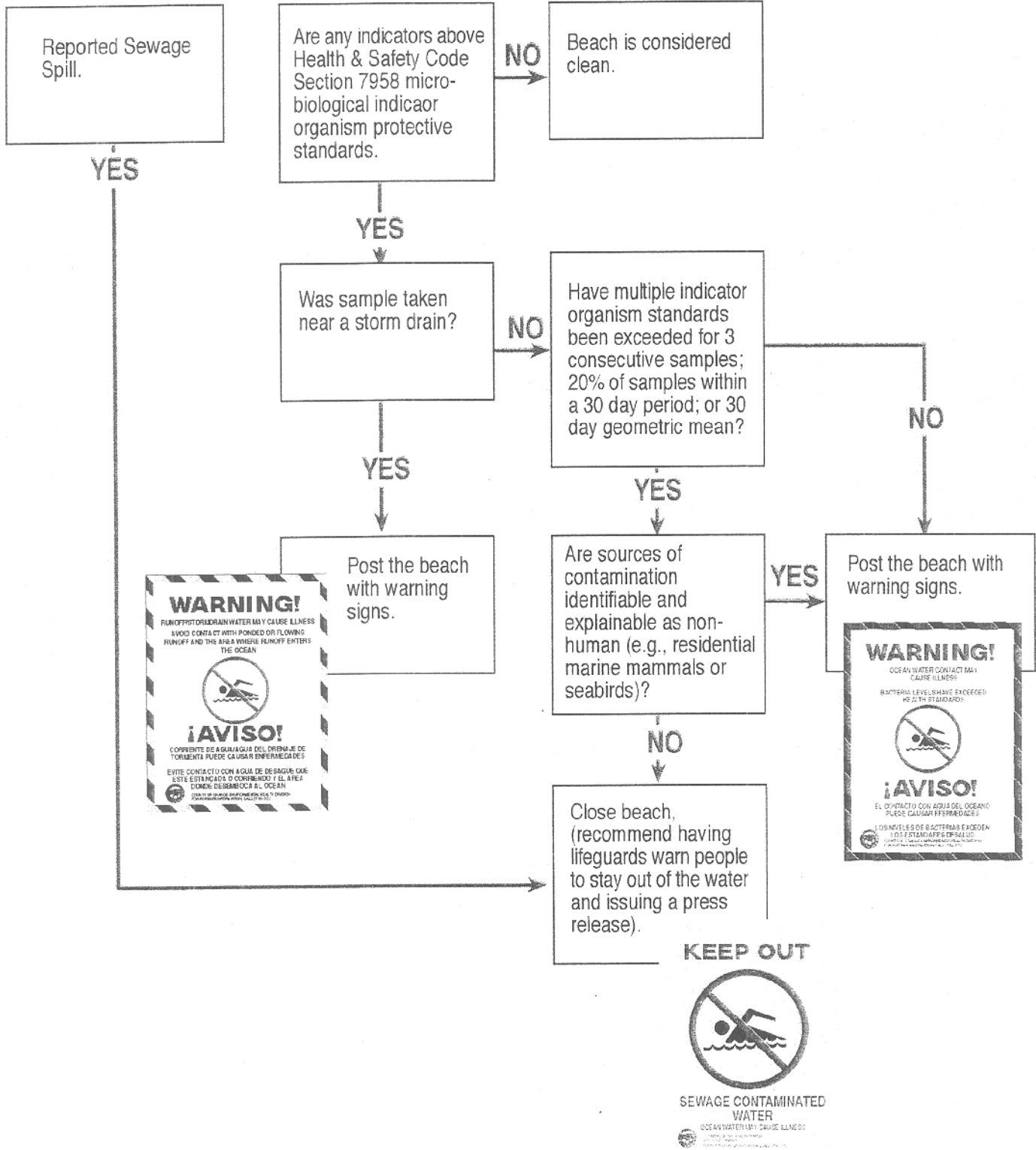
Organizations involved in beach monitoring use different indicators to assess beach quality, and even those that measure the same indicators often use different sampling or analysis methodologies. These inconsistencies prompted the passage of Assembly Bill 411, sponsored by Assemblyman Howard Wayne, requiring the State Department of Health Services to adopt procedures that increase consistency for collecting data on beach water quality, and for posting and closing beaches.

Beginning in 1999, the new law requires bacterial testing (for total coliform, fecal coliform, and enterococci bacteria) from April 1 to October 31 of waters of beaches which have more than 50,000 visitors annually and are near storm drains which flow in the summer. If any one of these indicator organisms exceeds the standard, the county health officer is required to post that beach. The law also requires the establishment of a 24-hour telephone hotline to let beachgoers know, day by day, which beaches are polluted. Ten coastal counties and one city (Long Beach) have reported that they have beaches meeting the criteria: Sonoma, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Orange, Los Angeles, and San Diego.

Before AB411 county health officers had discretion to post or close any beach that violated total coliform standards. The new regulations require posting whenever any one of the bacterial standards is violated in areas near storm drains but leaves the decision of beach closure to the local health officer.

Figure 1

Suggested Flow Diagram for Beach Postings and Closures for Routine Water Quality Monitoring and Reported Sewage Spills



It is likely that many beaches that fall under the AB 411 regulation will frequently violate at least one of the standards, particularly those in proximity to storm drains. These violations will increase the number of postings and closures, regardless of whether there have been changes in water quality from previous years. Nevertheless, information collected with implementation of AB411 will create a new baseline to which the number of beach closures must be compared in the future.

Beach Closures and Postings for 1996, 1997, and 1998

Table 1 lists the number of posting/closures days for 1996, 1997, and 1998 for each coastal county, organized from north to south. Table 2 lists the number of incidences of beach postings and closures. The Appendix contains a summary table for 1998 data only and information on individual beach closures submitted by each coastal county to the State Water Board in a standard format.

Table 1. Number of Days Beaches were Posted/Closed

County	Number of days posted/closed		
	1998	1997	1996
Del Norte	-	-	-
Humboldt	-	-	-
Mendocino	-	-	-
Sonoma	-	-	-
Marin	-	-	-
San Francisco	140	101	190
Contra Costa			
Alameda			
San Mateo	689	278	1144
Santa Cruz	31		3
Monterey	19	2	
San Luis Obispo	84	393	40
Santa Barbara	689	307	86
Ventura	75	1	3
Los Angeles	239	9	10
Orange	1,272	598	277
San Diego	808	696	1365
TOTAL	4046	2385	3118

“-“ means no closures were reported

The generally higher number of closures in southern California in 1998 can be explained by the heavy rains of the 1998 El Nino year and extended closures due to urban runoff. The change in closures due to urban runoff reflect a change in the posting philosophy that accompanied the findings of the Santa Monica Bay Epidemiological Study, which showed that swimming near storm drains increased the risk of illness. Counties began long term closures in 1996 and have steadily increased the number of long term postings. Additionally, more vigilant monitoring programs of some counties have also increased the number of closure and posting incidences.

In 1998, 41% of the days with closures resulted from releases of sewage, either directly or as the result of heavy rains that caused overflows of sewer systems. Fifty-six percent of days when beaches were closed/posted was due to bacterial levels exceeding water quality standards.

Table 2. Number of Incidences of Closure/Posting

County	Number of closure/postings		
	1998	1997	1996
Del Norte	-	-	-
Humboldt	-	-	-
Mendocino	-	-	-
Sonoma	-	-	-
Marin	-	-	-
San Francisco	28	23	30
Contra Costa	-	-	-
Alameda	-	-	-
San Mateo	66	40	48
Santa Cruz	7	-	1
Monterey	2	1	-
San Luis Obispo	3	5	2
Santa Barbara	25	5	5
Ventura	10	1	1
Los Angeles	32	4	4
Orange	40	20	22
San Diego	77	55	74
TOTAL	290	154	187

“-“ means no closures were reported

In some counties, the low incidences of closures reflects a lack of regular monitoring. This is typically the case for those counties north of San Francisco. The beaches of San Mateo County were hit hard with rains in 1998 resulting in increased numbers of closures. In general, central California beaches suffered from the El Nino year. Santa Barbara County introduced a more stringent monitoring program which doubled the number of days beaches were posted/closed. Los Angeles County beaches suffered more closures in 1998 due to high rains, a change in the way the county reported the number of postings/closures and by the addition of the monitoring from City of Long Beach, which up to then had been excluded from Los Angeles County report. Orange County more than doubled the number of days beaches were posted or closed between 1997 and 1998 due to heavy rains and an increased number of long-term postings.

In general, comparisons of closure totals among counties are difficult to interpret. One reason for this is the local method for naming a beach. A named beach in one county may be only a few hundred yards long, whereas a beach in a different county could be five miles long. Some agencies do not report individual beach names in their reports to the SWRCB. Therefore, identifying a closure incident does not reveal the length of coastline affected. The SWRCB's Beach Closure Report does not divide closure/posting events by individual beach names but rather treats closure/posting events as affecting a

stretch of coastline. Some counties routinely post storm drains but do not include these data in their yearly report.

Appendix

Summary Table and Individual County Reports of Beach Closure

1998

TABLE 1. CALIFORNIA BEACH CLOSURES DURING 1998*

COUNTY (NORTH TO SOUTH)	NUMBER OF CLOSURES/ POSTINGS	NUMBER OF DAYS CLOSED/ POSTED	REASON(S)
Del Norte	0		
Humboldt	0		
Mendocino	0		
Sonoma	0		
Marin	0		
San Francisco	28	140	Rain/combined sewer overflow (CSO).
Contra Costa	0		
Alameda	0		
San Mateo	66	689	Heavy rains resulted in flooding, high bacterial counts, sewage spills.
Santa Cruz	7	31	Sewage (4 permanent and 1 seasonal posting not counted).
Monterey	2	19	Sewage, high bacterial counts.
San Luis Obispo	3	84	Elevated levels of bacteria, sewage spill, (1 permanent posting, 365 days not counted).
Santa Barbara	25	689	High bacterial counts.
Ventura	10	75	3 incidence, (3 days) were result of elevated levels of bacteria, the remaining 7 incidences (72 days) were the result of sewage spills which each affected multiple beaches.
Los Angeles	32	239	All but 1 reported incident and 1 day result from sewer spills, many of which resulted from the heavy rains of the El Niño year.
Orange	40	1,272	Sewage, violation of bacterial standards (number of days includes 1 permanent [365 days], 1 long term [312 days], 5 closures > 45 days); also 10 rain advisories not counted.
San Diego	77	808	Sewage, flow of untreated sewage from Mexico. Total days includes 1 permanent posting (365 days); 13 rain advisories not counted.

* For the number and names of beaches affected, please refer to individual county tables.