California Beach Closure Report
1999

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CALIFORNIA BEACH CLOSURE REPORT--1999

Introduction

California Health and Safety Code §115910 requires each local health officer to submit to the State Water Resources Control Board (SWRCB) an annual survey documenting all beach postings and closures due to threats to the public health that occurred during the preceding calendar year. The law also requires the SWRCB to publish a statewide report, on or before September 30 of each year, documenting the beach posting and closure data provided by health officers for the preceding calendar year. This report contains data submitted by local health officers regarding beach postings and closures that occurred in 1999.

California's coastline is one of its most important natural features. It extends over 1,000 miles from the rocky cliffs of the north coast to the sandy, sun-drenched beaches in the south. Approximately 80 percent of California's 33 million residents live within a 30-mile drive of its coastline. Millions of visitors come to see its beauty and play on the shore and in its waters. The coastal areas represent a desirable place to live. As California's coastal population increases, the number and volume of discharges from industrial and municipal facilities into our coastal waters also increase.

The ocean is the final deposition site for most land-based pollutants entering California's coastal watersheds. Near-shore pollution can result from dumping industrial waste, dredge spoils, agricultural and urban runoff, and municipal sewer discharges. Although this pollution has been controlled to a great extent in recent years, the increases in population and development offer a constant challenge to those agencies responsible for pollution control. Increasingly the public is becoming concerned about beach closures, swimmers' illnesses, and the lack of public confidence due to the up and down nature of posting of warning signs.

One of the SWRCB's primary responsibilities is to protect California's valuable coastal waters by controlling what goes into them. The six Regional Water Quality Control Boards (RWQCB) bordering the coastline also have primary responsibility for protecting coastal waters. Anyone wishing to discharge waste to the ocean from a pipe or waste facility (a "point source") must

obtain a National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB. The RWQCBs establish monitoring programs to be conducted by the discharger as a way of measuring compliance with permit provisions.

Another primary source of coastal water pollution comes from the untreated runoff flowing from the land through storm drains and hundreds of natural stream courses. This runoff may come from roof tops, streets, yards, gardens, open spaces, parking lots, animal yards, construction sites, logging roads and any other surface exposed to rain or snow. It collects animal waste, oil and rubber residue from cars, asbestos and metals from brake linings, pesticides, silt and various types of vegetable matter. It may have high bacterial counts, contain viruses, be toxic to marine life and carry tons of garbage and silt that litter the ocean and its beaches and kill or injure marine life.

Since this runoff does not come from a discrete source, such as a pipe, it is regarded as a "nonpoint source discharge." Some of these types of wastes are collected in urban storm drains. The RWQCBs currently issue NPDES permits for discharges from municipal storm sewer systems serving a population of 100,000 or more. The SWRCB has also adopted two statewide general storm water permits for industrial and construction activities, and a statewide permit to address all of Caltrans' road construction activities. These permits require the storm water dischargers to implement programs to reduce and/or eliminate storm water pollution to the maximum extent possible. If nonpoint source waste causes serious pollution, the RWQCBs may work with the dischargers to require the application of measures to control the waste (known as best management practices or BMPs) and prevent pollution. If those measures are not carried out effectively, the RWQCBs may issue waste discharge permits or take enforcement action.

Causes of Beach Closures

Much attention has been given to the number of beach closures and warnings, especially along the southern California coast. California coastal communities have active monitoring programs conducted primarily by county health agencies and municipal waste treatment facilities. Water samples are collected in the surf zone to determine if recreational waters are contaminated with indicator bacteria (total coliform, fecal coliform, and enteroccus bacteria). Contaminated water

may contain bacteria, viruses, and other organisms, which can cause flu-like symptoms, ear infections, or upset stomachs in people who have had contact with the water. Studies have been conducted that correlate the levels of indicator bacteria with incidence of illness. If tests using indicator bacteria show levels above State standards, the beach will be posted with warning signs or closure notices to notify the public of the potential health risk. The beach is reopened when further sampling confirms that bacteria levels meet State standards. The term "beach closure" needs clarification. In most cases, the ocean is closed to swimming and other water contact recreation while the beach area is open for sunbathing, volleyball, and other activities that do not involve water contact.

Beaches, or more precisely the ocean waters adjacent to the beach, 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. Bacteria typically enter coastal waters from sewage spills, overflows from sewage-treatment plants and sanitary sewers, and from stormwater runoff from urban, suburban, and rural areas. An ideal indicator would be found only when disease-causing agents were present at densities that could cause problems. The current 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, birds using wetland areas can excrete indicator bacteria in densities that would suggest a potential risk to human health. However, birds do not carry the same types of pathogens as people. The risk of illness to people is assumed to be lower when the indicator bacteria come from animals instead of humans.

Beach closures can also be caused by other events such as a leaking sewage pipe or an oil spill. In addition, advisories are often issued when it rains because it is known from past experience that rain water carries pollution to the beach. Rain advisories are issued by radio or newspaper during rainstorms to warn people to avoid areas where rain water flows onto the beach.

Difference between a posting, closure, and advisory

A beach (ocean) 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 notice to the public that the water is unsafe for contact and that there is a high risk of getting ill from swimming in the water. Closure occurs when health risks are considered greater than those associated with posting. As stated earlier, in most beach closure cases the access to ocean water is prohibited but the beach area is open for activities not involving water contact.

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

Assembly Bill (AB) 411

AB 411 (Wayne, Chapter 765 of Statutes of 1997) requires the State Department of Health Services (DHS) to adopt procedures that increase consistency in the way county agencies measure beach water quality, post warnings, and close beaches.

The law requires that, beginning in 1999, the local health officer conduct weekly bacterial testing (total coliform, fecal coliform, and enterococci bacteria), between April 1 and October 31, of waters adjacent to public 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 warning signs at the beach and to make the determination whether to close that beach in the case of extended exceedances. The law also

requires the health officer to establish a telephone hotline to inform the public of all beaches that are closed, posted or otherwise restricted. Ten coastal counties (San Mateo, Sonoma, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Orange, Los Angeles, and San Diego) and one city (Long Beach) have reported that they have beaches that meet the AB 411 criteria, i.e., beaches that are near storm drains and are visited by more than 50,000 people annually.

Before AB 411 became law, county health officers had discretion to post or close any beach that violated total coliform standards. Under the new regulations, health officers are required to post warnings whenever any one of the bacterial standards is violated in areas near storm drains, but have the discretion to close the beach when appropriate. Many beaches near storm drains (which are covered under the AB 411 regulations) frequently violate at least one of the standards established by the DHS. These violations increase the number of postings regardless of whether there have been changes in water quality from previous years. Information collected under the mandate of AB 411 provides a new baseline against which the number of future beach warning postings and closures could be compared.

Beach Mile-Day (BMD)

The BMD is a measure of beach availability for recreation per year. It is a product of the number of miles of coastline and 365 days (the number of days the beach may be available for recreation in California). For instance, if a County has 50 miles of open coast, bay and harbor beaches, it has 18,250 BMD available (50 X 365). However, if 150 BMD are impaired due to closures or posted warnings, then 0.8 percent (150/18250 X 100) of the beach availability was impaired. In other words, 99.2 percent of beach usage met standards.

The BMD is a useful measure for comparing the health of beaches from year to year. The comparison is how much of the year's BMDs have been impaired in a particular county. It is a more meaningful measure of comparison than the number of incidences or the number of days of postings or closures.

Beach Closure Data

The data in this report are from SWRCB's Beach Closure/Posted Warning Database which identifies the extent of closures and warning postings in miles (or yards) as well as by beach name. The Beach Water Quality Workgroup, an ad hoc committee composed of groups responsible for the protection and reporting of beach water quality, has approved the design and information requirements of the database. The Workgroup includes staff from County Environmental Health Departments, environmental groups, sewage treatment plants that discharge to coastal waters, the California Coastal Commission, DHS, SWRCB, RWQCBs, and the U.S. Environmental Protection Agency, Region 9. This database makes it possible to report beach postings and closures by BMDs.

TABLE 1. BEACH WARNINGS POSTED IN CALIFORNIA BY COUNTY--1999

County	Number of incidences	Number of days	Beach Mile-Day Posted	Primary Cause(s)
Del Norte	N[1/]	N	N	
Humboldt	N	N	N	
Mendocino	N	N	N	
Sonoma	4	14	2.8	Unknown
Marin	N	N	N	
San Francisco	5	8	21.3	Combined sewer overflow
Contra Costa	N	N	N	
Alameda	N	N	N	
San Mateo	6	132	47	Creeks/rivers, stormdrains
Santa Cruz	4	45	13.3	Sewer line, wildlife (birds)
Monterey	8	54	26.3	Stormdrains
San Luis Obispo	1	2	0.8	Wildlife
Santa Barbara	109	1,540	87.5	Urban runoff, creeks, wildlife
Ventura	74	399	22.6	No causes given
Los Angeles	109	406	39.8	Unknown
Long Beach	68	104	3	Unknown
Orange	136	865	175	Urban runoff
San Diego	97	617	33.7	Urban runoff, creeks/rivers
TOTAL			473	

N[1/] No reported warning postings.

Table 1 presents the data on beach warnings posted in California in 1999. A total of 473 BMDs had warnings posted in the State. With the exception of San Francisco County, warning postings have not been routinely reported to the SWRCB. Since this information has not been collected in the past, it is not possible to make comparisons with beach warnings posted in previous years. Further, because the AB 411 regulations were not officially adopted until July 1999, the data reported in Table 1 are not for the full time period required by law (from April 1 to October 31), and they will not be comparable with next year's number of postings of warnings.

Figure 1 shows that statewide the source of 68 percent of all BMDs with warnings posted was contamination carried to the beach by urban runoff (53%) and creeks and rivers (15%). Sewer related problems, wildlife, and rain accounted for 11 percent of warnings. The source for the remaining 21 percent of the BMD warnings posted was unknown.

Figure 1. Sources of Warnings Posted

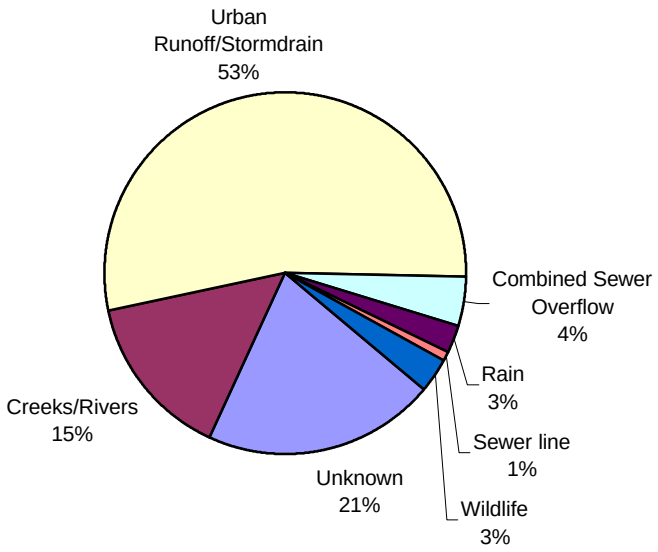


TABLE 2. BEACH CLOSURES IN CALIFORNIA BY COUNTY- 1999

County	Number of incidences	Number of days	Beach Mile-Day Closed	Primary Cause(s)
Del Norte	N[1/]	N	N	
Humboldt	N	N	N	
Mendocino	1	12	2.4	Sewer line
Sonoma	2	13	1.3	Unknown
Marin	N	N	N	
San Francisco	N	N	N	
Contra Costa	N	N	N	
Alameda	N	N	N	
San Mateo	1	6	6	Sewer line
Santa Cruz	N	N	N	
Monterey	3	16	4	Sewer line
San Luis Obispo	1	2	0.6	Sewer line
Santa Barbara	10	222	12.6	Urban runoff, creeks/rivers, rain, wildlife
Ventura	10	35	26.5	Sewer line
Los Angeles	6	12	36.1	Sewer line
City of Long Beach	3	51	1.4	Unknown
Orange	22	209	156.1	Sewer, 105 of 156.1 BMD is Huntington Beach--cause unknown
San Diego	32	116	33.9	Sewer line
TOTAL			280.9	

N[1/] No reported beach closures.

Table 2 presents the data on beach closures in California in 1999. Approximately 281 BMDs were closed in the State. Figure 2 shows that statewide fifty-six percent of the BMDs of closures

were due to problems with sewer lines (such as line breaks, blockages due to grease, roots, or rocks, and pump failures). The sources of 39 percent of the BMDs of closures were unknown. This large percentage of BMDs of closure from unknown sources is due to the large number (105 BMDs) of closures at Huntington Beach in Orange County that was caused by unknown sources. In fact, Huntington Beach accounts for over 97 percent of the107.9 BMDs of closures caused by unknown sources statewide. Creeks and rivers, urban runoff, rain, wildlife were the sources listed for 5 percent of BMDs of closures.

Figure 2. Sources of Beach Closures

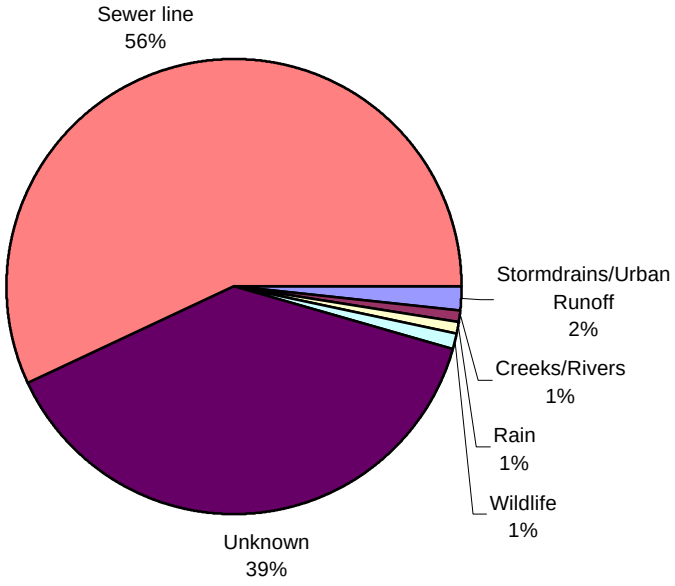
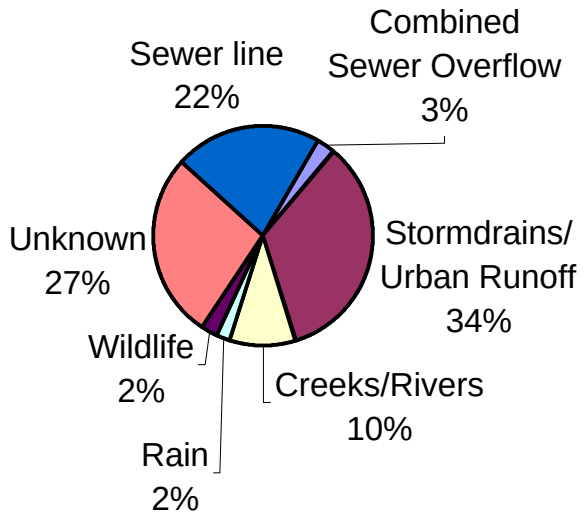


Figure 3 shows the percentages of sources which contributed to both postings and closures in 1999 statewide. Twenty-five percent of the BMDs of closures/warnings posted resulted from releases of sewage either directly (22%) or as the result of heavy rains that caused overflows of sewer systems (3%). Storm drains/urban runoff and creeks and rivers accounted for 34 and 10 percent, respectively, of the BMDs of closures and warnings posted. The source of contamination for 27 percent of the BMDs of closures/posting was unknown. Contamination due to wildlife accounted for 2 percent of the BMD posted/closed. Rain was listed as the source of the closure/posting for 2 percent of the total BMDs.

Figure 3. Sources of Warnings Posted and Closures Statewide



The following appendix contains the detailed county reports on individual warning postings and closures. Some counties reported rain advisories. At the end of each individual report is a summary of the number of incidences of posting warnings or issuing closures, the sum of the days, and the BMD. Each time a portion of a beach was closed counted as one day. It is possible to have closures or warnings on more than one beach in a county on a particular day; therefore, the number of days of exceedance of standards in a particular county may exceed the number of days in a year. The number of days of posting warnings or closures is meant to give an indication of the magnitude of the posting/closure events. Many counties in northern California do not have routine monitoring programs and therefore do not post warnings or closures at their beaches .

Appendix
County Closure, Posted Warnings, and Rain Advisory Reports
In Geographical Order from North to South