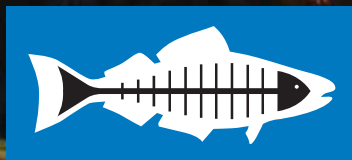


# HEAL THE BAY



BEACH REPORT CARD

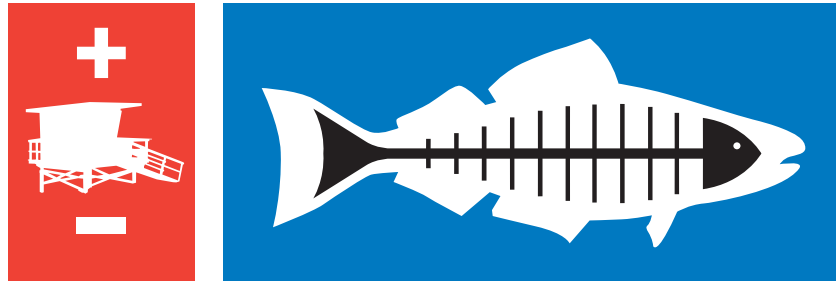


2007 – 2008

18th Annual Report



# BEACH REPORT CARD



## HEAL THE BAY'S 18TH ANNUAL BEACH REPORT CARD MAY 21, 2008

Heal the Bay is a nonprofit environmental organization dedicated to making Southern California coastal waters and watersheds, including Santa Monica Bay, safe, healthy and clean. We use research, education, community action and advocacy to pursue our mission.

*The Beach Report Card program is funded by grants from the Ford Motor Company, the Goldhirsh Foundation, the James Irvine Foundation, and simplehuman.*



the James Irvine foundation







# HEAL THE BAY'S 18TH ANNUAL BEACH REPORT CARD MAY 21, 2008

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Marin			
Mendocino			
Sonoma			
Humboldt			
Del Norte			





## EXECUTIVE SUMMARY

Heal the Bay's 18th Annual Beach Report Card<sup>SM</sup> provides water quality information to the millions of people who swim, surf, or dive in California coastal waters. Essential reading for ocean users, the report card grades more than 375 locations year-round (517 locations in dry weather from April to October) on an A to F scale based on the risk of adverse health effects to beachgoers. The grades are based on daily and weekly fecal bacteria pollution levels in the surfzone. The program has evolved from an annual review of beaches in Santa Monica Bay to weekly updates of all monitored beaches throughout California. All of this information is available in print, via SMS text response, and on Heal the Bay's website, [www.healthebay.org](http://www.healthebay.org).

The 2007-2008 Annual Beach Report Card showed the best overall water quality on record. Most California beaches had very good water quality, with 330 of 379 (87%) locations receiving very good-to-excellent (A and B) grades for the year during dry weather. The remaining grades were 20 Cs (5%), 5 Ds (1%) and 24 Fs (6%). Southern California (Santa Barbara through San Diego) dry weather grades (87% As and Bs) were similar to the statewide average for the first time in three years. This is most likely due to the historic drought experienced during the winter of 2006-2007 in Southern California. Los Angeles County still had the state's lowest grades in the state with only 71% As and Bs, but that tally marks a solid improvement from last year's grades. Despite moderate improvement in Long Beach overall, water quality at monitoring locations nearest the Los Angeles River outlet continued to suffer from very poor water quality this year.



*Santa Monica Beach at Pico/Kenter*

“point zero” – the mouth of stormdrains or creeks – is the best way to ensure that the health risks to swimmers are captured in the data.

One of the reasons that Los Angeles County had the worst water quality grades in California is that the county is one of the first in the state (along with Humboldt County and portions of San Diego) to modify its monitoring program to collect samples directly in front of flowing stormdrains and creeks. This change was a result of the Santa Monica Bay beach bacteria Total Maximum Daily Load requirements. (TMDLs are water body specific standards.) Children play directly in front of stormdrains, and in the runoff-filled ponds and lagoons. Monitoring at

This is one recommendation among several others that Heal the Bay has made to state officials to improve water quality monitoring and protect public health. A complete list of recommendations can be found at the end of this document.



This year, Heal the Bay is pleased to include water quality data for monitoring locations in both Contra Costa and Alameda counties. Three locations at Keller Beach in Contra Costa and five locations at Crown Beach in Alameda County were monitored frequently enough to earn grades for all time periods this past year. Alameda Point data has also been recently made available, and grades for the two Alameda Point monitoring locations will most likely appear in this year's End of Summer Report. Heal the Bay would like to thank the East Bay Regional Park District for providing Contra Costa and Alameda data for analysis, as well as Save the Bay for providing contact information enabling data acquisition. San Mateo bayside locations also make their debut in this report. For the first time in Beach Report Card history, Heal the Bay has included all San Francisco Bay monitoring locations from five of the surrounding counties (Marin, Contra Costa, Alameda, San Mateo, and San Francisco).

There continues to be a great disparity between dry and wet weather water quality. This year (April 2007 – March 2008) 46% of the 379 locations monitored during wet weather received fair-to-poor (C – F) grades. In Southern California, 52% of sampling locations earned fair-to-poor wet weather grades – slightly higher than the statewide average. Despite the fact that many counties had record excellent water quality during dry weather, wet weather grades were below the four-year average for southern California. In other words, cities and counties are starting to effectively tackle dry weather beach pollution, but stormwater runoff continues to wreak havoc on coastal water quality during the winter.



*Avalon Beach, Catalina*

Numerous California beaches vied for the “Beach Bummers” crown this year (the monitoring location with the poorest dry weather water quality). Five of the ten most polluted beach areas in the state were in LA County.

### **The Top 10 Beach Bummers**

1. Avalon Harbor Beach on Catalina Island (Los Angeles County)
2. Santa Monica Municipal Pier (Los Angeles County)
3. Poche Beach (Orange County)
4. North Beach Doheny (Orange County)
5. Marie Canyon Drain at Puerco Beach (Los Angeles County)
6. Cabrillo Beach harborside (Los Angeles County)
7. City of Long Beach – multiple locations (Los Angeles County)
8. Campbell Cove State Park Beach (Sonoma County)
9. Clam Beach County Park near Strawberry Creek (Humboldt County)
10. Pismo Beach Pier (San Luis Obispo County)



Heal the Bay completed an analysis of data from Santa Barbara County through San Diego County to determine whether there were significant differences in water quality based on beach type. As in previous years, water quality at open ocean beaches during year-round dry weather was significantly better than water quality at those beaches located within enclosed bays or harbors, or those impacted by stormdrains. 95% of open ocean beaches received an A grade for year-round dry weather compared to 80% at beaches found within an enclosed bay, harbor or marina, and 75% at beaches impacted by a stormdrain. The data demonstrate that visitors at open ocean beaches with no pollution source nearly always swim in clean water during dry weather.



*Santa Monica Canyon*

at point zero, while other counties are measuring at 25, 50 or 83 yards from the storm drain. This discrepancy makes it difficult to compare certain beaches and is not the most protective measure for public health. Further efforts will be made this year to unite all stakeholders in the monitoring process. Heal the Bay will work to implement a standardized monitoring plan that can be applied statewide to allow more accurate comparison of beach water quality and improve public health protection.

### **Santa Monica Bay TMDL**

Every beach from the Ventura County line south to Palos Verdes was mandated to meet state beach bacteria health standards 100% of the time during the AB411 time period by July 15, 2006 or face penalties. Marina del Rey's Mother's Beach and Back Basins had a compliance deadline of March 18, 2007. The 100% compliance requirement for the AB411 time period (from April 1st to October 31<sup>st</sup>) means that all Santa Monica Bay beaches must be safe for swimming every day

### **Standardized Monitoring**

There is currently no standardized beach water quality monitoring in California. Most counties and cities each monitor for fecal indicator bacteria using plans that have been developed without collaboration with other regions. Approximately five years ago, Heal the Bay teamed up with the Southern California Beach Water Quality Workgroup to formulate a standardized monitoring plan. This plan would require counties to each monitor at a certain depth and distance from a storm drain and ensure the appropriate posting of warning signs to the public. A number of these measures were incorporated into health department monitoring plans. But there were still huge disparities among counties with regards to the distance at which their samples were taken from a storm drain.

Some counties, such as Los Angeles, measure



for the seven months from April through October. These requirements were in the fecal bacteria Total Maximum Daily Loads for Santa Monica Bay and Mother's Beach.

Unfortunately, the compliance deadlines came and went, and many of Santa Monica Bay's beaches, namely, Surfrider Beach, Santa Monica Pier, Mother's Beach, Dockweiler State Beach at Ballona Creek mouth, Marie Canyon, Santa Monica Beach at Pico/Kenter and the Redondo Pier still had elevated bacteria levels above the TMDL limits. In order for the Bacteria TMDL pollution limits to be readily enforceable, the Regional Water Quality Control Board incorporated them into the language of the L.A. County Storm Water Permit on September 14, 2006 and August 9, 2007. Cities and other dischargers are now subject to fines of over \$10,000 per day per violation.



*Santa Monica Beach at Arizona*

On March 4, 2008, in a precedent-setting move, the Los Angeles Regional Water Quality Control Board sent strongly worded notices of violation and section 13383 Orders to 20 cities and Los Angeles County to clean up Santa Monica Bay beaches. The cities of Santa Monica, Los Angeles, and Malibu are among those threatened with fines of up to \$10,000 per day per violation. The action marks the first time nationally that a regulatory body has threatened fines to ensure cities' compliance with beach bacteria limits from a TMDL.

Sixteen cities and the County have petitioned the State Water Resources Control Board to review the 13383 Orders. These cities are holding the petitions in abeyance, and the County has requested a review.

While some cities have made noticeable improvements in identifying and rectifying sources of ocean pollution, measures to fix chronically polluted beaches like Dockweiler State Beach at Ballona Creek mouth and Surfrider have been inadequate. Instead of challenging potential heavy fines for each bacteria limit violation, we are hopeful that the cities and Los Angeles County will take appropriate aggressive actions to ensure that bacteria limits are not exceeded and that Santa Monica Bay beaches are safe for beach-goers in the summer months. The Beach Report Card will continue to identify beaches that exceed bacteria limits and track compliance efforts.

The Beach Report Card is based on the routine monitoring of beaches conducted by local health



agencies and dischargers. Water samples are analyzed for bacteria that indicate pollution from numerous sources, including fecal waste. The better the grade a beach receives, the lower the risk of illness to ocean users. The report is not designed to measure the amount of trash or toxins found at beaches. The Beach Report Card would not be possible without the cooperation of all of the shoreline monitoring agencies in the state.



*Dockweiler State Beach at Ballona Creek*

County health officials and Heal the Bay recommend that beach users never swim within 100 yards of any flowing stormdrain, or in any coastal water during a rainstorm, and for at least three days after a storm has ended. Stormdrain runoff is the greatest source of pollution to local beaches, flowing untreated to the coast and often contaminated with motor oil, animal waste, pesticides, yard waste and trash. After a rain, indicator bacteria densities usually far exceed state health criteria for recreational water use.

Heal the Bay believes that the public has the right to know the water quality at their favorite beaches as soon as possible, and is proud to provide Californians this information in an easy-to-understand format. We hope that beachgoers will use this information to make the decisions necessary to protect their health.

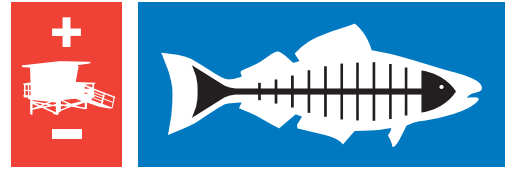
For more information, please visit [www.healthebay.org](http://www.healthebay.org), or call 800 HEAL BAY



## INTRODUCTION

Heal the Bay's first Beach Report Card<sup>SM</sup> (BRC) was published in 1990 and covered 60-plus monitoring locations in Los Angeles County—from Leo Carrillo Beach near the Ventura County line south to Cabrillo Beach in San Pedro. At the time, beachgoers knew little about the health risks of swimming in polluted waters or the water quality at any of their favorite beaches in Los Angeles County, and beach water quality was a public issue only when a substantial sewage spill occurred. Although beaches were routinely monitored, the data were either inaccessible or unusable to the public. Since then, a great deal of work has been completed to reduce urban runoff pollution and sewage spills at our local beaches. Scientific studies such as the Santa Monica Bay Restoration Project's epidemiological study on swimmers at runoff polluted beaches and the Southern California Coastal Water Research Project's bight-wide shoreline bacteria and laboratory inter-calibration study have been completed. Legislation, such as the statewide beach bathing water standards and public notification bill (AB411), and the protocol for identifying sources of fecal indicator bacteria at high-use beaches that are impacted by flowing stormdrains (AB538) have been signed into law. Structural best management practices, such as the Santa Monica Urban Runoff Recycling Facility, dry weather diversions, and nearly \$100 million in Clean Beach Initiative projects throughout the state have been constructed. Also, the city of Los Angeles is spending over \$100 million of Proposition O funds to make Santa Monica Bay beaches clean and safe. In this same time period, Heal the Bay's Beach Report Card has grown in coverage, expanding from Los Angeles County to all of California where monitoring programs exist.

## BEACH REPORT CARD



*Emmawood, Ventura County*

The 18th Annual Beach Report Card summarizes the results of beach water quality monitoring programs along California's coast, from Humboldt County to San Diego County, over the last 12 months (April 2007 through March 2008). The summary includes an analysis of water quality during three time periods: summer dry season conditions (the months covered under AB411 - April through October), year-round dry weather conditions, and wet weather conditions. In addition to summarizing local water quality, the report includes a brief review of the number of sewage spills that impacted recreational waters over the past year. The information derived from this analysis is used to develop recommendations for cleaning up problem beaches to make them safe for swimming and surfing.

The Annual BRC covers over 375 locations (517 for the AB411 time period) from Humboldt County to San Diego County. Heal the Bay advises California beachgoers to use the information



before they go to any beach in the state in order to better protect their health and the health of their families. The weekly California BRC is available in print, via SMS text response, and on Heal the Bay's website, [www.healthebay.org](http://www.healthebay.org).

The Beach Report Card should be used like the SPF ratings in sunblock – beachgoers should determine what they are comfortable with in terms of relative risk, and then make the necessary decisions to protect their health.

### **What Type of Water Quality Pollution is Measured?**

Runoff from creeks, rivers and stormdrains is the largest source of pollution to California beaches. Runoff may contain toxic heavy metals, pesticides, fertilizers, petroleum hydrocarbons, animal waste, trash and even human sewage. The Beach Report Card includes an analysis of shoreline (ankle-deep) water quality data collected by more than 20 different county and city public agencies for fecal indicator bacteria. At present, the report card contains no information on toxins or trash in the water.



*Santa Monica Bay Club*

This year, there were 517 shoreline monitoring locations analyzed in the California Beach Report Card from Humboldt County at Trinidad State Beach near Mill Creek to San Diego County at the Border Field State Park (border fence). Shoreline water samples were analyzed for three indicator bacteria: total coliform, fecal coliform (or E.coli) and Enterococcus. Total coliform, which contains coliform of all types, originates from many sources, including soil, plants, animals and humans. Fecal coliform and enterococcus bacteria are found in the fecal matter of mammals and birds. This fecal matter does not necessarily come from humans, although numerous prior studies have demonstrated that there is a significant possibility of human sewage contamination in stormdrain runoff at any given time.

The amount of indicator bacteria present in runoff, and consequently in the surfzone, is currently the best indication of whether or not a beach is safe for recreational contact. Indicator bacteria are not usually the microorganisms that cause bather illness. Instead, their presence indicates the potential for water contamination with other pathogenic microorganisms such as bacteria, viruses and protozoa that do pose a health risk to humans. The link between swimming in waters containing elevated levels of bacteria indicators and health risk was confirmed in the groundbreaking 1996 epidemiological study conducted by USC, the Sanitation District of Orange County, the City of Los Angeles, and Heal the Bay, under the auspices of the Santa Monica Bay Restoration Project.



Most sample locations are selected by monitoring, health, and regulatory agencies to specifically target popular beaches and/or those beaches frequently affected by runoff. Water quality samples are collected by the appropriate agency at a minimum of once a week from April through October, as required under the California Beach Bathing Water Quality Standards (AB411) or the Environmental Protection Agency's National Beach Guidance and Performance Criteria for Recreational Waters (EPA's BEACH program). Some agencies conduct year-round sampling, while others scale back their monitoring programs dramatically from November through March, despite the fact that many surfers and ocean swimmers are in the water year-round. All counties that have beach monitoring programs, and provide the data to the public, are included in the Beach Report Card.

### **Heal the Bay's Grading System**

Heal the Bay's grading system takes into consideration the magnitude and frequency of an exceedance above indicator thresholds over the course of a year. Furthermore, those beaches that exceed multiple indicator thresholds in a given day received lower grades than those beaches that exceeded just one indicator threshold.



*Solstice Canyon, Los Angeles County*

The grades are based on a 100-point scale.

For each monitoring location, points are subtracted from a perfect score of 100 depending on the severity of bacterial count exceedances of state single sample standards, and/or exceedances of the 30-day geometric mean standards. As the magnitude or frequency of bacteria density threshold exceedances increases, the number of points subtracted increases. The threshold points and grading system can be found in Appendix A.

Water quality drops dramatically during and immediately after a rainstorm, but often rebounds to its previous level within a few days. For this reason, wet weather data were analyzed separately in order to avoid artificially lowering a location's grade. Wet weather data are comprised of samples collected during or within three days following the cessation of a rainstorm. Heal the Bay's annual report card and weekly report cards utilize a definition of a 'significant rainstorm' as precipitation greater than or equal to one tenth of an inch ( $\geq 0.1$ "). The BRC analyzes dry weather water quality data for two time periods, April 2007 through October 2007 (summer dry weather), and April 2007 through March 2008 (year-round dry weather).

### **What does this mean to the beach user?**

Simply put, the higher the grade a beach receives, the better the water quality at that beach. The lower the grade, the greater the health risk. Potential illnesses include stomach flu, ear infection, upper respiratory infection and major skin rash (full body). The known risks of contracting

illnesses associated with each threshold are based on a one-time, single day of exposure (head immersed while swimming) to polluted water. Increasing frequency of exposure or the magnitude of bacteria densities may significantly increase an ocean user's risk of contracting any one of a number of these illnesses.



*Cabrillo Beach, Los Angeles County*

It is important to note that the grades from the Beach Report Card represent the most current information available to the public, but they do not represent real-time water quality conditions. Currently, laboratory analyses of beach water quality samples take 18 to 48 hours to complete, then the data must be entered into a database before they are sent to Heal the Bay for a grade calculation. Rapid indicator methods (results in 2-4 hours) for enterococcus bacteria should be widely available to monitoring agencies within the

next 5 years. Real-time information on beach closures due to reported sewage spills can be found at [www.healthebay.org](http://www.healthebay.org). The BRC is designed to give the beachgoer historical information on the water quality at a given beach. The public can then make informed decisions about which beach to visit safely.

### **Why not test for viruses?**

A common question asked by beachgoers is: "Since viruses are thought to cause many of the swimming-associated illnesses, why don't health agencies monitor directly for viruses instead of bacteria indicators?" Although virus monitoring is incredibly useful in identifying sources of fecal pollution, there are a number of drawbacks to the currently available virus measurement methods. There have been tremendous breakthroughs in the use of gene probes to analyze water samples for virus or human specific bacteria, but currently these techniques are expensive, highly technical and not very quantitative. In addition, since human viruses are not found in high densities in ocean water and their densities are highly variable, setting standards for viruses isn't currently feasible. Also, interpretation of virus monitoring data is difficult because, unlike bacterial indicators, there are currently no data available that link health risks associated with swimming in beach water to virus concentrations. An epidemiology study, a component of which is an effort to identify and quantify viral pathogens, began last summer. This large scale epidemiology study (using over 30 microbial indicators) is led by the Southern California Coastal Water Research Project, UC Berkeley, Orange County Sanitation Districts, and Heal the Bay. The study at Doheny Beach and Avalon Beach should be completed within the next two years. Until then, indicator bacteria monitoring is currently the best, most timely and cost effective method for protecting the health of beachgoers.



## 2007-2008 ANALYSES

Most California beaches had very good water quality, with 330 of 379 (87%) locations receiving very good-to-excellent (A and B) grades for the year during dry weather. The remaining grades were 20 Cs (5%), 5 Ds (1%) and 24 Fs (6%). Southern California (Santa Barbara through San Diego) dry weather grades (87% As and Bs) were similar to the statewide average for the first time in three years. This is most likely due to the historic drought experienced during the winter of 2006-2007 in Southern California. Los Angeles County still had the state's lowest grades in the state with only 71% As and Bs, but that tally marks a solid improvement from last year's grades.

Overall summer dry weather water quality at California beaches this year was excellent, and one of the best on record. Of the 517 ocean water quality monitoring locations throughout California, 480 (93%) received very good-to-excellent water quality marks (A or B) for April through October 2007 [Figure 1 and 2]. There were 37 (7%) monitoring locations that received fair-to-poor water quality marks (C – F) during the same time period.

The disparity between dry and wet weather grades continues to be large. 46% percent of monitoring locations received fair-to-poor grades during the wet weather season, 26% of which received an F [Figure 1 and 2]. Wet weather grades were down slightly from the same time period a year ago. This marked seasonal difference in water quality is why Heal the Bay and public health agencies continue to recommend that no one swim in the ocean during, and for at least three days after, a significant rainstorm. With the exception of educational programs, there have been no major efforts made by public agencies along the coast to target reductions in fecal bacteria densities in stormwater. A list of all the grades can be found in Appendix B.

## 2007-2008 ANNUAL BEACH REPORT CARD

FIGURE 1.  
Number of Grades by Time Period for California Beaches

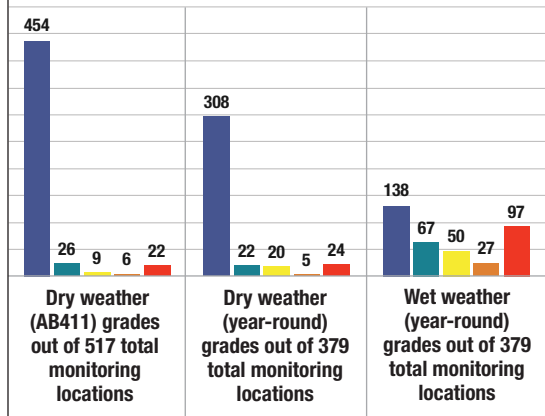
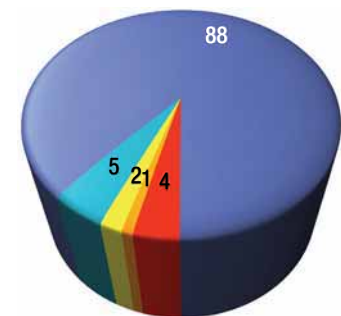
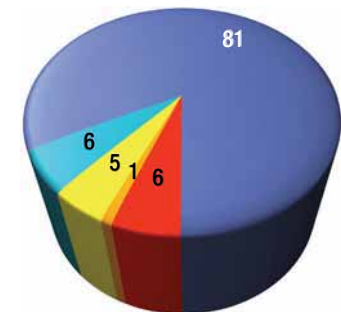


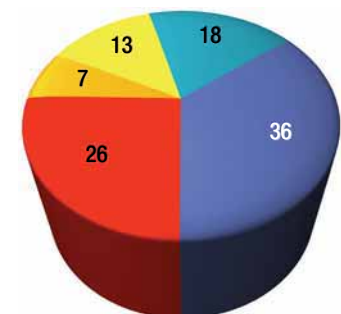
FIGURE 2.  
Percentage of Grades by Time Period for California Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ● = A ● = B ● = C ● = D ● = F



## Beach Bummers

Numerous California beaches vied for the “Beach Bummer” crown this year (the monitoring location with the poorest dry weather water quality). Five of the ten most polluted beach areas in the state were in LA County.

CALIFORNIA “BEACH BUMMER” LOCATIONS		
1	Avalon Beach on Catalina Island	Los Angeles
2	Santa Monica Pier	Los Angeles
3	Poche Beach	Orange
4	North Beach – Doheny	Orange
5	Marie Canyon Storm Drain in Malibu	Los Angeles
6	Cabrillo Beach harborside at the lifeguard tower	Los Angeles
7	Long Beach – multiple locations	Los Angeles
8	Campbell Cove State Park Beach	Sonoma
9	Clam Beach County Park near Strawberry Creek	Humboldt
10	Pismo Beach Pier	San Luis Obispo



*Avalon, Catalina*

Avalon Beach topped the list after being a perennial statewide Bummer for five years running. A \$4.5 million swimmer health effects study added Avalon Beach as a research location due to its perpetually poor water quality. The Santa Monica Pier’s continued water quality problems was a disappointment again this year. Santa Monica, a typically environmentally conscious city, has a comprehensive plan to improve the storm drain infrastructure, diversions, and runoff treatment facility near the pier. Unfortunately, the project isn’t scheduled for completion until 2010 at the earliest. After numerous sewage spills and water quality issues last year, Long Beach improved slightly but poor water quality at multiple locations still qualified it as a Beach Bummer again this year. Poche Beach continues to struggle with poor water quality and joins the list this year. A small dry weather filtration/UV disinfection plant is now being constructed at the outlet of Poche Creek. Marie Canyon has a new treatment facility in place, but unfortunately it wasn’t online until late in 2007 and then the facility’s pumps had some early technical problems. We hope to see dramatic improvement at this location this summer.



## THE BEACH REPORT CARD: COUNTY BY COUNTY

We strongly commend those agencies that continue their monitoring programs beyond the AB411 required dates of April through October. This action provided approximately 20 additional weeks of water sampling, which meant beachgoers, particularly surfers going out for the winter swells, could continue receiving information about water quality and have the ability to make better health risk decisions.

Heal the Bay presents grades for all coastal county monitoring locations (except for Del Norte County where we have been unable to obtain data). Most grades are updated weekly and can be viewed on our website at [www.healthebay.org](http://www.healthebay.org). Below is a brief summary of each county's monitoring program over the past year, associated water quality issues (if any), and the number of beach closures caused by sewage spills.

### SAN DIEGO

There are six agencies within San Diego County that provided monitoring information to Heal the Bay's Beach Report Card: the City of Oceanside, the City of San Diego, Encina Wastewater Authority, San Elijo Joint Powers Authority, the San Onofre Generating Station, and the County of San Diego Department of Environmental Health. A majority of the 94 monitoring locations monitored during summer dry weather (AB411) and covered by the Beach Report Card are sampled and analyzed by the City and County of San Diego. Of these, 55 locations are monitored consistently year-round (10 fewer than last year). It should be noted that for the third year in a row, officials continued to collect fewer sampling sites at Imperial Beach, resulting in only three sites with grades along that stretch of raw sewage-impacted beach. Samples are generally collected at the wave wash (where runoff and ocean water mix) or 25 yards away from a flowing stormdrain, creek or river. For additional water quality information visit the County of San Diego Department of Environmental Health's website at <http://www.sdcountry.ca.gov/deh/lwq/beachbay/index.html>.

## SAN DIEGO COUNTY RESULTS

FIGURE 3.  
Number of Grades by Time Period for San Diego Beaches

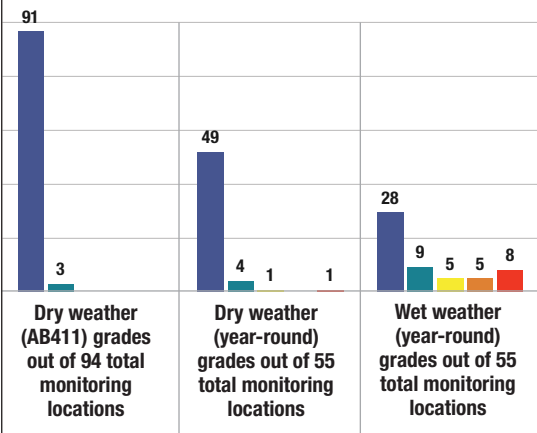
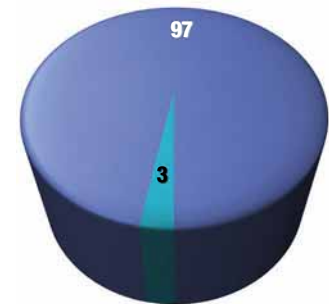
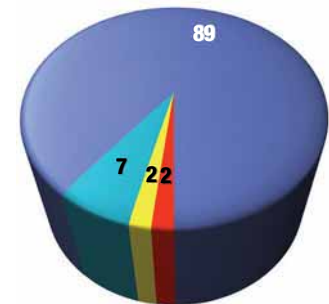


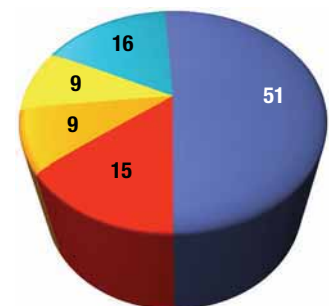
FIGURE 4.  
Percentage of Grades by Time Period for San Diego Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F



Dry weather water quality at beaches in San Diego County was excellent. Of the 55 year-round water quality monitoring locations, 96% received good-to-excellent water quality marks (Figures 3 and 4). San Diego County’s water quality during the summer dry weather time period was even better, with all of the monitored locations receiving an A or B grade – even the notoriously polluted beaches at P.B. Point, Mission Bay, and the beaches near the Tijuana River estuary.

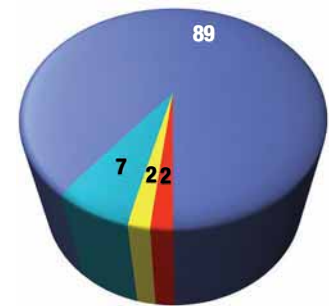
Only two of 18 locations in Mission Bay and one of six locations in San Diego Bay were monitored frequently enough to acquire a year-round grade. Year-round swimmers and surfers should realize that the winter monitoring program in San Diego covers only a little over half of the county’s beaches. As with most enclosed water bodies, year-round water quality varies greatly from beach to beach, making it difficult to recommend bayside swimming locations. Compared to open ocean beaches, beaches located within enclosed bays tend to have reduced tidal circulation and are more susceptible to long-term pollution problems. However, some of the bayside swimming spots that received very good-to-excellent grades during the AB411 time period for at least the last four years are in Mission Bay (Ventura Cove and Fanuel Park) and in San Diego Bay (Silver Strand).

Only two of 55 locations in San Diego County received fair-to-poor water quality marks during the year-round dry weather time period. Poor water quality was found at the Tijuana Slough at the Tijuana Rivermouth (F) and ¾ mile north of the Tijuana Rivermouth (C).

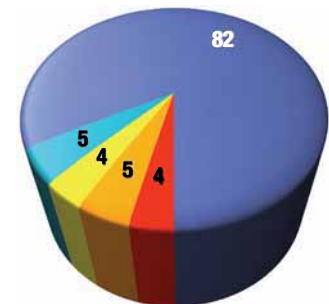
Overall wet weather grades in San Diego County were well above the state average, and just slightly lower than last year, with 67% of monitoring locations receiving A or B grades. Poor grades were earned at monitoring locations at the San Luis Rey River outlet (F), Pier View Way (D), Tyson Street (D), and Buccaneer Beach at Loma Alta Creek (F) in Oceanside, San Dieguito River Beach (D), Los Peñasquitos Lagoon (D), Tideland Park (F) in San Diego Bay, and all locations except one from Carnation Avenue (F) south to the Border fence (D). San Diego’s southernmost beaches were again frequently closed to the public due to sewage

## SAN DIEGO COUNTY RESULTS (CONTINUED)

FIGURE 5.  
2007-2008 San Diego County Dry Weather Water Quality Compared to the Four-Year Average (2003-2007)

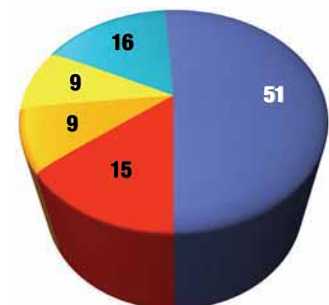


2007-2008 (dry weather)

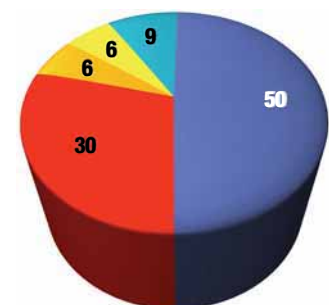


Four-year average (dry weather)

FIGURE 6.  
2007-2008 San Diego County Wet Weather Water Quality Compared to the Four-Year Average (2003-2007)



2007-2008 (wet weather)



Four-year average (wet weather)

Key: ●=A ●=B ●=C ●=D ●=F



contaminated runoff from the Tijuana Estuary. San Diego County's 2007 Beach Closure & Advisory Report can be found here: [http://www.sdcounty.ca.gov/deh/water/beach\\_bay.html](http://www.sdcounty.ca.gov/deh/water/beach_bay.html)

Some good news for Imperial Beach is that the state has funded a \$1 million Clean Beach Initiative source tracking study of the lower Tijuana River Estuary. The one year study will include recommendations to reduce fecal bacteria densities at Imperial beach.

The percentage of sites that earned a grade of A or B during the year-round dry weather (96%) was one of the cleanest years on record and well above the last four-year's average for San Diego County (87%) (Figures 5 and 6). Wet weather percentages were substantially better than the past averages, with 67% good-to-excellent grades this year compared to an average of 59% for the previous four years.

### **Sewage Spill Summary**

San Diego experienced 39 closures due to sewage between April 2007 and March 2008. The 12 spills of known volume released over 7 million gallons of sewage to local beaches. There were three major spills (>10,000 gallons) that accounted for over 99% of the known sewage spill volume. The first and largest spill occurred April 2, 2007 into the Buena Vista Lagoon. This huge spill of approximately 7.3 million gallons resulted in a beach closure at the lagoon outlet for more than a week. The second major spill, with a volume of 30,000 gallons, closed Agua Hedionda Lagoon the very same week. The third major spill, totaling more than 21,000 gallons, closed Bucanear Beach in Oceanside for four days in early February of this year.

### **MORE ON THE TIJUANA RIVER SLOUGH**

When sewage contamination in the Tijuana River moves from the estuary mouth and north along the coast, south San Diego county beaches are heavily impacted. As a result, water quality at these impacted beaches is often extremely poor. Although the Beach Report Card may show improved water quality at south county beaches for the winter of 2007/2008, there are less bacterial monitoring data for these beaches compared to previous winters because the sampling effort conducted by the San Diego County Department of Environmental Health (DEH) has been reduced.

In a recent study on enteric viruses at Imperial Beach and the Tijuana River mouth<sup>1</sup>, researchers reported a number of hepatitis A virus strains. Because untreated human fecal waste from Tijuana sewage outfalls is a major pollution source to coastal waters near the U.S.-Mexican border, human fecal bacterial densities (E. coli and Enterocci) during wet weather exceeded state water quality standards in 86% (12 of 14) of the samples in the study. Exceptionally high concentrations of these human fecal indicator bacteria were significantly correlated with high concentrations of hepatitis A virus and enterovirus. Three strains of poliovirus were also detected<sup>1</sup>.

To create a real time Tijuana River plume model, Scripps Institute of Oceanography compared previous monitoring data with measured hourly ocean currents from San Diego Coastal Ocean Observing System (SDCOOS; <http://sdcoos.ucsd.edu/data/particles/IB/>). This two-dimensional view makes tracking the movement of the plume significantly easier than the one-dimensional real time data sets that were used previously. So far this model agrees well with water quality measurements taken this spring. The San Diego Department of Environmental Health believes that the use of this real time predictive model alleviates the need for extensive bacterial monitoring of south county beaches<sup>2</sup>. (When the model predicts poor water quality, beaches are closed but extensive monitoring does not continue.) Bacterial monitoring is thought to take too long for protecting public health, because results are produced at least 24-hours after sample collection.

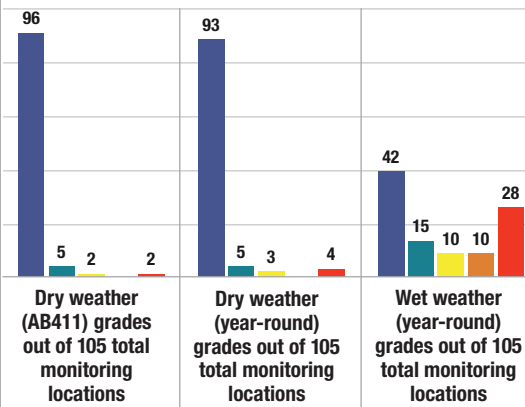
The downside of less monitoring is that it gives an incomplete water quality picture for the Beach Report Card, status and trends analysis, State and Regional Water Board water quality assessments, impaired waters determinations and TMDL development.

1. Gersberg et al. 2006. Applied and Environmental Microbiology. 72:7438-7444

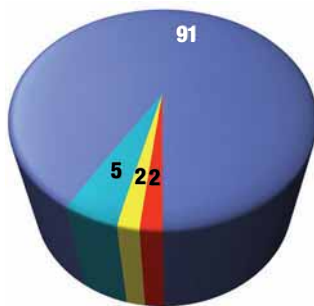
2. San Diego County Department of Environmental Health

# ORANGE COUNTY RESULTS

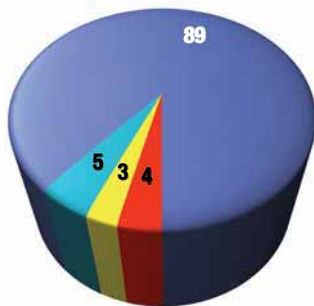
**FIGURE 7.**  
Number of Grades by Time Period  
for Orange County Beaches



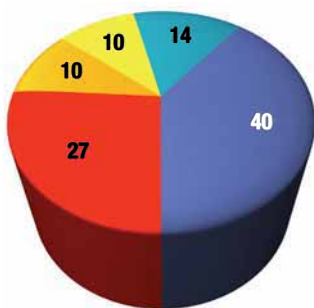
**FIGURE 8.**  
Percentage of Grades by Time Period  
for Orange County Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F



There were 27 beach closures from Coronado to the U.S. Border due to model projections of sewage contaminated plumes from the Tijuana Estuary (see sidebar). All of Imperial Beach was closed for over 70 total days between 4/1/2007 and 3/31/2008 as a precaution to keep the public from being exposed to sewage contaminated plumes from the Tijuana River.

## ORANGE COUNTY

There are three agencies within Orange County that provide monitoring information to Heal the Bay's Beach Report Card. The South Orange County Wastewater Authority, the County of Orange Environmental Health Division, and the Orange County Sanitation District. Samples were collected throughout the year along open coastal and bay beaches, as well as near flowing stormdrains, creeks or rivers. For additional water quality information visit the County of Orange Environmental Health Division's website at [www.ocbeachinfo.com](http://www.ocbeachinfo.com).

Orange County grades for both year-round dry weather and the AB411 time period were well above the state average. 96% of monitoring locations received an A or B during the AB411 time period as well as 93% for year-round dry weather (Figures 7 and 8). Stretches of Orange County ocean beaches with excellent water quality during the summer dry weather time period were: Seal Beach at 1st Street to Huntington State Beach at Newland Street, Newport Beach at Orange Street all the way to Ocean Institute Beach, and Avenida Pico to Las Palmeras at San Clemente City and State Beaches.

There were seven Orange County locations that received fair-to-poor year-round dry weather water quality grades. All of these locations were at Doheny Beach or in Dana Point Harbor, except for Huntington State Beach at Magnolia Street (C), and Poche Beach in San Clemente (F). A small dry weather filtration/UV disinfection system at the outlet of Poche Creek is now in the final stages of construction. After a few initial setbacks, the system is expected to be in operation by June 2008. We hope to see tremendous improvement in water quality at Poche Beach this year.



The Doheny Beach stretch of poor water quality was from North Beach to south of San Juan Creek. North Beach at Doheny returned to Heal the Bay's statewide Beach Bummer list as one of the most polluted beaches in California after a brief respite from the list last year. Only one of the four Baby Beach monitoring locations in Dana Point Harbor received C grades this past year during dry weather: a marked improvement over previous years. Monarch Beach, which scored a C grade for year-round dry weather two years ago, maintained its improvement from last year to an A grade: testament to the efficacy of the new CBI funded runoff treatment facility there.

Wet weather water quality was slightly worse than the previous drought year. 54% of monitoring locations received A or B grades this year compared to 59% in 2006-2007. Orange County wet weather water quality was right on par with the state average.

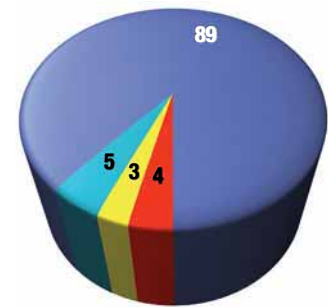
Figures 9 and 10 illustrate a trends assessment of this year's grade percentages at Orange County beaches compared to the four-year average. Orange County displayed quite easily the best water quality it has seen in the last five years. For both dry and wet weather conditions, this year's water quality was markedly better than the County's four-year average.

### Sewage Spill Summary

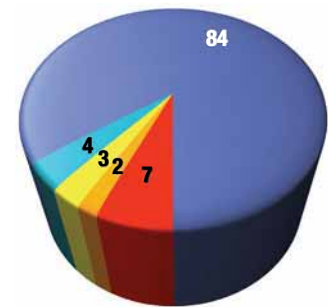
The number of Orange County beach closures due to sewage spills decreased substantially in both number and volume this year. This past year there were 12 sewage spills that led to beach closures. 10 of these spills were of known volume and totaled approximately 2,900 gallons. Of these, only one was of significant size (>1000 gallons). This spill occurred on July 20, 2007 and led to a beach closure at Aliso Creek for three days.

## ORANGE COUNTY RESULTS (CONTINUED)

FIGURE 9.  
2007-2008 Orange County Dry Weather Water Quality Compared to the Four-Year Average (2003-2007)

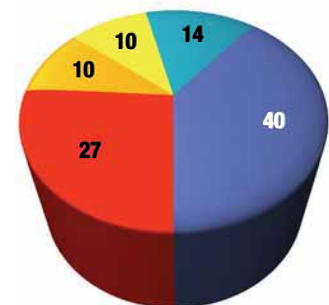


2007-2008 (dry weather)

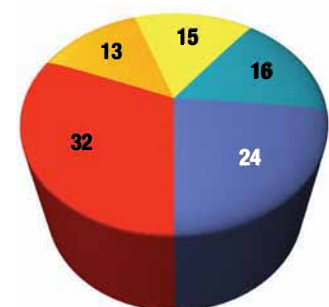


Four-year average (dry weather)

FIGURE 10.  
2007-2008 Orange County Wet Weather Water Quality Compared to the Four-Year Average (2003-2007)



2007-2008 (wet weather)

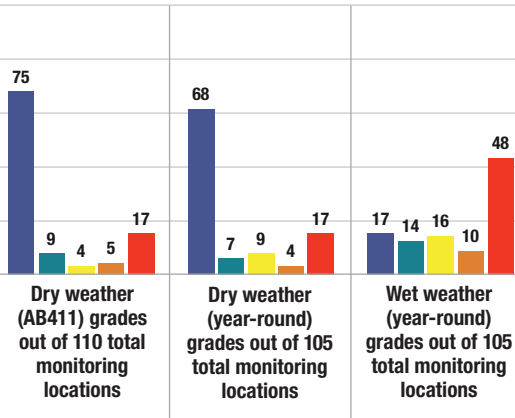


Four-year average (wet weather)

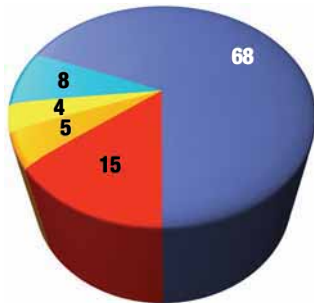
Key: ●=A ●=B ●=C ●=D ●=F

# LOS ANGELES COUNTY RESULTS

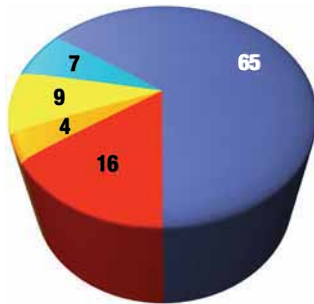
**FIGURE 11.**  
Number of Grades by Time Period  
for Los Angeles County Beaches



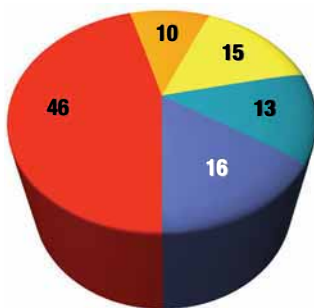
**FIGURE 12.**  
Percentage of Grades by Time Period  
for Los Angeles Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F

## LOS ANGELES



There are four agencies within the County of Los Angeles that contributed monitoring information to Heal the Bay's Beach Report Card. The City of Los Angeles' Environmental Monitoring Division at the Hyperion Sewage Treatment Plant monitored 44 locations (14 of which are monitored daily; the remainder are monitored weekly). The Los Angeles County Department of Health Services monitored 33 locations on a weekly basis. The Los Angeles County Sanitation Districts monitored eight locations, six of which are monitored daily and two weekly. And finally, the City of Long Beach, Environmental Health Division, monitored 25 locations on a weekly basis. All monitoring programs except Long Beach collect samples throughout the year at the mouth of a stormdrain or creek. Most Long Beach monitoring locations are not near storm drains because the L.A. and San Gabriel rivers receive most of the city's stormwater runoff. For additional water quality information visit Los Angeles County's Department of Health Services website at <http://lapublichealth.org/phcommon/public/eh/rechlth/ehrecocdata.cfm>; or the City of Long Beach at <http://www.ci.long-beach.ca.us/health/organization/eh/water/>.

L.A. County's move to sample at the mouth of flowing stormdrains and creeks due to the Santa Monica Bay Beach Bacteria TMDL has historically contributed to the county's grades being well below the state average. However, it is important to note that water quality in Avalon, Cabrillo, and at many beaches in Long Beach was very poor this year yet stormdrains are not a major contributor to pollution at these locations. Heal the Bay believes that sampling at the outfall (point zero) of drains and creeks gives a more accurate picture of water quality and is far more protective of human health. Statewide, most monitoring locations associated with stormdrains or creeks are actually sampled at a substantial distance from the outfall.

Los Angeles County had markedly improved water quality this past year. However, the county still exhibited the worst overall water quality in the state. This is mostly due to severe water quality issues at numerous locations in Long Beach.



*Long Beach*

Long Beach did show some improvement at select locations this year, but the majority of locations continue to exceed state health standards regularly. Both summer AB411 and year-round dry weather water quality was fair in Los Angeles County this past year. 76% of the locations received an A or B for the summer months, and

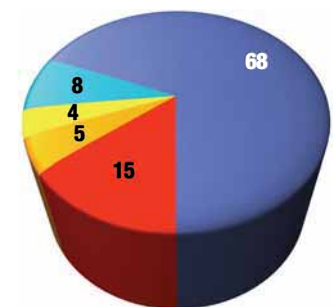
year-round dry weather was very similar with 71% As or Bs (Figures 11 and 12). There were some stretches of very good to excellent summer water quality in western Malibu from Leo Carrillo to Topanga with the exception of Marie Canyon drain at Puerco Beach.

Poor grades for year-round dry weather in Santa Monica Bay were received at Paradise Cove in Malibu (F), Escondido Creek (C), Marie Canyon stormdrain at Puerco Beach (F), Surfrider Beach (C), Big Rock Beach (C), Castlerock stormdrain (F), Santa Ynez stormdrain at Castlerock beach (F), Santa Monica Canyon (F), Santa Monica Pier (F), Redondo Municipal Pier (D), and Cabrillo Beach harborside at the lifeguard tower (F). Cabrillo Beach harborside at the lifeguard tower has earned F grades for all time periods over the last five years. All five monitoring locations at Avalon Beach on Catalina Island received poor grades for the AB411 time period this past year, earning these locations the distinction as being the most polluted beach in the entire state. As usual, Avalon Beach locations were not monitored year-round despite the attraction of the idyllic town to tourists year-round.

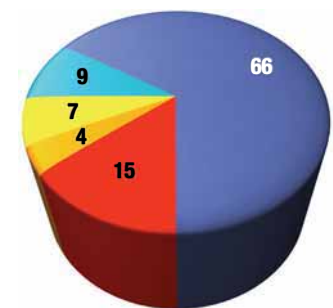
Dry-weather water quality in Long Beach improved slightly this past year, but was still poor overall. 64% of Long Beach monitoring locations received fair-to-poor grades. The rest of L.A. County was much closer to the state average, with 83% As and Bs. Long Beach has made significant efforts to locate

## LOS ANGELES COUNTY RESULTS (CONTINUED)

FIGURE 13.  
2007-2008 Los Angeles County AB411 Water Quality Compared to the Four-Year Average (2003-2007)



2007-2008 (dry weather)

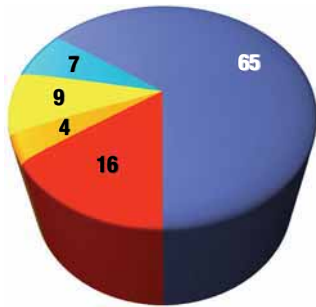


Four-year average (dry weather)

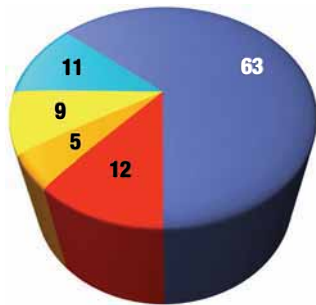
Key: ● = A ● = B ● = C ● = D ● = F



FIGURE 14.  
2007-2008 Los Angeles County Dry Weather Water Quality  
Compared to the Four-Year Average (2003-2007)

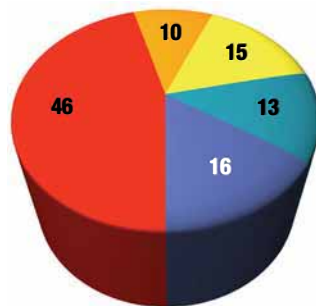


2007-2008 (dry weather)

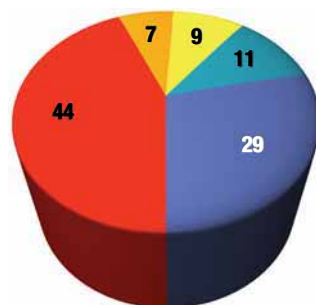


Four-year average (dry weather)

FIGURE 15.  
2007-2008 Los Angeles County Wet Weather Water Quality  
Compared to the Four-Year Average (2003-2007)



2007-2008 (wet weather)



Four-year average (wet weather)

Key: ●=A ●=B ●=C ●=D ●=F

pollution sources and improve water quality. Extensive studies throughout the city have demonstrated that the Los Angeles River, an enormous pollution source because of its 1000+ square mile drainage, was the predominant source of fecal bacteria to Long Beach waters. It should be noted, that despite the poor water quality overall in Long Beach, there were actually three times more A or B grades this past year than the same time period a year ago.

Long Beach scored 44% A and B grades during AB411 and 36% during year-round dry weather. Monitoring locations between Belmont Pier and City Beach at 72<sup>nd</sup> Place, as well as a handful of locations in Alamitos Bay, exhibited the best water quality in Long Beach this past year for dry weather. Every monitoring location in Long Beach scored an F grade during wet weather.

### Long Beach - Source Investigation

Following last year's descent into the No. 1 spot on the Beach Bummer list, the City of Long Beach invested over \$300,000 in an effort to determine the source of its ocean water bacterial contamination. A multiphase study was conducted by Kinnetic Laboratories to address whether sources were originating from onshore or offshore and whether these were of human or non-human origin. The study involved two distinct phases, the first of which was recently completed. Phase one of the study involved a 30-day water quality study in addition to a 24-hour water quality study in which multiple sites were analyzed for fecal indicator bacteria (FIB). Preliminary results demonstrated that the Los Angeles River was the predominant cause of poor water quality at the city's most popular beaches, with FIB densities frequently exceeding single sample standards five or six days following a rain event. This result is highly unusual as the effects of rain are generally only seen for approximately 72 hours leaving water safe for the public. However, the L.A. River watershed drains more than 1,000 square miles of intensely urbanized area from dozens of cities, so polluted runoff in Long Beach is a regional problem. Based on the results of phase I, phase II is now being implemented at the six sites that demonstrated the highest bacteria concentrations. Advanced methods will now



be used to sample the sand for fecal indicator bacteria, as well as to determine whether human or non-human sources are contaminating beaches.

### **Long Beach - Routine Maintenance**

In addition to the implementation of a source tracking study, Long Beach also began an internal investigation to eliminate all other possible pollution sources. Upon investigation of boat sewage pump-out stations, it was revealed that there were a number of leaking or completely disconnected lines, all of which have now been repaired. It was also revealed that a major storm drain diversion was only found to be working at certain hours of the day, meaning that runoff was still reaching the water at all other times. This diversion has now been fixed and seems to have made a significant difference to water quality in the area.



*36th Place, Long Beach*

In addition to having the poorest overall dry weather grades in the State, L.A. County also exhibited the worst wet weather water quality in California again this year.

The percentage of wet weather A and B grades was 30% this past year. 58 of 105 (55%) of sample sites received poor grades, with nearly 46% of sample sites receiving a grade of F. Poor wet weather grades were scored as far upcoast as Trancas Creek in Malibu and downcoast to Dockweiler. Most South Bay beaches received good marks for wet weather. Of the 20 sites from Hyperion Treatment Plant to Cabrillo Beach oceanside, only four received poor grades. These were Manhattan Beach at 28<sup>th</sup> Street (F), Herondo Street stormdrain (F), the Redondo Municipal Pier (F), and Redondo State Beach at Topaz Street (F). Good wet weather grades in the South Bay are most likely due to local programs, last year's drought, and the fact that the South Bay has a small watershed. Every single monitoring location in Long Beach again received an F grade during wet weather, undoubtedly due to the contributions of the Los Angeles and San Gabriel Rivers.

### **General Water Quality Trends for Los Angeles County**

Heal the Bay analyzed trends for both dry and wet weather water quality for Los Angeles County beaches to determine how this year's water quality results fared compared to the past four-year average. The overall 2007-2008 dry weather water quality was just slightly below the four-year average for A or B grades (74% of locations), with 71% of the locations receiving A or B grades this past year (Figure 14). Since November 2004, most monitoring locations at the outlet of stormdrains or creeks were moved to the confluence of the outlet flow and the wave wash. The recent trend of poor grades in Los Angeles County shows the dramatic difference in water quality between the previous sampling locations (approximately 25 yards away from the outlet) and the new sites directly influenced by watershed and urban runoff flows. However, the change in monitoring locations had absolutely no effect on three of the state's most polluted beaches:



Long Beach, Cabrillo harborside, and Avalon. These sampling locations have remained fixed for years and are not associated with perennially flowing drains or creeks, and so were not subject to relocation.

92% of Santa Monica Bay beaches (from Leo Carillo to Palos Verdes) received A or B grades during the AB411 time period. This is a dramatic improvement from the last two years and is the best overall water quality the S.M. Bay has seen since water quality monitoring at these locations moved to point zero (mouth of stormdrains or creeks).

Wet weather water quality this past year was slightly better than last year, but was substantially worse than the past four-year average. (Figure 15)



*Mother's Beach, Marina del Rey*

### **Beach Cleanup Projects Update**

Both Mother's Beach in Marina del Rey and Cabrillo Beach are enclosed beaches that chronically exceed beach bathing water standards and continuously receive poor grades on the Beach Report Card. Beaches in enclosed bays are typically found to have poor water quality due to a lack of water circulation, which allows bacteria numbers to persist for longer periods of time without dispersion. Public agencies responsible for

oversight at these beaches have received funding from the Clean Beach Initiative to embark on circulation improvement projects. Pumps were put in place at each of the locations in an attempt to reduce high bacteria concentrations.

As of last September, the pump at Mother's Beach was running 24 hours a day in the hope of dissipating high bacterial concentrations along the entire beach. Despite these mitigation efforts, water quality monitoring was still identifying bacterial exceedances at Mother's Beach near the playground. It remains to be seen if any modifications to the placement or operation of this pump will occur this year. Heal the Bay believes that the pump configuration needs to be modified or a new pump closer to the playground should be installed to improve Mother's Beach water quality.

The pump at Cabrillo Beach was active for approximately four months in 2007, during which time the water was monitored for improvements. Based on a report using the city's routine monitoring data as well as the Port's expanded monitoring results, it was found that Bacterial exceedances of water quality criteria continued to occur at Inner Cabrillo Beach despite beach improvement projects that included removing old sewer lines, reconfiguring the beach profile, and enhancing the bird excluder monofilament line. It was concluded that the pump was ineffective in increasing circulation across the beach face of Inner Cabrillo Beach. However, this initial field test of the circulation pump was run poorly. Often, the pump was not submerged correctly, if at all. Heal the Bay hopes that a new water circulation system is implemented and tested to meet more

rigorous standards as soon as possible. We also believe that the jetty near the small craft harbor needs to be removed to enhance circulation.

One of the most disappointing chronically polluted beaches in the state is Paradise Cove in Malibu. This gorgeous beach is highly polluted because of runoff from Ramirez canyon (see Ramirez and Escondido Creek Study on page 43).

Another blatant source of pollution to Paradise Cove is the mobile home park. The park has been in violation of water quality laws for nearly a decade. Two Time Schedule Orders have been violated, and the required rebuild of the on-site wastewater treatment facility is still not fully operational and in compliance with the requirements nearly a year and a half after the latest deadlines.

Enforcement efforts by the L.A. County District Attorney's office were unsuccessful in cleaning up the beach and ongoing enforcement efforts by the Regional Water Board have yet to lead to water quality compliance, completion of the new treatment facility, or penalties for the years of violations. The lack of enforcement at Paradise Cove sends a strong message to polluters that compliance deadlines are optional.

The undersized treatment facility at Paradise Cove seemed to provide adequate filtration of drought impacted flows last summer as Paradise Cove scored an A grade for the AB411 time period. Unfortunately, the treatment facility was removed in the fall of 2007 and won't be replaced by a new, larger, CBI funded facility until 2009. As a result, Paradise Cove is still regularly exceeding state standards for bacteria and is currently in violation of the Santa Monica Bay bacteria TMDL

The diversion at Will Rogers State Beach at Temescal Canyon suffered from inadequate maintenance late last summer, which caused the grade to drop from an A+ two summers ago to a D grade last summer. The Santa Ynez Storm Drain at Castle Rock Beach near Sunset diversion was completed by Los Angeles County in July of 2006; it seemed to be effective again last summer as this location scored an A for the AB411 time period. Unfortunately, the neighboring Castlerock Storm drain outlet still has problematic water quality and earned a grade of C for the summer months, despite the completion of a runoff diversion project.

### **SM Pier**

Despite the fact that Measure V (parcel tax for stormwater pollution prevention) passed in November of 2006 and the Los Angeles Regional Water Quality Control Board through its enforcement actions has singled out the beach next to the Santa Monica Pier as the most polluted beach along the Bay, the City of Santa Monica has not acted with urgency to clean up the popular beach. Last year at the Beach Report Card press conference, Heal the Bay expressed that the city of Santa Monica was planning to complete the pier stormdrain rehabilitation project by this summer. Now it appears as if the project won't be completed until 2010.



The first aspect of the project involves replacing the degraded and undersized stormdrain underneath Santa Monica Pier and increasing the size of the pier diversion to the Santa Monica Urban Runoff Reuse Facility (SMURRF). Also, structural best management practices will be constructed to abate other potential pollution sources at the pier like birds and food waste. The project should eliminate all dry weather flows and most wet weather flows to the pier stormdrain. The cost of this part of the project is \$2 million.



*Santa Monica Pier*

The second part of the project involves improving the diversion structure at the Pico-Kenter stormdrain, which includes the construction of an inflatable dam to keep dry weather flows off the beach at Pico. The goal of the project is to ensure that 100% of the dry weather runoff gets diverted to the SMURRF with any excess going to the sewer system. The estimated cost of this part of the project is also \$2 million. There have also been discussions to improve operations at the SMURRF and to build an expanded underground storage basin near the facility in order to decrease or eliminate treated runoff discharges to the ocean, and to maximize treated stormwater reuse.

In the meantime, tens of thousands of swimmers will continue to be exposed to coastal waters with extremely high fecal bacteria densities on a regular basis. The city of Santa Monica's potential liability for egregious violations of the Santa Monica Bay beach bacteria TMDL and the Clean Water Act continues to rise into the multi-million dollar range. Heal the Bay strongly urges the city of Santa Monica to treat the Santa Monica Pier beach pollution problem with the utmost urgency. Beach pollution was the top reason Santa Monica residents approved Measure V. It is critical for the city to hire a full time senior stormwater engineer as soon as possible to manage and expedite these critical projects. There is no acceptable reason to delay completion of these projects past Memorial Day of 2009.

L.A. County completed a new treatment facility at Marie Canyon in Malibu in late summer 2007. Although the facility was constructed quickly, it wasn't completed in time to have an effect on summer dry weather grades. Also, pump problems at the facility led to poor grades during winter dry weather. The County has stated that these problems will soon be solved, and hopefully grades will improve dramatically at this location this year.

Los Angeles County Sanitation Districts and Redondo Beach are undertaking a study at Redondo Pier that should shed light on the sources of high fecal bacteria densities at the beach south of the pier. The Model Program includes the design and development of identification methods and the implementation of a source identification study to determine fecal bacteria sources to



the beach immediately adjacent to the Redondo Beach Pier. The project is already well under way with routine fecal indicator monitoring taking place at a number of different sites. The Sanitation Districts are now gearing up to begin an accelerated monitoring program implementing a number of microbial source tracking techniques to further determine the origin of the microbial contamination. However, results from the effort will not be made available for a year.

### **Sewage Spill Summary**

There were 22 sewage spills to receiving waters in L.A. County that were reported to Heal the Bay this past year. Five of these were major spills (>10,000 gallons) and constituted over 91% of the total known volume spilled in Los Angeles County.

The largest was an estimated 97,785 gallons of sewage into the L.A. River on Jan. 5, 2008. The Los Angeles County Department of Health and Long Beach Department of Health Services were notified and determined that the overflow did not necessitate any beach closures.

Another estimated 75,000 gallons of sewage was discharged into the LA River on Jan. 29, 2008. This spill resulted in beach closures in Long Beach from 3<sup>rd</sup> St. to 72<sup>nd</sup> Place for 11 days.

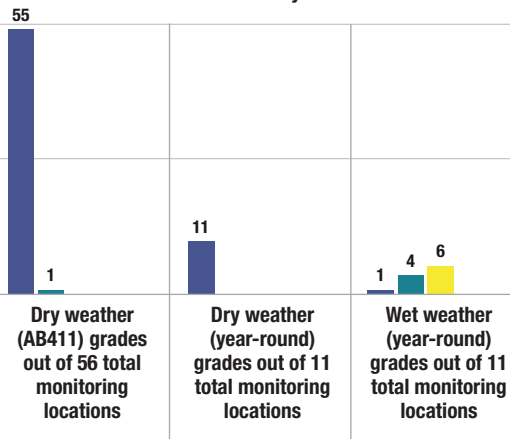
Due to a failure at the Moss Avenue pumping station on the City of Santa Monica's main sewer line, approximately 25,000 to 50,000 gallons of raw sewage spilled beneath the Santa Monica Pier. The spill started at 11 p.m. on Oct. 14 and lasted 6 1/2 hours when the pumps failed to restart after a temporary power outage at the pumping station. Unfortunately, an alarm failed, as did the switch to backup power for the pumps. As a result, the pumping station failure went undetected until Shuttlers Hotel and Bubba Gump restaurant called the city about back-ups in some of their toilets. Following standard protocol to avoid flooding of the plant, the backed-up raw sewage was diverted into a stormdrain line that empties near the bike path beneath the pier. Convinced that the sewage did not reach the beach, the L.A. County Department of Public Health and the City of Santa Monica did not close the beach at the pier. Heal the Bay believes that the beach at the pier should have been closed. Any large spill that occurs within 200 yards of the shore should lead to a beach closure as a precaution. By State Law, all spills to California beaches must result in closures.

Another 19,276 gallons of raw sewage entered a City of L.A. stormdrain that drains to the L.A. River on Oct. 12, 2007. The Los Angeles County Department of Health and Long Beach Department of Health Services were notified and determined that the overflow did not necessitate any beach closures.

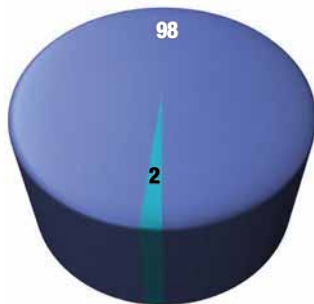
The fifth major spill, of approximately 10,355 gallons, occurred on July 10, 2007 and entered a City of L.A. catch basin, which drains into the Los Angeles Harbor. Precautionary beach closures were implemented at Cabrillo harborside for five days.

# VENTURA COUNTY RESULTS

**FIGURE 16.**  
Number of Grades by Time Period  
for Ventura County Beaches



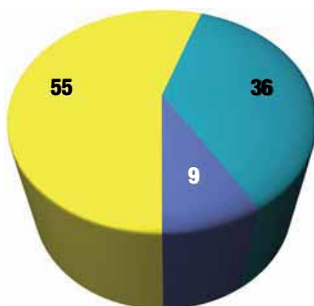
**FIGURE 17.**  
Percentage of Grades by Time Period  
for Ventura County Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ● = A ● = B ● = C ● = D ● = F

## VENTURA



The County of Ventura Environmental Health Division monitored 56 locations on a weekly basis from April through October, from as far upcoast as Rincon Beach (south of Rincon Creek, near the Santa Barbara County line) to a downcoast location at Staircase Beach, located at the north end of Leo Carrillo State Beach. Ventura County significantly diminished its winter water quality monitoring program again this year due to budget issues. This year monitoring occurred at only 11 locations from November through March at predominately surf and recreational beaches. Most samples were collected between 25 to 50 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit Ventura County's Environmental Health Division website at <http://www.ventura.org/envhealth/programs/ocean/>.

AB411 2007 water quality at Ventura County beaches was excellent (Figures 16 and 17), and proved to be the best water quality in Southern California again this year. Of the 56 water quality monitoring locations during summer dry weather, 55 (98%) locations received A grades. Only Rincon Beach 25 yards south of the creek mouth received a lower grade of B. Although not monitored year-round as they were in the past, all five Hobie/Kiddie monitoring locations exhibited good water quality for the summer dry weather months. Heal the Bay strongly recommends that Hobie/Kiddie beach should be monitored year-round. This is critical now that the beach is under TMDL requirements. Beachgoers should still use caution when choosing these sites and all other enclosed beaches. The historically problematic San Buenaventura Beach south of San Jon drain was not monitored year-round again this past year. It did, however, receive an A grade for the summer months.

Overall, Ventura County wet weather water quality (Figures 16 and 17) was slightly below the state average for A and B grades, although no beaches scored lower than a C grade.

Heal the Bay presents a brief trends assessment of Ventura County beaches by comparing this year's percentage results with the previous four-year average. With 100% of beaches



scoring A or B grades during both dry weather time periods this year, Ventura scored its best dry weather grades in Report Card history. However, wet weather water quality was well below the four-year average for the county.

### Sewage Spill Summary

There were five known sewage spills in Ventura County that were reported to Heal the Bay this past year. The one major spill (>10,000 gallons) began on 10/20/2007 and was not abated until 10/23/2007. During this time, approximately 20,000 gallons of untreated sewage discharged onto the beach at 11950 Pacific Coast Highway. The discharge was caused by a computer problem with the treatment system.

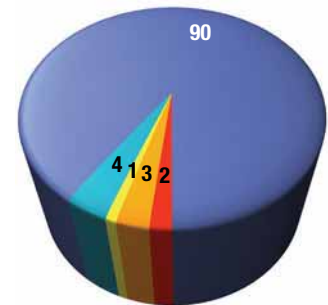
#### NOTEWORTHY: VENTURA

In October 2007, the majority of homeowners in Rincon, Sandyland Cove, Sand Point and Padaro Lane voted in favor of assessing their properties for wastewater disposal upgrade from septic systems to public sewer. With 90% of all properties voting, 65.6% voted for the conversion. The Rincon area of this project was the most hotly contested, but passed, 73 to 66. With a DNA test confirming human waste in the Rincon lagoon, which empties to the Pacific Ocean at Rincon Point, this election signals a great victory for clean water. Heal the Bay would like to acknowledge Heal the Ocean for its hard work and perseverance on cleaning up this iconic surf spot. For more information on Heal the Ocean visit <http://www.healtheocean.org/>

FIGURE 18. 2007-2008 Ventura County Dry Weather Water Quality Compared to the Four-Year Average (2003-2007)

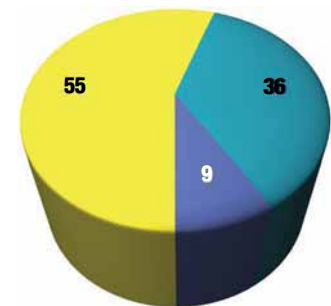


2007-2008 (dry weather)

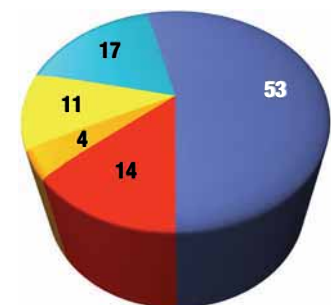


Four-year average (dry weather)

FIGURE 19. 2007-2008 Ventura County Wet Weather Water Quality Compared to the Four-Year Average (2003-2007)



2007-2008 (wet weather)



Four-year average (wet weather)

Key: ●=A ●=B ●=C ●=D ●=F



## SANTA BARBARA

The County of Santa Barbara Environmental Health Agency again monitored 20 locations on a weekly basis throughout the year, from as far upcoast as Guadalupe Dunes (south of the Santa Maria River outside the City of Guadalupe) to a downcoast location of Rincon at Bates Beach. Most samples were collected 25 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit Santa Barbara County’s Environmental Health Agency website at <http://www.sbcphd.org/ehs/ocean.htm>.



*Leadbetter Beach, Santa Barbara*

Summer dry weather water quality in Santa Barbara saw dramatic improvement compared to last year. All 20 monitoring locations (100%) received A or B grades for both dry weather time periods, marking one of the cleanest years on record for Santa Barbara County. This is well above the county’s four-year average of 90% for AB411 and 94% for year-round dry weather.

Santa Barbara’s wet weather water quality was fair, but well above the statewide average. 13 of 20 locations (65%) received wet weather grades of A or B.

Heal the Bay presents a brief trends assessment of Santa Barbara County beaches by comparing this year’s percentage results with the previous four year average. This past year, Santa Barbara exhibited the best water quality the county has seen since 2003-2004. Water quality this year beat the county’s average for both dry weather time periods as well as for wet weather.

## SANTA BARBARA COUNTY RESULTS

FIGURE 20.  
Number of Grades by Time Period  
for Santa Barbara County Beaches

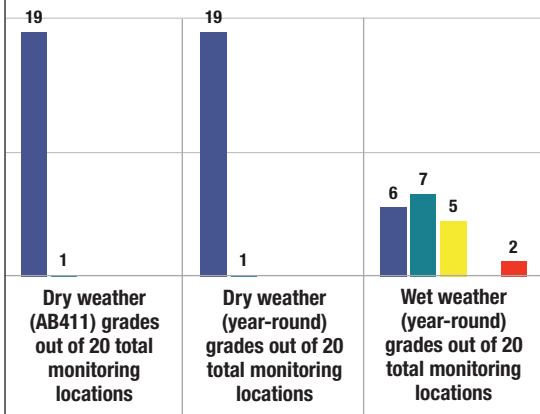
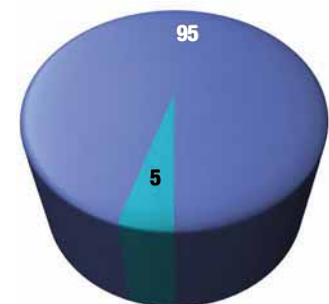
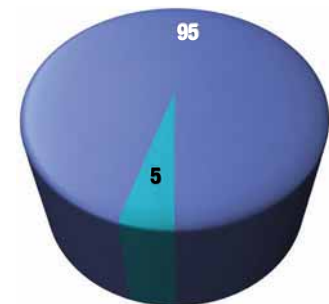


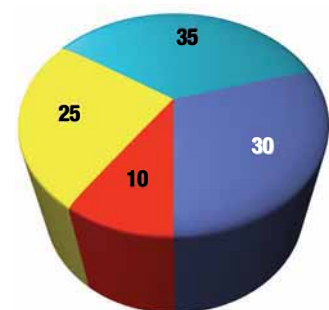
FIGURE 21.  
Percentage of Grades by Time Period  
for Santa Barbara Beaches



Dry weather (AB411) grades



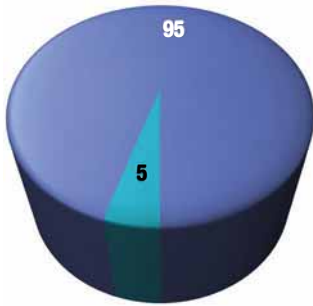
Dry weather (year-round) grades



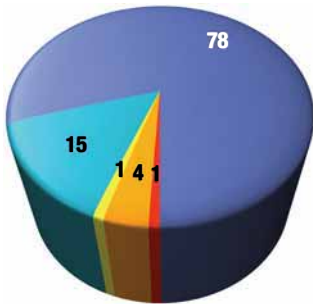
Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F

**FIGURE 22.**  
2007-2008 Santa Barbara Dry Weather Water Quality  
Compared to the Four-Year Average (2003-2007)

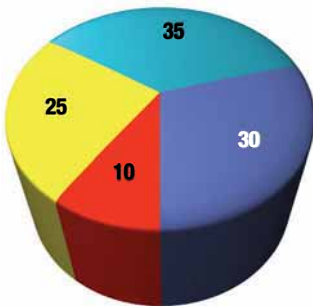


2007-2008 (dry weather)

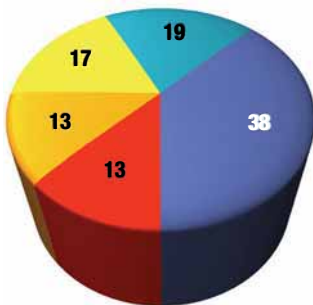


Four-year average (dry weather)

**FIGURE 23.**  
2007-2008 Santa Barbara Wet Weather Water Quality  
Compared to the Four-Year Average (2003-2007)



2007-2008 (wet weather)



Four-year average (wet weather)

Key: ● = A ● = B ● = C ● = D ● = F

### Sewage Spill Summary



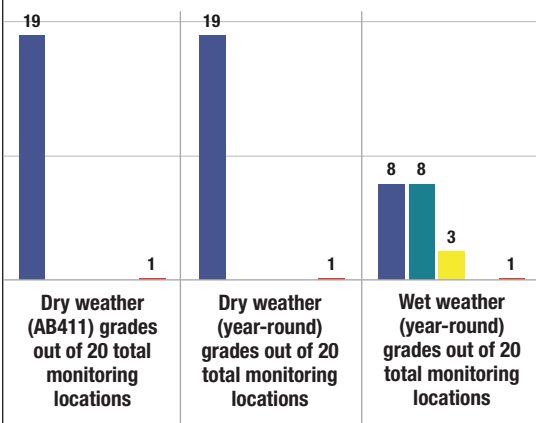
There were two reported sewage spills in Santa Barbara County that led to beach closures this past year. The first spill, of approximately 3,000 gallons, resulted in a beach closure of East Beach between Sycamore and Mission Creeks Jan. 23-25, 2008. The second spill, of approximately 1,000 gallons 4.5 miles upstream of Goleta beach, led to a precautionary closure of the beach for two days starting on March 10, 2008.



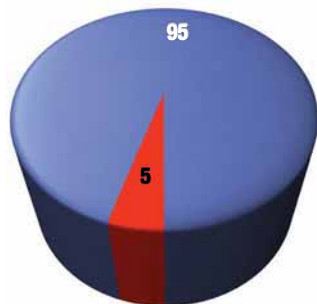
*Sycamore Creek, Santa Barbara*

# SAN LUIS OBISPO COUNTY RESULTS

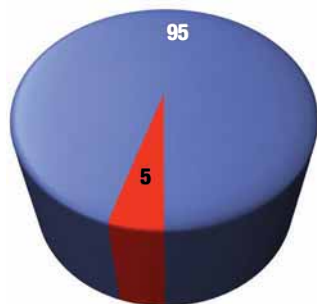
**FIGURE 24.**  
Number of Grades by Time Period  
for San Luis Obispo Beaches



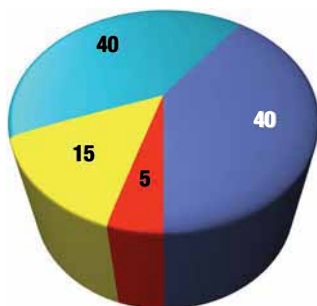
**FIGURE 25.**  
Percentage of Grades by Time Period  
for San Luis Obispo Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ● = A ● = B ● = C ● = D ● = F

## SAN LUIS OBISPO



The County of San Luis Obispo Environmental Health Department consistently monitored 20 locations this year, from as far upcoast as Pico Avenue in San Simeon to a downcoast location at Pismo State Beach in Oceano. Most samples were collected 25 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit San Luis Obispo County's Environmental Health Department website at [http://www.slopublichealth.org/environmentalhealth/beach\\_status.htm](http://www.slopublichealth.org/environmentalhealth/beach_status.htm).

Dry weather water quality in San Luis Obispo County was excellent again. 95% of the monitoring locations received A grades (Figures 24 and 25) for both the AB411 time period and year-round dry weather. Pismo Beach Pier continued its trend of poor water quality by scoring an F grade for both AB411 and year-round dry weather. With CBI funding, the County is currently working closely with Cal Poly SLO researchers to identify the source of pollution to the Pismo Beach Pier area.



*Pismo Beach Pier*

Wet weather water quality in San Luis Obispo County was similar to last year and was again well above the state average. Only four of the 20 (20%) locations monitored received fair-to-poor grades. These were at Cayucos State Beach half-way between Cayucos Creek and the pier (C), Olde Port Beach northside (C), Avila Beach at San Juan Street (F), and Avila Beach at San Luis Street (C).



Monterey Bay

### MONTEREY

The County of Monterey Environmental Health Agency monitored eight locations on a weekly basis from April through October, from as far upcoast as the Monterey Beach Hotel at Roberts Lake in Seaside to a downcoast location of Carmel City Beach in Carmel by the Sea. For additional water quality information visit Monterey County’s Environmental Health Agency website at <http://www.co.monterey.ca.us/health/beaches/>.

During the summer AB411 months, all monitoring locations in Monterey County received an A grade (Figure 26). Stillwater Cove at the Beach and Tennis Club, after scoring a C grade during the 2006 AB411, returned to an A grade this year. Stillwater Cove generally has poor circulation and little tidal flushing, usually resulting in the worst water quality in the county. Findings in prior years by Stanford researchers at Lover’s Point have discovered human specific fecal bacteria from bacteria from stormdrain discharges and high enterococci densities at high tide. (Yamahara et al. 2007. Environmental Science & Technology. 41:4515-4521)

With Monterey County only monitoring weekly from April through October, there was insufficient non-AB411 dry weather and wet weather data for analysis.

### Sewage Spill Summary

There were no reported sewage spills in Monterey County that led to beach closures.

### Sewage Spill Summary

No known sewage spills in San Luis Obispo County that led to beach closures were reported to Heal the Bay this past year.

## MONTEREY COUNTY RESULTS

FIGURE 26. Number of Grades by Time Period for Monterey Beaches

8

Dry weather (AB411) grades out of 8 total monitoring locations

Percentage of Grades by Time Period for Monterey Beaches

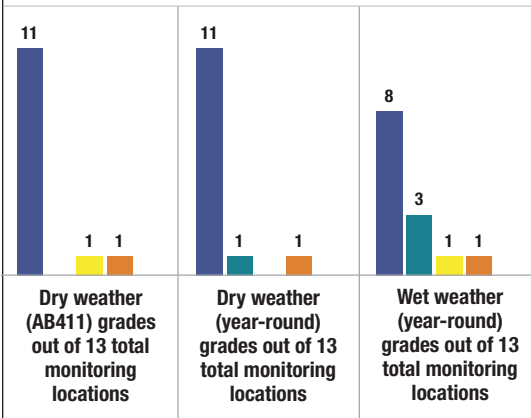
100

Dry weather (AB411) grades

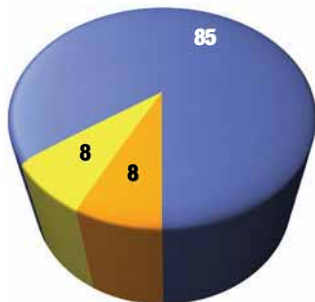
Key: ●=A ●=B ●=C ●=D ●=F

# SANTA CRUZ COUNTY RESULTS

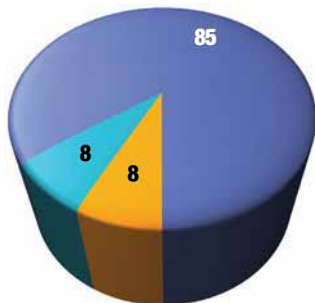
**FIGURE 27.**  
Number of Grades by Time Period  
for Santa Cruz Beaches



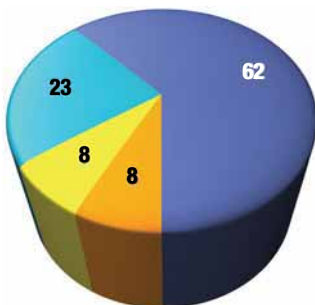
**FIGURE 28.**  
Percentage of Grades by Time Period  
for Santa Cruz Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ● = A ● = B ● = C ● = D ● = F

## SANTA CRUZ



This past year the County of Santa Cruz Environmental Health Services monitored approximately 25 shoreline locations. However, only 13 of these were monitored frequently enough year-round to be included in this report. The others are monitored approximately once per month. The beaches monitored in Santa Cruz County range from as far upcoast as Waddell Creek Beach (at Waddell Creek near Big Basin Redwood Park) to a downcoast location at Palm Beach, near the Pajaro River. Most samples are collected at the wave wash (where runoff meets surf), or 25 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit Santa Cruz County's Department of Environmental Health Services website at: <http://sccounty01.co.santa-cruz.ca.us/eh/>

Overall dry weather water quality at all beaches in Santa Cruz County was very good (Figures 27 and 28). During the summer AB411 months, all of Santa Cruz beaches received A grades, except Cowell Beach (D) and Main Beach at the boardwalk (C). Year-round dry weather water quality was slightly better with all locations receiving A or B grades, except for Cowell Beach (D).

Wet weather water quality for Santa Cruz County was well above the state average this past year. Eleven of the 13 (85%) locations with wet weather data received an A or a B grade. Monitoring locations at Capitola beaches, Santa Cruz Main Beach (C), and Capitola Beach west of the jetty (D) comprised the county's only two fair-to-poor grades.

### Sewage Spill Summary

No known sewage spills in Santa Cruz County that led to beach closures were reported to Heal the Bay this past year.



## SAN MATEO

The County of San Mateo Environmental Health Department monitored 23 ocean and bayside locations on a weekly basis year-round, from as far upcoast as Sharp Park Beach in Pacifica to a downcoast location of Gazos Beach at Gazos Creek. This year, data was made available for an additional four bayside locations. The Health Department utilizes volunteers from the local Surfrider Foundation chapter to assist in the collection of water samples. Heal the Bay would like to give special thanks to Carolann Towe with the San Mateo County Resource Conservation District for facilitating data acquisition for this report. Samples are collected at a distance of 25 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit San Mateo County’s Department of Environmental Health website at [http://www.co.sanmateo.ca.us/smc/department/home/0,,1954\\_191102\\_187763,00.html](http://www.co.sanmateo.ca.us/smc/department/home/0,,1954_191102_187763,00.html).

This past year, San Mateo beaches again had excellent summer dry weather water quality (Figures 29 and 30). 22 of the 24 (92%) beach monitoring locations received A grades. One location again stood out from the rest with substantially improved AB411 dry weather water quality: Venice Beach at Frenchman’s Creek (B). This location is a haven for seabirds and exceedances at this location are most likely a result of their immense presence there. Water quality at this location also showed improvement for year-round dry weather with a C grade up from an F grade there a year ago.

One of San Mateo’s most historically problematic beaches, Pillar Point Harbor at Capistrano Avenue, was not monitored again this past year. The County’s health department determined that not enough visitors used the beach to continue monitoring. This location was a statewide Beach Bummer for three consecutive years, but no recent data for this location were publicly available at the time of this report. This year, San Mateo County’s bayside monitoring locations are included in this report for the first time.

Wet weather water quality in San Mateo was fair. 78% of beaches received A or B grades during wet weather. Three of the five poor grades for wet weather in San Mateo County were found

## SAN MATEO COUNTY RESULTS

FIGURE 29.  
Number of Grades by Time Period  
for San Mateo Beaches

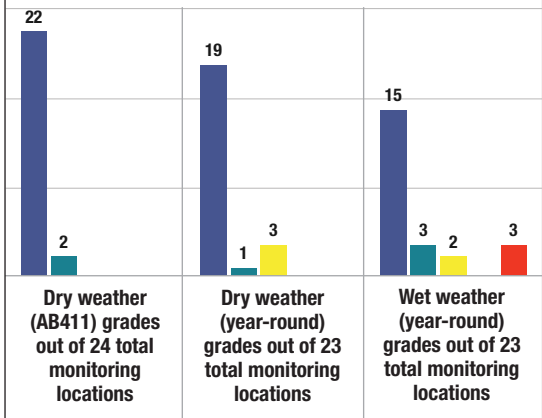
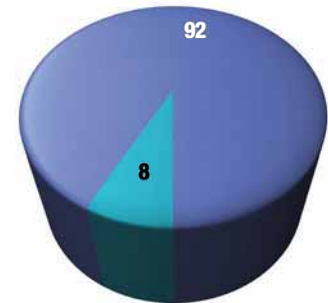
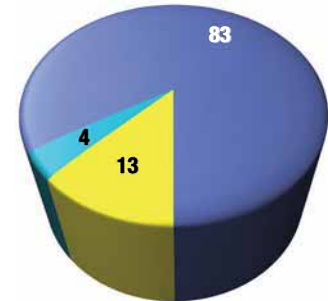


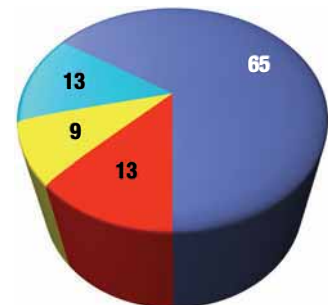
FIGURE 30.  
Percentage of Grades by Time Period  
for San Mateo Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades

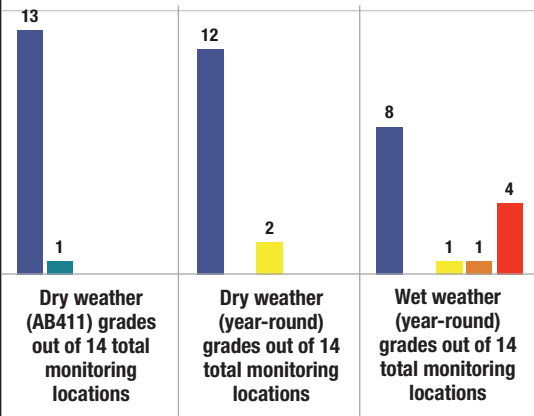


Wet weather (year-round) grades

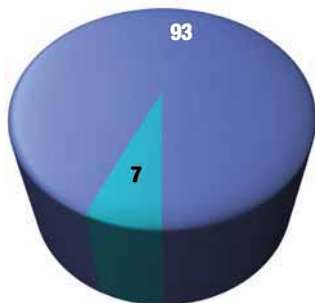
Key: ●=A ●=B ●=C ●=D ●=F

# SAN FRANCISCO COUNTY RESULTS

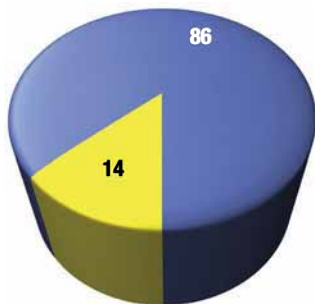
**FIGURE 31.**  
Number of Grades by Time Period  
for San Francisco Beaches



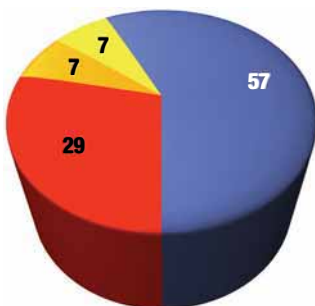
**FIGURE 32.**  
Percentage of Grades by Time Period  
for San Francisco Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ● = A ● = B ● = C ● = D ● = F

at the newly added bayside beaches. Oyster Point (C), Aquatic Park (F), and Lakeshore Park behind the Recreation Center (F), in addition to oceanside locations at Pillar Point Harbor at Westpoint Avenue (C) and Venice Beach at Frenchman's Creek (F) received the county's worst wet weather grades.



## Sewage Spill Summary

There was one reported sewage spill in San Mateo County that led to beach closures this past year. Rockaway Beach and both Sharp Park monitoring locations were closed from from November 12-16, 2007 due to a boater's illegal discharge of an unknown volume of sewage.

## SAN FRANCISCO

The County of San Francisco, in partnership with the San Francisco Public Utilities Commission, continued its weekly monitoring program for ocean and bay shoreline locations. The monitoring program is funded in part through an Environmental Protection Agency BEACH grant program. The County monitored 14 locations on a weekly basis year-round, from Aquatic Park Beach (Hyde Street Pier) to Ocean Beach at Sloat Blvd., and sites at Candlestick Point. For additional water quality information please visit San Francisco County's Department of Environmental Health website at: <http://beaches.sfwater.org>.

San Francisco exhibited excellent water quality during the AB411 time period. All beaches except Aquatic Park 211 Station (B) received A grades. Year-round dry weather water quality at San Francisco beaches this past year was very good. 12 of the 14 locations received A grades (see Figures 31 and 32). The two locations with fair (C grade) dry weather water quality were Aquatic Park Beach 211 Station and Sunnydale Cove at Candlestick Point.

Wet weather water quality at San Francisco monitoring sites was poor. Eight of the 14 locations received A or B grades for wet weather (57%), but six locations (43%) received fair-to-poor marks. Wet weather water quality this year was worse than last year, but better than every other year in San Francisco since 2003.

## Sewage Spill Summary

Combined sewer discharges are legally allowed only as the result of rainfall and therefore occur only during wet weather months. There were four permitted combined sewer discharge events between April 1, 2007 and March 31, 2008 that resulted in portions of San Francisco beaches being posted (not every discharge affected every beach). All San Francisco monitoring locations were closed for 12 days as a precaution after the Cosco Busan oil spill that occurred November 7, 2007. Additionally, northern beaches from Aquatic Park to China Beach were closed as a precaution after the massive sewage spill (over 5 million gallons) into Richardson Bay in Marin County on January 31, 2008. These beaches were reopened four days later.



*San Francisco*

### BACKGROUND INFORMATION FROM THE SAN FRANCISCO PUBLIC UTILITIES COMMISSION

The City and County of San Francisco have a storm water infrastructure that occurs in no other California coastal county – a combined sewer and stormdrain system (CSS). This system provides treatment to most of San Francisco’s stormwater flows. All street runoff during dry weather receives full secondary treatment and all storm flow receives at least the wet weather equivalent of primary treatment, while most storm flows receive full secondary treatment before being discharged through a designated outfall.

During heavy rain events, the CSS can discharge combined treated urban runoff and sewage waste water, typically comprised of 94% treated stormwater and 6% treated sanitary flow. In an effort to reduce the number of combined sewer discharges, San Francisco has built a system of underground storage, transport, and treatment boxes to handle major rain events. Treated CSS discharges are legally, quantitatively, and qualitatively distinct from raw sewage spills that occur in communities with separate sewers.

In addition to all CSS stormwater discharges being treated, they are also of much shorter duration and lower volume than discharges in communities with separate stormdrain systems. Because of the CSS, San Francisco’s ocean shoreline has no flowing stormdrains in dry weather throughout the year, and therefore is not subject to AB411 monitoring requirements, but the city does have a program that monitors weekly year-round. Although most of San Francisco is served by the CSS, there are some areas of federally owned land and areas operated by the Port of San Francisco that have separate stormdrains.



## EAST BAY BEACHES – CONTRA COSTA AND ALAMEDA

Heal the Bay is pleased to include water quality data for monitoring locations in both Contra Costa and Alameda counties this year. We would like to thank the East Bay Regional Park District for providing the data for analysis, as well as Save the Bay for providing contact information enabling data acquisition.

Three locations at Keller Beach in Contra Costa and five locations at Crown Beach in Alameda County were monitored frequently enough to earn grades for all time periods this past year. Alameda Point data has also been recently made available, and grades for the two Alameda Point monitoring locations will most likely appear in this year’s End of Summer Report.

These newly added locations to the Beach Report Card scored well during both dry weather time periods. Overall, dry weather grades were slightly above the state average. Wet weather grades were just slightly below the average for the state. Three monitoring locations at Crown Beach (from Sunset Road to the bird sanctuary) exhibited the East Bay’s only wet weather F grades.

### Sewage Spill Summary

A sanitary sewer overflow of unknown volume resulted in a one-day beach closure of Crown Beach on August 8, 2007. Another overflow of unknown volume on October 21, 2008 resulted in beach closures at Keller Beach for three days. All East Bay monitoring locations were closed for nearly a month following the Costco Busan oil spill.

## CONTRA COSTA & ALAMEDA COUNTY RESULTS

FIGURE 33.  
Number of Grades by Time Period  
for San Francisco East Bay Beaches

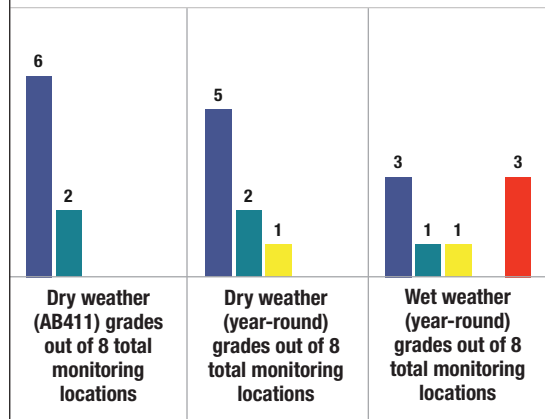
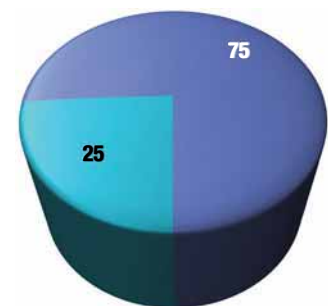
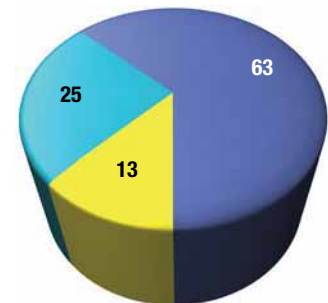


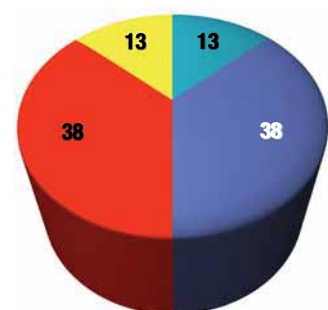
FIGURE 34.  
Percentage of Grades by Time Period  
for San Francisco East Bay Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F



## MARIN

Marin County's water quality monitoring program gathered data from 26 bayside and oceanside monitoring locations. Ocean locations included Dillon Beach, Bolinas Beach (Wharf Road), Stinson Beach, Muir Beach, Rodeo Beach, and Baker Beach. These locations were monitored on a weekly basis from April through October. During the winter season there was no monitoring. For additional water quality information, visit Marin County's Department of Environmental Health website at <http://www.co.marin.ca.us/ehs>.



Marin

Summer dry season water quality was excellent at most beaches in Marin County. (Figure 35). China Camp received the county's worst grade last year (D) but improved this year to receive a grade of A+. All other monitoring locations in Marin County, except for Horseshoe Cove NW at Baker Beach (C) and Horseshoe Cove NE at Baker Beach (B) received A grades for the AB411 time period during 2007.

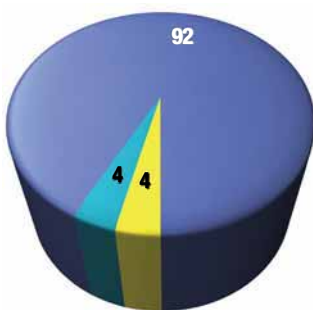
### MARIN COUNTY RESULTS

FIGURE 35.  
Number of Grades by Time Period  
for Marin Beaches



Dry weather (AB411) grades out of 26 total monitoring locations

Percentage of Grades by Time Period  
for Marin Beaches



Dry weather (AB411) grades

Key: ● = A ● = B ● = C ● = D ● = F

There was an insufficient amount of non-AB411 dry weather, and wet weather data for further analysis. Heal the Bay strongly recommends extended monitoring into the winter at Campbell Cove to help identify when the poor water quality problems end at the polluted beach.

### Sewage Spill Summary

Two enormous spills into Richardson Bay in Marin County occurred this past winter. On Jan. 31, nearly 3 million gallons of partially treated sewage was discharged into the bay by an overflow at a treatment plant in Mill Valley. In the aftermath of this spill, it was discovered that an additional 2.5 million gallons (approximate) had overflowed from the same facility less than a week earlier. In total, the Sewage Agency of Southern Marin released more than 5 million gallons of partially treated sewage into Richardson Bay in the same week. The San Francisco Bay Regional Water Quality Control Board began an investigation into these spills and also ordered an independent investigation to occur. Beaches were closed as a precaution for about 10 days from Schoonmaker to Rodeo Beach.

In addition, according to the California State Water Boards beach closure database, a spill of unknown volume occurred on May 9, 2007 that closed Horseshoe Cove at Fort Baker for seven days.



## SONOMA

The County of Sonoma, Environmental Health Division monitored seven locations on a weekly basis from April through October, from as far upcoast as Gualala Regional Park Beach to a downcoast location at Doran Regional Park Beach in Bodega Bay. Samples were collected 25 yards north or south of the mouth of a stormdrain or creek. For additional water quality information visit Sonoma County’s Department of Environmental Health website at: [http://www.sonomacounty.org/health/eh/ocean\\_testing.htm](http://www.sonomacounty.org/health/eh/ocean_testing.htm)



*Gualala Beach, Sonoma*

Summer dry weather water quality conditions at all beaches was very good (six A’s), with the usual exception of Campbell Cove (Figure 36). Located at the entrance to Bodega Harbor in Bodega Bay, Campbell Cove again received a poor grade (F) for the AB411 time period. Campbell Cove State Park Beach continues to suffer from extremely poor water quality during late summer. Water quality at this location was excellent during the earlier part of summer (late May through mid-August) but decreased dramatically in late August through October. Similar late summer water quality degradation has been seen at this location for at least the past six years. Most scientists looking at this problem believe that wildlife is the likely source of the high bacteria densities, but the actual source or sources of fecal indicator bacteria in late summer has yet to be clearly identified. More on Campbell Cove can be found in the report entitled “The Bodega Bay-Campbell Cove Tidal Circulation Study, Water Quality Testing, and Source Abatement Measures Project”. This report can be found on Sonoma County’s Environmental Health Department’s web site.

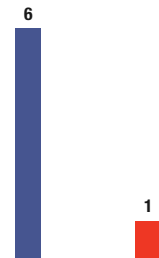
All sites in Sonoma County were only monitored from April through October; therefore, there was an insufficient amount of non-AB411 dry weather, and wet weather data for further analysis.

### Sewage Spill Summary

There were no reported sewage spills in Sonoma County that led to beach closures.

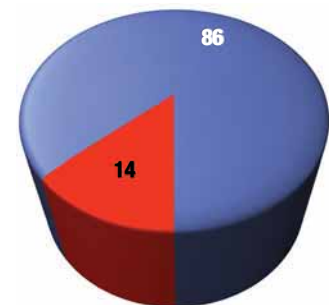
## SONOMA COUNTY RESULTS

FIGURE 36.  
Number of Grades by Time Period  
for Sonoma Beaches



Dry weather (AB411) grades out of 7 total monitoring locations

Percentage of Grades by Time Period  
for Sonoma Beaches



Dry weather (AB411) grades

Key: ●=A ●=B ●=C ●=D ●=F



## MENDOCINO

In 2007-2008, Mendocino County monitored seven locations at Mackerricher Beach State Park at Mill Creek and Virgin Creek, at the Pudding Creek ocean outlet, at Hare Creek, at Caspar Beach at Caspar Creek, at Big River near Pacific Coast Highway, and Van Damme State Park at the Little River. The Environmental Health Department with assistance from the Mendocino County Chapter of the Surfrider Foundation monitored sampling locations from April through September. Not all sampling locations were monitored regularly during this time period. However, they all have been assigned a grade based on dry samples taken during the summer months. Water quality at the monitored locations was excellent, and all seven beaches received A grades.



Fort Bragg, Mendocino County

### MENDOCINO COUNTY RESULTS

FIGURE 37.  
Number of Grades by Time Period  
for Mendocino Beaches



Dry weather (AB411) grades out of 7 total monitoring locations

Percentage of Grades by Time Period  
for Mendocino Beaches



Dry weather (AB411) grades

Key: ● = A ● = B ● = C ● = D ● = F

Data for year-round dry and wet weather was insufficient for further analysis.

### Sewage Spill Summary

There were no reported sewage spills in Mendocino County that led to beach closures.



Fort Bragg, Mendocino County



## HUMBOLDT

In an effort to proactively protect public health, the Humboldt County Division of Environmental Health (DEH) moved their monitoring locations to ‘point zero’ in 2006. Five locations are sampled in the mixing zone on a weekly basis from April through October. Throughout the winter season, sampling is limited to approximately twice a month. The monitoring program is funded by the Environmental Protection Agency’s National BEACH Program. For additional water quality information, please visit Humboldt County’s Dept. of Environmental Health website at [www.co.humboldt.ca.us/health/envhealth/beachinfo](http://www.co.humboldt.ca.us/health/envhealth/beachinfo).

Humboldt County’s dry weather water quality saw a dramatic drop this past year. Of the five monitored beaches in Humboldt County covered in this report, only three locations received A or B grades for both the AB411 time period and the year-round dry weather period (Figures 38 and 39). During wet weather, all five locations received A or B grades. Problematic water quality was seen at Moonstone County Park at Little River State Beach (C grade for both AB411 and year-round dry weather) and Clam Beach County Park near Strawberry Creek (F grade for both AB411 and year-round dry weather).

In June 2005, Humboldt DEH began systematic collection of bird population data at both Moonstone Beach and Clam Beach. Both of these locations have substantial and growing resident bird populations. Also, Humboldt County experienced some unusual rain events during the AB411 time period last year. Over an inch of rain fell in July 2007 and three inches of rain fell in early October. The large bird populations coupled with the summer rains are believed to have contributed to many of the bacterial exceedances at Moonstone and Clam beach last summer.

### Sewage Spill Summary

There were no reported sewage spills in Humboldt County that led to beach closures.

## HUMBOLDT COUNTY RESULTS

FIGURE 38.  
Number of Grades by Time Period  
for Humboldt Beaches

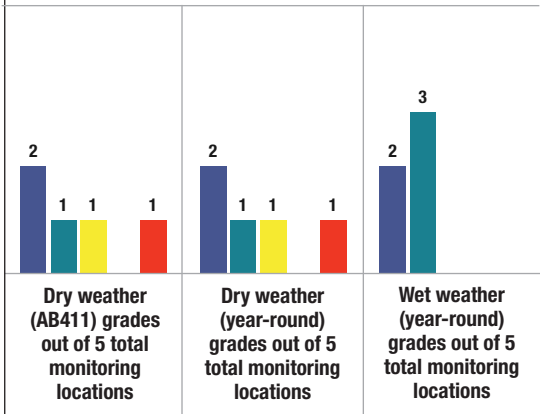
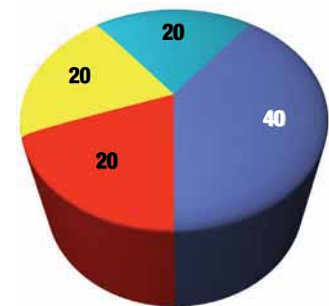
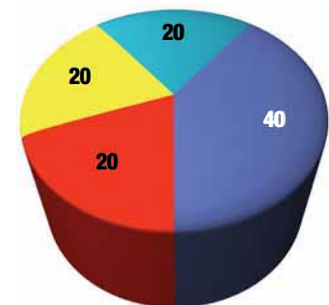


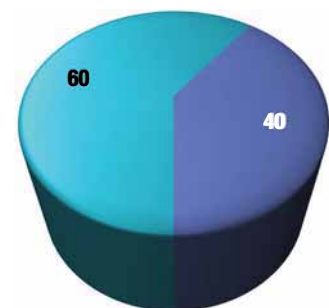
FIGURE 39.  
Percentage of Grades by Time Period  
for Humboldt Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ●=A ●=B ●=C ●=D ●=F



## DEL NORTE

Historically, monitoring in Del Norte County was conducted in the Crescent City area at Pebble Beach, Crescent City Harbor, and Crescent Beach. Despite our best efforts, for the past four years, Heal the Bay has been unsuccessful in obtaining any data to include in this report.

### Sewage Spill Summary

The county did not provide Heal the Bay with a summary of beach closures due to sewage spills.



## BEACH TYPES AND WATER QUALITY

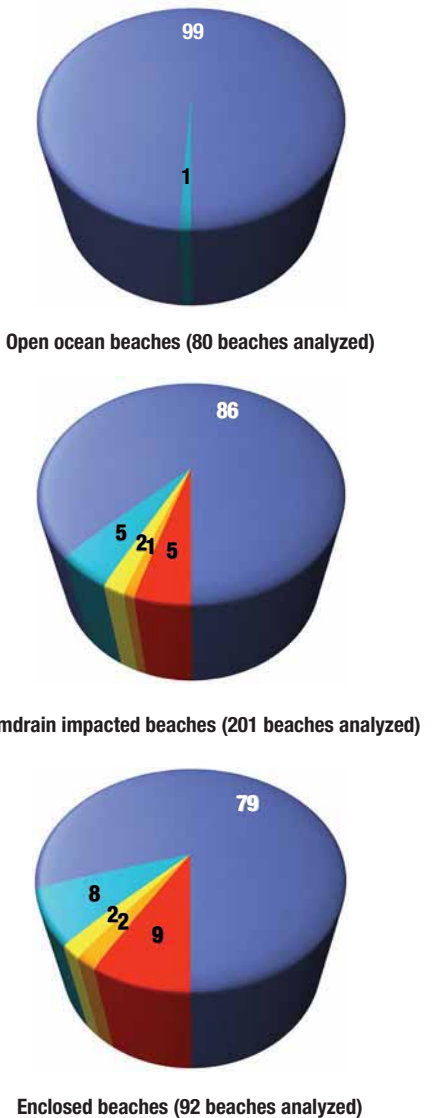
Once again, Heal the Bay analyzed the Southern California data (Santa Barbara to San Diego County) to determine differences in water quality based on beach type. Most Southern California beaches were divided into three categories: open ocean beaches; beaches adjacent to a creek, river, or stormdrain (natural or concrete); and beaches located within enclosed waterbodies. The grades were analyzed for all three time periods: AB411 time period (April through October), dry weather year-round, and wet weather year-round. Figures 40 and 41 illustrate the grades by percent during dry weather for both AB411 (April through October) and year-round conditions.

For the eighth year in a row, this comparison demonstrates that water quality at open ocean beaches is far superior to water quality at enclosed and stormdrain impacted beaches. In essence, a swimmer has a nearly 100% chance of finding excellent water quality at an open ocean beach with no known pollution source during dry weather. Heal the Bay always recommends swimming at least 100 yards from flowing stormdrains and avoiding these beaches altogether within 72 hours of a rain event. Although enclosed beaches appear safe and inviting to children, parents should research water quality conditions carefully before allowing their children to swim at these beaches.

The greatest disparity in water quality between beach types is seen during wet weather. 79% of open ocean monitoring locations received good grades, compared to 48% at stormdrain impacted locations, and only 16% at enclosed beaches during winter wet weather.

## BEACH TYPES & WATER QUALITY

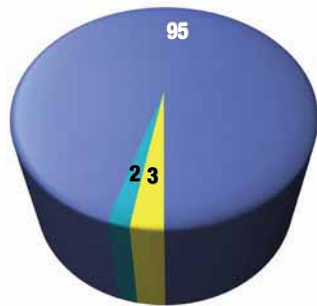
FIGURE 40.  
Percent Grades by Beach Type from  
April 2007 through October 2007 (AB411)



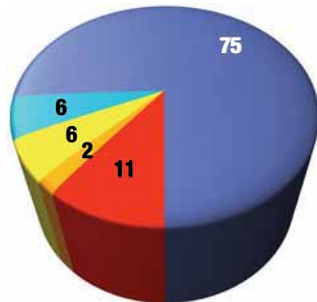
Key: ● = A ● = B ● = C ● = D ● = F

## BEACH TYPES & WATER QUALITY (CONTINUED)

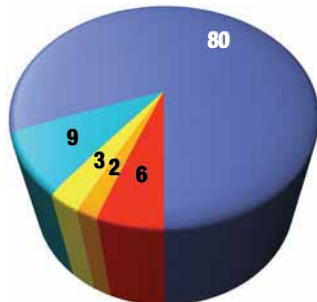
**FIGURE 41.**  
Percent Grades by Beach Type During  
Year-Round Dry Weather



Open ocean beaches (66 beaches analyzed)

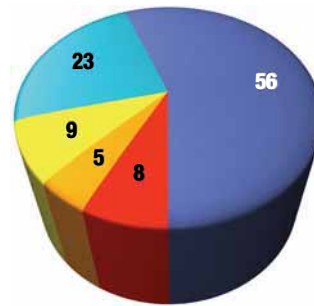


Stormdrain impacted beaches (157 beaches analyzed)

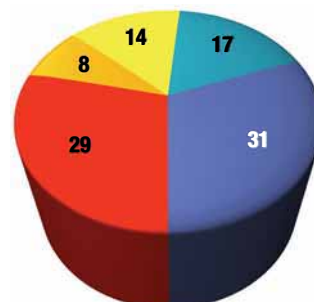


Enclosed beaches (64 beaches analyzed)

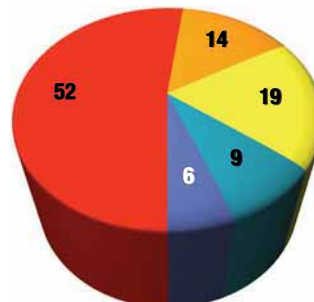
**FIGURE 42.**  
Percent Grades by Beach Type  
During Wet Weather



Open ocean beaches (66 beaches analyzed)



Stormdrain impacted beaches (157 beaches analyzed)



Enclosed beaches (64 beaches analyzed)

Key: ●=A ●=B ●=C ●=D ●=F



## **BEACH REPORT CARD IMPACTS 2007-2008**

### **New Swimmer Health Effects Study**

Last summer, Heal the Bay joined the Southern California Coastal Water Research Project, UC Berkeley, the Orange County Sanitation Districts and others in the initiation of a three-year, \$4.5 million health effects study on swimmers at runoff contaminated beaches. The studies funded by the State of California, National Institute of Health, National Oceanic and Atmospheric Administration, USEPA, and the city of Dana Point, have focused on two chronically polluted beaches: Doheny Beach in Dana Point and Avalon Beach on Catalina Island. Both of these beaches are usually on Heal the Bay's annual list of Beach Bumpers and both will host another summer of epidemiology studies in 2008.

This isn't Heal the Bay's first involvement with a critical health effects study. We participated in the 1995 Santa Monica Bay Restoration Commission epidemiology study led by Dr. Robert Haile at USC that found that one out of every 25 people that swam in front of a flowing stormdrain came down with stomach flu or an upper respiratory infection. This new study will follow a similar design comparing the health risks of swimming in polluted water near a fecal bacteria source (creek or stormdrain) versus swimming at a clean beach nearby. Also, the incidence of illness in swimmers compared to non-swimmers at the same beach will be analyzed. Beachgoers will be interviewed three times: as they arrive, as they are leaving and 10 to 12 days after their visit to the beach. We will assess whether there were any adverse health outcomes such as stomach flu, upper respiratory infections, ear aches or skin rashes during that time period.

This study is the most comprehensive health effects study ever undertaken in terms of the number of microbes that will be analyzed. Up to 30 analytical techniques are used to analyze beach water for over a dozen different microbes. Nearly all of these microbes have never been used before in a health effects study. Researchers from around the country will analyze samples from water at Doheny and Avalon beaches. Surfrider Beach in Malibu will be added to the study during the summer of 2009.

The potential ramifications of this study could be enormous as the EPA is currently developing new national beach water quality criteria that are due in 2012. The results of this study could have a tremendous influence on the development of national criteria that will drive beach water quality monitoring, health warnings, discharge permit limits, water quality assessments for impaired waters, and Total Maximum Daily Loads for decades to come.

### **BEACH Act Update**

In 2006, the NRDC sued the U.S. Environmental Protection Agency for its failure to implement the requirements of the 2000 BEACH Act. In particular, the EPA failed to develop new national beach water quality criteria, including criteria for rapid indicator methods, by Congress' specified deadline of 2005. Over the last year and a half, there has been ongoing litigation, an



EPA workshop with over 40 of the world's experts on beach water quality, and the completion of an EPA science plan on beach water quality. In April 2008, NRDC won an important summary judgment ruling in litigation involving the BEACH Act. A federal judge held that EPA violated the BEACH Act by failing to do studies of beach pollution by a statutory deadline. He also ordered a trial to decide what studies are necessary to protect people from getting sick when they swim at the beach. This is a significant public health issue – hundreds of millions of people swim at the beach every year, and, by EPA's own estimates, millions of them get sick from swimming in polluted water.

### **Ramirez and Escondido Creek Study**

Under AB 538, counties must take steps to identify and stop sources of persistent bacterial pollution. When faced with lasting and slightly mysterious bacterial problems at local beaches, municipalities are required to undertake a source identification study, which helps pinpoint the source of bacteria and provide some insight on how to end it. The County of Los Angeles decided to track sources of the chronic pollution problems at Paradise Cove and Escondido Beach. Beginning in March 2007, Los Angeles County, working with SCCWRP and Heal the Bay designed and began implementation of a Source ID study at each of these creeks.

Teams from Heal the Bay and L.A. County collected water samples from numerous sites in both watersheds. Samples were analyzed for fecal indicator bacteria in Heal the Bay's laboratory, and processed for future viral and DNA research to help narrow the potential sources. Unfortunately, after the extremely dry southern California winter of 2006-2007, these watersheds were not exhibiting their normal flow regime. The study was put on hiatus until normal rainfall levels returned. This March, the study resumed and we are finishing the gathering of field samples for analysis. Look for results sometime this year.

Heal the Bay is pleased to be a part of this project, and we commend LA County for taking steps to identify and abate pollution in both of these watersheds.

### **A Victory for Clean Beaches?**

Epidemiological studies show that swimming in ocean waters with high amounts of bacteria can cause gastrointestinal, respiratory and other illnesses. In fact, a recent UCLA-led study published in Environmental Science and Technology estimates that between 750,000 and 1.5 million people get sick swimming in polluted water at Los Angeles and Orange County beaches each year. The study also concludes that poor beach water quality costs Orange and Los Angeles County residents and businesses at least \$20 million to \$50 million a year in health expenses for stomach flu alone.

In order to address bacteria pollution impairments, in 2003 the Los Angeles Regional Water Quality Control Board adopted bacteria pollution limits for Santa Monica Bay beaches during dry weather. These limits are known formally as the Santa Monica Bay Beaches Dry Weather Bacteria Total Maximum Daily Load, (or "Bacteria TMDL" for short). Cities and other dischargers were given three years, until July 15, 2006, to meet the Bacteria TMDL pollution limits and make all of



Santa Monica Bay beaches safe for beachgoers in the dry season (April 1-October 31). A second Bacteria TMDL for Marina del Rey Harbor's Mother's Beach and Back Basins was adopted by the Regional Board later that year. This TMDL had a compliance deadline of March 18, 2007.

Every beach from Ventura County line south to Palos Verdes was mandated to meet state beach bacteria health standards 100% of the time by July 15, 2006 or face penalties. Marina del Rey Mother's Beach and Back Basins had a compliance deadline of March 18, 2007. The 100% compliance requirement for the AB411 time means that all Santa Monica Bay beaches must be safe for swimming every day for the seven months from April to October. Unfortunately, the compliance deadlines came and went, and many of Santa Monica Bay's beaches, namely, Surfrider Beach, Santa Monica Pier, Mother's Beach, Dockweiler State Beach at Ballona Creek mouth, Marie Canyon, Santa Monica Beach at Pico/Kenter and the Redondo Pier still had elevated bacteria levels above the TMDL limits. In order for the Bacteria TMDL pollution limits to be readily enforceable, the Regional Board needed to incorporate them into the actual language of the L.A. County Storm Water Permit, which the board did on Sept. 14, 2006 and Aug. 9, 2007. Cities and other dischargers are now subject to fines of over \$10,000 per day per violation.

On March 4, 2008, in a precedent-setting move, the Los Angeles Regional Water Quality Control Board sent strongly worded notices of violation and 13383 Orders to 20 cities and Los Angeles County to clean up their act and stop polluting Santa Monica Bay. The cities of Santa Monica, Los Angeles, and Malibu are among those threatened with fines of up to \$10,000 per day. The action marks the first time nationally that an oversight body has threatened fines to ensure cities' compliance with beach bacteria limits and clean water standards.

Of note, sixteen cities and the County have petitioned the State Water Resources Control Board to review the 13383 Orders. These cities are holding the petitions in abeyance, and the County has requested review.

While some cities have made noticeable improvements in identifying and rectifying sources of ocean pollution, measures to fix chronically polluted beaches like Dockweiler State Beach at Ballona Creek mouth and Surfrider have been inadequate. Instead of facing heavy fines for each bacteria limit violation, cities and Los Angeles County should hopefully take appropriate actions to ensure that bacteria limits are not exceeded and that Santa Monica Bay beaches are safe for beachgoers in the summer months. The Beach Report Card will continue to identify beaches that exceed bacteria limits and track compliance efforts.



## RECOMMENDATIONS FOR THE COMING YEAR

- **All beaches should be monitored at Point Zero**

Los Angeles County is one of the first in the state to modify its monitoring program to collect samples directly in front of flowing stormdrains and creeks. This change was a result of the Santa Monica Bay Beach Bacteria TMDL. Other counties collect water samples from directly at the creek, river, or stormdrain ocean outlets to as far as 83 yards from the drain, and anywhere in between. Children often play directly in front of stormdrains and some kids even play in the runoff filled ponds and lagoons. Monitoring at “point zero” is the most protective way to ensure the health risks to swimmers are minimized. If the water is clean at point zero, then the public will know the entire beach is safe for swimming.

- **Adopt Year-Round Postings at Beaches with Flowing Storm Drains**

In Southern California, there is little consistency among counties monitoring stormdrain impacted beaches on where to collect a sample, when to post a warning sign, and where to post the warning sign. State regulations require posting a beach when a water sample exceeds the single sample standard. The state gives local health departments discretion to post a beach if the 30-day geometric mean standard is exceeded. Using both the single sample and 30-day geometric mean standards are far more protective of public health than using one standard. The following demonstrates the differences in county practices: the counties of Santa Barbara, Ventura, and Los Angeles and the City of Long Beach will only post a beach if there is a single sample exceedance; Orange County will post a beach on either a single sample or 30-day geometric mean exceedance; and the San Diego County will initially only post a beach on a single sample exceedance but will continue that posting if subsequent sampling causes an exceedance of either the single sample or 30-day geometric mean standard. Finally, the placement of warning signs is subject to where the samples are collected and therefore highly variable. This inconsistency between counties means that public health protection is variable from county to county.

To address this issue, Heal the Bay recommends permanently posting warning signs along the entire length of beach adjacent to flowing stormdrains where water quality may fail to meet the state health standards for both the single sample and 30-day geometric mean. This recommendation is based on the results of the Storm Drain Plume Dispersion study Heal the Bay completed with the Southern California Coastal Water Research Project, and represents a change from the current posting protocol implemented by health agencies. The study investigated how the dispersion of fecal bacteria discharged from stormdrains into Santa Monica Bay is affected by ocean and discharge conditions. The results of this study demonstrate that the length of beach unsafe for swimming is beach-specific depending on numerous factors, including local beach topography, and can vary over the course of a few hours. The study results also indicate that exceedances of the health standards can occur along the beach at distances much greater than the distance covered by monitoring stations routinely sampled by local health agencies. Based on these results, Heal the Bay believes the



protocol typically used by county health agencies for posting warning signs may not be adequately notifying swimmers of potential health risks around freshwater outlets in Southern California.

We have the following three sequential recommendations to improve the current system warning the beach-going public that water quality may exceed state health standards:

1. The beach adjacent to a polluted stormdrain or freshwater outlet should be posted with warning signs over the entire length of beach where water quality is affected by the plume of fecal bacteria discharging from the drain.
2. Because the length of beach where water quality may be impacted by high fecal bacteria levels is beach-specific, we recommend this length be determined by completing multiple sampling events at multiple locations around the drain under varying oceanographic conditions. The goal of the plume fate and transport efforts is to better understand the length of beach impacted by polluted runoff in dry weather.
3. Routine monitoring should lead to health warnings posted along the entire length of beach potentially impacted by runoff. Under the current system, signs are often posted only directly in front of a drain, even though unsafe water quality conditions may persist 100 yards or more from the drain.

- **Advocate for increased funding for California’s shoreline monitoring program**

State allotments of funding for monitoring and public notification are based on three criteria: the length of the beach season, the amount of beach miles, and estimated beachgoers. Although California received one of the largest grants for this program, the allotment criteria used by EPA has two shortcomings that have prevented California from receiving additional funds to cover the cost of monitoring.

The first problem with the allotment methodology is the lack of criteria for strength of monitoring program or public notification. EPA does not provide an incentive or disincentive to move states beyond the basic baseline water quality monitoring and public notification program. For example, states may monitor for only one fecal indicator or may choose to not notify the public about water quality exceedances in a timely manner, yet those states will continue to receive full funding compared to states like California, that monitor for three fecal criteria, and notify the public immediately of any water quality exceedances. The EPA needs to provide greater proportional funding to those states that implement the aforementioned model program in order to provide an incentive for improving public health protection. The EPA doesn’t even have eligibility criteria for states to get monitoring funding; we believe that no state should get funding unless they meet minimum criteria. The second problem with the allotment methodology is that it is inherently subjective, and the EPA has no mechanism to confirm that its methodology is truly ensuring funds are going to the most appropriate states. Because these shortcomings have yet to be addressed by EPA, many of the state’s coastal



counties will be receiving less money to implement water quality monitoring programs this year. This means that counties will either have to reduce the number of locations sampled or reduce the time period of coverage, thereby leaving the public at greater risk of potential illness.

- **Continue advocating for the implementation of a statewide comprehensive stormwater monitoring program (SB72)**

SB72 (2001 Kuehl) was sponsored by Heal the Bay. This law standardizes stormwater monitoring. A uniform and comprehensive monitoring program is critical to the success of the state's stormwater programs. Currently, every county or municipality covered under the municipal stormwater permit requirements has different monitoring programs. The discrepancy means that no one can complete a status and trends analysis of stormwater in the state. The data are not comparable from permittee program to permittee program and often not even from year to year. SB72 also clarifies what information to consider when determining which constituents should be monitored in municipal runoff. Also, current monitoring programs do not provide adequate information to determine if municipalities and industries are in compliance with their stormwater permits and the Clean Water Act. This law set clear and specific minimum requirements for municipalities and industries for sampling:

- 1) Standardized methods for collection of storm water samples
- 2) Standardized methods for analysis of storm water samples
- 3) Requirement that sample analysis be completed by a state certified laboratory
- 4) Standardized reporting format
- 5) Standard Quality Assurance and Quality Control programs
- 6) Minimum detection limits.

The law required that the above requirements be addressed by January 2003, which was over five years ago. To date, a technical working group has only provided partial recommendations for the municipal stormwater program requirements of SB72, and the state has done nothing to set up a similar process for industrial stormwater. The State Water Resources Control Board still has the opportunity to add SB72 standardization requirements in to the General Industrial Stormwater Permit, but the draft from over two years ago did not include meaningful requirements. Currently, the state has failed to comply with SB72 requirements. The state's failure to comply with the SB72 requirements is causing major problems in the current storm water permit cycle that started with San Diego County and will be followed by Ventura and Los Angeles counties. The monitoring programs must assure compliance with water quality standards and they should be comparable from county to county.

- **The State Water Board must release final AB885 regulations**

The law required the SWRCB to set final regulations for siting, monitoring and water treatment performance for California's on-site water treatment systems (OWTS) by January of 2004. While the regulatory process has been extremely controversial and incredibly slow, water quality problems caused by onsite wastewater treatment systems continue to be a



major risk to public health and aquatic life. Lobbying efforts by county health departments and others led to a major weakening of the draft regulations. One of our greatest concerns is that the regulations do not require on-site system upgrades for all systems within 600 feet of fecal bacteria and nutrient impaired waters or tributaries upstream of the impaired waters. Also, the regulations apply only to new systems, not the existing systems that have degraded water quality and pose health risks. The latest draft shifted the burden of proof to the Regional Boards to identify on-site wastewater treatment systems that are degrading water quality. The Regional Boards do not have the resources to meet this requirement. The draft regulations do not apply to tributaries that cause or contribute to fecal bacteria and/or nutrient impairment problems downstream. The draft regulations were also weakened in the area of monitoring and performance standards. Although these regulations would apply throughout the state, they will have special importance at California beaches and coastal watersheds that are impaired for fecal bacteria. One of the most controversial areas has been how these regulations would apply to inland residences, farms, and ranches on large parcels. Heal the Bay believes that these sites are very low priorities if they are located far away from water supplies and creeks. Perhaps addressing this issue would expedite implementation of the regulations and lead to long awaited reductions in public health risks. Based on the SWRCB's continual backsliding on the proposed regulations, Heal the Bay is extremely concerned that the last seven years of negotiations and debate on AB 885 regulations will not result in improved water quality and reduced public health risks.

The State Water Resources Control Board will release a draft EIR on the final draft AB 885 (Jackson) regulations on June 30, 2008 and they will hold workshops throughout the state during late summer and fall. The final EIR and regulations are scheduled for completion next February with final Water board approval scheduled for March 2009; nearly five years after the original compliance deadline.

- **Continue to encourage monitoring agencies to monitor water quality at popular beaches year-round (beyond the AB411 required dates of April-October)**

Year-round monitoring provides winter beachgoers, oftentimes surfers who frequent the beach for winter swells, with important information about water quality. In California there is no set beach season. Surfers, swimmers, divers, wind-surfers, and kayakers use the water year-round, so all of these ocean enthusiasts have the right to know about water quality at their favorite beaches on a year-round basis.

- **Continue to advocate for the state to enforce sanitary survey protocol requirements as established in AB538 and the California Ocean Plan**

In an effort to do more than just notify beachgoers of potential water quality problems at their favorite beaches per AB411, AB538 was passed to require sanitary surveys (source investigations) to be completed at those beaches where water quality problems persisted. The idea was to identify the sources of beach water quality impairment, and implement necessary strategies to abate the pollution. The requirement of a source investigation was not a new



concept created by AB538 in 1999 – the Ocean Plan has required this procedure since 1988. The issue is that the state never enforces or requires municipalities to implement these surveys when exceedances occur. The Ocean Plan states that “... if a shore station consistently exceeds a coliform objective or exceeds a geometric mean...the Regional Board shall require the appropriate agency to conduct a survey to determine if that agency’s discharge is the source of the contamination.” (State Water Resources Control Board Ocean Plan 1997)

AB538 states that source investigations shall be conducted “if bacteriological standards are exceeded in any three weeks of a four-week period, or, for areas where testing is done more than once a week, 75% of testing days that produce an exceedance of those standards.” Although there have been a number of source identification efforts for chronically polluted beaches throughout the state, many chronically polluted beaches have never been investigated. Examples of completed sanitary surveys are Mission Bay, Huntington Beach, Rincon, Campbell Cove, Baby Beach, Kiddie Beach, Santa Monica Pier, Long Beach, Malibu Lagoon, Santa Monica Canyon, Cabrillo Beach, Avalon, and a few other locations. Currently, source identification at Redondo Pier is ongoing. Identifying sources of fecal bacteria pollution is critical before successful source abatement efforts can be undertaken.



*Huntington Beach*



*Malibu Lagoon*



*Trinidad Beach*





## ACKNOWLEDGEMENTS

This report and the entire Beach Report Card program would not be possible without the cooperation of the many monitoring and public agencies throughout California. These agencies include; Humboldt County Environmental Health Division; Mendocino County Environmental Health Department; Sonoma County Environmental Health Division; Marin County Environmental Health Services; San Francisco County Public Health Department; San Francisco Public Utilities Commission; East Bay Regional Park District; San Mateo County Environmental Health Division; San Mateo County Resource Conservation District; Santa Cruz County Environmental Health Services; Monterey County Environmental Health Division; San Luis Obispo County Environmental Health Services; Santa Barbara County Environmental Health Services; Ventura County Environmental Health Division; City of Los Angeles Environmental Monitoring Division; the Los Angeles County Sanitation Districts; the Los Angeles County Department of Health Services; the City of Long Beach Department of Health and Human Services Environmental Health Division; South Orange County Wastewater Authority; County of Orange Environmental Health; Orange County Sanitation District; San Diego County Department of Environmental Health Land and Water Quality Division; the Southern California Coastal Water Research Project; and the State Water Resources Control Board.

We would also like to thank, the Humboldt County Division of Environmental Health, the San Francisco Public Utilities Commission, Heal the Ocean, and San Diego County's watchdog group WildCoast (<http://www.wildcoast.net>) for their contributions to this report.

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# APPENDIX A

## Heal the Bay’s Annual Beach Report Card Methodology

Four times in the 18 year history of the program Heal the Bay has modified its Beach Report Card grading methodology to better characterize local beach water quality. Amendments to the grading methodology include: 1) the inclusion of the geometric mean into the calculation, 2) a firm zero to 100 point scale, 3) greater significance given to the most recent sample(s) relative to past samples, and 4) greater weight for enterococcus and the total to fecal ratio relative to total coliform and fecal coliform. These modifications stem from comments made by California’s State Water Resources Control Board and the Beach Water Quality Workgroup. With these improvements to the methodology, Heal the Bay’s Beach Report Card grading system is now endorsed by the State Water Resources Control Board and the Beach Water Quality Workgroup as an effective way to communicate beach water quality to the public.

The new methodology retains past modifications to the report card, such as the inclusion of new indicator bacteria thresholds, namely the total to fecal ratio, developed by the Santa Monica Bay Restoration Commission<sup>1</sup> in the 1996 health effects studies of Santa Monica Bay beachgoers; and the implementation of standard deviations for each indicator bacteria threshold developed by the Southern California Coastal Water Research Project and Orange County Sanitation Districts during the 1998 Southern California Bight Study<sup>2</sup>. Each threshold is based on the prescribed standards set in the California Department Health Service’s Beach Bathing Water Standards<sup>3</sup>.

**Table 1**

Grade	Points
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	≤59%

As seen in Table One, the new methodology continues to use a standard A through F grading system, and grades are now based on the following formula:

$$\% \text{ Grade} = \frac{\text{‘Total Points Available’} - \text{‘Total Points Lost’}}{\text{‘Total Points Available’}}$$

Note: The Annual and End of Summer Beach Report Card methodology is modified slightly to accommodate the longer time period (for example: No greater significance is given to the most recent samples).

### ‘TOTAL POINTS AVAILABLE’

‘Total Points Available’ is derived from adding together two point components (if applicable): the Geometric Mean and the Single Sample Standard. The points for each component are listed in Table Two. In order for

**Table 2**

‘Total Points Available’ by Component	
Geometric Mean	29 points
Single Sample Standard	71 points
Total	100 points

the points in each component to become available, certain criteria must be met. For example, the geometric mean points will be added to the ‘Total Points Available’ only if there are a minimum of 4 dry weather samples collected within the allotted time frame (for the Annual Report Card, this is April 2006–March 2007). Wet weather data is graded separately from dry weather data, and does not include a geometric mean component. Therefore, it is possible for ‘Total Points Available’ to be less than 100. The new grading methodology allows for a relative grade to be determined based on the actual monitoring completed.

Once the ‘Total Available Points’ has been determined for a specific location, then the ‘Total Points Lost’ can be calculated for the applicable grade components.

**‘TOTAL POINTS LOST’**

Separate calculations are used to quantify ‘Total Points Lost’ for each applicable component from the ‘Total Available Points’. The following describes the two calculations.

**GEOMETRIC MEAN**

Calculating the ‘Total Points Lost’ for the Geometric Mean component involves using California’s Beach Bathing Standards for the geometric mean. The standards for each of these criteria are presented in **Table Three** (second column). Each geometric mean criterion exceeded for the time frame is assigned a specific percentage of points lost. These amounts are presented in **Table Three** (third column). Non-exceedances are given 0%. The percentage of points lost from each of the three criteria are then added together and multiplied by the ‘Total Available Points’ (any sum of percentages exceeding 100% automatically loses all 29 points available in the geometric mean component). If the number of ‘Total Points Lost’ is less than 29, then the frequency of the sample location’s exceedances of the 30-day geometric mean is taken into consideration. If a given location exceeded any state 30-day geometric mean standard more than 20% of sample days, then an additional 10 points are lost for the geometric mean component (up to but not to exceed 29 total points). If the location exceeded any state 30-day geometric mean standard for more than 40% of sample days, then another 10 points are lost for the geometric mean component (up to but not to exceed 29 total points). If the location exceeds any state 30-day geometric mean standard for more

**Table 3: Calculating the Total Points Lost for the Geometric Mean Component**

Indicator Exceeded	California Beach Bathing Water Standard*	% of Total Available Points Lost** Due to Exceedance	Total Available Points
Enterococcus	35	80%	29
Fecal Coliform	200	40%	
Total Coliform	1,000	40%	

\* Colony forming units per 100 milliliters of ocean water

\*\* Total Percentage Points Lost cannot add up to be > 1

than 50% of samples days, then the location automatically loses all 29 points available for the geometric mean component.

#### SINGLE SAMPLE STANDARD

Calculating the ‘Total Points Lost’ for the Single Sample Standard component is similar to the calculation used for deriving the points lost for the Geometric Mean. However, the Single Sample Standard component uses a gradient to calculate the ‘Total Points Lost’. The gradient of percentage points lost used in calculating the number of points lost is derived from work completed by the

**Table 4: Single Sample Gradient Thresholds in cfu/100ml\***

Indicator Bacteria	Slight T - 1 s.d.**	Moderate T + 1 s.d.	High > T + 1 s.d.	Extreme very high risk
Total Coliform	6,711-9,999	<b>10,000***</b> -14,900	>14,900	na
Fecal Coliform	268-399	<b>400</b> -596	>596	na
Enterococcus	70-103	<b>104</b> -155	>155	na
Total: Fecal Ratio (when Total ≥ 1,000)	10.1-13	<b>7.1-10</b>	2.1-7	< 2.1

\* colony forming units per 100 milliliters of ocean water

\*\* standard deviation

\*\*\* **Bold numbers** are the California State Health Department standards for a single sample

na – not applicable

Southern California Coastal Water Research Project and Orange County Sanitation District as part of the 1998 Southern California Coastal Bight Study (see **Table Four**).

‘Percentage of points lost’ is allocated depending upon the threshold exceeded by each of the four criteria. Each single sample criterion exceeded is given a ‘percentage of points lost’. These amounts are presented in **Table Five**. Non-exceedances are given zero 0%. The ‘percentage of points lost’ from each of the four criteria for each sample during the time period are added together and divided by

**Table 5: Calculating the Total Points Lost for the Single Sample Standard Component**

Indicator Exceeded	Slight % Points Lost	Moderate % Points Lost	High % Points Lost	Extreme % Points Lost	Total Available Points*
Total Coliform	10%	30%	40%	na	71 points
Fecal Coliform	10%	30%	40%	na	
Enterococcus	20%	40%	60%	na	
Ratio (when Total ≥ 1,000)	25%	50%	75%	100%	

the total number of samples. Once this number is calculated (total 'percentage of points lost' divided by total number of samples), it is multiplied by the 'Total Available Points'. In the Single Sample Standard component, more points are lost as the magnitude or frequency of exceedances increases.

The points available from each applicable component are added together to become the 'Total Available Points'. Points lost from the Single Sample Standard component are added to the points lost in the Geometric Mean component (if applicable) and this sum becomes 'Total Points Lost'. Once the 'Total Points Available' and the 'Total Points Lost' are calculated, a grade for a particular sample site can be determined.

**Determining a Grade**

$$\% \text{ Grade} = \frac{\text{Total Points Available} - \text{Total Points Lost}}{\text{Total Points Available}}$$

The points available from each applicable component are added together to become the 'Total Available Points'. Points lost from the Single Sample Standard component are added to the points lost in the Geometric Mean component (if applicable) and this sum becomes 'Total Points Lost'. Once the 'Total Points Available' and the 'Total Points Lost' are calculated, a grade for a particular sample site can be determined.





## APPENDIX B

### 2007-2008 Beach Report Card Grades By County

<b>San Diego County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
San Onofre State Beach, San Mateo Creek outlet	A+		
San Onofre State Beach, San Onofre Creek outlet	A+		
Camp Pendleton, Camp del Mar (near 9th St.)	A+		
Oceanside, Harbor Beach (projection Harbor Dr.)	A+	A+	A+
Oceanside, San Luis Rey River outlet	A	B	F
Oceanside, projection of Surfrider Way	A+	A+	B
Oceanside, projection of Pier View Way	A+	A+	D
Oceanside, projection of Tyson Street	A+	A+	D
Oceanside, projection of Wisconsin Street	A+		
Oceanside, projection of Forester Street	A+	A+	B
Oceanside, 500'N. of Loma Alta Creek outlet	A+	A	C
Oceanside, Buccaneer Beach (at Loma Alta Crk.)	A+	A	F
Oceanside, projection of Cassidy Street	A+	A+	A
Oceanside, St. Malo Beach (downcoast from St. Malo Road)	A+	A+	B
Oceanside, Buena Vista Lagoon outlet	A+	A+	A+
Carlsbad, projection of Carlsbad Village Drive	A+		
Carlsbad, projection of Tamarack Av.	A+	A+	A+
Carlsbad, warm water jetty	A+		
Carlsbad, projection of Cerezo Drive	A+	A+	A+
Carlsbad, projection of Palomar Airport Rd.	A+	A+	A+
Carlsbad, Encina Creek outlet	A+	A+	A+
Carlsbad, projection of Ponto Drive	A+	A+	A+
Carlsbad, projection of Poinsettia Lane	A+	A+	A+
Carlsbad, Batiquitos Lagoon outlet	A+		
Encinitas, Moonlight Beach (Cottonwood Creek outlet)	A	A	B

County "Beach Bummers" names appear in bold.

<b>San Diego County</b> (continued)	<b>AB411</b> <b>(April – Oct.)</b>	<b>Dry</b> <b>Year-round</b>	<b>Wet</b> <b>Year-round</b>
Encinitas, Swami’s Beach (Seacliff Park)	A+		
Encinitas, San Elijo State Park, Pipes surf break	A+	A+	A+
Encinitas, San Elijo State Park (proj. Liverpool Dr.)	A	A	A+
Cardiff State Beach, San Elijo Lagoon outlet	A	A	B
Cardiff State Beach Charthouse parking (slight S. of Kilkeny)	A	A	A+
Cardiff State Beach, Las Olas (100 yds. south of Charthouse )	A+	A+	A+
Cardiff State Beach, Seaside State Park	A+	A+	A+
Solana Beach, Tide Beach Park (proj. Solana Vista Dr.)	A	A	A+
Solana Beach, Fletcher Cove (proj. Lomas Santa Fe Dr.)	A	A	A
Solana Beach, Seascape Surf Beach Park	A		
Del Mar, San Dieguito River Beach	A	A	D
Del Mar, projection of 15th Street	A+	A+	A
Torrey Pines, Los Penasquitos Lagoon outlet	A	A	D
La Jolla (north), Scripps Pier	A		
La Jolla Shores, El Paseo Grande (near Scripps)	A+		
La Jolla, La Jolla Cove	A		
La Jolla, South Casa Beach	A		
Coast Blvd. (the Gazebo)	A		
La Jolla, Ravina (south of Nicholson Pt.)	A		
Windansea Beach, projection of Playa Del Norte	A+	A+	A+
Pacific Beach, P.B. Point (downcoast of Linda Way)	B	B	A+
Pacific Beach, Tourmaline Surf Park (proj. of Tourmaline St.)	A+	A+	B
Pacific Beach, Crystal Pier (projection of Garnet)	A+		
Pacific Beach, projection of Grand Ave.	A+		
Mission Beach, Belmont Park	A	A	A
Mission Bay, Mariners Basin (proj. of Balboa Ct.)	A		
Mission Bay, Bonita Cove (east cove)	A		
Mission Bay, Bahia Point-northside (apex of Gleason Rd.)	A+		
Mission Bay, Ventura Cove	A+		
Mission Bay, Sail Bay (proj. of Whitting Ct.)	A+		

County “Beach Bummers” names appear in bold.



<b>San Diego County</b> (continued)	<b>AB411</b> <b>(April – Oct.)</b>	<b>Dry</b> <b>Year-round</b>	<b>Wet</b> <b>Year-round</b>
Mission Bay, Fanuel Park (proj. of Fanuel St.)	A+		
Mission Bay, Wildlife Refuge near fence (proj. of Lamont St.)	A		
Mission Bay, Campland (west of Rose Creek)	A		
Mission Bay, DeAnza Cove (mid-cove)	A		
Mission Bay, Visitor's Center (proj. of Clairemont Dr.)	B	B	B
Mission Bay, Comfort Station north of Leisure Lagoon	A		
Mission Bay, Leisure Lagoon	A		
Mission Bay, Tecolote Shores drain	A+		
Mission Bay, Tecolote Playground (watercraft area)	A+		
Mission Bay, Fiesta Island Bridge (south side)	A+		
Mission Bay, Vacation Isle Ski Beach	A		
Mission Bay, Vacation Isle North Cove Beach	A		
Ocean Beach, San Diego River outlet (Dog Beach)	A	A	B
Ocean Beach, Stub Jetty	A	A	C
Ocean Beach Pier, northside at Newport Ave.	A	A	C
Ocean Beach, Ocean Pier (proj. of Narragansett Av.)	A+	A+	B
Ocean Beach, projection of Bermuda Ave.	A	A	C
Sunset Cliffs, projection of Ladera Street	A	A	A
Point Loma, Point Loma Treatment Plant	A+	A+	A+
Point Loma, Lighthouse	A+	A+	A+
San Diego Bay, Shelter Island (Shoreline Beach Park)	B		
San Diego Bay, Spanish Landing Park beach	A		
San Diego Bay, Bayside Park (projection of J Street)	A		
San Diego Bay, Silver Strand	A+		
San Diego Bay, Glorietta Bay Park at boat launch	A		
San Diego Bay, Tidelands Park (proj. of Mullinix Dr.)	A	A	F
Coronado at North Beach (near navy fence at Ocean Blvd.)	A	A	A
Coronado at North Beach (NASNI Beach)	A	A	A
Coronado, projection of Loma Ave.	A	A	A+
Coronado, projection of Ave del Sol	A	A	A

County "Beach Bummers" names appear in bold.



Heal the Bay

<b>San Diego County</b> (continued)	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Coronado, Silver Strand	A	A	C
Imperial Beach, Camp Surf Jetty	A+		
Imperial Beach, projection of Carnation Ave.	A	A	F
Imperial Beach, Imperial Beach Pier (northside)	A	A	A
Imperial Beach, southend of Seacoast Dr.	A+	B	F
Tijuana Slough NWRS, 3/4 mi. N of TJ River	A+	C	F
Tijuana Slough NWRS, Tijuana Rivermouth	A+	F	F
Border Field State Park, proj. of Monument Rd.	A	A	F
Border Field State Park, Border Fence (northside)	A	A	D

County “Beach Bummers” names appear in bold.



Heal the Bay

<b>Orange County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Seal Beach, projection of 1st Street	A	A	C
Seal Beach, projection of 8th Street	A+	A	B
Seal Beach Pier, 100 yards south of pier	A+	A	A+
Seal Beach, projection of 14th Street	A+	A+	A+
Surfside Beach, projection of Sea Way	A+	A+	A+
Sunset Beach, projection of Broadway	A+	A+	A+
Bolsa Chica Beach across from the Reserve Flood Gates	A+	A+	A
Bolsa Chica Reserve at the downcoast end of the State Beach	A	A	B
Huntington City Beach, Bluffs	A	A	B
Huntington City Beach, projection of 17th Street	A	A	C
Huntington City Beach, Jack's Snack Bar	A	A	B
Huntington City Beach, projection of Beach Blvd.	A	A	B
Huntington State Beach, projection of Newland St. (SCE Plant)	A	A	B
Huntington State Beach, projection of Magnolia Street	C	C	C
Huntington State Beach, projection of Brookhurst Street	B	A	B
Santa Ana River (upcoast)	A	A	F
Santa Ana River Mouth	B	A	F
Santa Ana River (downcoast)	B	B	F
Newport Beach, projectio of Orange Street	A	A	D
Newport Beach, projection of 52nd/53rd Street	A	A	B
Newport Beach, projection of 38th Street	A+	A+	B
Balboa Beach, projection of 15th/16th Street	A+	A	A
Balboa Beach Pier	A	A	A
Balboa Beach, The Wedge	A+	A	A
Huntington Harbor, Mother's Beach-Orange County	A	A	D
Huntington Harbor, Trinidad Lane Beach	A+	A+	D
Huntington Harbor, Sea Gate	A+	A+	D
Huntington Harbor, Humboldt Beach	A	A	B
Huntington Harbor, Davenport Beach	A	A	B
Huntington Harbor, Coral Cay Beach	A+	A	C

County "Beach Bummers" names appear in bold.



Heal the Bay

<b>Orange County</b> (continued)	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Huntington Harbor, 11th Street Beach	A	A	A
Newport Bay, Newport Dunes-North	A	A	F
Newport Bay, Newport Dunes-East	A+	A	F
Newport Bay, Newport Dunes-Middle	A+	A	F
Newport Bay, Newport Dunes-West	A+	A	F
Newport Bay, Bayshore Beach	A	A	F
Newport Bay, Via Genoa Beach	A+	A	F
Newport Bay, Lido Yacht Club Beach	A	A	F
Newport Bay, Garnet Avenue Beach	A	A	F
Newport Bay, Sapphire Avenue Beach	A	A	F
Newport Bay, Abalone Avenue Beach	A	A	D
Newport Bay, Park Avenue Beach	A+	A	F
Newport Bay, Onyx Avenue Beach	A	A	D
Newport Bay, Ruby Avenue Beach	A+	A	D
Newport Bay, Grand Canal	A+	A	D
Newport Bay, 43rd Street Beach	B	A	F
Newport Bay, 38th Street Beach	A	A	F
Newport Bay, 19th Street Beach	A+	A	F
Newport Bay, 15th Street Beach	A+	A	C
Newport Bay, 10th Street Beach	A	A	F
Newport Bay, Alvarado/ Bay Isle Beach	A	A	F
Newport Bay, N Street Beach	A+	A	C
Newport Bay, Harbor Patrol Beach	A	A	F
Newport Bay, Rocky Point Beach	A+	A+	F
Corona Del Mar (CSDOC)	A	A	A
Little Corona Beach	A	A	A+
Pelican Point	A+	A+	A+
Crystal Cove (CSDOC)	A	A	A
Crystal Cove	A+	A	A+
Muddy Creek	A	A	A+

County “Beach Bummers” names appear in bold.



Heal the Bay

<b>Orange County</b> (continued)	<b>AB411</b> <b>(April – Oct.)</b>	<b>Dry</b> <b>Year-round</b>	<b>Wet</b> <b>Year-round</b>
El Morro Beach	A+	A+	A+
Emerald Bay	A+	A	A+
Crescent Bay Beach	A+	A	A+
Laguna Main Beach	A+	A+	A+
Laguna Hotel	A	A	A
Projection of Bluebird Canyon	A	A	B
Victoria Beach	A+	A+	A
Blue Lagoon	A+	A	A+
Treasure Island Pier (AWMA)	A	A	A
Treasure Island Sign	A+	A+	A+
Aliso Creek- 1000' north	A+	A+	A+
Aliso Creek- outlet	A	A	B
Aliso Creek- 1000' south	A+	A	A
Camel Point	A+	A+	A
Table Rock	A+	A+	A
Laguna Lido Apt.	A	A	A
9th St. 1000 Steps Beach	A+	A+	A+
Three Arch Bay	A+	A+	A+
Monarch Beach (North)	A	A	A+
Salt Creek Beach	A	A	A+
Dana Strand Beach (AWMA)	A+	A+	A+
Ocean Institute Beach (SERRA)	A+	A+	A+
<b>North Beach - Doheny</b>	<b>F</b>	<b>F</b>	<b>F</b>
Doheny Beach (No. of San Juan Creek)	A	B	F
San Juan Cr/Ocean Interface	A	F	F
Doheny Beach (So. of San Juan Creek)	B	F	F
1000' south of SERRA Outfall	A	A	F
2000' south of SERRA Outfall	A	C	F
3000' south of SERRA Outfall	A	A	F
4000' south of SERRA Outfall	A	A	F

County "Beach Bummers" names appear in bold.



Heal the Bay

<b>Orange County</b> (continued)	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
5000' south of SERRA Outfall	A	A	D
7500' South Outfall - Projection of Camino Estrella	A	A	D
10000' south of SERRA Outfall, #5505 Beach Road	A	A	B
<b>14000' south of SERRA Outfall, San Clemente Poche Beach</b>	<b>F</b>	<b>F</b>	<b>C</b>
20000' South Outfall - San Clemente, proj. of Avenida Pico	A	B	C
San Clemente, Lifeguard Building, north of San Clemente Pier	A	A	A
San Clemente, Trafalgar Street Beach	A+	A+	A
San Clemente, Avenida Calafia	A+	A	A+
San Clemente, Las Palmeras	A	A	A+
Dana Point Harbor, West End - Baby Beach	C	B	B
Dana Point Harbor, Buoy Line - Baby Beach	A	B	C
Dana Point Harbor, Swim Area - Baby Beach	A	C	C
Dana Point Harbor, East End - Baby Beach	A	A	A
Dana Point Harbor, Guest Dock - End (West Basin)	A+	A	A+
Dana Point Harbor, Youth Dock	A+	A	A+

County "Beach Bummers" names appear in bold.

Los Angeles County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Leo Carrillo Beach at Arroyo Sequit Creek mouth (point zero)	A	A	A
Nicholas Beach at San Nicholas Canyon Creek mouth (point zero)	A+	A	B
El Pescador State Beach, between Lachusa and Los Aliso creeks	A+	A+	A+
Encinal Canyon at El Matador State Beach	A+	A+	A+
Broad Beach at Trancas Creek mouth (point zero)	A+	A	F
Zuma Beach at Zuma Creek mouth (point zero)	A+	A+	D
Walnut Creek, projection of Wildlife Rd. (point zero)	A	A	A+
Paradise Cove Pier at Ramirez Canyon Creek mouth (point zero)	A	F	F
Escondido Creek, just east of Escondido State Beach	A	C	B
Latigo Canyon Creek mouth (point zero)	A	B	C
Solstice Canyon at Dan Blocker County Beach	B	B	C
Puerco State Beach at creek mouth (point zero)	A	A	D
<b>Marie Canyon storm drain at Puerco Beach, at 24572 Malibu Rd.</b>	<b>F</b>	<b>F</b>	<b>F</b>
Malibu Point (aka SMB-MC-1)	A	A	C
Surfrider Beach (breach point)- daily (aka SMB-MC-2)	A	C	F
Malibu Pier- 50 yards east (aka SMB-MC-3)	B	B	F
Carbon Beach at Sweetwater Canyon	A	A	C
Las Flores State Beach at Las Flores Creek (point zero)	A+	A	A
Big Rock Beach at 19948 PCH stairs (aka SMB-1-15)	B	C	C
Pena Creek at Las Tunas County Beach	A+	A+	A+
Tuna Canyon	A+	A	D
Topanga State Beach at creek mouth (aka SMB-1-18)	A	A	F
Castlerock Storm Drain at Castle Rock Beach	C	F	F
Santa Ynez Storm Drain at Castle Rock Beach	A	F	F
Will Rogers State Beach at 17200 PCH (1/4 mile east of Sunset drain) (aka SMB-2-3)	A	A	B
Will Rogers State Beach at Bel Air Bay Club drain near fence (point zero)	A+	A+	C
Will Rogers State Beach at Pulga Canyon storm drain (point zero)	A+	A	B
Will Rogers State Beach at Temescal Canyon drain (point zero)	D	C	C
Will Rogers State Beach at Santa Monica Canyon drain (point zero)	A	F	F
Santa Monica Beach at Montana Ave. drain (point zero)	A	B	D

County “Beach Bummers” names appear in bold.

Los Angeles County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Santa Monica Beach at Wilshire Blvd. drain (point zero)	A	A	D
<b>Santa Monica Municipal Pier</b> (point zero)	<b>F</b>	<b>F</b>	<b>F</b>
Santa Monica Beach at Pico/Kenter storm drain (point zero)	A	A	F
Santa Monica Beach at Strand St. (in front of the restrooms) (aka SMB-3-9)	A+	A+	F
Ocean Park Beach at Ashland Ave. drain (point zero)	A	A	F
Venice City Beach, at the Rose Ave. storm drain	A	A	C
Venice City Beach at Brooks Ave. drain (aka SMB-3-7)	A	A	D
Venice City Beach at Windward Ave. drain (point zero)	A	A	B
Venice Fishing Pier- 50 yards south (aka SMB-2-8)	A	A	D
Venice City Beach at Topsail St. (aka SMB-2-9)	A	A	D
Marina del Rey, Mothers' Beach-Playground area (aka MdRH-1)	B	B	F
Marina del Rey, Mothers' Beach-lifeguard tower (aka MdRH-2)	A	A	F
Marina del Rey, Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3)	A	A	C
Basin D, near first slip outside swim area (from surface)	A	A	C
Basin D, near first slip outside swim area (at depth)	A	A	C
Basin E, in front of tide gate from Oxford Basin	B	B	D
Basin E, center of basin (from surface)	D	D	F
Basin E, center of basin (at depth)	A+	A	C
Basin E, in front of Boone-Olive Pump Outlet	B	B	F
Back of main channel (from surface)	A	A	C
Back of main channel (at depth)	A+	A+	C
Basin F, center of basin (from surface)	A	A	B
Basin F, center of basin (at depth)	A	A	B
Dockweiler State Beach at Ballona Creek mouth (point zero)	F	C	F
Dockweiler State Beach at Culver Blvd. drain (aka SMB-2-10)	A	A	A+
North Westchester Storm Drain at Dockweiler State Beach	A+	A+	A
Dockweiler State Beach at World Way (south of D&W jetty) (aka SMB-2-12)	A	A	B
Dockweiler State Beach at Imperial Hwy drain (point zero)	A+	A	B
Hyperion Treatment Plant One Mile Outfall (aka SMB-2-14)	A	A	B
Dockweiler State Beach at Grand Ave. drain (aka SMB-2-15)	A	A	C

County "Beach Bummers" names appear in bold.

Los Angeles County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Manhattan State Beach at 40th Street (aka SMB-5-1)	A+	A+	A+
Manhattan Beach at 28th St. drain (aka SMB-5-2)	A	A	F
Manhattan Beach Pier drain (point zero)	A	A	A+
Hermosa City Beach at 26th St. (aka SMB-5-4)	A	A	B
Hermosa Beach Pier- 50 yards south (aka SMB-5-5)	A	A	A+
Herondo Street storm drain- (in front of the drain) (aka SMB-6-1)	A	A	F
Redondo Municipal Pier- 100 yards south (aka SMB-6-2)	B	D	F
Redondo State Beach at Topaz St.- north of jetty (aka SMB-6-4)	A	A	F
Redondo State Beach at Avenue I drain (point zero)	A+	A	C
Malaga Cove, Palos Verdes Estates-daily (aka SMB-6-6)	A	A	B
Malaga Cove, Palos Verdes Estates-weekly (aka SMB-7-1)	A	A	A
Palos Verdes (Bluff) Cove, Palos Verdes Estates (aka SMB-7-2)	A+	A+	A+
Long Point, Rancho Palos Verdes (aka SMB-7-3)	A+	A+	A+
Abalone Cove Shoreline Park (aka SMB-7-4)	A+	A+	A+
Portuguese Bend Cove, Rancho Palos Verdes (aka SMB-7-5)	A+	A+	A+
Royal Palms State Beach (aka SMB-7-6)	A+	A+	B
Wilder Annex, San Pedro (aka SMB-7-8)	A+	A+	A
Cabrillo Beach, oceanside (aka SMB-7-9)	A	A	B
<b>Cabrillo Beach- harborside at lifeguard tower</b>	<b>F</b>	<b>F</b>	<b>F</b>
Cabrillo Beach- harborside at boat launch	A	A	D
<b>Avalon Beach-btwn. BB rstrnt. &amp; Tuna Club</b>	<b>F</b>		
<b>Avalon Beach-btwn. Pier &amp; BB rstrnt. (2/3)</b>	<b>F</b>		
<b>Avalon Beach-btwn. Pier &amp; BB rstrnt. (1/3)</b>	<b>F</b>		
<b>Avalon Beach-btwn. storm drain &amp; Pier (2/3)</b>	<b>F</b>		
<b>Avalon Beach-btwn. storm drain &amp; Pier (1/3)</b>	<b>F</b>		
Long Beach City Beach, projection of 3rd Place	F	F	F
Long Beach City Beach, projection of 5th Place	F	F	F
Long Beach City Beach, projection of 10th Place	F	F	F
Long Beach City Beach, projection of 16th Place	F	F	F
Long Beach City Beach, projection of Molino Av.	C	D	F

County "Beach Bummers" names appear in bold.

<b>Los Angeles County</b> (continued)	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
<b>Long Beach City Beach, projection of Coronado Ave.</b>	<b>D</b>	<b>F</b>	<b>F</b>
<b>Long Beach City Beach, projection of 36th Place</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>Belmont Pier-westside</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>Belmont Pier-eastside (use to be mid-pier)</b>	<b>D</b>	<b>D</b>	<b>F</b>
Long Beach City Beach, projection of Prospect Av.	C	C	F
Long Beach City Beach, projection of Granada Av.	B	A	F
Long Beach City Beach, projection of 54th Place	A	A	F
Alamitos Bay - 1st & Bayshore	A	A	F
Alamitos Bay - Division Street and Bayshore	A	A	F
Alamitos Bay - 2nd St. Bridge & Bayshore	A	A	F
Alamitos Bay - shore float	A	A	F
Mother's Beach - Long Beach - north end	C	C	F
Mother's Beach - Long Beach - south end	B	A	F
Alamitos Bay - 56th Place - on bayside	A	A	F
Long Beach City Beach, projection of 55th Place	A	A	F
Long Beach City Beach, projection of 62nd Place	A	C	F
Long Beach City Beach, projection of 72nd Place	A	C	F
<b>Colorado Lagoon-north</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>Colorado Lagoon-center</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>Colorado Lagoon-south</b>	<b>D</b>	<b>F</b>	<b>F</b>

County "Beach Bummers" names appear in bold.

<b>Ventura County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Rincon Beach, 25 yds. so. of the creek mouth	B		
Rincon Beach- 100 yds. so. of the creek mouth	A	A	C
Rincon Beach- at the end of the footpath	A		
La Conchita Beach, 50 yds. so. of the drain, Ocean View Rd.	A+		
Mussel Shoals Beach, south the drain	A		
Oil Piers Beach, south of the drain, bottom of the wood staircase	A+		
Hobson County Park, base of stairs to the beach	A+		
Rincon Parkway North, near camp space #14	A+		
Faria County Park, south of drain at no. end of park	A		
Mandos Cove, south of drain	A+	A+	C
Solimar Beach- north (south of drain at the base of cypress tree)	A+		
Solimar Beach- south (end of east gate access road)	A+		
Emma Wood State Beach (50 yards S. of first drain)	A+	A+	B
Seaside Wilderness Park (400 yards N. of Ventura River)	A+		
Surfer's Point at Seaside (End of access path via wooden gate)	A	A	C
Promenade Park- Figueroa St.	A	A	B
Promenade Park- Redwood Apts.	A		
Promenade Park-Oak Street	A+		
Promenade Park- Holiday Inn, south of drain at California St.	A+		
San Buenaventura Beach- south of drain at Kalorama St.	A		
San Buenaventura Beach- south of drain at San Jon Rd.	A		
San Buenaventura Beach- south of drain at Dover Ln.	A+		
San Buenaventura Beach- south of drain at Weymouth Ln.	A+		
Marina Park (Beach at N. end of playground)	A		
Peninsula Beach (Beach area N. of South Jetty)	A	A	C
South Jetty (Beach area S. of the jetty)	A+		
Surfer's Knoll (Beach adjacent to parking lot)	A+	A+	B
McGrath State Beach (1/2 mile N. of Gonzales Rd.)	A+		
McGrath State Beach- Gonzales Rd.	A+		
McGrath State Beach (South end of McGrath Lake)	A+		

County "Beach Bummers" names appear in bold.

<b>Ventura County (continued)</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Oxnard Beach - 5th Street (south of drain)	A+		
Oxnard Beach - Channel Way (south of drain)	A+		
Oxnard Beach - Outrigger Way (south of drain)	A+		
Oxnard Beach - Amalfi Way (south of drain)	A+		
Oxnard Beach Park - Falkirk Ave. (south of drain)	A+		
Oxnard Beach Park - Starfish Dr. (south of drain)	A+		
Hollywood Beach - La Crescenta St. (south of drain)	A	A	C
Hollywood Beach - Los Robles St. (south of drain)	A+		
C.I. Harbor-Hobie Beach Lakshore Dr.	A		
C. I. Harbor-Beach Park at S. end of Victoria Av., 50' north	A		
C. I. Harbor-Beach Park at S. end of Victoria Av.	A	A	C
C. I. Harbor-Beach Park at S. end of Victoria Av., 50' south	A		
C.I. Harbor - Beach Park at the end of Rocks	A		
Silverstrand - San Nicholas Ave. (south of jetty)	A	A	B
Silverstrand - Santa Paula Dr. (south of drain)	A+		
Silverstrand - Sawtelle Ave. (south of drain)	A+		
Port Hueneme Beach Park, 50 yds. no. of the Pier	A		
Ormond Beach- J Street drain, 50 yds. so. of the drain	A		
Ormond Beach- Oxnard Industrial drain, 50 yds. no. of the drain	A		
Ormond Beach- Arnold Rd.	A		
Point Mugu Beach, adjacent to parking lot entry	A+		
Thornhill Broome Beach, adjacent to parking lot entry	A+		
Sycamore Cove Beach, 50 yds. so. of the creek mouth	A+		
Deer Creek, 50 yds. so. of the creek mouth	A+		
County Line Beach, 50 yds. so. of the creek mouth	A+	A	A+
Staircase Beach, bottom of staircase	A+		

County "Beach Bummers" names appear in bold.

<b>Santa Barbara County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Guadalupe Dunes	A	A	C
Ocean Beach	A+	A+	F
Jalama Beach	A	A	B
Gaviota State Beach	A+	A	B
Refugio State Beach	A	A	B
El Capitan State Beach	A	A	A
<b>Haskell's Beach</b> (btwn. Tecolote and Winchester Cyn Creeks)	A+	A	A
<b>Sands @ Coal Oil Point</b>	A	A	B
Goleta Beach	A	A	C
Hope Ranch Beach	A	A	B
Arroyo Burro Beach	B	A	C
Leadbetter Beach	A	B	A
East Beach @ Mission Creek	A	A	F
East Beach @ Sycamore Creek	A+	A+	C
Butterfly Beach	A	A	B
Hammond's Beach	A	A	A
Summerland Beach	A	A	A
Carpinteria City Beach	A+	A	B
Carpinteria State Beach	A	A	C
Rincon Beach@ creek mouth	A+	A+	A

County "Beach Bummers" names appear in bold.

San Luis Obispo County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Pico Ave., San Simeon	A+	A+	A
Cayucos State Beach, half-way between Cayucos Creek and the Pier	A+	A+	C
Cayucos State Beach, downcoast of the pier	A	A	A
Studio Drive parking lot near Old Creek	A	A	A
Morro Strand State Beach, projection of Beachcomber Dr.	A+	A+	A+
Morro Bay City Beach, projection of Atascadero	A+	A+	A+
Morro Bay City Beach, Morro Creek (south side)	A	A	B
Morro Bay City Beach, 75 feet north of main parking lot	A	A	A
Hazard Canyon, Montana De Oro State Park	A	A	A
Olde Port Beach (Harford Beach)north	A	A	C
Olde Port Beach (Harford Beach)south	A	A	A
Avila Beach, projection of San Juan Street	A	A	F
Avila Beach, projection of San Luis Street	A+	A+	C
Sewers at Silver Shoals Dr.	A+	A+	B
Pismo Beach, projection of Wadsworth Street	A	A	B
<b>Pismo Beach Pier, 50 feet south of the pier</b>	<b>F</b>	<b>F</b>	<b>B</b>
Pismo Beach, projection of Ocean View	A	A	B
Pismo State Beach, 330 yards no. of Pier Av.	A	A	B
Pismo State Beach, projection of Pier Av.	A+	A	B
Pismo State Beach, projection of Sandpiper Lane	A+	A+	B

County “Beach Bummers” names appear in bold.



Heal the Bay

<b>Monterey County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Monterey Beach Hotel, downcoast of Robert’s Lake outlet	A+		
Monterey Municipal Beach (at the commercial wharf)	A		
San Carlos Beach at San Carlos Beach Park	A		
Lover’s Point Park, projection of 16th Street	A+		
Asilomar State Beach, projection of Arena Av.	A+		
Spanish Bay (Moss Beach), end of 17 mile drive	A+		
Stillwater Cove, at Beach and Tennis Club	A		
Carmel City Beach, projection of Ocean Ave. (west end)	A+		

County “Beach Bummers” names appear in bold.



Heal the Bay

<b>Santa Cruz County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Natural Bridges State Beach	A+	A	A
Cowell Beach at the Stairs	A	A	A+
Cowell Beach	D	D	A
Santa Cruz Main Beach, at the Boardwalk	C	B	C
Santa Cruz Main Beach, at the San Lorenzo River	A	A	A
Seabright Beach	A	A	B
Twin Lakes Beach	A+	A+	A
Capitola Beach, west of the Jetty	A	A	D
Capitola Beach, east of the Jetty	A	A	B
New Brighton Beach	A	A	A
Seacliff State Beach	A	A	A
Rio Del Mar Beach	A	A	B
Palm/Pajaro Dunes Beach	A+	A+	A

County “Beach Bummers” names appear in bold.

<b>San Mateo County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Sharp Park Beach, projection of San Jose Av.	A+	A+	A+
Sharp Park Beach, projection of Birch Ln.	A+	A+	A
Rockaway Beach at Calera Creek	A+	A+	A+
Linda Mar Beach, projection of Crespi Dr.	A+	A+	A+
Linda Mar Beach at San Pedro Creek	A	A	A+
Gray Whale Cove	A+	A+	A+
Montara State Beach, at Martini Creek	A+	A+	A+
Fitzgerald Marine Reserve at San Vicente Creek	A	A	A
Pillar Point #8 Mavericks Beach Westpoint Ave.	A	A	A
Pillar Point Harbor, end of Westpoint Ave.(# 7)	B	C	C
Surfer's Beach, southend of riprap	A	A	A
Roosevelt Beach, south end of parking lot	A+	A	B
Dunes Beach	A	A	B
Venice Beach at Frenchman's Creek	B	C	F
Francis Beach at the foot of the steps	A	A	B
San Gregorio State Beach at San Gregorio Creek	A+		
Pomponio State Beach at Pomponio Creek	A+	A+	A+
Pescadero State Beach at Pescadero Creek	A+	A+	A+
Bean Hollow State Beach	A+	A+	A+
Gazos Beach at Gazos Creek	A	A	A+
Oyster Point	A	A	C
Coyote Point	A	A	A
Aquatic Park	A	B	F
Lakeshore Park - behind Rec Center	A	C	F

County "Beach Bummers" names appear in bold.



Heal the Bay

<b>San Francisco County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Aquatic Park Beach, Hyde St. Pier (proj. of Larkin St.)	A	A	A
Aquatic Park Beach, 211 Station	B	C	A
Crissy Field Beach East, 202.4 Station	A	A	A
Crissy Field Beach West, 202.2 Station	A+	A+	A
Baker Beach East, Ocean #15East	A+	A+	A
Baker Beach, Lobos Creek	A	A	A
Baker Beach West, Ocean #16	A+	A	A
China Beach, end of Sea Cliff Ave.	A+	A	A
Ocean Beach, projection of Balboa Ave.	A	A	C
Ocean Beach, projection of Lincoln Way	A+	A	F
Ocean Beach, projection of Sloat Blvd.	A	A	D
Candlestick Point, Jackrabbit Beach	A	A	F
Candlestick Point, Windsurfer Circle	A	A	F
Candlestick Point, Sunnydale Cove	A	C	F

County “Beach Bummers” names appear in bold.



<b>Contra Costa &amp; Alameda County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Keller Beach North Beach	B	B	A
Keller Beach Mid Beach	B	B	B
Keller Beach South Beach	A	A	A
Crown Beach Bath House	A	A	C
Crown Beach Windsurfer Corner	A	A	A
Crown Beach Sunset Rd.	A	A	F
Crown Beach 2001 Shoreline Dr.	A	A	F
Crown Beach Bird Sanctuary	A	C	F

County "Beach Bummers" names appear in bold.



Heal the Bay

<b>Marin County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Dillon Beach	A+		
Lawson’s Landing	A		
Heart’s Desire	A		
Shell Beach	A+		
Chicken Ranch Beach at Creek	A		
Millerton Point	C		
Drake’s Beach	A+		
Drakes Estero	A		
Limantour Beach	A+		
Bolinas Beach (Wharf Rd)	A		
Stinson Beach, North	A+		
Stinson Beach, Central	A+		
Stinson Beach, South	A+		
Muir Beach, North	A		
Muir Beach, Central	A		
Muir Beach, South	A		
Rodeo Beach, North	A		
Rodeo Beach, Central	A		
Rodeo Beach, South	A		
Baker Beach, Horseshoe Cove SW	A		
Baker Beach, Horseshoe Cove NW	B		
Baker Beach, Horseshoe Cove NE	A		
Schoonmaker Beach	A+		
Paradise Cove	A		
China Camp	A+		
McNears Beach	A		

County “Beach Bummers” names appear in bold.



<b>Sonoma County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Gualala Regional Park Beach	A+		
Black Point Beach	A		
Stillwater Cove Regional Park Beach	A+		
Goat Rock State Park Beach	A+		
Salmon Creek State Park Beach	A		
<b>Campbell Cove State Park Beach</b>	<b>F</b>		
Doran Regional Park Beach	A+		

County "Beach Bummers" names appear in bold.



<b>Mendocino County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
MacKerricher State Park at Mill Creek	A		
MacKerricher State Park at Virgin Creek	A+		
Pudding Creek Ocean Outlet	A+		
Hare Creek	A		
Caspar Beach at Caspar Creek	A+		
Big River near PCH	A+		
Van Damme State Park at the Little River	A+		

County "Beach Bummers" names appear in bold.



<b>Humboldt County</b>	<b>AB411 (April – Oct.)</b>	<b>Dry Year-round</b>	<b>Wet Year-round</b>
Trinidad State Beach near Mill Creek	A	A	A
Luffenholtz Beach near Luffenholtz Creek	B	B	B
Moonstone County Park (Little River State Beach)	C	C	B
<b>Clam Beach County Park near Strawberry Creek</b>	<b>F</b>	<b>F</b>	<b>B</b>
Mad River Mouth (north)	A+	A+	A

County “Beach Bummers” names appear in bold.



## CREDITS

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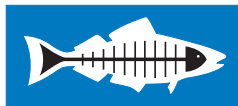
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