



HEAL THE BAY 2017-2018 BEACH REPORT

Heal the Bay is an environmental non-profit dedicated to making the coastal waters and watersheds of Greater Los Angeles safe, healthy and clean. To fulfill our mission, we use science, education, community action and advocacy.

The Beach Report Card program is funded by grants from



CARD

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We at Heal the Bay believe the public has the right to know the water quality at their beaches. We are proud to provide West Coast residents and visitors with this information in an easy-to-understand format. We hope beachgoers will use this information to make the decisions necessary to protect their health.

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the beach report card

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executive summary

After a remarkably wet winter in 2017, California experienced less than average rainfall this year, with only the northernmost counties receiving rain on average with historic levels. Rainfall tends to impact beaches by flushing pollutants from streets and roadways into the ocean. Less rain meant wet weather beach grades saw overall improvements throughout the state. While summer dry weather grades were also excellent, winter dry weather grades were worse than the five-year average.

The Beach Bummer List holds a number of surprises this year. Mother's Beach in Marina del Rey, which had been a Bummer for the past four years, fell off the List this year. San Mateo County landed four Beach Bummers, including three new-tothe-List beaches: Linda Mar Beach, Roosevelt Beach, and Surfer's Beach. Cowell Beach in Santa Cruz County continues to show improvements, falling five spots to No. 8. Poche Beach in Orange County claims the No. 1 Beach Bummer spot. This location, which is situated directly in front of the Prima Deshecha Cañada Channel, makes its first appearance as a Beach Bummer since monitoring began in 2015 for "point zero" beach locations. A record thirty-seven beaches made the Honor Roll list this year, more than any other year since Heal the Bay began tracking annual grades. Honor Roll beaches came from San Mateo, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties.

Looking to the future, Heal the Bay has partnered with Stanford University and UCLA on an innovative tool to predict beach water quality. We have designed predictive models, or beach water quality 'NowCasting' tools, to predict daily water quality based upon historic data and environmental information for a particular beach. Last summer Heal the Bay expanded the NowCast project from five to ten beaches and this summer will see the launch of a new mobile app that will provide even easier access to daily predictions of beach water quality.



I. INTRODUCTION



THE 2017-18 BEACH REPORT CARD

Since its inception over 25 years ago, the Beach Report Card has provided beachgoers with a reliable and easy-to-understand tool in analyzing beach water quality. The better the grade a beach receives, the lower the risk of illness to ocean users. The BRC is the result of an ongoing cooperation between shoreline monitoring agencies in California, Oregon and Washington.

Beach water quality monitoring helps protect the health of millions of beachgoers in the U.S. each year by focusing remediation efforts on areas of greatest need and allowing the public to make informed decisions about where to get in the water. However, water quality information must be accessible and easy to understand for beachgoers to make these decisions. Heal the Bay's Beach Report CardSM Program uses an intuitive A to F grading system to provide water quality information to the millions of people who use West Coast beaches. Simply put, the better the grade, the lower the risk



Introduction (continued)

of illness to ocean users. This Annual Report is a roundup of water quality grades, rainfall totals, sewage spills, and other pertinent water quality events that occurred in the past year.

Grades in the Annual Report are assigned for three distinct periods:



SUMMER DRY WEATHER April through October 2017

This is the most active beach recreation season in California, and corresponds with sampling requirements set by the California Beach Bathing Water Quality Standards, Assembly Bill 411 (AB411).



WINTER DRY WEATHER November 2017 through March 2018

Many Northern California counties do not sample during the winter season due to lower beach recreation. The winter season is graded separately to account for the lower number of counties conducting water quality sampling.



YEAR-ROUND WET WEATHER CONDITIONS April 2017 through March 2018

Wet weather is graded separately from dry weather. Wet weather samples are taken during or three days following a rain event greater than 0.10 inches. Water quality typically drops dramatically during or immediately following a rainstorm, but rebounds to previous levels within a few days. Therefore, wet weather grades are analyzed separately in order to avoid artificially lowering a location's grade.





Grades are based on routine beach water quality sampling conducted by county health agencies, sanitation departments, and dischargers. Water samples are analyzed for three fecal indicator bacteria (FIB) that indicate pollution from numerous sources, including human and animal waste. These FIB are total coliform, fecal coliform (Escherichia coli), and Enterococcus spp.

For more information about grading methodologies, please go to www.heal-thebay.org, or call 1-800-HEAL BAY.

BEACH REPORT CARD

We at Heal the Bay believe the public has the right to know the water quality at their beaches. We are proud to provide West Coast residents and visitors with this information in an easy-to-understand format. We hope beachgoers will use this information to make the decisions necessary to protect their health.





OVERVIEW OF CALIFORNIA BEACH WATER QUALITY

California had excellent water quality during the summer dry season, with 96% of beach locations receiving an A or B grade. Higher grades are indicative of better water quality, and a lower health risk when recreating in the water. Winter dry grades were worse this year, with only 77% receiving an A grade compared to the five-year average of 81%. California had a drier than average rainy season, with rainfall totaling 265 inches compared to a 10-year average of 319 inches across the coastal counties. With less rainfall washing pollutants from our streets and roads into the ocean, wet weather grades improved over 10% compared to last year, with 66% A or B grades. Grades can be found in Appendix B.

NORTHERN CALIFORNIA

Northern California beach water quality was slightly worse this year, with summer and winter dry grades below the five-year average. Eighty eight percent of beach locations had an A or B grade for the summer, while only 68% of beaches received an A or B for the winter dry season. Many Northern California counties only sample during the peak sum-

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West Coast Overview (continued)

mer season from April through October, so the sample size for winter dry grades is not as robust. Wet weather grades improved greatly compared to last year and surpassed the five-year average, with only 27% of sampled locations earning a C through F grade.

Northern California experienced nearly triple the amount of rainfall compared to Southern California. However, the overall amount was substantially less than last year's rainfall total (approximately 182 inches this year, 343 inches last year).

SOUTHERN CALIFORNIA

Southern California beaches had a banner year in water quality. 95% of beaches earned A grades during the summer dry season, 5% more than the five-year average. Winter dry grades also fared well, with only 10% of beaches receiving a C through F grade. After an extremely wet year for Southern California in 2016-17, drought like conditions returned for this sampling year. With a reduced wetweather sampling size, 61% of sampling locations received A or B grades, on par with the five-year average.



BEACH BUMMERS

Four of the Top 10 Beach Bummers are in San Mateo County including repeat offender Lakeshore Park in Marina Lagoon. Three other locations received poor grades, but did not crack the Top 10.

Two of the Top 10 Beach Bummers came from Humboldt County.

| See page 20 for details |

BEACH NEWS

The President's budget proposed to eliminate funding for US EPA's BEACH Act funding. If eliminated, there is a possibility that states may abandon stronger beachgoer protections, or set standards so low that public health will be put in danger.

| See page 28 for details |

LOS ANGELES RIVER

Heal the Bay is now monitoring freshwater recreation areas in the L.A. River and Santa Monica Mountains and makes water quality information available to the public at: www.healthebay.org/riverreportcard

| See page 29 for details |

BEACH SPOTLIGHTS

Avalon Bay (Catalina Island) and
Santa Monica Pier, two locations that
have been featured prominently in the
Beach Report Card over the years, are
featured in a progress report.

| See page 13 for details |

II. WEST COAST SUMMARY

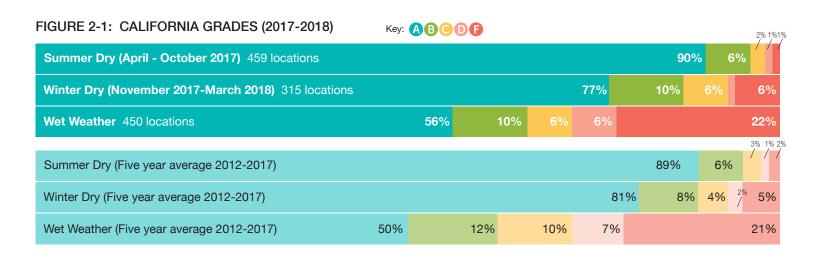


FIGURE 2-2: NORTHERN CALIFORNIA GRADES (2017-2018)

Combined grades for Santa Cruz, San Mateo, Alameda, San Francisco, Contra Costa, Marin, Sonoma, Mendocino, Humboldt, and Del Norte Counties

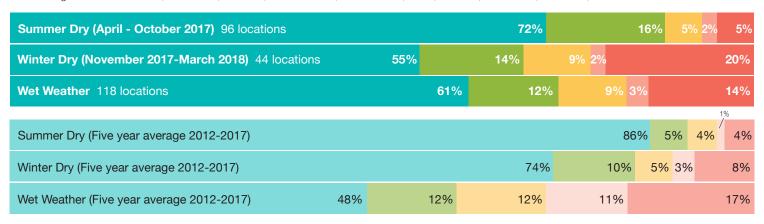


FIGURE 2-3: SOUTHERN CALIFORNIA GRADES (2017-2018)

Combined grades for Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties

								1	61%
Summer Dry (April - October 2017) 336 locations							95%	3%	/
Winter Dry (November 2017-March 2018) 252 locations				8	80%	10%	6%	1% / 4%	þ
Wet Weather 305 locations	53%	8%		8%				27%	þ
								2% 1	%1%
Summer Dry (Five year average 2012-2017)						91%	5%	6 / /	/
Winter Dry (Five year average 2012-2017)					82%	8%	3% 2	% 4%	5
Wet Weather (Five year average 2012-2017)	49%	12%	9%	6%				24%)



IMPACTS OF RAIN

Rain flushes contaminants and bacteria sources from our streets, including trash, fertilizer, pet waste, metals, and automotive fluids, into urban waterways. This untreated runoff drains directly into the ocean and results in elevated bacteria levels.

The poor wet weather grades compared to dry weather grades demonstrates the impact of stormwater runoff on beach water quality. Beachgoers who come in contact with polluted waters have a much higher risk of contracting illnesses such as ear infections, upper respiratory infections, skin rashes, and the stomach flu. California coastal Health Departments and Heal the Bay recommend swimmers stay out of the water for a minimum of three days following a rain event of at least 0.10 inches.

Beach visitors contribute to an estimated \$90 billion coastal tourism economy¹. Therefore, polluted beaches can result in significant economic losses. A study conducted in Los Angeles and Orange Counties found that the regional public health cost of gastro-intestinal illnesses caused by recreating in polluted ocean waters was between \$21 and \$51 million each year².

These economic and public health implications are why Heal the Bay advocates for better stormwater capture and reuse. One inch of rainfall in Los Angeles can result in 10

TAKEAWAYS

Rain exacerbates pollution in our streets and waterways and leads to:

- Poor water quality grades
 - Polluted runoff
- Higher risk of illness to beachgoers
- · Loss of coastal tourism revenue

HOT SPOTS

Four stretches of L.A. and Orange Counties had excellent summer grades, but "D" or "F" grades in wet weather:

HUNTINGTON / NEWPORT BEACHES

7 of 11 locations

HUNTINGTON HARBOR

7 of 7 locations

NEWPORT BAY

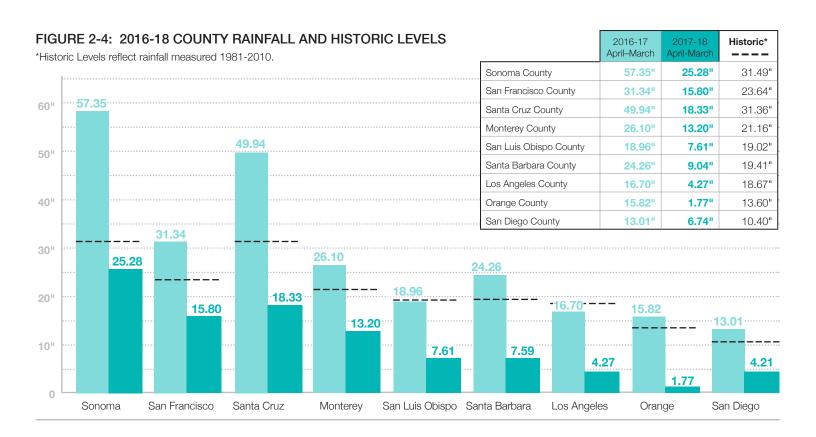
22 of 23 locations

LONG BEACH

14 of 15 locations

¹ http://water.epa.gov/type/oceb/beaches/basicinfo.cfm

² Given, S. et al, Regional Public Health Cost Estimates of Contaminated Coastal Waters: A Case Study of Gastroenteritis at Southern California Beaches, 40 Environ. Sci. Technol. 4851 (2006)



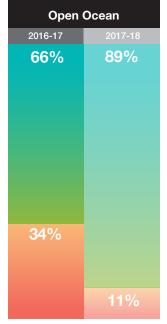
Impacts of Rain (continued)

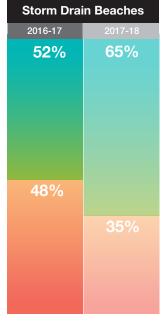
billion gallons of polluted runoff entering the Santa Monica Bay³.

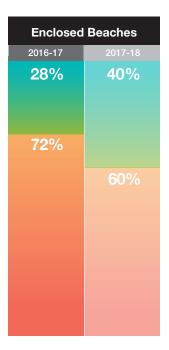
As climate change brings intensified periods of drought and more extreme wet weather events, there is great potential for stormwater capture to alleviate some of the stresses associated with rainfall and ocean water quality. This fall, Los Angeles voters may get a chance to vote on a funding measure to improve stormwater capture across the county. Additional information on this measure can be found on page 29 in the Beach News section.

FIGURE 2-5: WET WEATHER GRADES FOR PAST TWO SEASONS

: A+B GRADES : C+D+F GRADES







³ http://dpw.lacounty.gov/prg/stormwater/page_30.cfm



ANATOMY OF A BEACH: SPOTLIGHTS

As part of our ongoing effort in advocating for clean beach water quality, Heal the Bay has worked with monitoring agencies, universities, and other organizations to help counties improve the conditions of some of their chronically polluted beaches.

Avalon Beach in Catalina Island has shown vast improvements within the past few years as a result of intensive remediation efforts, whereas Santa Monica Pier is continuing to work towards improving the water quality at this popular beach location.



HISTORICAL PROBLEMS OF AVALON BEACH:

Chronic Beach Bummer

Avalon's beaches have appeared on Heal the Bay's Beach Bummer List 12 separate times, including five times in the No. 1 spot.

Sewage-contaminated groundwater

Stanford University conducted a study on Avalon Beach during the summers of 2007 and 2008 and found human-specific bacteria in the water, with sewage contaminated groundwater as the major source of beach pollution.

Water quality violations

Los Angeles Regional Water Quality Control Board issued the City of Avalon a Notice of Violation (NOV) for numerous Sanitary Sewer Overflows (SSO) and consistent water quality violations in Spotlights (continued)

2011, and a Draft Cease and Desist Order (CDO) for illegally discharging polluted water in 2012.

TMDL

Concurrently, the Board adopted a bacteria Total Maximum Daily Load (TMDL) for Avalon Harbor.

STEPS TAKEN TO IMPROVE THE BEACH:

Improvements and repairs

\$5.7 million on sewer main improvements and implementation of a GISbased inspection and tracking system as part of its sanitary sewer inspection and repair program.

Routine inspections

Private Sewer Laterals Ordinance, which requires private laterals to be inspected and repaired routinely.

Protecting storm drains

Water Quality Management Ordinance, which prohibits restaurants and businesses along Avalon Bay from discharging and/or washing debris into the water, as well as a fats, oils and grease (FOG) program to prevent FOG from restaurants from entering and clogging the storm drain system.

Education

Development of a beach water pollution and prevention education program.

Bird Feces

Implementation of bird control measures at and around the beach.

RESULTS:

Since the implementation of these measures, Avalon Beach has not appeared on the Bummer List since 2013.

The five sampling locations around Ava-



Ion Beach have steadily improved, and currently, all five sites have A or A+ summer dry grades.



SANTA MONICA PIER

HISTORICAL PROBLEMS OF SANTA MONICA PIER:

Chronic Beach Bummer

The Santa Monica Pier has been a chronic Beach Bummer, including the most recent five consecutive years.

STEPS TAKEN TO IMPROVE THE BEACH:

Santa Monica Pier Improvement Project

With funding from Measure V and a Clean Beach Initiative (CBI) grant, the Santa Monica Pier Improvement project was completed in 2011 and included:

 Replacement of a severely degraded storm drain underneath the Santa Monica Pier. The new storm drain was designed to reduce or eliminate ponding of runoff under the pier

- Installation of a new dry weather runoff diversion to replace the previous faulty system
- Installation of netting under the pier to prevent birds from nesting

Two-year study

In 2012, Heal the Bay, UCLA, and the City of Santa Monica completed a two-year source study and found that:

- Conditions under the pier (moisture and lack of sunlight) promote bacterial persistence
- · Bird-specific bacteria were detected
- Human-specific bacteria were undetected

RESULTS:

Construction is underway on a 1.6 million gallon underground stormwater storage tank which will capture wet weather runoff that drains to the Santa Monica Pier storm drain. This water will be treated and distributed throughout the city for non-potable reuse.

When completed, the project is expected to substantially reduce the amount of stormwater that enters Santa Monica Bay from city streets and therefore improve water quality at the pier.

II. WEST COAST SUMMARY

TABLE 2-1: HISTORICAL GRADES OF THE SANTA MONICA MUNICIPAL PIER

	2017-18			2017-18 2016-17			7	:	2015-16	;	2014-15			:	2013-14	1	2012-13		
Monitoring Locations	Summer Dry	Winter Dry	Wet Weather	Summer Dry	Winter Dry	Wet Weather	Summer Dry	Winter Dry	Wet Weather	Summer Dry	Winter Dry	Wet Weather	Summer Dry	Winter Dry	Wet Weather	Summer Dry	Winter Dry	Wet Weather	
Santa Monica Pier	D	F	F	D	F	F	F	F	F	F	F	F	D	F	F	В	F	F	

TABLE 2-2: SUMMER WATER QUALITY TRENDS IN AVALON BAY, CATALINA ISLAND

Monitoring Locations	2017-18	2016-17	2015-16	2014-15	2013-14	2012-13	2011-12	2010-11
East of Casino Arch	Α	Α	Α	Α	С	F	F	F
Avalon, 100 ft. west of Pier	Α	Α	Α	В	В	F	F	F
Avalon, 50 ft. west of Pier	A+	Α	В	С	В	F	F	F
Avalon, 50 ft. east of Pier	A+	Α	Α	Α	С	F	F	F
Avalon, 100 ft. east of Pier	Α	Α	Α	Α	Α	D	D	D

TABLE 2-3: SUMMER WATER QUALITY TRENDS IN MALIBU

Beach/County	2017-18	2016-17	2015-16	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
Paradise Cove @ Ramirez Canyon Creek	Α	Α	Α	A +	A +	С	В	D	В	F
Escondido State Beach @ Escondido Creek	A +	A +	A +	Α	Α	С	F	Α	Α	F
Dan Blocker County Beach @ Solstice Canyon	A +	A +	A +	Α	Α	В	F	С	В	F
Puerco Beach @ Marie Canyon	В	A +	Α	В	Α	В	F	D	В	F
Surfrider Beach	Α	Α	Α	Α	В	В	F	В	С	D
Malibu Pier, 50 yards east	A +	n/a	n/a	Α	С	F	F	В	В	В

TABLE 2-4: SUMMER WATER QUALITY TRENDS AT LOS ANGELES COUNTY'S ENCLOSED BEACHES

Beach/County	2017-18	2016-17	2015-16	2014-15	2013-14	2012-13	2011-12	2010-11	2009-10	2008-09
Mother's Beach – Playground Area Marina del Rey	Α	Α	С	F	Α	В	Α	Α	С	Α
Mother's Beach – Lifeguard Tower Marina del Rey	Α	Α	В	F	В	Α	Α	Α	Α	Α
Mother's Beach – bet. Tower and Boat Dock Marina del Rey	Α	D	F	F	F	Α	Α	Α	В	Α
Cabrillo Beach – harborside @ restrooms	D	В	Α	D	F	F	F	F	F	F



GRADES: THE GOOD & THE BAD

Each year Heal the Bay highlights California's cleanest and dirtiest beaches. To earn a spot on the Honor Roll, a beach must be monitored year-round and have received only exceptional (A+) grades during all seasons and weather conditions. Monitoring locations with the poorest dry weather water quality during the past summer are designated as "Beach Bummers."

2018 California Top 10 Beach Bummers

2016 Camorina Top 10 Beach Builliners	i	
1. Poche Beach at ocean outlet	San Clemente	Orange County
2. Lakeshore Park, Marina Lagoon	San Mateo	San Mateo County
3. Linda Mar Beach at San Pedro Creek	Pacifica	San Mateo County
4. Clam Beach County Park near Strawberry Creek	McKinleyville	Humboldt County
5. Roosevelt Beach, south of the parking lot	Half Moon Bay	San Mateo County
6. Luffenholtz Beach near Luffenholtz Creek	Trinidad	Humboldt County
7. Santa Monica Municipal Pier	Santa Monica	Los Angeles County
8. Cowell Beach, west of the wharf	Santa Cruz	Santa Cruz County
9. Cabrillo Beach, harborside	San Pedro	Los Angeles County
10. Surfer's Beach, south end of riprap	Half Moon Bay	San Mateo County

II. WEST COAST SUMMARY

Orange County



Poche Beach, channel outlet

The only Orange County location to make the Beach Bummer List this year is Poche Beach at the outlet of the Prima Deshecha Cañada channel. This location should not be confused with the other Poche Beach location, which sits 100 feet north and is a former perennial Beach Bummer that has shown vast water quality improvements over the last few years due to intensive efforts by the County. These improvement projects include implementing a bird abatement service to reduce gull popula-

tions on the beach and constructing the Poche Clean Beach Project (Poche CBP), a water treatment facility that uses sand and an ultraviolet light process to reduce bacteria concentrations prior to discharge into the ocean.

Beginning in March 2015, all California agencies that receive state funds for ocean water quality monitoring are required to sample at "point zero" locations, which are beach sites where a stream, creek, river, or storm drain discharge meets the ocean water. Poche Beach at the outlet of the Prima Deshe-

cha Cañada channel is a "point zero" beach site. During the summer season, the Poche CBP experienced increased shutdown times due to facility repairs, maintenance requirements, and high tide and rain events. Higher sediment discharges into the facility also reduced its treatment efficiency. These impacts affected ocean water quality monitoring results at the channel outlet. By midsummer, a majority of these issues were resolved through a collaborative effort among enforcement staff and monitoring, operational, and city inspections.

TABLE 2-5: POCHE BEACH GRADES, HISTORICAL

Poche Beach historical water quality before and after grading were split into two separate monitoring locations.

Poche Beach	2	2017-18			2016-17			2015-16			2014-15			2013-1	4	2012-13			2011-12		
monitoring locations	Summer Dry	Winter Dry	Wet Weather																		
100 ft. north of creek outlet	Α	Α	A +	A+	A +	A+	Α	Α	Α			_							_		
Point Zero: Creek outlet	F	F	F	Α	Α	F	Α	В	n/a	А	Α	-	В	Α	В	F	D	D	F	F	f



PLEASE NOTE:
Starting in 2015, the SWRCB required all coastal counties receiving state funds to monitor their beaches at point zero – where the discharge meets the ocean. Prior to monitoring year 2015-16, only Los Angeles County (and portions of Orange, San Diego, and Humboldt Counties) sampled directly at the outfall, which gives the most accurate picture of water quality.

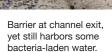
FIGURE 2-6: POCHE BEACH MONITORING LOCATIONS



Poche Beach monitoring location 100 ft. north of creek outlet Prima Deshecha Cañada Channel outlet at Poche Beach (point zero)



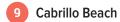
Poche Clean Beach Project cleans, filters and diverts urban runoff



Beach Bummers (continued)

Los Angeles County





Santa Monica Pier appears on the Beach Bummer List for the fifth consecutive time at No. 7. A study conducted by Heal the Bay, the City of Santa Monica, and UCLA found that conditions under the Pier, including moisture and lack of sunlight, coupled with bird-specific bacteria, contribute to the Pier's poor water quality. The City of Santa Monica is constructing an underground storage tank that will capture wet weather runoff from the Santa Monica Pier storm drain. This project is expected to reduce the amount of polluted stormwater that enters the Santa Monica Bay near the Pier. Cabrillo Beach in Long Beach returns to the Bummer List after a two-year reprieve. This enclosed beach has poor water circulation and minimal wave action, which contributes to its elevated bacteria levels.

A Microbial Source Tracking (MST) study conducted by the County found that the majority of the FIB was avian related. Additionally, some aging infrastructure around the beach was replaced after the study also found human genetic markers. However, additional monitoring should be conducted to determine if this will lower bacteria concentrations at Cabrillo.

Santa Cruz County

8 Cowell Beach, west of the wharf

Cowell Beach makes its ninth consecutive appearance on the Beach Bummer List, taking the No. 8 spot this year.





After three years of claiming the No. 1 spot, and dropping down to No. 3 last year, Cowell Beach continues to show improvements in water quality. The City of Santa Cruz has taken measures to reduce beach garbage and improve storm drain flows near Cowell Beach. Additionally, the City launched the Cowell Working Group, including participants from the County of Santa Cruz and local nonprofits and environmental organizations, to address water quality issues at Cowell Beach. Based on the group's recommendation, the City installed

steel netting under the wharf to prevent bird roosting, which resulted in two consecutive years of approximately 50% fewer exceedances since 2016.

This past year, the city and the Working Group engaged a Technical Advisory Committee (TAC) to ensure the best available science is used to locate and eliminate bacteria sources. The Working Group is currently reviewing recommended improvement actions from the TAC for prioritization and implementation, including infrastructure improvements and the use of MST methods.

II. WEST COAST SUMMARY

Beach Bummers (continued)

San Mateo County

- Lakeshore Park, Marina Lagoon
- 3 Linda Mar Beach, San Pedro Creek
- 6 Roosevelt Beach
- 10 Surfer's Beach

Four sites from San Mateo County landed on the Beach Bummer List this year. Lakeshore Park in Marina Lagoon makes its second consecutive appearance on the list, up two spots from last year to No. 2. Lakeshore Park is an enclosed beach site, where poor circulation can result in higher bacteria concentrations. During the summer season, there were two major exceedances in Enterococcus levels, and eight exceedances in fecal coliform levels. Linda Mar Beach. Roosevelt Beach, and Surfer's Beach are new to the Bummer List this year. All three are located on the Pacific side of San Mateo County, and all are storm-drain impacted beaches. The majority of the bacteria exceedances at these locations correlated with high tides. The County is continuing



to monitor these locations in order to determine whether further action is needed to identify the sources of contamination.

Humboldt County

- Clam Beach County Park,
- 6 Luffenholtz Beach, near Luffenholtz Creek

This is Clam Beach's fifth consecutive year on the Beach Bummer List, moving down four spots from last year's No. 1 spot. Clam Beach is fed by two creeks, Patrick Creek to the north, and Strawberry Creek from the south. Luffenholtz Beach

near Luffenholtz Creek makes its second appearance on the Bummer List, moving up three from last year's No. 9 spot. Beach sites located at or near flowing freshwater streams often have elevated bacteria levels due to pollution sources located along the stream (see page 25). Potential sources of pollution for Clam Beach include private septic systems located along its two creeks. The Humboldt County Public Health Lab is conducting ongoing Bacteroides testing to identify the sources of contamination including if they originate from humans or animals.

FIGURE 2-7: SAN MATEO COUNTY				
Linda Mar Beach, Pacifica	F	F	F	
Montara State Beach	С		В	
Moss Beach, Fitzgerald Marine Res.	С	F	F	
Pillar Point, #8 Mavericks Beach	В	F	F	
Pillar Point Harbor	В	F	F	
Surfer's Beach	D	F	С	
Roosevelt Beach	F	F	F	
Dunes Beach	Α	D	В	
Venice Beach	С	F	F	
Francis Beach	В	С	Α	
Marina Lagoon, Aquatic Park	В		F	
Marina Lagoon, Lakeshore Park	F		F	

FIGURE 2-8

Heal the Bay designates the monitoring locations with the poorest dry weather water quality in California during the past summer as annual "Beach Bummers."

BEACH BUMMER NOTES:

POCHE BEACH at the Prima Deshecha Cañada channel outlet is the No. 1 Beach Bummer this year. In 2015 Poche Beach was split into two separate monitoring locations to clarify its sampling results (see page 17).

SANTA MONICA PIER, CLAM BEACH and COWELL BEACH have been on the Beach Bummers Top 10 List for the past five years (see Table 2-7 on page 21).

COWELL BEACH drops to No. 8 after having been ranked in the Top 3 since 2010.

CABRILLO BEACH is back in the Top 10 after not being on the List for two years. Previously it had been a Beach Bummer every year from 2004–2015.

Four of the Top 10 Beach Bummers are in SAN MATEO COUNTY including repeat offender Lakeshore Park in Marina Lagoon. Three other locations received poor grades, but did not crack the Top 10.

Two of **HUMBOLDT COUNTY**'s six monitored beaches have made the Beach Bummers list. One other location also received poor grades, but did not make the Top 10.

The beaches in AVALON, CATALINA ISLAND have appeared on Heal the Bay's Beach Bummer List 12 times, including five times in the No. 1 spot. Since water improvement measures were implemented, it has not appeared on the List since 2013. (see page 13).

	beach bummens 2017-2018	
RANK	BEACH/COUNTY	35-1212
1	Poche Beach at channel outlet, San Clemente ORANGE COUNTY	G
2	Lakeshore Park, Marina Lagoon, San Mateo SAN MATEO COUNTY	(
3	Linda Mar Beach at San Pedro Creek SAN MATEO COUNTY	(
4	Clam Beach County Park, McKinleyville HUMBOLDT COUNTY	(
5	Roosevelt Beach, Half Moon Bay SAN MATEO COUNTY	(
6	Luffenholtz Beach, Trinidad HUMBOLDT COUNTY	(
7	Santa Monica Pier, Santa Monica LOS ANGELES COUNTY	D
8	Cowell Beach, west of Wharf, Santa Cruz SANTA CRUZ COUNTY	D
9	Cabrillo Beach, harborside, San Pedro LOS ANGELES COUNTY	D
10	Surfer's Beach, Half Moon Bay SAN MATEO COUNTY	D

In 2008-09, several MALIBU beaches from Surfrider to Paradise Cove were Beach Bummers. Today, those same beaches enjoy excellent summer water quality (see Table 2-3 on page 15).

MOTHER'S BEACH IN MARINA DEL REY

dropped out of the Top 10 for the first time since 2013.

Two of last year's Beach Bummers, SAN CLEMENTE PIER and MONARCH BEACH NORTH, received poor grades this year but did not make the Top Ten.

II. WEST COAST SUMMARY



TABLE 2-6: 2017-18 BEACH BUMMERS - RECENT HISTORY

			2017-18	3		2016-17			2015-16			2014-15	5		2013-14	l e
20	17-18 Beach Bummers	Summer Dry	Winter Dry	Wet Weather												
1	Poche Beach @ Creek, San Clemente Orange County	F	F	F	Α	Α	F	Α	В	n/a	Α	Α	F	В	Α	В
2	Lakeshore Park, Marina Lagoon San Mateo County	F	n/a	F	F	В	F	С	В	F	F	С	F	F	F	F
3	Linda Mar Beach, Pacifica San Mateo County	F	F	F	С	Α	F	Α	С	F	В	С	F	Α	A+	D
4	Clam Beach County Park Humboldt County	F	n/a	С	F	n/a	F	F	n/a	F	F	n/a	n/a	D	n/a	n/a
5	Roosevelt Beach, Half Moon Bay San Mateo County	F	F	F	Α	Α	D	Α	A +	D	A+	A+	С	A+	Α	Α
6	Luffenholtz Beach, Humboldt County	F	n/a	D	D	n/a	С	С	n/a	D	Α	n/a	n/a	Α	n/a	n/a
7	Santa Monica Pier Los Angeles County	D	F	F	D	F	F	F	F	F	F	F	F	D	F	F
8	Cowell Beach, Santa Cruz Santa Cruz County	D	В	В	F	Α	F	F	A+	D	F	F	С	F	n/a	A+
9	Cabrillo Beach (@ restrooms) Los Angeles County	D	F	F	В	В	F	Α	Α	D	D	В	F	F	D	F
10	Surfer's Beach, Half Moon Bay San Mateo County	D	F	С	Α	Α	С	Α	n/a	A +	Α	A+	В	Α	A+	В



PLEASE NOTE:

Starting in 2015, the SWRCB required all coastal counties receiving state funds to monitor their beaches at point zero – where the discharge meets the ocean. Prior to monitoring year 2015-16, only Los Angeles County (and portions of Orange, San Diego, and Humboldt Counties) sampled directly at the outfall, which gives the most accurate picture of water quality.

TABLE 2-7: MOST BEACH BUMMER APPEARANCES DURING LAST DECADE

Beach/County	Number of appearances	2017-18 Rank	2016-17 Rank	2015-16 Rank	2014-15 Rank	2013-14 Rank	2012-13 Rank	2011-12 Rank	2010-11 Rank	2009-10 Rank	2008-09 Rank
Cowell Beach, Santa Cruz	9	8	3	1	1	1	2	2	1	2	
Cabrillo Beach at restrooms	8	9			9	4	4	6	3	3	2
Santa Monica Pier	7	7	6	5	6	7				5	5
Poche Beach, San Clemente	6	1					3	8	5	4	7
Clam Beach County Park	5	4	1	2	3	6					
Marina Lagoon, Lakeshore Park	5	2	4		4	2	6				

FIGURE 2-9

To earn a spot on the Honor Roll, a beach must be monitored weekly year-round, and have received only exceptional (A+) grades during all seasons and weather conditions.

HONOR ROLL NOTES:

Malibu beaches have shown steady improvement in summer grades over the past decade (see page 15). Two of them, former Beach Bummers **ESCONDIDO STATE BEACH** and **DAN BLOCKER STATE BEACH**, are on this year's Honor Roll.

With wet weather grades dropping to a "B", the beach at LAGUNA LIDO APTS has fallen off the Honor Roll after a continuous run starting in 2009.

Two Southern California regions,
PALOS VERDES PENINSULA (between Bluff
Cove and Portuguese Bend) and CARLSBAD
(between Cerezo Drive and Pointsettia), have
consistently appeared on the Honor Roll
(see page 23).

EL SEGUNDO BEACH at the Grand Avenue drain, adjacent to the Hyperion Water Treatment Plant, is the only Los Angeles County location outside of Malibu and Palos Verdes Peninsula to make the Honor Roll.

Despite 13 of 19 monitoring locations in San Mateo County failing to get an "A" summer grade, **BEAN HOLLOW STATE BEACH** has been excellent all year round and has landed on the Honor Roll.

Enclosed beaches are susceptible to high bacteria counts, but the **YOUTH DOCK IN DANA POINT HARBOR** defies the odds and is on the Honor Roll.

	hono / 2017-	2018
СІТУ	COUNTY	MONITORING LOCATION
San Simeon Morro Bay Isla Vista Oxnard Oxnard Oxnard Oxnard Malibu Malibu Malibu Malibu El Segundo Palos Verdes Est. R. Palos Verdes R. Palos Verdes Newport Beach Newport Beach Newport Beach Laguna Beach Laguna Beach Laguna Boint Dana Point Dana Point Dana Point Dana Point Dana Point Can Clemente San Clemente San Clemente Carlsbad Carlsbad Carlsbad	San Luis Obispo San Luis Obispo Santa Barbara Ventura Ventura Ventura Ventura Los Angeles Los Angeles Los Angeles Los Angeles Los Angeles Los Angeles Cos Angeles Corange Orange	Pico Avenue Morro Bay City Beach Sandes Beach @ Coal Oil Point Surfer's Knoll Hollywood Beach @ Los Robles St. Silver Strand @ San Nicholas Ave. Silver Strand @ Santa Paula Dr. El Matador State Beach Escondido State Beach Dan Blocker County Beach Las Tunas County Beach El Segundo Beach @ Grand Ave. Bluff Cove Abalone Cove Shoreline Park Portuguese Bend Cove Balboa Beach @ 15th/16th St. Balboa Beach Pier Corona Del Mar (CSDOC) Crystal Cove (CSDOC) Victoria Beach North Aliso County Beach Salt Creek Beach Dana Strands Beach (AWMA) Marine Science Inst. Beach (SERRA) S. Capistrano Bay Community Beach Riviera Beach Avenida Calafia Avenida Las Palmeras Dana Point Harbor Youth Dock 500'N. of Loma Alta Creek outlet projection of Cerezo Drive projection of Palomar Airport Rd. Encina Creek outlet
Carlsbad Carlsbad Encinitas	San Diego San Diego San Diego	projection of Ponto Drive projection of Poinsettia Lane San Elijo Park, north end of stairs
Encinitas	San Diego	San Elijo St. Park (proj. Liverpool Dr.)

HONOR ROLL BEACHES

TABLE 2-8: CALIFORNIA'S CLEANEST BEACHES FOR WATER QUALITY



County/Beach		2017-18	2016-17	2015-16	2014-15	2013-14	2012-13	2011-12	2010-11
San Mateo	Bean Hollow State Beach	•				•	n/a	n/a	n/a
San Luis Obispo	Morro Bay City Beach, 75' north of main parking lot	•	•		•				
Santa Barbara	Isla Vista – Sands Beach @ Coal Oil Point	•	n/a						
Ventura	Surfer's Knoll (adjacent to parking lot)	•			•		•		
Ventura	Hollywood Beach @ Los Robles Street	•		•	n/a	n/a	•		
Ventura	Sllverstrand @ San Nicholas Avenue	•			n/a	n/a			•
Ventura	Silverstrand @ Santa Paula Drive	•			n/a	n/a		•	•
Los Angeles	Malibu – El Matador State Beach @ Encinal Canyon	•	•	•				•	
Los Angeles	Malibu – Escondido State Beach @ Escondido Creek	•		•					
Los Angeles	Malibu – Dan Blocker County Beach @ Solstice Canyon	•				•			
Los Angeles	Malibu – Las Tunas County Beach @ Pena Creek	•	n/a	n/a		•	•		•
Los Angeles	Dockweiler State Beach @ Grand Avenue	•							
Los Angeles	Palos Verdes Peninsula – Bluff Cove	•	•		•		•	•	•
Los Angeles	Palos Verdes Peninsula – Abalone Cove	•		•	•	•	•	•	•
Los Angeles	Palos Verdes Peninsula – Portuguese Bend Cove	•	•	•	•	•			
Orange	Balboa Beach, projection of 15th/16th Street	•							
Orange	Balboa Beach Pier	•							
Orange	Corona Del Mar (CSDOC)	•							
Orange	Crystal Cove (CSDOC)	•							
Orange	Laguna Beach – Victoria Beach	•		•				•	
Orange	Laguna Beach - North Aliso County Beach	•	•					•	•
Orange	Dana Point - Salt Creek Beach	•							
Orange	Dana Point - Dana Strands Beach (AWMA)	•							
Orange	Dana Point - Marine Science Institute Beach (SERRA)	•		•					•
Orange	S. Capistrano Bay Comm. Beach (10000' S of SERRA Outfall)	•		•					
Orange	San Clemente – Riviera Beach	•		n/a	n/a	n/a	n/a	n/a	n/a
Orange	San Clemente @ Avenida Calafia	•		•		•			•
Orange	San Clemente @ Avenida Las Palmeras	•	n/a	•					•
Orange	Dana Point Harbor - Youth Dock	•		•	•	n/a	n/a	n/a	n/a
San Diego	Oceanside, 500' N. of Loma Alta Creek	•							
San Diego	Carlsbad, projection of Cerezo Drive	•	•	•	n/a	•	•	•	•
San Diego	Carlsbad, projection of Palomar Airport Rd.	•	•	•	n/a		•	•	•
San Diego	Carlsbad, Encina Creek outlet	•	•	•	n/a	•	•		
San Diego	Carlsbad, projection of Ponto Drive	•	•	•	n/a	•		•	
San Diego	Carlsbad, projection of Poinsettia Lane	•	•	•	n/a	•		•	
San Diego	Encinitas – San Elijo State Park, north end of stairs	•	•	•	•			•	•



2017-18 Beaches with Good (A or B) Grades	Open Ocean Beaches	Storm Drain Impacted	Enclosed Waterbodies
Summer Dry	100%	93%	98%
Winter Dry	95%	84%	83%
Wet Weather	89%	65%	40%

OPEN OCEAN VS. STORM DRAIN VS. ENCLOSED BEACHES

California's beach grades were separated and compared by beach type to determine if differences existed in water quality at various beaches

Beaches were divided into three categories:

- 1) Open Ocean beaches
- 2) Storm Drain-impacted beaches
- 3) Enclosed Beaches

Grades were separated for all three time periods:

- 1) Summer Dry season (April through October)
- 2) Winter Dry weather (November through March)
- 3) Year-round Wet Weather conditions





OPEN OCEAN BEACHES

Open ocean beaches with no known pollution sources most often exhibit excellent summer dry weather grades.

2017-18 Findings

- 100% of open ocean beaches earned
 A grades for summer dry weather.
- Winter dry weather grades at open ocean beaches were also excellent, with 95% A or B grades.
- Wet weather grades improved to 89% A or B grades, from last year's low of 66%.

STORM DRAIN IMPACTED BEACHES

Storm drain impacted beaches are those adjacent to a creek, river or storm drain (natural or concrete). Monitoring programs collect samples where the storm drain or waterbody meets the ocean, also known as "point-zero" locations. After years of Heal the Bay's advocacy,

California began to require that all monitoring agencies in the California Beach Program sample at point-zero beginning in the summer of 2015. Monitoring at point-zero provides the most accurate picture of coastal water quality based upon storm drain inputs. (Note: eight of the top ten Beach Bummers in California are storm drain, creek or river impacted beaches.)

Heal the Bay recommends that beach users never swim in coastal waters within 100 yards on either side of a flowing storm drain or creek for at least three days following a significant rain event.

2017-18 Findings

- Storm drain impacted beaches had great water quality in summer dry weather, with 93% A or B grades.
- Winter dry weather grades at storm drain impacted beaches scored 6% lower than the five-year average, with 84% of beach locations

BEACH BUMMERS

All ten of this year's Top Ten Beach Bummers are enclosed or storm drain impacted beaches.

TYPES VS. GRADES

Beach types are a useful indicator of water quality conditions at specific beach locations. Open ocean beaches often score higher grades due to less urban pollution runoff and higher mixing rates compared to storm drain impacted beaches and enclosed beaches.

ANALYSIS BY BEACH TYPE

Beach Types (continued)

receiving an A or B.

 Wet weather grades at storm drain impacted beaches performed on par with the five-year average, with 65% A or B grades.

ENCLOSED BEACHES

Enclosed beaches are waterbodies with poor circulation and flushing mechanics-typically lagoons, marinas, "baby beaches" and harbors. Swimming at these locations can be a cause for concern, especially for the young children that frequent them. Poor circulation and high residence times means that it takes longer for polluted water to mix with cleaner water, which allows bacteria levels to remain elevated for extended periods of time. (Note: two of the top ten Beach Bummers in California are enclosed beaches.)

Heal the Bay recommends avoiding enclosed beaches when possible. During wet weather especially, there is no worse place to swim by beach type than at an enclosed beach.

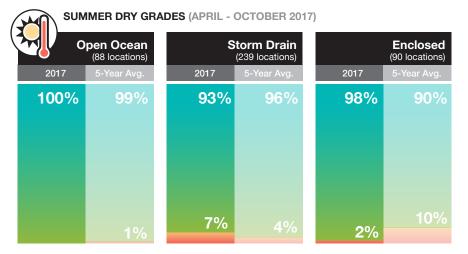
2017-18 Findings

- Summer dry weather at enclosed beaches reached another new high this year, with 98% A or B grades, which bested the five-year average of 90%.
- Enclosed beaches also scored on par with the five-year winter dry weather average, with 83% A or B grades.
- Although improved from last year's low of 20% A or B grades, this year's wet weather grades were still poor, with only 40% of enclosed beaches earning A or B grades.



FIGURE 2-10: GRADES BY TIME PERIOD & BEACH TYPE

: A+B GRADES : C+D+F GRADES



WIN.	TER DRY GRAI	DES (NOVEMBI	ER 2017 - MAR	CH 2018)	
0	pen Ocean (59 locations)	S	torm Drain (166 locations)		Enclosed (54 locations)
2017-18	5-Year Avg.	2017-18	5-Year Avg.	2017-18	5-Year Avg.
95%	96%	84%	90%	83%	83%
		16%		17%	17%
5%	4%	1070	10%		/ 0

WET WET	WET WEATHER GRADES (APRIL 2017 - MARCH 2018)											
0	pen Ocean (93 locations)	s	torm Drain (241 locations)		Enclosed (77 locations)							
2017-18	5-Year Avg.	2017-18	5-Year Avg.	2017-18	5-Year Avg.							
89%	79%	65%	64%	40%	29%							
				CO 9/	71%							
				60%								
11%	21%	35%	36%									





BEACH NEWS: UPDATES

The Beach News section discusses some of the major issues that impacted beach water quality over the past year.

FEDERAL BUDGET CUTS

As has happened for the past several years, the President's Fiscal Year 2019 budget proposed to eliminate funding for US EPA's Beaches Environmental Assessment and Coastal Health (BEACH) Act grant program. Since 2012, this program's budget has been under

threat of defunding. This program funds water quality monitoring programs throughout the U.S. The proponents of the budget cuts believe that after 10 years of funding, states should now have the ability to run their own programs without federal support. However, more than half of the coastal states depend solely on the federal funding to support

If BEACH Act funding is eliminated, there is a possibility that states may abandon stronger beachgoer protections, or set standards so low that public health will be put in danger.

their beach water quality monitoring and public health notification programs. Furthermore, the federal funding is the only incentive for many states to meet the minimum requirements set by the EPA to protect public health. If BEACH Act funding is eliminated, there is a possibility that states may abandon stronger beachgoer protections, or set standards so low that public health will be put in danger.

The BEACH Act is a critical element of public health protection for beachgoers throughout the US. Over 100 million people visit US beaches each year, supporting the coastal recreation and tourism economies worth over \$100 billion annually. The potential loss of funding for beach water quality monitoring is a direct threat to public health. The

III. BEACH NEWS

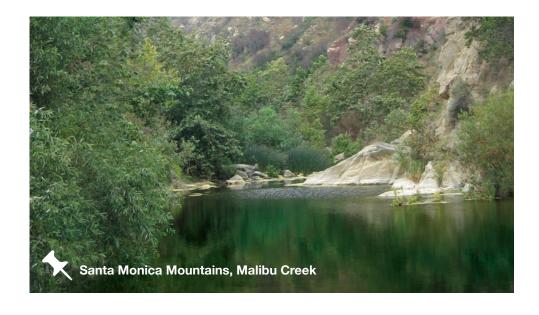
Beach News (continued)

federal BEACH Act provides roughly \$500,000 annually to California, which is important to maintain the state's current level of coastal water quality monitoring.

STORMWATER MEASURE

When you play baseball at Los Amigos Park in Santa Monica and need to make a pit stop in the public bathrooms you can flush with confidence knowing that the water in the toilet is reclaimed stormwater. It is water that used to flow down the street, picking up a variety of pollutants that would end up in the ocean. Because of community investment in stormwater funding, Los Amigos Park Stormwater Harvesting and Direct Use project was built to divert 550,000 gallons of water per year from the storm drain to a treatment system; the treated water is then used to irrigate the playing fields or provide water to the restrooms to flush toilets. By repurposing stormwater for these non-potable uses, we can save billions of gallons of drinking water per year while keeping trash and pollutants out of our rivers and ocean.

This is why Heal the Bay helped found the OurWaterLA coalition, a diverse group of community leaders and organizations from across Los Angeles County, to push for more innovative, multi-benefit projects like Los Amigos Park. OurWaterLA is working with Los Angeles County to shape a ballot measure that will fund stormwater capture and cleanup projects like Los Amigos Park. This is how we secure clean, safe, affordable and reliable water for all the ways we live, work and use water now and in the future.



LOS ANGELES RIVER MONITORING & PROGRESS ON PUBLIC NOTIFICATION

Water quality and public health are top priorities at Heal the Bay. In addition to our work on ocean water quality, Heal the Bay has been monitoring bacteria at freshwater recreation areas since 2014.

Heal the Bay began monitoring swimming holes in the Santa Monica Mountains in 2014 and the L.A. River recreation zones, where people are allowed to kayak in the River, in 2015. In the summer of 2016, we began making water quality information available to the pub-

lic and in 2017, we launched our River Report Card (www. healthebay.org/riverreportcard), an online map with water-quality ratings (green,

yellow, or red) for recreation spots all over the greater Los Angeles area. The ratings are based on Heal the Bay's own data as well as data shared with us from partner agencies.

As a result of our study, we have seen many positive changes, such as increased agency monitoring and new signs posted along the L.A. River with information about water quality. Most recently, the L.A. City Bureau of Sanitation developed a testing and notification protocol for the L.A. River, which will be implemented in the summer of 2018. The new protocol better protects public health because it includes more frequent monitoring (twice a week) and more monitoring locations in the L.A. River recreation zones. The protocol also requires the City to notify the public of water quality results through a website: https:// www.lacitysan.org/waterquality. When bacteria levels exceed certain limits, the City will provide additional notifications

In the summer of 2016, we began making water quality information available to the public and in 2017, we launched our River Report Card (www.healthebay.org/riverreportcard), an online map with water-quality rating.

and even close the River to recreational users.

Heal the Bay is pleased with the new protocol; however, we still have concerns with it. Heal the Bay does not support closing the River to recreational users, except in the cases of sewage spills, similar to ocean beaches; we do not agree

III. BEACH NEWS

Beach News (continued)

with the bacteria thresholds selected by L.A. City Sanitation; we would like additional notification in place when the bacteria levels exceed state thresholds; and we would like to see geometric means and *Enterococcus* levels considered in the protocol. As this protocol is implemented in the summer of 2018, Heal the Bay will continue our monitoring, provide information to the public, and assess the efficacy of the protocol implementation.



For the third year in a row, beachgoers at select California beaches received daily water quality predictions from our Now-Cast system. These predictions come from machine learning models calibrated on years of environmental and bacterial data, and are tuned to be more accurate than the current method of relying on days-old samples alone.

In 2017, we made over 1,800 predictions for 10 beaches, from Santa Cruz to San Diego. Because most of these beaches are monitored once per week, beachgoers at NowCast beaches received, on average, 140 more days of water quality information at their beach from NowCast predictions than they would have from bacteria sampling results alone. Much research has been done - in collaboration with Stanford University, UCLA, and the State Water Resources Control Board to ensure that our models are robust and available for as many California beachgoers as possible. Our results for 2017 are under review and are expected to be published soon in a peer-reviewed journal.



This summer, we're excited to expand our program to up to 20 beaches. Predictions will also be available earlier in the morning, so surfers and early risers can benefit from the NowCast system too. Finally, stay tuned for the launch of our updated Beach Report Card website and mobile app, where accessing Now-Cast predictions will be easier than ever.

NOWCAST HIGHLIGHTS

- In 2017, we doubled the size of our program from 2016 as models were created for 10 beaches, spanning from Santa Cruz to San Diego.
- 1,851 total NowCast predictions were made last summer.
- On average, beachgoers received 140 more days of water quality information at their beach from NowCast predictions than they would have from bacteria sampling results alone.
- At the beaches where exceedances were observed, 88% of our NowCast models were able to predict those exceedances as or more accurately than the current method of using the most recent sample alone.

2017 NOWCAST LOCATIONS

SAN DIEGO COUNTY

Moonlight Beach, Encinitas

ORANGE COUNTY

Doheny State Beach Huntington State Beach

LOS ANGELES COUNTY

Belmont Pier, Long Beach
Long Beach City Beach at 5th Street
Redondo Pier (100 yards south)
Santa Monica Pier

SANTA BARBARA COUNTY

Arroyo Burro East Beach

SANTA CRUZ COUNTY

Cowell Beach



IV. CALIFORNIA COUNTY SUMMARIES



COASTAL COUNTIES: CALIFORNIA

Heal the Bay provides Beach Report Card grades for all coastal counties in California from Del Norte to San Diego. Here is a brief summary of each county's monitoring program over the past year, water quality grades, rainfall amounts, and a summary of sewage spills.

Heal the Bay provides a summer (AB411) dry grade and a winter dry grade for a beach if the public agency collected weekly samples for at least 75% of the monitoring time-period. To receive a summer dry grade, there had to be at least 23 samples collected between April 1 and October 31. For a winter dry grade, there had to be at least 16 samples collected between November 1, 2017 and March 31, 2018.

Grades are categorized as wet weather for any sample taken throughout the whole year (April 1, 2017 to March 31, 2018) during or within 72 hours of a rain event of at least 0.10 inches. The difference in frequency of rain events between counties makes it impossible to determine a minimum sampling threshold for a grade. Thus, Heal the Bay generates a grade for wet weather regardless of the sample size. This enables beachgoers to see differences in dry versus wet weather water quality.

Sewage spill data is obtained through the State Water Resources Control Board's SSO (Sanitary Sewer Overflow) online database. Only Category 1 sewage data is recorded for each county. Category 1 describes discharges of untreated or partially treated wastewater of any volume resulting from a sanitary sewage system failure.

For more information regarding sewage spill data, please visit: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportSSOServlet?reportAction=criteria&reportId=sso_main.

SAN DIEGO

San Diego County

HIGHLIGHTS

- Overall, San Diego had excellent summer dry grades (100% A or B) and winter dry grades (95% A or B).
- Wet weather grades performed below the five-year average, with only 68% receiving an A or B grade.
- Last year's lone Beach Bummer from the county,
 La Jolla Cove, received an A grade for the summer dry season this year.
- There were 24 reported sewage spills in the county, with two spills impacting beaches (Windandsea and Shell Beach).
- Rainfall amounts for San Diego County was collected from three separate rain gauges. Amounts totaled 14.79", substantially lower than the five and ten-year averages of 21" and 24", respectively.
- Five separate monitoring agencies collect water quality samples year-round. Unfortunately, Heal the Bay receives water quality data from some monitoring agencies several weeks after sampling. This year, the winter dry sampling size is not as robust as previous years due to sampling data not being received in time for our data analysis.

A complete list of grades for San Diego County's beach monitoring locations can be found in Appendix B-1 on page 55.

Monitoring agencies in San Diego County:

- The City of Oceanside
- The City of San Diego
- Encina Wastewater Authority
- San Elijo Joint Powers Authority
- Port of San Diego
- The County of San Diego Department of Environmental Health (DEH)

For additional water quality information:

County of San Diego Department of Environmental Health www.sdbeachinfo.com

	San Diego County Grades											
	2017-2018					5	-Year	Avg.	(2012	-2017	7)	
	Summ	er Dry*	Winte	r Dry	Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
A	68	99%	17	89%	20	53%	68	94%	39	90%	40	69%
В	1	1%	1	5%	6	16%	3	4%	2	4%	5	9%
С	0	0%	0	0%	1	3%	1	1%	0	1%	3	6%
D	0	0%	0	0%	1	3%	0	.5%	1	1%	3	5%
F	0	0%	1	5%	10	26%	0	.5%	2	4%	6	11%
Total	69		19		38		73		44		58	

*State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary									
24	4 Major Spills (10,000+ gallons)	187,001	10 health warnings						
SEWAGE SPILLS were reported to have reached a waterbody in San Diego County	4 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported to have reached a							
	16 Small Spills (<1,000 gallons)	waterbody in San Diego County	2 beach closures						

Honor Roll			
	Summer Dry	Winter Dry	Wet Weather
Carlsbad (five monitored locations)	A+	A+	A+
Encinitas, San Elijo State Park (two locations)	A+	A+	A +
Oceanside, 500' north of Loma Alta Creek	A +	A+	A+



ORANGE

Orange County

HIGHLIGHTS

- Summer and winter dry grades were on par with the fiveyear average, with 98% A or B grades for the summer and 91% A or B grades for the winter.
- Wet weather grades performed slightly worse than the fiveyear average, with only 51% of sampled locations receiving an A or B grade.
- Both of last year's Orange County Beach Bummers,
 San Clemente Pier and Monarch Beach North in Dana Point,
 improved to C grades for the summer.
- Poche Beach at the outlet of the storm drain claims the No. 1 spot on the Beach Bummer List this year.
- Orange County had 28 reported sewage spills, with four spills reaching ocean waters at Dana Point Harbor, Sunset Aquatic Marina and Portofino Cove, Wood Cove at Moss Point, and Newport Bay.
- Orange County recorded 1.77" of rain, substantially lower than the five and ten-year averages.
- Water quality is sampled year-round and sent to Heal the Bay every other week.

A complete list of grades for Orange County's beach monitoring locations can be found in Appendix B-1 on page 55.

Monitoring agencies:

- Orange County Environmental Health
- South Orange County Wastewater Authority
- Orange County Sanitation District (OCSD)

For additional water quality information: County of Orange Environmental Health Division www.ocbeachinfo.com

Orange County Grades												
2017-2018					5	-Year	Avg.	(2012	-201	7)		
	Summe	er Dry*	Winte	r Dry	Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
Α	114	94%	100	86%	52	44%	99	92%	81	83%	44	44%
В	4	3%	6	5%	8	7%	5	5%	10	10%	10	10%
С	2	2%	6	5%	4	3%	1	1%	3	3%	10	10%
D	0	0%	1	1%	8	7%	1	1%	1	1%	9	9%
F	1	1%	3	3%	45	38%	1	1%	3	3%	27	27%
Total	121		116		117		107		98		100	

*State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary								
28 SEWAGE SPILLS	2 Major Spills (10,000+ gallons)	58,569 GALLONS OF SEWAGE	7 health warnings					
were reported to have reached a	3 Minor Spills (1-10,000 gallons)	Total Volume reported to have reached						
waterbody in Orange County	23 Small Spills (<1,000 gallons)	waterbody in Orange County	4 beach closures					

Honor Roll									
	Summer Dry	Winter Dry	Wet Weather						
Balboa Beach (two monitored locations)	A+	A +	A+						
Corona del Mar	A +	A +	A+						
Crystal Cove State Park	A +	A+	A+						
Laguna Beach (two monitored locations)	A +	A+	A+						
Dana Point (four monitored locations)	A +	A +	A+						
San Clemente (three monitored locations)	A +	A+	A+						
Dana Point Harbor, youth dock	A +	A+	A+						

Beach Bummers			
	Summer Dry	Winter Dry	Wet Weather
Dana Point, Monarch Beach North	С	F	F
San Clemente, Poche Beach, ocean interface	F	F	F
San Clemente, Pier	С	F	С

LOS ANGELES

Los Angeles County

HIGHLIGHTS

- Los Angeles County had a great year in water quality, with improvements above the five-year average across all time periods. There were 97% A or B grades for the summer dry period, 91% A or B grades for winter dry, and 60% A or B wet weather grades.
- Santa Monica Pier remained on the Beach Bummer List for a fifth year in a row, while last year's No. 9 Beach Bummer, Mother's Beach in Marina Del Rey, was replaced by Cabrillo Beach, Harborside.
- Los Angeles' two rain gauges recorded 8.45" of rain, well below the five and ten-year averages.
- Los Angeles County had the largest number of sewage spills at 64 individual events that spilled a total of over 200,000 gallons. Four of the spills reach the ocean, including at Marina del Rey and Alamitos Bay.
- Five different monitoring agencies collected year-round samples both weekly and daily, with the exception of Catalina Island, which is only sampled from April to October.

A complete list of grades can be found in Appendix B-1 on page 58.

Monitoring agencies:

- City of Los Angeles' Environmental Monitoring Division (EMD) at the Hyperion Sewage Treatment Plant
- The Los Angeles Co. Department of Public Health Environmental Health program
- Los Angeles County Sanitation District
- City of Long Beach, Environmental Health Division
- The City of Redondo Beach

For additional water quality information:County of Los Angeles Department of Public Health Environmental Healthhttp://publichealth.lacounty.gov/eh

City of Long Beach http://www.longbeach.gov/health/inspections-and-reporting/inspections/recreational-water-samples/?folderid=4415&1

Honor Roll									
	Summer Dry	Winter Dry	Wet Weather						
Malibu, El Matador State Beach	A+	A+	A+						
Malibu, Escondido State Beach	A+	A+	A+						
Malibu, Dan Blocker State Beach	A+	A+	A+						
Malibu, Las Tunas County Beach	A+	A+	A+						
El Segundo Beach at Grand Avenue	A+	A+	A+						
Palos Verdes Peninsula, Bluff Cove	A+	A+	A+						
Palos Verdes Peninsula, Abalone Cove	A+	A+	A +						
Palos Verdes Peninsula, Portuguese Bend	A+	A+	A+						

Los Angeles County Grades												
	2017-2018					5-Year Avg. (2012-2017)						
	Summe	er Dry*	Winte	er Dry	Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
A	82	91%	65	76%	51	54%	73	82%	64	76%	27	31%
В	5	6%	12	14%	5	5%	8	9%	8	9%	12	14%
С	1	1%	4	5%	4	4%	3	4%	4	5%	10	11%
D	2	2%	1	1%	10	11%	1	2%	2	3%	4	5%
F	0	0%	3	4%	24	26%	3	3%	6	7%	33	38%
Total	90		85		94		89		84		87	

*State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Long Beach Grades												
	2017-2018						ţ	5-Year	Avg.	(2012	-2017	7)
	Summ	er Dry*	Winte	r Dry	Wet W	eather	Summ	ner Dry*	Wint	er Dry	Wet W	eather
	#	%	#	%	#	%	#	9%3	#	%	#	%
A	12	80%	6	40%	0	0%	9	66%	11	77%	1	4%
В	3	20%	7	47%	0	0%	3	24%	2	12%	1	7%
С	0	0%	1	7%	1	7%	1	10%	1	8%	1	6%
D	0	0%	1	7%	3	20%	0	0%	0	1%	0	1%
F	0	0%	0	0%	11	73%	0	0%	0	1%	12	82%
Total	15		15		15		14		15		14	

*State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary								
64	6 Major Spills (10,000+ gallons)	212,440	2 health					
SEWAGE SPILLS were reported to have reached a	24 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported to have reached waterbody in Los Angeles County	warnings					
waterbody in Los Angeles County	34 Small Spills (<1,000 gallons)		4 beach closures					

Beach Bummers									
	Summer Dry	Winter Dry	Wet Weather						
Topanga Beach at creek mouth	С	Α	D						
Santa Monica Pier	D	F	F						
Cabrillo Beach, harborside at restrooms	D	F	F						

VENTURA

Ventura County

HIGHLIGHTS

- Once again, Ventura had a stellar summer season, with 100% A grades.
- Winter dry grades dropped from 94% A or B grades last year to 89% A or B grades this year.
- Wet grades improved from last year, with 100% A or B grades.
- Two rain gauges in Ventura County measured 12.95" of rain.
 This is only slightly less than the five-year average.
- 49 sewage spills occurred in Ventura County, which led to four health warnings and five beach closures.
- Ventura samples 40 different locations during the peak summer season, and scales back to 19 locations during the winter season.

A complete list of grades for Ventura County's beach monitoring locations can be found in Appendix B-1 on page 61.

For additional water quality information: Ventura County's Environmental Health Division https://vcrma.org/beaches-and-sampling-results

Ventura County Grades												
	2017-2018							5- Y ear	Avg.	(2012	2-201	7)
	Summ	er Dry*	Winte	r Dry	Wet W	eather	Sumn	ner Dry*	Winte	er Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
Α	40	100%	14	74%	36	90%	40	100%	15	96%	21	76%
В	0	0%	3	16%	4	10%	0	0%	0	1%	3	10%
С	0	0%	2	11%	0	0%	0	0%	0	0%	2	7%
D	0	0%	0	0%	0	0%	0	0%	0	1%	1	2%
F	0	0%	0	0%	0	0%	0	0%	0	1%	1	4%
Total	40		19		40		40		15		28	

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary								
2 SEWAGE SPILLS was reported to have reached a waterbody in Ventura County	4 Major Spills (10,000+ gallons)	342,305 GALLONS OF SEWAGE	4 health warnings					
	Minor Spills (1-10,000 gallons)	Total Volume reported to have reached						
	42 Small Spills (<1,000 gallons)	waterbody in Ventura County	5 beach closures					

Honor Roll Grades			
	Summer Dry	Winter Dry	Wet Weather
Silverstrand, at Santa Paula Drive	A +	A+	A+
Silverstrand, at San Nicholas Avenue	A +	A +	A +
Hollywood Beach, at Los Robles Street	A +	A +	A+
Surfer's Knoll	A+	A+	A+



SANTA BARBARA

Santa Barbara County

HIGHLIGHTS

- Summer dry grades were excellent, with 100% A or B grades.
- Both winter dry and wet weather grades were below the five-year average, with 62% and 31% A or B grades, respectively.
- Arroyo Burro Beach, an occasional Beach Bummer, received an A grade for the peak summer season.
- 16.63" of rain was recorded at two rain gauges, which is only slightly lower than the five-year average.
- There were 10 total sewage spills totaling over 10,000 gallons spilled. Two health warnings at Goleta Beach and Arroyo Burro were issued.
- In January 2018, several beach locations were closed for several weeks due to elevated bacteria levels as a result of a severe storm and ensuing mudslide.
- Santa Barbara collects water quality samples year-round.

A complete list of grades for Santa Barbara County can be found in Appendix B-1 on page 62.

For additional water quality information: Santa Barbara County's Environmental Health Agency www.sbcphd.org

	Santa Barbara County Grades												
	2017-2018							5-Year	Avg.	(2012	-2017	7)	
	Summer Dry* Winter Dry Wet Weather					eather	Summ	er Dry*	Winte	er Dry	Wet W	eather	
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	15	94%	6	46%	3	19%	15	94%	12	77%	8	51%	
В	1	6%	2	15%	2	13%	1	6%	2	15%	3	19%	
С	0	0%	2	15%	2	13%	0	0%	1	5%	2	10%	
D	0	0%	0	0%	5	31%	0	0%	0	1%	1	4%	
F	0	0%	3	23%	4	25%	0	0%	0	1%	3	16%	
Total	16		13		16		16		16		11		

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

	Sewage Spills Summary											
10	0 Major Spills (10,000+ gallons)	10,478	2 health warnings									
SEWAGE SPILLS were reported to	4 Minor Spills	GALLONS OF SEWAGE Total Volume reported	warnings									
have reached a waterbody in	Minor Spills (1-10,000 gallons)	to have reached waterbody in										
Santa Barbara County	6 Small Spills (<1,000 gallons)	Santa Barbara County	2 beach closures									

Honor Roll Grades			
	Summer Dry	Winter Dry	Wet Weather
Sands at Coal Oil Point	A+	A+	A+



SAN LUIS OBISPO

San Luis Obispo County

HIGHLIGHTS

- Summer dry grades were excellent in San Luis Obispo County, with 100% A or B grades.
- Winter dry A or B grades were 6% lower than the five-year average at 89%.
- Unlike most counties, San Luis Obispo County had great wet weather grades, with 95% A or B's.
- A total of 14.51" of rainfall was recorded from two different rain gauges. This total is lower than both the five and tenyear average rainfall for SLO County.
- Only three sewage spills occurred in SLO County, compared to 10 sewage spills last year. There were no health warnings or beach closures issued.
- · Monitoring occurs year-round in SLO County.

A complete list of grades for San Luis Obispo County's beach monitoring locations can be found in Appendix B-1 on page 62.

For additional water quality information:

San Luis Obispo County Environmental Health Department

https://www.slocounty.ca.gov/Departments/Health-Agency/Public-Health/Environmental-Health/All-Environmental-Health-Services/Beach-Water-Quality-Monitoring.aspx

	San Luis Obispo County Grades												
	2017-2018							-Year	Avg.	(2012	-2017	7)	
	Summer Dry* Winter Dry Wet Weather					eather	Summ	er Dry*	Winte	er Dry	Wet W	eather	
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	18	95%	17	89%	14	74%	16	89%	16	88%	13	68%	
В	1	5%	0	0%	4	21%	1	7%	1	6%	4	21%	
С	0	0%	2	11%	1	5%	1	3%	1	3%	1	4%	
D	0	0%	0	0%	0	0%	0	1%	0	1%	1	3%	
F	0	0%	0	0%	0	0%	0	0%	0	1%	1	3%	
Total	19		19		19		18		19		19		

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

	Sewage Spills Summary											
3	0 Major Spills (10,000+ gallons)	3,210	0 health warnings									
SEWAGE SPILLS were reported to	1 Minor Caill	GALLONS OF SEWAGE Total Volume reported	warnings									
have reached a waterbody in	Minor Spill (1-10,000 gallons)	to have reached waterbody in										
San Luis Obispo County	2 Small Spills (<1,000 gallons)	Santa Luis Óbispo County	beach closures									

Honor Roll Grades			
	Summer Dry	Winter Dry	Wet Weather
Morro Bay City Beach	A+	A+	A+



MONTEREY

Monterey County

HIGHLIGHTS

- Summer dry grades were stellar this year, with all beaches receiving A grades.
- Wet weather grades fell short of last year's 100% A grades only 6 beaches received A wet weather grades.
- There was only 13.20" of rain recorded at one rain gauge in Monterey County. This total is lower than the five and tenyear averages.
- While there were only 12 sewage spills in Monterey County this year (compared to 16 last year), these spills totaled nearly four million gallons. One spill that occurred in January 2018 accounted for the majority of the volume spilled and closed down all eight beach locations in Monterey.
- Monterey County samples on a weekly basis during the summer season (April-October), and once per month during the winter season.

A complete list of grades for Monterey County's beach monitoring locations can be found in Appendix B-1 on page 63.

For additional water quality information: Monterey County Environmental Health Bureau

http://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/general/public-beaches-water-quality

				Mon	iterey	Cour	ity Gi	ades				
			2017	-2018		5	5-Year	Avg.	(2012	2-2017	7)	
	Summ	er Dry*	er Dry	Wet W	eather	Summ	er Dry*	Wint	er Dry	Wet W	/eather	
	#	%	#	%	#	%	#	%	#	%	#	%
Α	8	100%	n/a		6	75%	6	78%	n/a		6	83%
В	0	0%	r	n/a	0	0%	1	8%	n	n/a		3%
С	0	0%	r	n/a	2	25%	1	10%	n/a		1	7%
D	0	0%	r	ı/a	0	0%	0	5%	n	n/a		0%
F	0	0%	r	n/a	0	0%	0	0%	n/a		1	7%
Total	8				8		8				7	

Sewage Spills Summary										
12	1 Major Spill (10,000+ gallons)	3,727,600 GALLONS OF SEWAGE	4 health warnings							
SEWAGE SPILLS were reported to have reached a	6 Minor Spills (1-10,000 gallons)	Total Volume reported to have reached								
waterbody in Monterey County	5 Small Spills (<1,000 gallons)	waterbody in Monterey County	3 beach closures							



SANTA CRUZ

Santa Cruz County

HIGHLIGHTS

- Summer dry and wet weather grades were well above the average, with 92% A or B grades for the summer and 88% A or B wet grades.
- Winter dry grades declined this year, with only 85% A or B grades compared to the 92% five-year average.
- Santa Cruz County has one Beach Bummer: Cowell Beach, west of the Wharf. This perennial Beach Bummer moved down five spots to No. 8 this year. Capitola Beach, which was last year's No. 7 Beach Bummer, moved off the list with a B summer dry grade.
- Santa Cruz had 18.33" of rainfall this year at one rain gauge. This amount is lower than both the five and ten-year averages.
- Six separate sewage spills occurred in the County. None of the spills impacted any beaches, but there was one health warning issued.
- Santa Cruz County collects water quality samples yearround on a weekly basis for most of their sampling locations.
 Some beach sites are sampled only monthly.

A complete list of grades for Santa Cruz County's beach monitoring locations can be found in Appendix B-1 on page 63.

For additional water quality information: Santa Cruz County's Department of Environmental Health Services http://gis.co.santa-cruz.ca.us/PublicWaterQuality

	Santa Cruz County Grades													
			2017	-2018		5	5-Year	Avg.	(2012	2-201	7)			
	Summer Dry* Winter Dry Wet Weathe					eather	Summ	er Dry*	Winte	er Dry	Wet W	eather		
	#	%	#	%	#	%	#	%	#	%	#	%		
Α	9	69%	6	46%	20	77%	10	78%	10	79%	4	29%		
В	3	23%	5	38%	3	12%	0	3%	2	13%	3	17%		
С	0	0%	2	15%	3	12%	1	6%	0	2%	4	25 %		
D	1	8%	0	0%	0	0%	0	2%	0	2%	1	8%		
F	0	0%	0	0%	0	0%	1	11%	1	5%	3	22%		
Total	13		13		26		13		13		15			

	Sewage Spills Summary										
6 SEWAGE SPILLS	1 Major Spill (10,000+ gallons)	27,340 GALLONS OF SEWAGE	1 health warning								
were reported to have reached a waterbody in Santa Cruz County	Minor Spills (1-10,000 gallons) 3 Small Spills	Total Volume reported to have reached waterbody in Santa Cruz County	0 beach closures								
	(<1,000 gallons)		Cicoures								

Beach Bummers			
	Summer Dry	Winter Dry	Wet Weather
Santa Cruz, Cowell Beach, west of wharf	D	В	В



SAN MATEO

San Mateo County

HIGHLIGHTS

- San Mateo County beaches received underwhelming marks this year, with only 63% A or B summer dry grades and 33% A or B winter dry grades.
- Wet weather grades improved from last year and topped the five-year average, with 57% A or B grades.
- There are four San Mateo sites on the Beach Bummer List.
 Lakeshore Park has been off and on the List in years past,
 and appears on the List for the second consecutive time.
 Linda Mar Beach, Roosevelt Beach, and Surfer's Beach are new to this year's List. These are all storm drain impacted beaches.
- With only 15.80" of rainfall, San Mateo experienced a relatively dry year.
- There were 24 reported sewage spills in the County totaling over 200,000 gallons. Five health warnings were issued, with three of the spills resulting in beach closures at Parkside Aquatic Park, Pacifica State Beach, and Venice Beach.
- · Sampling occurs year-round on a weekly basis.
- 208 samples were collected during wet weather in San Mateo County.

A complete list of grades for San Mateo County's beach monitoring locations can be found in Appendix B-1 on page 64.

For additional water quality information: San Mateo County http://smchealth.org/environ/beaches

	San Mateo County Grades												
			2017-	2018		5	5-Year	Avg.	(2012	-2017	7)		
	Summ	er Dry*	Winte	r Dry	Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather	
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	7	37%	5	33%	8	35%	18	83%	15	75 %	7	32%	
В	5	26%	0	0%	5	22%	1	5%	3	13%	3	13%	
С	3	16%	2	13%	1	4%	1	5%	1	6%	2		
D	1	5%	1	7%	1	4%	0	2%	0	1%	4	19%	
F	3	16%	7	47%	8	35%	1	5%	1	6%	6	27%	
Total	19		15		23		22		20		21		

Sewage Spills Summary										
24	5 Major Spills (10,000+ gallons)	278,852	5 health warnings							
SEWAGE SPILLS were reported to have reached a	8 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported to have reached	Warriings							
waterbody in San Mateo County	11 Small Spills (<1,000 gallons)	waterbody in San Mateo County	3 beach closures							

Beach Bummers			
	Summer Dry	Winter Dry	Wet Weather
Linda Mar Beach, at San Pedro Creek	F	F	F
Lakeshore Park, behind Rec Center	F	n/a	F
Montara State Beach at Martini Creek	С	n/a	В
Fitzgerald Marine Preserve at San Vicente Creek	С	F	F
Half Moon Bay, Surfer's Beach	D	F	С
Half Moon Bay, Roosevelt Beach	F	F	F
Half Moon Bay, Venice Beach	С	F	F

Honor Roll Grades			
	Summer Dry	Winter Dry	Wet Weather
Bean Hollow State Beach	A +	A+	A+

East Bay: Contra Costa and Alameda Counties

HIGHLIGHTS:

- Seven out of 8 sampling locations earned an A or B grade for the summer.
- Wet weather grades saw an improvement over the five-year average, with 75% A or B grades.
- Like the majority of the counties, East Bay had a drier than average year, with only 15.80" of rainfall.
- There were a reported 49 sewage spills across the East Bay Counties totaling close to 350,000 gallons. None of the spills led to beach closures.
- The East Bay Regional Park District collects water quality samples weekly from April through October, and twice a month during the winter season. The reduced winter sampling means there are not enough samples to produce a winter dry grade.
- A total of 41 samples were collected during wet weather, with 31 samples contributing to an A or B grade and 10 samples resulting in a C through F grade.

A complete list of grades for Contra Costa and Alameda counties beach monitoring locations can be found in Appendix B-1 on page 65.

For additional information: East Bay Regional Park District www.ebparks.org

	East Bay (Combined) Grades												
	2017-2018						Ę	5-Year	Avg.	(2012	-201	7)	
	Summer Dry*		Wint	er Dry	Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather	
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	5	63%	n	/a	5	63%	8	81%	0	0%	5	56%	
В	2	25%	n	/a	1	13%	1	15%	0	0%	1	6%	
С	1	13%	n	/a	1	13%	0	4%	0	0%	1	15%	
D	0	0%	n	/a	0	0%	0	0%	1	50 %	1	13%	
F	0	0%	n	/a	1	13%	0	0%	1	50%	1	10%	
Total	8				8		10		2		10		

		Contr	a Costa C	ounty	,	Alameda County						
			2017-2018	3		2017-2018						
	Summ	er Dry*	Winter Dry	Wet W	eather/	Summ	er Dry*	Wint	ter Dry	Wet W	eather	
	#	%	# %	#	%	#	%	#	%	#	%	
Α	0	0%	n/a	2	100%	5	83%	ľ	n/a	3	50%	
В	2	100%	n/a	0	0%	0	0%	r	n/a	1	17%	
С	0	0%	n/a	0	0%	1	17%	r	n/a	1	17%	
D	0	0%	n/a	0	0%	0	0%	ľ	n/a	0	0%	
F	0	0%	n/a	0	0%	0	0%	ľ	n/a	1	17%	
Total	2			2		6				6		

	Sewage Spills Summary										
27 SEWAGE SPILLS were reported to have reached a waterbody in	3 Major Spills (10,000+ gallons) 12 Minor Spills (1-10,000 gallons)	117,450 GALLONS OF SEWAGE Total Volume reported to have reached waterbody in	10 health warnings 0 beach								
Alameda County 22 SEWAGE SPILLS	Small Spills (<1,000 gallons) 5 Major Spills (10,000+ gallons)	Alameda County 226,168 GALLONS OF SEWAGE	7 health warnings								
were reported to have reached a waterbody in Contra Costa County	7 Minor Spills (1-10,000 gallons) 10 Small Spills (<1,000 gallons)	Total Volume reported to have reached waterbody in Contra Costa County	0 beach closures								

Beach Bummers			
	Summer Dry	Winter Dry	Wet Weather
Crown Beach, Crab Cove, Alameda	С	n/a	F

SAN FRANCISCO

San Francisco County

HIGHLIGHTS

- Summer and winter dry grades outperformed the five-year average, with 100% A or B summer grades and 88% A or B winter grades.
- Wet weather grades dropped from last year's 60% A or B grades to 37%.
- Rainfall totaled 15.80" from April 2017-March 2018. This amount is half of what San Francisco experienced last year.
- There was one sewage spill reported by the San Francisco Public Utilities Commission that was less than 1,000 gallons.
 No health warnings or beach closures were issued.
- Water quality sampling is conducted on a weekly basis throughout the year.
- San Francisco County had a total wet weather sample size of 334 samples collected.

COMBINED SEWER DISCHARGE NOTES:

- City and County of San Francisco have a unique stormwater infrastructure that occurs in no other California coastal county – a combined sewer and storm drain system (CSS).
- As a result, the shoreline has no flowing storm drains in dry weather, but during heavy rain events, the CSS occasionally discharges combined wastewater, which is typically comprised of 94% treated stormwater and 6% primary treated sanitary flow.

A complete list of grades for San Francisco County's beach monitoring locations can be found in Appendix B-1 on page 64.

Background Information from the San Francisco Public Utilities Commission For additional water quality information:
San Francisco Public Utilities Commission http://beaches.sfwater.org

	San Francisco County Grades												
	2017-2018						5	-Year	Avg.	(2012	-2017	7)	
	Summer Dry* Winter Dry W		Wet W	eather	Summ	er Dry*	Winte	er Dry	Wet W	eather			
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	13	87%	13	81%	4	21%	11	80%	10	68%	4	29%	
В	2	13%	1	6%	3	16%	1	7%	1	4%	3	20%	
С	0	0%	0	0%	3	16%	1	10%	1	7%	3	17%	
D	0	0%	0	0%	2	11%	0	1%	1	7%	2	11%	
F	0	0%	2	13%	7	37%	0	1%	2	14%	3	23%	
Total	15		16		19		14		14		15		

Sewage Spills Summary										
1 SEWAGE SPILL was reported to	0 Major Spills (10,000+ gallons)	316	0 health warnings							
	0 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported	warnings							
have reached a waterbody in		to have reached waterbody in								
San Francisco County	1 Small Spill (<1,000 gallons)	San Francisco County	beach closures							



Marin County

HIGHLIGHTS

- Summer dry grades did exceptionally well, with 87% A grades and 13% B grades.
- Wet weather grades improved from last year's 74% A or B grades to 100%.
- Rainfall in Marin County totaled 15".
- Marin County had 17 reported sewage spills, only half of last year's total. Four health warnings and one closure were issued.
- The Marin County monitoring agency collects water quality samples weekly from April through October resulting in no winter grades.
- 68 total water samples were collected during wet weather from April through October.

A complete list of grades for Marin County's beach monitoring locations can be found in Appendix B-1 on page 65.

For additional water quality information: Marin County's Department of Environmental Health www.marincounty.org/ehs

	Marin County Grades												
			2017	'- 201 8			5-Year Avg. (2012-2017)						
	Summ	er Dry*	Wint	er Dry	Wet W	/eather	Summ	er Dry*	Wint	er Dry	Wet W	/eather	
	#	%	#	%	#	%	#	%	#	%	#	%	
Α	20	87%	r	ı/a	23	100%	22	97%	n	/a	19	82%	
В	3	13%	n/a		0	0%	1	3%	n/a		1	3%	
С	0	0%	r	n/a	0	0%	0	0%	n	n/a		0%	
D	0	0%	r	n/a	0	0%	0	0%	n	/a	2	9%	
F	0	0%	r	n/a	0	0%	0	0%	n	/a	1	6%	
Total	23				23		23				23		

	Sewage Spills Summary										
17 SEWAGE SPILLS	2 Major Spills (10,000+ gallons)	68,747	4 health warnings								
were reported to have reached a	3 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported to have reached									
waterbody in Marin County	12 Small Spills (<1,000 gallons)	waterbody in Marin County	1 beach closure								



SONOMA

Sonoma County

HIGHLIGHTS

- Sonoma County had another stellar year in water quality, with 100% A grades for the summer dry and wet weather seasons.
- 25.28" of rainfall was recorded in Sonoma County. This is on par with the five-year average for the County.
- After a significant number of reported sewage spills last year (64 individual events), Sonoma County reported 14 spills this year. No spills led to beach closures.
- Water quality samples are only collected during the peak summer season (April-October).

A complete list of grades for Sonoma County's beach monitoring locations can be found in Appendix B-1 on page 66.

For additional water quality information: Sonoma County's Department of Environmental Health www.sonoma-county.org/health/services/ocean.asp

	Sonoma County Grades												
			2017	-2018			5-Year Avg. (2012-2017)						
	Sumn	ner Dry*	Wint	er Dry	Wet W	leather	Sumn	ner Dry*	Winter Dry	Wet W	eather		
	#	%	#	%	#	%	#	%	# %	#	%		
Α	7	100%	n	ı/a	7	100%	7	100%	n/a	6	96%		
В	0	0%	n	n/a		0%	0	0%	n/a	0	4%		
С	0	0%	n	ı/a	0	0%	0	0%	n/a	0	0%		
D	0	0%	n	ı/a	0	0%	0	0%	n/a	0	0%		
F	0	0%	n	ı/a	0	0%	0	0%	n/a	0	0%		
Total	7				7		7			6			

	Sewage Spills Summary							
14 SEWAGE SPILLS	2 Major Spills (10,000+ gallons)	157,663 GALLONS OF SEWAGE	3 health warnings					
were reported to have reached a	Minor Spills (1-10,000 gallons)	Total Volume reported to have reached						
waterbody in Sonoma County	9 Small Spills (<1,000 gallons)	waterbody in Sonoma County	0 beach closures					



MENDOCINO

Mendocino County

HIGHLIGHTS

- Summer dry grades had another banner year, with 100% A grades.
- Wet weather grades matched last year's, with 83% A or B grades.
- There was a recorded 32.11" of rainfall from one rain gauge. This amount is on par with the ten-year average for Mendocino County.
- Two reported sewage spills totaling less than 1,000 gallons occurred in Mendocino County.
- · Sampling is only conducted from April through October.

A complete list of grades for Mendocino County's beach monitoring locations can be found in Appendix B-1 on page 66.

For additional water quality information: www.co.mendocino.ca.us/hhsa/chs/eh/index.htm

	Mendochino County Grades										
	2017-2018						5	-Year	Avg. (201	2-201	7)
	Summ	er Dry*	Winte	er Dry	Wet W	eather	Summ	er Dry*	Winter Dry	Wet W	/eather
	#	%	#	%	#	%	#	%	# %	#	%
A	5	100%	n	/a	3	50%	5	93%	n/a	5	78%
В	0	0%	n	/a	2	33%	0	4%	n/a	0	0%
С	0	0%	n	/a	1	17%	0	4%	n/a	1	22%
D	0	0%	n	/a	0	0%	0	0%	n/a	0	0%
F	0	0%	n	/a	0	0%	0	0%	n/a	0	0%
Total	5				6		5			6	

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary							
2	0 Major Spills (10,000+ gallons)	940	0 health warnings				
SEWAGE SPILLS were reported to have reached a waterbody in Mendocino County	0 Minor Spills (1-10,000 gallons)	GALLONS OF SEWAGE Total Volume reported to have reached waterbody in Mendocino County					
	2 Small Spills (<1,000 gallons)		0 beach closures				



HUMBOLDT

Humboldt County

HIGHLIGHTS

- Only two out of five sites earned an A summer dry grade.
- Wet weather grades dipped from last year, with only one out of five locations earning an A grade.
- Two locations from Humboldt are Beach Bummers this year: Clam Beach near Strawberry Park and Luffenholtz Beach. Clam Beach has been a Beach Bummer for the past four years, while Luffenholtz Beach makes its second consecutive appearance. Both are storm drain impacted beaches.
- The Humboldt rain gauge measured 38.50" of rain, slightly above the five and ten-year averages.
- There were seven reported sewage spills in the county totaling over 100,000 gallons of sewage.
- Humboldt County samples on a weekly basis from April to October.
- Humboldt's wet weather sample size consists of 7 samples that resulted in A or B grades, and 36 samples for the C through F grades.

A complete list of grades for Humboldt County's beach monitoring locations can be found in Appendix B-1 on page 66.

For additional water quality information:

Humboldt County's Department of Health & Human Services

https://humboldtgov.org/1696/Water-Quality-Test-Results

	Humboldt County Grades											
2017-2018							5	-Year	Avg.	(2012	2-2017	7)
	Summe	er Dry*	Wint	er Dry	Wet W	eather	Summ	er Dry*	Wint	er Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
Α	2	40%	n	ı/a	1	20%	3	64%	n	/a	2	33%
В	0	0%	n	ı/a	0	0%	0	8%	n	/a	1	20%
С	1	20%	n	ı/a	2	40%	0		n	/a	0	7%
D	0	0%	n	ı/a	1	20%	0	8%	n	/a	1	20%
F	2	40%	n	ı/a	1	20%	1	12%	n	/a	1	20%
Total	5				5		5				5	

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

Sewage Spills Summary							
7 SEWAGE SPILLS	2 Major Spills (10,000+ gallons)	109,236 GALLONS OF SEWAGE	0 health warnings				
were reported to have reached a	Minor Spill (1-10,000 gallons)	Total Volume reported to have reached					
waterbody in Humboldt County	4 Small Spills (<1,000 gallons)	waterbody in Humboldt County	0 beach closures				

Beach Bummers			
	Summer Dry	Winter Dry	Wet Weather
Trinidad State Beach, Trinidad	С	n/a	С
Luffenholz Beach, Trinidad	F	n/a	D
Clam Beach County Park, McKinleyville	F	n/a	С



DEL NORTE

Del Norte County

DEL NORTE HIGHLIGHTS

- There is only one beach regularly monitored in Del Norte County: Battery Point Lighthouse in Crescent City.
- Consistent with years past, this location received an A grade for both the summer dry and wet weather seasons.
- 52.70" of rain was recorded for the County from one rain gauge, on par with the ten-year average.
- There were only three reported sewage spills from April 2017 to March 2018. No health warnings or beach closures were issued from the spills.
- Samples are collected on a regular basis from April to
 October. Weekly beach grades for Del Norte County are
 updated irregularly, as data is seldom relayed to Heal the
 Bay in a timely manner.

A complete list of grades for Del Norte County's beach monitoring locations can be found in Appendix B-1 on page 65.

For additional water quality information:

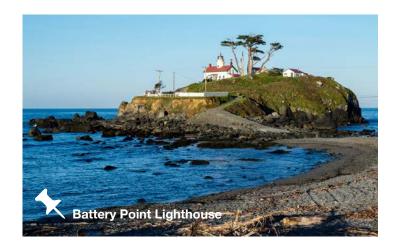
County of Del Norte Environmental Health Division

www.co.del-norte.ca.us/departments/community-development-department/environmental-health-division

	Del Norte County Grades											
2017-2018							5	-Year	Avg.	(2012	2-2017	7)
	Summe	er Dry*	Wint	er Dry	Wet W	eather	Summ	er Dry*	Winte	r Dry	Wet W	eather
	#	%	#	%	#	%	#	%	#	%	#	%
Α	5	100%	n	ı/a	3	50%	5	93%	n/	'a	5	78%
В	0	0%	n	ı/a	2	33%	0	4%	n/	'a	0	0%
С	0	0%	n	ı/a	1	17%	0	4%	n/	'a	1	22%
D	0	0%	n	ı/a	0	0%	0	0%	n/	'a	0	0%
F	0	0%	n	ı/a	0	0%	0	0%	n/	'a	0	0%
Total	Total 5 6 5											

^{*}State AB411 monitoring April thru October. Percentages may not add up to 100 due to rounding.

	Sewage Spills Summary							
3 SEWAGE SPILLS	0 Major Spills (10,000+ gallons)	2,400 GALLONS OF SEWAGE	0 health warnings					
were reported to have reached a	Minor Spill (1-10,000 gallons)	Total Volume reported to have reached						
waterbody in Del Norte County	2 Small Spills (<1,000 gallons)	waterbody in Del Norte County	0 beach closures					



IV. PACIFIC NORTHWEST COUNTY SUMMARIES



COASTAL COUNTIES: OREGON & WASHINGTON

Heal the Bay has been analyzing beach water quality in Oregon and Washington since 2010. Both states sample water quality for one fecal indicator bacteria, *Enterococcus*, between Memorial Day and Labor Day.

OREGON

Oregon's Department of Human Services and the Department of Environmental Quality collectively monitored select beach locations throughout the state from Memorial Day through Labor Day. Unlike California, which uses three indicator bacteria for its monitoring programs, Oregon monitors water quality using only the indicator bacteria *Enterococcus*. Oregon's program is funded entirely from the federal Beaches Environmental Assessment and Coastal Health Act (BEACH Act). See Funding—Federal BEACH Act under Policy updates and recommendations on page 28.

For a third year, the Oregon Beach Monitoring Program (OBMP) had a reduced sampling frequency due to resource constraints. Because of the minimal number of samples taken by OBMP, none of the Oregon beach locations qualified to receive a grade in this report (monitored beaches must be sampled at least 75% of the season to receive a grade).

If funding constraints for the OBMP continue or worsen in 2018, we encourage these pub-

TAKEAWAYS

The President's budget proposed to eliminate funding for US EPA's BEACH Act funding. Oregon's program is funded entirely from the federal BEACH Act. Because of the minimal number of samples taken by Oregon's monitoring program, none of the state's beach locations qualified to receive a grade in this report.

IV. PACIFIC NORTHWEST COUNTY SUMMARIES

Oregon & Washington (continued)

lic agencies to refine their monitoring program, consider consolidating their sampling to the highest use beaches and to increase the sampling frequency of those locations to weekly testing.

For additional water quality information: Oregon Health Authority

http://public.health.oregon.gov/HealthyEnvironments/Recreation/BeachWaterQuality/Pages/index.aspx

WASHINGTON

Washington's BEACH program is a stateadministered and locally implemented program. Like Oregon, Washington monitors only Enterococcus bacteria, which differs from California's three indicator bacteria monitoring protocol. Approximately 80% of the program has historically been funded under the federal BEACH Act, with the remaining 20% funded by the United States Environmental Protection Agency's (USEPA) National Estuary Program's Pathogen Prevention, Reduction and Control Grant. The Makah Tribe also contributes beach monitoring to the state program through separate BEACH Program Tribal funding. Washington State has one of the most robust beach monitoring programs in the country based on the number of sample sites per mile of beach.

2017-18 HIGHLIGHTS

- There were 157 individual sample locations regularly monitored from Memorial Day 2017 through Labor Day 2017.
- Summer dry grades were excellent, with 95% A or B grades.
- Only eight sites earned a C to F



grade. This is two more sites than last year. The poor water quality grades came from Island County (three locations), King County (one location), Mason County (one location), Skagit County (one location), and Whatcom County (two locations).

- A drier year led to fewer wet weather grades, with only 35 locations receiving wet weather grades compared to 157 sites last year.
- With 83% A or B wet weather grades, Washington underperformed compared to last year's 93%.

TABLE 4-01: WASHINGTON STATE GRADES

Washington State									
	Summ	er Dry	Winter Dry	Wet W	eather				
	#	%	#	#	%				
Α	147	94%	n/a	28	80%				
В	2	1%	n/a	1	3%				
С	3	2%	n/a	1	3%				
D	1	1%	n/a	0	0%				
F	4	3%	n/a	5	14%				
Total	157			35					

Wet weather grades in Washington are based on a significant rainfall event of 0.2 inches or more and the 72 hours following the rain event.

Washington's grading methodology can be found in Appendix D on page 73.

A complete list of grades for Washington State's monitoring locations can be found in Appendix B-2 on page 66. Information and photos generously provided by the Washington Department of Health and Department of Ecology.

For additional water quality information: State of Washington's Department of Ecology www.ecy.wa.gov/programs/eap/beach/index.html

Current beach closure and advisory information can be found at: http://ecologywa.blogspot.com/search/label/Fecal%20matters

TABLE 4-2: WASHINGTON STATE GRADES BY COUNTY AND NUMBER OF LOCATIONS

Clallam County									
	Summe	er Dry*	Winter Dry	Wet We	ather				
	#	%	# %	#	%				
Α	8	100%	n/a	14	93%				
В	0	0%	n/a	1	7%				
С	0	0%	n/a	0	0%				
D	0	0%	n/a	0	0%				
F	0	0%	n/a	0	0%				
Total	8			15					

King County									
	Summe	r Dry*	Winter Dry	Wet Weather					
	# %		# %	# %					
Α	29	97%	n/a	n/a					
В	0	0%	n/a	n/a					
С	1	3%	n/a	n/a					
D	0	0%	n/a	n/a					
F	0	0%	n/a	n/a					
Total	30								

Skagit County									
	Summer Dry*		Winter Dry	Wet W	eather				
	#	%	# %	#	%				
Α	2	67%	n/a	0	0%				
В	0	0%	n/a	0	0%				
С	1	33%	n/a	0	0%				
D	0	0%	n/a	0	0%				
F	0	0%	n/a	3	100%				
Total	3			3					

Gray's Harbor County				
	Summ	er Dry*	Winter Dry	Wet Weather
	#	%	# %	# %
Α	9	100%	n/a	n/a
В	0	0%	n/a	n/a
С	0	0%	n/a	n/a
D	0	0%	n/a	n/a
F	0	0%	n/a	n/a
Total	9			

Kitsap County					
	Summ	er Dry*	Winter Dry	Wet Weather	
	#	%	# %	# %	
Α	36	100%	n/a	n/a	
В	0	0%	n/a	n/a	
С	0	0%	n/a	n/a	
D	0	0%	n/a	n/a	
F	0	0%	n/a	n/a	
Total	36				

Snohomish County						
	Summ	er Dry*	Winte	r Dry	Wet W	eather
	#	%	#	%	#	%
Α	15	100%	n/	′a	n,	/a
В	0	0%	n/	′a	n,	/a
С	0	0%	n/	'a	n	/a
D	0	0%	n/	'a	n	/a
F	0	0%	n/	'a	n	/a
Total	15					

Island County					
	Summe	r Dry*	Winter Dry	Wet Weather	
	#	%	# %	# %	
A	3	50%	n/a	n/a	
В	0	0%	n/a	n/a	
С	0	0%	n/a	n/a	
D	1	17%	n/a	n/a	
F	2	33%	n/a	n/a	
Total	6				

Mason County				
Summe	er Dry*	Winter Dry	Wet W	eather
#	%	# %	#	%
8	89%	n/a	5	100%
0	0%	n/a	0	0%
1	11%	n/a	0	0%
0	0%	n/a	0	0%
0	0%	n/a	0	0%
9			5	
	# 8 0 1 0	# % 8 89% 0 0% 1 11% 0 0% 0 0%	Summer Dry* Winter Dry # % # % 8 89% n/a 0 0% n/a 1 11% n/a 0 0% n/a 0 0% n/a	Summer Dry* Winter Dry Wet W # % # % # 8 89% n/a 5 0 0% n/a 0 1 11% n/a 0 0 0% n/a 0 0 0% n/a 0

Thurston County					
	Summ	er Dry*	Winter Dry	Wet Weather	
	#	%	# %	# %	
Α	3	100%	n/a	n/a	
В	0	0%	n/a	n/a	
С	0	0%	n/a	n/a	
D	0	0%	n/a	n/a	
F	0	0%	n/a	n/a	
Total	3				

Jefferson County						
	Summer Dry* Winter Dry			Dry	Wet W	/eather
	#	%	#	%	#	%
Α	5	83%	n/a	l	n	/a
В	1	17%	n/a	l	n	/a
С	0	0%	n/a	l	n	/a
D	0	0%	n/a	l	n	/a
F	0	0%	n/a	l	n	/a
Total	6					

Pierce County					
	Summe	er Dry*	Winter Dry	Wet W	eather
	#	%	# %	#	%
Α	26	100%	n/a	6	100%
В	0	0%	n/a	0	0%
С	0	0%	n/a	0	0%
D	0	0%	n/a	0	0%
F	0	0%	n/a	0	0%
Total	26			0	

Whatcom County						
	Summe	r Dry*	Winter D	ry	Wet We	ather
	#	%	#	%	#	%
Α	3	50 %	n/a		3	50%
В	1	17%	n/a		0	0%
С	0	0%	n/a		1	17%
D	0	0%	n/a		0	0%
F	2	33%	n/a		2	33%
Total	6				6	

2017-18 APPENDICES

appendices 2017-2018

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HISTORY

BEACH BUMMERS TOP TEN HISTORY: 2011-2018 • First appearance

2018	2017	2016 🔻	2015
Poche Beach	Clam Beach County Park HUMBOLDT COUNTY	Cowell Beach	Cowell Beach
ORANGE COUNTY		SANTA CRUZ COUNTY	SANTA CRUZ COUNTY
Marina Lagoon, Lakeshore Park	San Clemente Pier	Clam Beach County Park HUMBOLDT COUNTY	Mother's Beach, MDR
SAN MATEO COUNTY	ORANGE COUNTY		LOS ANGELES COUNTY
Linda Mar Beach ●	Cowell Beach	Shelter Island (Shoreline Park)	Clam Beach County Park HUMBOLDT COUNTY
SAN MATEO COUNTY	SANTA CRUZ COUNTY	SAN DIEGO COUNTY	
Clam Beach County Park	Marina Lagoon, Lakeshore Park	Monarch Beach (North) ORANGE COUNTY	Marina Lagoon (2 locations)
HUMBOLDT COUNTY	SAN MATEO COUNTY		SAN MATEO COUNTY
Roosevelt Beach ●	La Jolla Cove	Santa Monica Pier	Mission Bay
SAN MATEO COUNTY	SAN DIEGO COUNTY	LOS ANGELES COUNTY	SAN DIEGO COUNTY
Luffenholtz Beach	Santa Monica Pier	Mother's Beach, MDR	Santa Monica Pier
HUMBOLDT COUNTY	LOS ANGELES COUNTY	LOS ANGELES COUNTY	LOS ANGELES COUNTY
Santa Monica Pier	Capitola Beach	Redondo Beach Pier	Candlestick Point SAN FRANCISCO COUNTY
LOS ANGELES COUNTY	SANTA CRUZ COUNTY	LOS ANGELES COUNTY	
Cowell Beach	Luffenholtz Beach	Candlestick Point SAN FRANCISCO COUNTY	Stillwater Cove
SANTA CRUZ COUNTY	HUMBOLDT COUNTY		MONTEREY COUNTY
Cabrillo Beach, harborside	Mother's Beach, MDR	Pillar Point Harbor	Cabrillo Beach, harborside
LOS ANGELES COUNTY	LOS ANGELES COUNTY	SAN MATEO COUNTY	LOS ANGELES COUNTY
Surfer's Beach ● SAN MATEO COUNTY	Monarch Beach, Dana Point ORANGE COUNTY	Pismo Beach Pier SAN LUIS OBISPO COUNTY	Huntington Beach (Brookhurst) ORANGE COUNTY

2014	2013	2012	2011
Cowell Beach SANTA CRUZ COUNTY	Avalon, Catalina Island LOS ANGELES COUNTY	Avalon, Catalina Island LOS ANGELES COUNTY	Cowell Beach SANTA CRUZ COUNTY
Marina Lagoon (2 locations)	Cowell Beach	Cowell Beach	Avalon, Catalina Island
SAN MATEO COUNTY	SANTA CRUZ COUNTY	SANTA CRUZ COUNTY	LOS ANGELES COUNTY
Mother's Beach, MDR	Poche Beach	Marie Canyon, Malibu	Cabrillo Beach, harborside
LOS ANGELES COUNTY	ORANGE COUNTY	LOS ANGELES COUNTY	LOS ANGELES COUNTY
Cabrillo Beach, harborside	Cabrillo Beach, harborside	Surfrider Beach, Malibu	Topanga State Beach LOS ANGELES COUNTY
LOS ANGELES COUNTY	LOS ANGELES COUNTY	LOS ANGELES COUNTY	
Stillwater Cove MONTEREY COUNTY	Malibu Pier	Solstice Canyon, Malibu	Poche Beach
	LOS ANGELES COUNTY	LOS ANGELES COUNTY	ORANGE COUNTY
Clam Beach County Park HUMBOLDT COUNTY	Marina Lagoon (2 locations)	Cabrillo Beach, harborside	Doheny State Beach
	SAN MATEO COUNTY	LOS ANGELES COUNTY	ORANGE COUNTY
Santa Monica Pier	Doheny State Beach ORANGE COUNTY	Doheny State Beach	Arroyo Burro (Hendry's Beach)
LOS ANGELES COUNTY		ORANGE COUNTY	SANTA BARBARA COUNTY
Pillar Point Harbor	Redondo Beach Pier	Poche Beach	Baker Beach
SAN MATEO COUNTY	LOS ANGELES COUNTY	ORANGE COUNTY	SAN FRANCISCO COUNTY
Capitola Beach	Windsurfer Circle	Escondido State Beach, Malibu	Colorado Lagoon, Long Beach
SANTA CRUZ COUNTY	SAN FRANCISCO COUNTY	LOS ANGELES COUNTY	LOS ANGELES COUNTY
Windsurfer Circle SAN FRANCISCO COUNTY	Tijuana River Mouth	Topanga State Beach Malibu	Capitola Beach
	SAN DIEGO COUNTY	LOS ANGELES COUNTY	SANTA CRUZ COUNTY



PLEASE NOTE:

Starting in 2015, the SWRCB required all coastal counties receiving state funds to monitor their beaches at point zero – where the discharge meets the ocean. Prior to monitoring year 2015-16, only Los Angeles County (and portions of Orange, San Diego, and Humboldt Counties) sampled directly at the outfall, which gives the most accurate picture of water quality.

San Diego Cour	nty	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Oceanside	Oceanside, San Luis Rey River outlet	А		
	projection of Tyson Street	A+	A+	В
	projection of Forster Street	A+	A+	В
	500' North of Loma Alta Creek outlet	A +	A +	A +
	Buccaneer Beach at Loma Alta Creek		• • • • • • • • • • • • • • • • • • • •	A+
	projection of Cassidy Street	A+	A+	А
	Street Malo Beach, downcoast from Street Malo Road	A+	A+	В
Carlsbad	projection of Tamarack Avenue	A+		
	warm water jetty	A		
	projection of Cerezo Drive	A +	A +	A +
	projection of Palomar Airport Road	A +	A +	A +
	Encina Creek outlet	A +	A +	A +
	projection of Ponto Drive	A +	A +	A +
	projection of Poinsettia Lane	A +	A +	A +
	Batiquitos Lagoon outlet	A+		A+
Encinitas	Moonlight Beach, Cottonwood Creek outlet	А		A+
	Swami's Beach, Seacliff Park	A+		A+
	San Elijo State Park, Pipes surf break	A+	• • • • • • • • • • • • • • • • • • • •	A+
	San Elijo State Park, north end of State Park stairs	A +	A +	A +
	San Elijo State Park, projection Liverpool Drive	A +	A +	A +
Cardiff State Beach	San Elijo Lagoon outlet	А		A+
Jardin Glate Beach	Charthouse parking, slight south of Kilkeny	А	A+	В
	Las Olas, 100 yds south south of Charthouse	A+	A+	В
	Seaside State Park	A+	A+	С
Solana Beach	Tide Beach Park, projection Solana Vista Drive	A+	A+	D
	Fletcher Cove, projection Lomas Santa Fe Drive	А	A+	В
	Seascape Surf Beach Park	A+		
Del Mar	San Dieguito River Beach	А	***************************************	A+
	projection of 15th Street	A+		
Torrey Pines	Los Penasquitos Lagoon outlet	А	F	A+
La Jolla Shores	El Paseo Grande, near Scripps	A+	В	
	projection of Ave De La Playa	A+		A+
La Jolla	La Jolla Cove	А		
	South Casa Beach	A		
	Ravina, south of Nicholson Point	А		
Windansea Beach	projection of Playa Del Norte	A+		
Pacific Beach	Pacific Beach Point, downcoast of Linda Way	A		
	Tourmaline Surf Park, projection of Tourmaline Street	A+		
	projection of Grand Avenue	A+		
Mission Beach	Belmont Park	А		
Mission Bay	Bonita Cove, east cove	Α		

SAN DIEGO COUNTY (CON	TINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Mission Bay (cont'd)	Bahia Point-northside, apex of Gleason Road	А		
	Fanuel Park, projection of Fanuel Street	А		
	Crown Point Shores	А		
	Wildlife Refuge near fence, projection of Lamont Street	A		
	Campland, west of Rose Creek	А		
	DeAnza Cove, mid-cove	А		
	Visitor's Center, projection of Clairemont Drive	A		
	Comfort Station north of Leisure Lagoon	А		
	Leisure Lagoon, swim area	А		
	Tecolote Playground, watercraft area	А		
	Tecolote Shores, swim area	А		
	Vacation Isle Ski Beach	А		
	Vacation Isle North Cove Beach	А	***************************************	
Ocean Beach	San Diego River outlet (Dog Beach)	А		
	Stub Jetty	А	•••••	
	Pier, northside at Newport Avenue	A+		
	Ocean Pier, projection of Narragansett Avenue	А		
	projection of Bermuda Avenue	A+		
Sunset Cliffs	projection of Ladera Street	A+		
Point Loma	Point Loma Treatment Plant	A+		
	Lighthouse	А		
San Diego Bay	Shelter Island, Shoreline Beach Park	А		F
	Spanish Landing Park beach	А		
	Bayside Park, projection of J Street	В		
	Glorietta Bay Park at boat launch	А		
	Tidelands Park, projection of Mullinix Drive	А		F
Coronado	projection of Ave del Sol	А		A+
	Silver Strand	A+		A+
mperial Beach	projection of Carnation Avenue	A+	•••••	F
	Imperial Beach Pier	Α		F
	projection of Cortez Avenue			F
	southend of Seacoast Drive	Α		F
 Гіjuana Slough	NWRS, 3/4 mi. N of Tijuana River	Α		F
, 0	NWRS, Tijuana Rivermouth	Α		F
Border Field State Park	projection of Monument Road	A		F
	Border Fence, north side	А		F
Orange County				
Seal Beach	projection of 1st Street	A	С	F
	projection of 8th Street	А	Α	С

ORANGE COUNTY (CONTIN	NUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Seal Beach (cont'd)	Seal Beach Pier, 100 yards south of pier	А	А	D
	projection of 14th Street	A+	А	F
Surfside Beach	projection of Sea Way	A+	А	С
Sunset Beach	projection of Broadway	A+	A+	В
Bolsa Chica	Beach across from the Reserve Flood Gates	A+	А	В
	Reserve at the downcoast end of the State Beach	А	А	A+
Huntington City Beach	Bluffs	A+	А	В
	projection of 17th Street	А	А	F
untington State Beach	Jack's Snack Bar at Huntington Street	A+	А	С
	projection of Beach Blvd.	A+	А	В
Huntington State Beach	projection of Newland Street (SCE Plant)	А	А	D
	projection of Magnolia Street	А	A+	D
	projection of Brookhurst Street	А	А	D
	Santa Ana River Mouth	A+	А	С
Newport Beach	projection of Orange Street	A+	A+	D
	projection of 52nd/53rd Street	A+	A+	F
	projection of 38th Street	А	Α	F
3alboa Beach	projection of 15th/16th Street	A +	A +	A +
	Balboa Beach Pier	A +	A +	A +
	The Wedge	A+	A+	А
Huntington Harbor	Mothers Beach - Orange County	A	С	F
	Trinidad Lane Beach	A+	A+	F
	Seagate Lagoon	А	A+	D
	Humboldt Beach	А	A+	F
	Davenport Beach	A	A+	F
	Coral Cay Beach	А	А	F
	11th Street Beach	A+	A+	F
Newport Bay	Newport Dunes - North	A	А	F
	Newport Dunes - East	A+	A+	F
	Newport Dunes - Middle	A+	A+	F
	Newport Dunes - West	A	А	F
	Bayshore Beach	A+	А	F
	Via Genoa Beach	А	В	F
	Lido Yacht Club Beach	A	А	F
	Garnet Avenue Beach	A+	A+	F
	Sapphire Avenue Beach	А	Α	F
	Abalone Avenue Beach	А	С	F
	Park Avenue Beach	А	A+	F
	Onyx Avenue Beach	A+	С	F
	Ruby Avenue Beach	A+	Α	F
	Grand Canal		Α	В

ORANGE COUNTY (CONT	INUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Newport Bay (cont'd)	43rd Street Beach	В	Α	F
	38th Street Beach	A+	Α	F
	19th Street Beach	A+	Α	F
	15th Street Beach	A+	Α	F
	10th Street Beach	А	А	F
	Alvarado/ Bay Isle Beach	А	В	F
	N Street Beach	A+	Α	F
	Harbor Patrol Beach at Bayside Drive	A	В	F
	Rocky Point Beach	A+	Α	F
Corona Del Mar	Corona del Mar Beach (CSDOC)	A +	A +	A +
	Little Corona Beach	А	Α	A+
Crystal Cove	Pelican Point Beach	A+	Α	A+
	Crystal Cove (CSDOC)	A +	A +	A +
	Crystal Cove, weekly	A+	A+	А
	Muddy Creek Beach	A+	A+	D
	El Moro Beach	А	A+	A+
_aguna Beach	Emerald Bay Beach	А	Α	A+
	Diver's Cove	A+	Α	A+
	Crescent Bay Beach	A+	Α	A+
	Laguna Main Beach	А	В	A+
	Laguna Hotel	A+	Α	А
	Cleo Street	А	Α	A+
	Projection of Bluebird Canyon	A	Α	A+
	Between Pearl and Agate Street	A	Α	A+
	Victoria Beach	A +	A +	A +
	Blue Lagoon		A+	A+
	Laguna Beach - Goff Island Beach	A+	Α	A+
	Treasure Island Beach	А	Α	A+
	North Aliso County Beach	A+	A+	A+
	Aliso Creek Ocean Interface	А	Α	F
	Aliso Creek - outlet	А	A+	F
	Aliso Creek - 1000' south	A+	A+	F
	Camel Point	А	А	F
	West Street	A+	A+	D
	Table Rock	A+	A+	F
	Laguna Lido Point	A+	A+	В
	9th Street 1000 Steps Beach	A+	A+	А
	Three Arch Bay	A+	A+	В
Dana Point	Monarch Beach, North	С	F	F
	Salt Creek Beach	A +	A +	A +
	Dana Strands Beach, AWMA	A +	A+	A +

ORANGE COUNTY (CON	ΓΙΝUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Dana Point (cont'd)	Marine Science Institute Beach, SERRA	A +	A +	A +
	Doheny - North Beach	А	D	F
	Doheny - Mid Beach north of San Juan Creek	A+	С	A+
	Doheny - San Juan Creek Ocean Interface	В	С	F
	Doheny - San Juan Creek Interface	А	Α	А
	Doheny - Last Campground, 1000' south of SERRA Outfall	А	A+	A+
	Doheny - 2000' south of SERRA Outfall	А	Α	A+
	Doheny - South Day Use Area drain	А	Α	A+
	Doheny - Pedestrian Bridge, 3000' south of SERRA Outfall	А	Α	A+
	Doheny - End of the Park	A+	Α	A+
	Capistrano County Beach, 5000' south of SERRA Outfall	A+	Α	A+
	Capistrano County Beach drain	Α	Α	A+
	Capistano Bay Community Beach	A+	Α	A+
	Projection of Camino Estrella, 7500' South Outfall	A+	Α	A+
	S. Capistrano Bay Comm. Beach, 10000¹ south of SERRA Outfall	A +	A +	A +
San Clemente	Poche Beach	Α	Α	A+
	Poche Beach, ocean interface	F	F	F
	Pico drain at North Beach	В	В	F
	North beach at Avenida Pico, 20000' South Outfall	Α	Α	В
	Mariposa Beach	Α		F
	Linda Lane Beach	Α	A+	A+
	San Clemente Pier Lifeguard Building north	A+	Α	A+
	San Clemente Pier drain	С	F	F
	Trafalgar Canyon	А	Α	A+
	Riviera Beach	A +	A +	A +
	Avenida Calafia	A +	A +	A +
	Avenida Las Palmeras	A +	A +	A +
Dana Point Harbor	Baby Beach - West End	В	В	A+
	Baby Beach - Buoy Line	A+	Α	A+
	Baby Beach - Swim Area	Α	Α	A+
	Baby Beach - East End	A+	Α	A+
		A+	Α	A+
	Youth Dock	A +	A+	A +
Los Angeles Co	Baby Beach - East End Guest Dock Youth Dock	A+ A+		A
alibu	Leo Carrillo Beach at Arroyo Sequit Creek mouth	А	A	В
	Nicholas Beach at San Nicholas Canyon Creek mouth	A+	А	A+
	Encinal Canyon at El Matador State Beach	A +	A +	A +
	Broad Beach at Trancas Creek mouth	Α	Α	A+
	Zuma Beach at Zuma Creek mouth	Α	Α	A+

LOS ANGELES COUNTY (CO	ONTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Malibu (cont'd)	Walnut Creek outlet, projection of Wildlife Road	A+	В	Α
	Unnamed Creek, projection of Zumirez Drive, Little Dume	В	А	В
	Paradise Cove Pier at Ramirez Canyon Creek mouth	А	Α	A+
	Escondido Creek, just east of Escondido State Beach	A +	A +	A +
	Latigo Canyon Creek mouth	Α	Α	A+
	Solstice Canyon at Dan Blocker County Beach	A +	A +	A +
	Unnamed Creek, adjacent to public stairway at 24822 Malibu Road	A+	Α	А
	Puerco State Beach at creek mouth	А	Α	А
	Marie Canyon storm drain at Puerco Beach, at 24572 Malibu Road	В	Α	F
	Malibu Point	А	Α	A+
	Surfrider Beach, breach point	А	В	F
	Malibu Pier- 50 yards east	A+	В	A+
	Carbon Beach at Sweetwater Canyon	A+	Α	С
	Las Flores State Beach at Las Flores Creek	А	A+	A+
	Big Rock Beach at 19948 PCH stairs	A+	Α	A+
	Pena Creek at Las Tunas County Beach	A+	A+	A +
	Tuna Canyon		•••••	A+
opanga Beach	Topanga State Beach at creek mouth	С	Α	D
Castle Rock Beach	at Storm Drain	A+	Α	D
Will Rogers State Beach	Santa Ynez drain at Sunset Blvd.	А	• • • • • • • • • • • • • • • • • • • •	F
	at 17200 PCH, 1/4 mile east of Sunset drain		A+	A+
	at Bel Air Bay Club drain near fence	А	Α	А
	at Pulga Canyon storm drain	А	A+	D
	at Temescal Canyon drain	А	A+	A+
	at Santa Monica Canyon drain	А	Α	F
Santa Monica Beach	at Montana Avenue drain	А	Α	A+
	at Wilshire Blvd. drain	A+	Α	A+
	Santa Monica Municipal Pier	D	F	F
	at Pico/Kenter storm drain	Α	В	F
	at Strand Street, in front of the restrooms	A+	Α	A+
	Ocean Park Beach at Ashland Avenue drain	A+	А	F
/enice Beach	at the Rose Avenue storm drain	A+	A+	F
	at Brooks Avenue drain	А	С	D
	at Windward Avenue drain	А	Α	D
	Fishing Pier- 50 yards south	А	Α	А
	at Topsail Street	А	A+	В
Marina del Rey	Mothers' Beach-Playground area	А	Α	F
	Mothers' Beach-lifeguard tower	А	Α	F
	Mothers' Beach-btwNorth Tower and Boat dock	Α	F	В
Playa del Rey	Dockweiler at Ballona Creek mouth (NEW 2017)	А	Α	В
	Dockweiler at Culver Blvd. drain	Α	Α	F

LOS ANGELES COUNTY (C	ONTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Playa del Rey (cont'd)	Dockweiler, North Westchester Storm Drain	А	А	D
	Dockweiler at World Way, south of D&W jetty	A+	А	А
	Dockweiler at Imperial Hwy drain	А	A+	D
	Dockweiler, Hyperion Treatment Plant One Mile Outfall	А	A+	A+
El Segundo	El Segundo Beach at Grand Avenue drain	A +	A +	A +
Manhattan Beach	at 40th Street	А	A+	A+
	at 28th Street drain	А	А	F
	Manhattan Beach Pier drain	А	A+	A+
Hermosa Beach	at 26th Street	A+	Α	A+
	Hermosa Beach Pier, 50 yards south	A+	A+	А
	Herondo Street storm drain, in front of the drain	А	Α	С
Redondo Beach	Redondo Municipal Pier 100 yards south	А	С	A+
	at Sapphire Street	А	Α	A+
	at Topaz Street, north of jetty	А	A+	A+
Torrance	Torrance Beach at Avenue I drain	А	Α	A+
Palos Verdes Peninsula	Malaga Cove, at trail outlet	А	Α	A+
	Malaga Cove, at rocks	A+	Α	A+
	Bluff Cove	A +	A+	A +
	Long Point	А	Α	A+
	Abalone Cove Shoreline Park	A +	A +	A +
	Portuguese Bend Cove	A +	A +	A +
San Pedro	Royal Palms State Beach	A+	Α	A+
	Wilder Annex	A+	В	А
	Cabrillo Beach - oceanside	A+	A+	А
	Cabrillo Beach - harborside at restrooms	D	F	F
	Cabrillo Beach - harborside at boat launch	А	С	С
Catalina Island	Descanso Bay, end of beach (NEW 2017)			A+
	Descanso Bay, between fire pits (NEW 2017)			A+
	Avalon Beach, east of the Casino Arch at the steps	А		A+
	Avalon Beach, 100 feet west of the Green Pleasure Pier	А	•••••	A+
	Avalon Beach, 50 feet west of the Green Pleasure Pier	A+	***************************************	A+
	Avalon Beach, 50 feet east of the Green Pleasure Pier	A+		A+
	Avalon Beach, 100 feet east of the Green Pleasure Pier	А		A+
ong Beach	projection of 5th Place	А	В	F
	projection of 10th Place	А	В	F
	projection of Molino Avenue	А	В	F
	projection of Coronado Avenue	В	Α	F
	Belmont Pier, westside	Α	D	F
	projection of Prospect Avenue	А	С	F
	projection of Granada Avenue	В	В	F
	Alamitos Bay, 2nd Street Bridge & Bayshore	Α	A+	D

LOS ANGELES COUNTY (C	ONTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Long Beach (cont'd)	Alamitos Bay, shore float	А	A+	С
	Mother's Beach, Long Beach, north end	В	В	F
	Alamitos Bay, 56th Place - on bayside	А	А	D
	Long Beach City Beach, projection of 55th Place	Α	Α	F
	Long Beach City Beach, projection of 72nd Place	Α	Α	F
	Colorado Lagoon - north	А	В	D
	Colorado Lagoon - south	А	В	F
Ventura County				
Ventura	Rincon Beach, 25 yds south so. of the creek mouth	A+	С	В
	Rincon Beach- at the end of the footpath	Α		A+
La Conchita Beach	point zero, Ocean View Road	A+		A+
Ventura	Oil Piers Beach - south of drain	A+	Α	A+
	Hobson County Park, base of stairs to the beach	A+		A+
	Faria County Park - stairs	A+	В	В
	Mandos Cove - point zero	Α		A+
	Solimar Beach- south, end of east gate access road	A+	Α	Α
	Emma Wood State Beach, 50 yards South of first drain	A+	C	Α
	Surfer's Point at Seaside, End of access path via wooden gate	A+	В	A+
	Promenade Park - Figueroa Street	A+	В	Α
	Promenade Park - Redwood Apts.	A+		A+
	Promenade Park- Holiday Inn, south of drain at California Street	A+		A+
	San Buenaventura Beach, south of drain at Kalorama Street	A+		A+
	San Buenaventura Beach, south of drain at San Jon Road	Α	Α	А
	San Buenaventura Beach, south of drain at Dover Ln.	Α		A+
	San Buenaventura Beach, south of drain at Weymouth Ln.	Α		A+
Ventura Harbour area	Marina Park, Beach at North end of playground	A+		A+
	Peninsula Beach, Beach area North of South Jetty	Α		A+
	Surfer's Knoll, Beach adjacent to parking lot	A+	A+	A +
Oxnard	5th Street, south of drain	A+		A+
	Outrigger Way, south of drain	A+		A+
	Falkirk Avenue, south of drain	A+		A+
	Starfish Drive, south of drain	A+		A+
Channel Islands Harbor	Hollywood Beach - La Crescenta Street, south of drain	A+		A+
	Hollywood Beach - Los Robles Street, south of drain	A+	A+	A+
	Hobie Beach Lakshore Drive	A	A+	В
	Beach Park at South end of Victoria Avenue	A	Α	Α
	Silverstrand - San Nicholas Avenue, south of jetty	A +	A+	A+
	Silverstrand - Santa Paula Drive, south of drain	A +	A+	A +
	Silverstrand - Sawtelle Avenue, south of drain	Α	A+	A+
Port Hueneme	Beach Park, 50 yds south, no.of the Pier	A+	Α	Α

VENTURA COUNTY (CONTIN	IUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Oxnard	Ormond Beach- J Street drain	A+	А	В
	Ormond Beach- Oxnard Industrial drain, 50 ydsouth no. of the drain	A+	А	А
	Ormond Beach- Arnold Road	A+	Α	А
Point Mugu	Point Mugu Beach, adjacent to parking lot entry	A+		A+
	Thornhill Broome Beach, adjacent to parking lot entry	А		A+
	Sycamore Cove Beach, 50 ydsouth so. of the creek mouth	A+		A+
	County Line Beach point zero	A+		A+
	Staircase Beach, bottom of staircase	A+		A+
Santa Barbara Co	ounty			
Guadalupe	Guadalupe Dunes	A+		A+
Lompoc	Jalama Beach	A+		В
Goleta	Gaviota State Beach	А	Α	D
	Refugio State Beach	A+	А	D
	El Capitan State Beach	A+	С	С
Isla Vista	Sands at Coal Oil Point	A +	A +	A +
Goleta	Goleta Beach	Α	F	F
Hope Ranch	Hope Ranch Beach	Α	В	С
Santa Barbara	Arroyo Burro Beach	А	С	D
	Leadbetter Beach	В	Α	F
	East Beach at Mission Creek	А	В	F
	East Beach at Sycamore Creek	A+	Α	D
Montecito	Butterfly Beach	A+		А
	Hammond's Beach	A+	F	D
Summerland	Summerland Beach	Α	Α	В
Carpinteria	Carpinteria State Beach	A+	F	F
San Luis Obispo (County			
San Simeon	Hearst Memorial State Beach, 100 yds west of pier at creek outfall	A+	А	В
	Pico Avenue, San Simeon	A+	Α	A+
Cayucos State Beach	North of pier at outfall	Α	Α	А
	downcoast of the pier	Α	А	A+
	Studio Drive parking lot near Old Creek	Α	А	A+
Morro Strand State Beach	projection of Beachcomber Drive	A+	С	A+
Morro Bay City Beach	projection of Atascadero	А	Α	В
2.12.23, 0.1, 20001	Morro Creek, south side	А	Α	А
	75 feet north of main parking lot	A +	A +	A +
Avila Beach	Olde Port Beach, Harford Beach, north	А	С	В
	350 yards west of pier at creek outfall	В	Α	А
	projection of San Luis Street	A+	Α	В

SAN LUIS OBISPO CO	UNTY (CONTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Pismo Beach	Sewers at Silver Shoals Drive	А	Α	A+
	projection of Wadsworth Street	А	Α	С
	40 feet south of the pier	А	Α	A+
	projection of Ocean View	Α	Α	A+
	330 yards no. of Pier Avenue	А	Α	A+
	projection of Pier Avenue	А	Α	A+
	571 yards south of Pier Avenue, end of Strand Way	A+	Α	A+
Monterey Cou	ınty			
Monterey Bay	Monterey State Beach	А		A+
	Monterey Municipal Beach, at the commercial wharf	А	• • • • • • • • • • • • • • • • • • • •	С
	San Carlos Beach at San Carlos Beach Park	А		A+
	Lover's Point Park, projection of 16th Street	A+		A+
	Asilomar State Beach, projection of Arena Avenue	А		A+
	Spanish Bay, Moss Beach), end of 17 mile drive	A+		A+
	Stillwater Cove, at Beach and Tennis Club	А	••••••	A+
Carmel	Carmel City Beach, projection of Ocean Avenue, west end	Α		С
Santa Cruz	Waddell Creek Beach at Waddell Creek			A+
Santa Cruz	Waddell Creek Beach at Waddell Creek			A+
	Scott Creek Beach at Scott Creek			A+
	Davenport Beach at San Vicente Creek			A+
	Natural Bridges State Beach	A+	A+	Α
	Mitchell's Cove Beach			A+
	Lighthouse Beach, Steamer Lane			A+
	Cowell Beach at the Stairs	A	В	А
	Cowell Beach Lifeguard Tower 1	В	В	А
	Cowell Beach, west of the wharf	D	В	В
	Santa Cruz Main Beach at the Boardwalk	А	С	А
	Santa Cruz Main Beach at the San Lorenzo River	А	В	С
	Seabright Beach	A	Α	A
Twin Lakes	Twin Lakes Beach	A+	Α	A
	Sunny Cove Beach			A+
				A+
	Corcoran Lagoon Beach			
Opal Cliffs	Corcoran Lagoon Beach Moran Lake Beach			A+
Opal Cliffs				A+ A+
	Moran Lake Beach	В	С	
Opal Cliffs Capitola Beach	Moran Lake Beach Pleasure Point Beach	В	C A	A+

SANTA CRUZ COUNTY (CO	NTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Aptos	Seacliff State Beach	A+	Α	А
	Rio Del Mar Beach	В	В	В
	Hidden Beach			A+
Watsonville	Manresa Beach			A+
	Sunset Beach			A+
	Palm/Pajaro Dunes Beach			A+
San Mateo Coun	ty			
Pacifica	Sharp Park Beach, projection of San Jose Avenue			A+
	Sharp Park Beach, projection of Birch Ln.			A+
	Rockaway Beach at Calera Creek	А	A+	А
	Linda Mar Beach at San Pedro Creek	F	F	F
Montara	Montara State Beach at Martini Creek	С		В
Moss Beach	Fitzgerald Marine Reserve at San Vicente Creek	С	F	F
Pillar Point	#8 Mavericks Beach Westpoint Avenue	В	F	F
	Harbor, end of Westpoint Avenue #7	В	F	F
Half Moon Bay	Surfer's Beach, south end of riprap	D	F	С
	Roosevelt Beach, south end of parking lot	F	F	F
	Dunes Beach	Α	D	В
	Venice Beach at Frenchman's Creek	С	F	F
	Francis Beach at the foot of the steps	В	С	А
	San Gregorio State Beach at San Gregorio Creek			В
Pomponio State Beach	at Pomponio Creek	A+	A+	А
Pescadero	Pescadero State Beach at Pescadero Creek	А	A+	А
	Bean Hollow State Beach	A+	A +	A +
	Gazos Beach at Gazos Creek	В	С	В
San Mateo	Bay side, Oyster Point	А		D
	Bay side, Coyote Point	A+	Α	А
	Marina Lagoon, Aquatic Park	В		F
	Marina Lagoon, Lakeshore Park - behind Rec Center	F	***************************************	F
	Bay side, Kiteboard Beach			В
San Francisco Co	ounty			
Aquatic Park Beach	Hyde Street Pier, projection of Larkin Street	A+	А	А
	211 Station	А	А	С
Presidio	Crissy Field Beach East, 202.4 Station	A+	F	В
	Crissy Field Beach West 202.5 station	A+	A+	В
	Baker Beach East, Ocean #15 East	А	Α	Α
	Baker Beach, Lobos Creek	В	В	D
	Baker Beach West, Ocean #16	A+	Α	Α

SAN FRANCISCO COUNT	TY (CONTINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Seacliff	China Beach, end of Sea Cliff Avenue	A+	A+	А
Ocean Beach	projection of Balboa Avenue	A+	A+	В
	projection of Lincoln Way	A+	A+	D
	projection of Pacheco Street			F
	projection of Vicente Street			F
	projection of Sloat Blvd.	A+	A+	С
	Fort Funston, opposite Lake Merced overflow structure			F
Mission Creek Park	at Mission Creek (NEW 2017)		A+	F
slais Channel	Islais Landing at Islais Creek	A+	Α	F
Candlestick Point	Jackrabbit Beach	Α	Α	С
	Windsurfer Circle	В	F	F
	Sunnydale Cove	Α	Α	F
Richmond	Keller Beach North Beach Keller Beach South Beach	В		A
Alameda	Crown Beach Crab Cove	C		F
	Crown Beach Bath House	A		A
	Crown Beach Windsurfer Corner	A+		В
	Crown Beach Sunset Road	A		Α
	Crown Beach 2001 Shoreline Drive	A		Α
	Crown Beach Bird Sanctuary	A		C
Marin County				
Tomales Bay	Dillon Beach	A+		A+
	Lawson's Landing	A+		A+
	Miller Park	A+		A+
	Heart's Desire	А		А
	Shell Beach	А		A+
	Chicken Ranch Beach at Creek	А		A+
	Millerton Point	В		А
Bolinas Bay	Bolinas Beach, Wharf Rd	A		A+
	Stinson Beach, North	A+		A+
	Stinson Beach, Central	A		A+
	Stinson Beach, South	A		A+
/luir Beach	North	А		A+
	Muir Beach, Central	A+		А
	Muir Beach, South	A+		А
Rodeo Cove	Rodeo Beach, North	A+		A+
	Rodeo Beach, Central	A+		A+
	Rodeo Beach, South	A+		A+

MARIN COUNTY (CON	TINUED)	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Baker Beach	Horseshoe Cove SW	A+	***************************************	A+
	Horseshoe Cove NW	A+		A+
	Horseshoe Cove NE	A+		A+
Sausalito	Schoonmaker Beach	А		A+
San Rafael	China Camp	В		A+
	McNears Beach	В		A+
Sonoma Coun	ty			
Gualala	Gualala Regional Park Beach	A+		A+
Sea Ranch	Black Point Beach	A+	• • • • • • • • • • • • • • • • • • • •	A+
Jenner	Stillwater Cove Regional Park Beach	A+		A+
	Goat Rock State Park Beach	A+	***************************************	A+
Bodega Bay	Salmon Creek State Park Beach	A+		A+
	Campbell Cove State Park Beach	A+	***************************************	A+
	Doran Regional Park Beach	A+		A+
Mendocino Co				
Fort Bragg	MacKerricher State Park at Virgin Creek			С
	Pudding Creek Ocean Outlet	A+		В
	Hare Creek	A		A+
Mendocino	Caspar Beach at Caspar Creek	A+		A+
	Big River near PCH	A+		A+
	Van Damme State Park at the Little River	Α		В
Little River				
	Del Norte Counties			
Humboldt and	Del Norte Counties Battery Point Lighthouse	A		A+
		A C		A+ C
Humboldt and	Battery Point Lighthouse			
Humboldt and	Battery Point Lighthouse Trinidad State Beach near Mill Creek	С		С
Humboldt and	Battery Point Lighthouse Trinidad State Beach near Mill Creek Luffenholtz Beach near Luffenholtz Creek	C F		C D

Clallam County		Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Neah Bay	Third Beach - east	A+	A+	A+
	Third Beach - mid	A+	A+	A+
	Third Beach - west	A+	A+	A+
	Front Street Beach East at Kal Chate St.			A+
	Front Street Beach East at Pine Street			А
	Front Street Beach East - mid			A+
	Dakwas Park Beach - west	A+	A+	В
	Dakwas Park Beach - mid	A+	A+	A+
	Dakwas Park Beach - east	А	A+	A+
Makah Bay	Hobuck Beach - north			A+
	Hobuck Beach - mid-south		• • • • • • • • • • • • • • • • • • • •	A+
	Hobuck Beach - south			A+
	Sooes Beach - north			Α
	Sooes Beach - mid			A+
	Sooes Beach - south			A+
Juan de Fuca Strait/	Salt Creek Recreation Area - north	А		
Port Angeles	Salt Creek Recreation Area - south	A+		
	Cline Spit County Park - north	A+		
	Cline Spit County Park - mid	A+		
	Cline Spit County Park - south	A+	• • • • • • • • • • • • • • • • • • • •	
	Hollywood Beach - west	A+		
	Hollywood Beach - mid	А	• • • • • • • • • • • • • • • • • • • •	
	Hollywood Beach - east	А		
Grays Harbor				
Westport	The Groynes - east	A+		
	The Groynes - mid	A+	• • • • • • • • • • • • • • • • • • • •	
	The Groynes - west	A+	• • • • • • • • • • • • • • • • • • • •	
	Half Moon Bay - north	A+		
	Half Moon Bay - mid	A+		
	Half Moon Bay - south	A+		
	Westhaven State Park, South Jetty - north	A+		
	Westhaven State Park, South Jetty - mid	A+		
	Westhaven State Park, South Jetty - south	A+		
Island County				
Whidbey Island	Oak Harbor Lagoon - mid	A+		
-	Oak Harbor Lagoon - north west	A+		
	Oak Harbor Lagoon - south east	A+		

ISLAND COUNTY (CONTINUED)		Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
••••••	Freeland County Park, Holmes Harbor - west	D	• • • • • • • • • • • • • • • • • • • •	
	Freeland County Park, Holmes Harbor - mid	F		
	Freeland County Park, Holmes Harbor - east	F	•••••	
Jefferson County	,			
Port Townsend		Δ.		
Port Townsend	Fort Worden State Park - north	A+		
	Fort Worden State Park - mid	A+		
Duinnen	Fort Worden State Park - south	A+		
Brinnon	Camp Parsons Boy Scout Camp, Brinnon Camp - east	В		
	Camp Parsons Boy Scout Camp, Brinnon Camp - mid	A		
	Camp Parsons Boy Scout Camp, Brinnon Camp - west	Α		
King County				
Shoreline	Richmond Beach, Saltwater Park - north	A+		
	Richmond Beach, Saltwater Park - mid	A+		
	Richmond Beach, Saltwater Park - south	A+		
Seattle	Carkeek Park - north	A+		
	Carkeek Park - mid	A+	•	
	Carkeek Park - south	А		
	Golden Gardens - north	A+		
	Golden Gardens - mid	А		
	Golden Gardens - south	A		
	Alki Beach Park - north	А	• • • • • • • • • • • • • • • • • • • •	
	Alki Beach Park - mid	С		
	Alki Beach Park - south	А	• • • • • • • • • • • • • • • • • • • •	
	Richey Viewpoint - north	A		
	Richey Viewpoint - mid	A	• • • • • • • • • • • • • • • • • • • •	***************************************
	Richey Viewpoint - south	Α		
	Lincoln Park - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Lincoln Park - mid	А		
	Lincoln Park - south	A		
	Seahurst (Ed Munro) Park - north	A+		
	Seahurst (Ed Munro) Park - mid	А		
	Seahurst (Ed Munro) Park - south	A+		
Des Moines	Saltwater State Park - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Saltwater State Park - mid	A+	•••••	
	Saltwater State Park - south	A+		
	Redondo County Park - north	А	•••••	
	Redondo County Park - mid	А		
	Redondo County Park - south	A+		

KING COUNTY (CONTINUED)		Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Federal Way	Dash Point State Park - east	A+	• • • • • • • • • • • • • • • • • • • •	
	Dash Point State Park - west	A+		
	Dash Point State Park - mid	A+		
Kitsap County				
Kingston	Arness County Park - north	A+		
	Arness County Park - mid	A+		
	Arness County Park - south	A+		
Indianola	Indianola Dock - west	A+		
	Indianola Dock - mid	A+		
	Indianola Dock - east	A+		
Bainbridge Island	Fay Bainbridge State Park - north	А	• • • • • • • • • • • • • • • • • • • •	
	Fay Bainbridge State Park - mid	А		
	Fay Bainbridge State Park - south	А		
	Eagle Harbor Waterfront Park - east	A+		
	Eagle Harbor Waterfront Park - west	A+		
	Eagle Harbor Waterfront Park - mid	A+		
	Joel Pritchard Park - east	А		
	Joel Pritchard Park - west	A+		
	Joel Pritchard Park - mid	А		
Silverdale	Silverdale County Park - east	А	•••••	
	Silverdale County Park - mid	А		
	Silverdale County Park - west	А		
Port Orchard Bay	Illahee State Park - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Illahee State Park - mid	А		
	Illahee State Park - south	A+		
Bremerton	Lions Park - north	A+		
	Lions Park - mid	A+		
	Lions Park - south	A+		
	Evergreen Park - north	A+		
	Evergreen Park - mid	A+	***************************************	
	Evergreen Park - south	A+		
Port Orchard	Pomeroy Park - Manchester Beach - north	А		
	Pomeroy Park - Manchester Beach - mid	A+		
	Pomeroy Park - Manchester Beach - south	A+		
Hood Canal	Scenic Beach State Park - west	A+	• • • • • • • • • • • • • • • • • • • •	
	Scenic Beach State Park - mid	A+		
	Scenic Beach State Park - east	A+		A+
-lansville	Point No Point Lighthouse Park - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Point No Point Lighthouse Park mid	A+		
	Point No Point Lighthouse Park - south	A+		

Mason County		Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weathe Year-Round
Hood Canal	Twanoh State Park - point	A+		A+
	Twanoh State Park - west of point	A+		
	Twanoh State Park - west of dock	A+	• • • • • • • • • • • • • • • • • • • •	
	Potlatch State Park - north	A+	• • • • • • • • • • • • • • • • • • • •	A+
	Potlatch State Park - mid	A+		A+
	Potlatch State Park - south	A+	• • • • • • • • • • • • • • • • • • • •	A+
North Bay	Allyn Waterfront Park north	A+		
	Allyn Waterfront Park mid	С	• • • • • • • • • • • • • • • • • • • •	
	Allyn Waterfront Park south	A+		
Pierce County				
Henderson Bay	Purdy Sandspit County Park - east	A+		
	Purdy Sandspit County Park - mid	A+		
	Purdy Sandspit County Park - west	A+		
Tacoma	Dash Point County Park - west of pier	A+		
	Dash Point County Park - east of pier	A+		
	Dash Point County Park - east	A+		
	Owens Beach - Point Defiance Park - north	A+		
	Owens Beach - Point Defiance Park - mid	A+		
	Owens Beach - Point Defiance Park - south	A+		
	Ruston Way north - projection of Warner St	A+		
	Waterfront Dock/ Ruston Way - south	A+		
	Waterfront Dock/ Ruston Way - north	A+		
	Titlow Park - north	A+		
	Titlow Park - mid	A+		
	Titlow Park - south	A		
	Jack Hyde Park - west	A+		
	Jack Hyde Park - east	A+		
_akebay	Penrose Point State Park - west	A+		A+
	Penrose Point State Park - mid	A+		A+
	Penrose Point State Park - north	A+		A+
Fox Island	Fox Island - west	A+		
	Fox Island - mid	A+		
	Fox Island - enclosed	A		
Steilacoom	Sunnyside Beach Park - north	A+		A+
	Sunnyside Beach Park - mid	A+		A+
	Sunnyside Beach Park - south	A+		A+

Skagit County	<i>1</i>	Summer Dry (Apr-Oct)	Winter Dry (Nov-Mar)	Wet Weather Year-Round
Padilla Bay	Bayview State Park - north	А		F
,	Bayview State Park - mid	Α		F
	Bayview State Park - south	С		F
Snohomish C	ounty			
Stanwood	Kayak Point County Park - north	А		
	Kayak Point County Park - mid	A+		
	Kayak Point County Park - south	A		
Edmonds	Picnic Point County Park - north	A+		
	Picnic Point County Park - mid	A+	• • • • • • • • • • • • • • • • • • • •	
	Picnic Point County Park - south	A+	• • • • • • • • • • • • • • • • • • • •	
	Edmonds Underwater Park - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Edmonds Underwater Park - mid	A+	• • • • • • • • • • • • • • • • • • • •	
	Edmonds Underwater Park - south	A+	• • • • • • • • • • • • • • • • • • • •	
	Marina Beach (No Dogs) - north	A+	• • • • • • • • • • • • • • • • • • • •	
	Marina Beach (No Dogs) - mid	A+		
	Marina Beach (No Dogs) - south	A+		
Mukilteo	Mukilteo Lighthouse Park south	A+		
	Mukilteo Lighthouse Park mid	A+	•	
	Mukilteo Lighthouse Park north	A+		
Thurston Cou	nty			
Olympia	Burfoot County Park - north	A+		
	Burfoot County Park - mid	A+		
	Burfoot County Park - south	A+		
Whatcom Cou	ınty			
Bellingham	Larrabee State Park Wildcat Cove - mid	А		С
	Larrabee State Park Wildcat Cove - west	A		A+
	Larrabee State Park Wildcat Cove - south	A+		A+
	Little Squalicum Park east	F		F
	Little Squalicum Park at creek outlet	В	• • • • • • • • • • • • • • • • • • • •	F
	Little Squalicum Park far west of pier	F		A+

FREQUENTLY ASKED QUESTIONS

About Heal the Bay's Annual Beach Report Card

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 science, education, community action and advocacy to pursue our mission.

What is the Beach Report Card?

Ocean water quality testing is vital to the health of the millions of people who use our coastal waters. Heal the Bay's Beach Report Card (BRC) is a vital public health protection tool based on the monitoring of beaches conducted by local health agencies and dischargers.

Since the BRC was first published more than 25 years ago, beachgoers throughout California have come to rely on the annual and weekly grades to better protect their health and the health of their families. The BRC grades over 600 locations along the West Coast for summer dry weather and over 300 locations year-round on an A-to-F scale based on the risk of adverse health effects to beachgoers. Grades are based on fecal bacteria pollution concentrations in the wave-wash. 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 BRC 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. Heal the Bay urges coastal beachgoers to use this information before they visit beaches on the West Coast.

The Beach Report Card would not be possible without the cooperation of all of the shoreline monitoring agencies in California, Oregon and Washington.

What is the history of the BRC?

Heal the Bay's first Beach Report Card was published in 1991 and covered about 60 monitoring locations in Los Angeles County from Leo Carrillo Beach (near the Ventura County line) to Cabrillo Beach in San Pedro. At that 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. Beach water quality was a known public issue only when a substantial sewage spill occurred. Although beaches were routinely monitored, the data were either inaccessible or incomprehensible to the general public.

Since then, an immense amount of work has been completed and resources invested to reduce urban runoff pollution and sewage spills at our local beaches. Heal the Bay is proud to announce its influence on and participation in the following:

- Completion of 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 (SCCWRP)
 led bight-wide shoreline bacteria and laboratory inter-calibration studies.
- Passage of legislation, such as the statewide beach bathing water standards and public notification bill (AB 411), and the protocol for identifying sources of fecal indicator bacteria at high-use beaches that are impacted by flowing storm drains (AB 538).
- Completion of structural best management practices such as the Santa Monica Urban Runoff Recycling Facility (SMURRF), dry weather runoff diversions, and nearly \$100 million in California's Clean Beach Initiative (CBI) projects throughout the state.
- Passage and Implementation of Proposition O. The City of Los Angeles is spending over \$100 million of Prop O funds to make Santa Monica Bay beaches cleaner and safer for public use.

 Measure V. The City of Santa Monica passed Measure V in 2006, which help funds urban runoff water quality improvement projects around the City.

All the while, Heal the Bay's Beach Report Card expanded it coverage from Los Angeles County to the entire western United States coastline.

What do the grades mean to the beach user?

Coming into contact with waters with elevated bacteria concentrations has been associated with increased risks to human health. The higher the grade a beach receives, the better the water quality at that beach. The lower the grade, the greater the health risks. Potential illnesses include stomach flu, eye/ear infections, 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..

Summer Dry (Apr-Oct) Winter Dry (Nov-Mar) Wet Weather Year-Round

A F

Beach Report Card's water quality grade (See Appendix for complete methodology)

How are grades calculated?

Heal the Bay's grading system takes into consideration the magnitude and frequency of exceedances above allowed bacterial levels over the course of the specified time period. Each BRC year contains three time/weather periods:

- Summer Dry = Samples taken during dry weather between April 1 and October 31
- Winter Dry = Samples taken during dry weather between November 1 and March 31
- Wet Weather = Samples taken during or within 72 hours of a rain event*

Water quality typically drops dramatically during and immediately after a rainstorm, but often rebounds to its previous level within a few days. For this reason, year-round wet weather data throughout California were analyzed separately in order to avoid artificially lowering a location's grade, and to provide better understanding of statewide beach water quality impacts. For complete methodology, see Appendix D.

NOTE: *Heal the Bay utilizes a definition of a 'rain event' in California as precipitation greater than or equal to one tenth of an inch (>= 0.1"). Oregon and Washington criteria for a rain event is >=0.2" precipitation.

How current are the weekly grades?

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 24 hours to complete; then the data must be entered into a database before they are sent to Heal the Bay for a grade calculation. Faster methods are currently being developed but presently remain too costly to implement. For weekly grades, Heal the Bay releases grades every Friday throughout the year based on the most recent available sample data for the entire west coast. Weekly grades and more can be found at www.beachreportcard.org

What type of pollution is measured?

Pollution is measured by sampling for three types of fecal indicator bacteria (FIB) including total coliform, fecal coliform (E. coli) and Enterococcus spp. Runoff from

V. APPENDIX / C

FREQUENTLY ASKED QUESTIONS

creeks, rivers and storm drains are sources of pollution to California, Oregon and Washington beaches. Runoff may contain toxic heavy metals, pesticides, fertilizers, petroleum hydrocarbons, animal waste, trash and even human sewage.

The amounts of fecal indicator bacteria present in runoff, and consequently in the wave-wash, is currently the best indication of whether or not a beach is safe for recreational water contact. The link between swimming in waters containing elevated levels of indicator bacteria and health risk was confirmed in the ground breaking 1995 epidemiological study conducted by the University of Southern California, Orange County Sanitation District, the City of Los Angeles and Heal the Bay, under the auspices of the Santa Monica Bay Restoration Project.

Indicator bacteria do not usually 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 BRC includes an analysis of shoreline (ankle-deep) water quality data collected by more than 25 different State, County, and City public agencies for fecal indicator bacteria

At present, the report card contains no information on toxins or trash in the water or on the beach.

ABOUT INDICATOR BACTERIA

The most common types of indicator bacteria include:

- Total coliform
- Fecal coliform (or E. coli)
- 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 bacteria does not necessarily come from humans, although numerous prior studies have demonstrated that there is a significant possibility of human sewage contamination in storm drain runoff at any given time.

Why is storm drain pollution so significant?

Storm drain 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 often far exceed state health criteria for recreational water use. Health officials and Heal the Bay recommend that beach users never swim within 100 yards on either side of a flowing storm drain, creek, or river in any coastal waters during a rainstorm, and to stay out of the water for at least three days after a storm has ended.

Children often play directly in front of storm drains and in runoff-filled ponds and lagoons. Monitoring at "point zero" (the mouth of storm drains or creeks) is the best way to ensure that the health risks to all swimmers are minimized. This Heal the Bay recommendation was finally adopted by the State Water Resources Control Board (SWRCB) for the 2015 swimming season. In fact, the SWRCB made point zero monitoring a criterion for receiving beach water quality monitoring funds. This was great news for beachgoers and families going to the beach last summer.

For more on storm drain beaches, see "Analysis of Beach Types".

Are beaches monitored year-round?

In California, water quality samples are collected by the appropriate health agency at a minimum of once a week from April through October as required under the California Beach Bathing Water Quality Standards (AB 411) and recommended by EPA'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. Starting April 2015, all monitoring agencies participating in the Cali-

fornia Beach Program were required to sample at point-zero—where flows from rivers, creeks, or storm drains meet the ocean. This was a major step in achieving monitoring consistency from county to county, and meeting the intent of AB411.

The majority of Oregon and Washington water quality monitoring occurs during the summer swimming season (Memorial Day through Labor Day).

This is the Beach Report Card's eighth year of grading water quality along the entire U.S. Pacific Coastline. A total of 661 shoreline monitoring locations were analyzed from Whatcom County in Washington to San Diego County at the Mexican border. Most sample locations are selected by monitoring, health, and regulatory agencies to specifically target popular beaches or those beaches frequently affected by a pollution source like runoff. In case of the Pacific Northwest, some locations are selected for being popular shell fishing beaches.

According to the EPA BEACH Act of 2000, each state having coastal recreation waters has to adopt water quality standards for bacteria in order to qualify for federal beach monitoring funding. Therefore, each state has the ability to adopt its own standards. President Trump's proposed budget for FY 2019 'red-lined' the entire BEACH Act monitoring program (approximately \$10 million). States are only required to monitor recreational waters when federal funding is available, meaning the proposed budget cuts could ultimately relinquish states of their monitoring responsibilities. Without such funds, water quality monitoring programs like Oregon's would vanish. Fortunately for beachgoers across the country, Congress restored these appropriated funds for the 2017 swimming season.

Why not test for viruses?

A common question asked by beachgoers is: "if viruses cause many of the swimming-associated illnesses, why don't health agencies monitor directly for viruses instead of indicator bacteria?" Although virus monitoring is incredibly useful in identifying sources of fecal pollution, there are a number of drawbacks to available virus measurement methods. There have been tremendous breakthroughs in the use of gene probes to analyze water samples for virus or human pathogenic bacteria but these techniques are still relatively expensive, highly technical and not very quantitative. In addition, since human viruses are found in low, varying densities in ocean water, setting standards for viruses is not feasible. Interference from other pollutants in runoff can make virus quantification very difficult. Also, interpretation of virus monitoring data is difficult because, unlike bacterial indicators, there are no data available that link health risks associated with swimming in beach water to virus densities.

Local epidemiology studies, which include a component to identify and quantify viral pathogens, began five and a half years ago. These large scale epidemiology studies (using over 30 microbial indicators) were led by SCCWRP, UC Berkeley, Orange County Sanitation Districts, the USEPA, and Heal the Bay. The studies took place at Doheny State Beach, Avalon Beach and Surfrider Beach in Malibu.

In January 2012, the article "Using Rapid Indicators for *Enterococcus* to Assess the Risk of Illness after Exposure to Urban Runoff Contaminated Marine Water" (www. ncbi.nlm.nih.gov/pmc/articles/PMC3354759) was published in Water Research, based on the epidemiology study performed at Doheny State Beach from 2007-2008. In March 2014, an article summarizing Avalon's epidemiological study was published in Water Research. See Avalon Beach's Epidemiology Study on page 61.



METHODOLOGY

Beach Report Card Grading and Methodology

The Beach Report Card Grading Methodology translates complex shoreline bacteria data into a grade format that is meaningful and useable by all California beachgoers.

METHODOLOGY: CALIFORNIA

Heal the Bay's Beach Report Card grading system is endorsed by the SWRCB and the Beach Water Quality Workgroup as an effective way to communicate beach water quality to the public

Past amendments to the grading methodology have included:

- The inclusion of the geometric mean into the calculation
- A firm zero-to-100 point scale
- Greater weight for Enterococcus and the total to fecal ratio relative to total coliform and fecal coliform

The 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 in the 1996 health effects studies of Santa Monica Bay beachgoers. It also retains the implementation of standard deviations for each indicator bacteria threshold, which was developed by the Southern California Coastal Water Research Project and Orange County Sanitation Districts during the 1998 Southern California Bight Study. Each threshold is based on the prescribed standards set in the California Department Health Service's Beach Bathing Water Standards.

As seen in Table 5-1 the methodology uses a standard A through F grading system, and grades are based on the following formula:

% Grade = 'TOTAL POINTS AVAILABLE' - 'TOTAL POINTS LOST'
'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 5-2.

In order for 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 four dry weather samples collected within the allotted time frame). Wet weather data is graded separately from dry weather data, and does not currently 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 us-

ing the rolling 30-day geometric mean values calculated for each sample day (see Table 5-3).

Each geometric mean criterion exceeded is assigned a specific percentage of points lost. Non-exceedances are given 0%. The percentage of points lost from each of the three criteria divided by the number of sample days are multiplied by the 'Total Available Points' (any sum of percentages exceeding 100% automatically loses all 50 points available in 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 Southern California Coastal Water Research Project and Orange County Sanitation District as part of the 1998 Southern California Coastal Bight Study (see Table 5-4).

'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 5-4.

The 'percentage of points lost' from each of the four criteria for each sample during the time period are added together and divided by 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.

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

% Grade = 'TOTAL POINTS AVAILABLE' - 'TOTAL POINTS LOST'

Most dry and wet weather annual grades are calculated with 100 'Total Available Points', although there is no Geometric Mean component for wet weather grading. Wet weather grades are calculated by the total 'percentage of points lost' divided by the total number of samples and then multiplied by 100. This gives the location's score for wet weather 'Total Points Lost'. This number is then subtracted from 100 to give the percentage grade.

METHODOLOGY: OREGON AND WASHINGTON

The Oregon and Washington state grade methodology (using Enterococcus standards) was adapted from the seven standard California methodology (see Appendix A1).

Total Points Available

As seen in Table 5-2, the methodology uses a standard A through F grading system, and grades are based on the following formula:

% Grade = 'TOTAL POINTS AVAILABLE' - 'TOTAL POINTS LOST'

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.)

Wet weather data (>=0.2 inches of rain in previous 72 hours) is graded separately from dry weather data and does not currently include a geometric mean component

'Total Points Available' is derived from adding together two point components (if

V. APPENDIX / D

METHODOLOGY

applicable): the Geometric Mean and the Single Sample Standard. The points for each component are listed in Table 5-2. In order for the points in each component to become available certain criteria must be met. Oregon and Washington Summer Beach Report Card methodology calculations only include Geometric Mean scores when four or more dry weather samples are available in determining a location's 30-day geometric mean. Therefore, it is possible for 'Total Points Available' to be less than 100. The 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' is 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 EPA's beach bathing indicator density of 35 for the geometric mean. If there are four or more samples included in the 30-day geometric mean calculation then the 50 points for the Geometric Mean component become available. Oregon and Washington Beach Report Card methodology calculates the percentage of geometric mean exceedance days based on the number of valid (four or more) geometric means scored during the extended time period. The percentage of geometric exceedance sample days out of valid geometric mean sample days is multiplied by the 50 available points to determine the 'Total Points Lost' for the Geometric Mean component.

Single Sample Standard

The Single Sample Standard component uses a gradient to calculate the 'Total Points Lost'. The gradient of percentage of points lost used in calculating the number of points lost is derived from the EPA's Ambient Water Quality Criteria for Bacteria and is found in Table 5-6.

'Percentage of points lost' is allocated depending upon the threshold exceeded. The penalties for threshold exceedances are presented in Table 5-7. Non-exceedances lose zero points. The 'percentage of points lost' for each sample during the time period are added together and divided by the total number of samples and multiplied by the 'Total Available Points'. More points are lost as the magnitude or frequency of exceedances increases.

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

% Grade = 'TOTAL POINTS AVAILABLE' - 'TOTAL POINTS LOST'
'TOTAL POINTS AVAILABLE'

Most dry and wet weather annual grades are calculated with 100 'Total Available Points', although there is no Geometric Mean component for wet weather grading. Wet weather grades are calculated by the total 'percentage of points lost' divided by the total number of samples and then multiplied by 100. This gives the location's score for wet weather 'Total Points Lost'. This number is then subtracted from 100 to give the percentage grade.



TABLE 5-1: GRADING SYSTEM

Α	В	С	D	F
100%-90%	89%-80%	79%-70%	69%-60%	<60%

TABLE 5-2: TOTAL POINTS AVAILABLE BY COMPONENT

Geometric Mean	50 points
Single Sample Standard	50 points
Total	100 points

TABLE 5-3: CALCULATING THE TOTAL POINTS LOST FOR THE GEOMETRIC MEAN COMPONENT

Indicator Exceeded	Calif. Beach Bathing Water Standard	% of Total Available Points Lost "Due to Exceedance	Total Avail. Points
Enterococcus	35	80%	
Fecal Coliform	200	40%	50
Total Coliform	1000	20%	

^{*} Colony forming units per 100 milliliters of ocean water

TABLE 5-4: SINGLE SAMPLE GRADIENT THRESHOLDS IN CFU/100ML*

Indicator Bacteria	SLIGHT T – 1 SD	MODERATE T + 1 SD	HIGH > T + 1 SD	EXTREME Very High Risk
Total Coliform	6,711-9,999	10,000 -14,900	> 14,900	N/A
Fecal Coliform	268-399	400 -596	> 596	N/A
Enterococcus	70-103	104 -155	> 155	N/A
Total: Fecal Ratio (when total ≥ 1,000)	10.1-13	7.1- 10	2.1-7	< 2.1

^{*} Colony forming units per 100 milliliters of ocean water. N/A = Not applicable

SD = Standard Deviation. **Bold** = California State Health Department standards for a single sample

TABLE 5-5: 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%	N/A	
Fecal Coliform	10%	30%	40%	N/A	
Enterococcus	20%	40%	60%	N/A	50
Ratio (when total > 1,000)	25%	50%	75%	100%	

TABLE 5-6: SINGLE SAMPLE GRADIENT THRESHOLDS IN CFU/100ML*

Indicator Bacteria	SLIGHT	MODERATE	HIGH
	T – 1 SD	T + 1 SD	> T + 1 S
Enterococcus	70-103	104 -155	>155

^{*} Colony forming units per 100 milliliters of ocean water

TABLE 5-7: CALCULATING THE TOTAL POINTS LOST FOR THE SINGLE SAMPLE STANDARD COMPONENT

Indicator	SLIGHT	MODERATE	HIGH	Total Available
Exceeded	% Points Lost	% Points Lost	% Points Lost	Points
Enterococcus	25%	75%	100%	50

SD = Standard Deviation. **Bold** = California State Health Department standards for a single sample

Glossary

AB411	. Assembly Bill 411
ARRA	. American Recovery and Reinvestment Act
BAV	. Beach Action Value
BEACH Act	. National Beach Guidance and Performance Criteria
	for Recreational Waters
BRC	. Beach Report Card
CBI	. Clean Beach Initiative
CDO	. Cease and Desist Order
CSS	. combined sewer and storm drain system
CSD	. combined sewer discharges
CSO	. combined sewer overflows
CWA	. Clean Water Act
DEH	. Division of Environmental Health
DPH	. Department of Public Health
dPCR	. Digital Polymerase Chain Reaction E. coli
	(Escherichia coli)
EMD	. Environmental Monitoring Division (L.A.)
EPA	. Environmental Protection Agency
FIB	. fecal indicator bacteria
GI illness	. Gastrointestinal Illness
MS4	. Municipal Separate Storm Sewer System
MST	. Microbial Source Tracking
Nowcast	. same day predictive modeling tool
NOV	. Notice of Violation
NGO	. Non-Government Agency
NSE	. Natural Source Exclusion
point zero	location where outfall meets the ocean
QMRA	. Quantitative Microbial Risk Assessment
qPCR	. Quantitative Polymerase Chain Reaction
Regional Board	. Regional Water Quality Control Board
SCCWRP	Southern California Coastal Water Resources
	Project
SMURRF	. Santa Monica Urban Runoff Recycling Facility
SPF	. Sun Protection Factor
State Board	. State Water Resources Control Board
SSO	. Sanitary Sewer Overflows
TAC	. Technical Advisory Committee
TMDL	. Total Maximum Daily Load
UCLA	. University of California, Los Angeles
USEPA	. United States Environmental Protection Agency
VB	. Virtual Beach—USEPA predictive model
wave wash	monitored location where runoff meets surf

Significant Bills and Acts

Clean Water Act- Federal (1972)

Establishes the basic structure for regulating discharges of pollutants into the waters of the United States.

AB 411 - California (1997)

Beach Bathing Water Quality Standards. Requires all waters along California's coast to meet certain minimum standards. Coastal waters will be tested weekly during the period of April through October.

AB 538 - California (1999)

Requires the state board to develop source investigation protocols for use in conducting source investigations of storm drains that produce exceedances of specified bacteriological standards.

BEACH Act - Federal (2000)

Beaches Environmental Assessment and Coastal Health Act. Amends the Clean Water Act and authorizes the EPA to award grants to reduce the risk of illness to users of the nation's recreational waters.

CBI - California (2001)

California's Clean Beach Initiative. Grant program provides funding for projects that will improve California's coastal water quality and swimmers' safety. Funding priority is given to projects that reduce bacterial contamination on busy California beaches.

Proposition O (Prop O) - Los Angeles (2004)

Authorized the City of Los Angeles to issue a series of general obligation bonds for up to \$500 million for projects to protect public health by cleaning up pollution, including bacteria and trash, in the city's watercourses, beaches and the ocean, in order to meet Federal Clean Water Act requirement

ARRA - Federal (2009)

American Recovery and Reinvestment Act. Stimulus package, from which \$18 billion is allocated for relief and investment in environment, public health and 'green' alternatives.

SB 482 - California (2011)

Public Beach Contamination, Standards, Testing, Closing. Allows the State Board to direct permit fees up to \$1.8 million towards California's Beach Program and requires the drafting of regulations relating to testing of waters adjacent to public beaches.

Recreational Water Quality Critera - Federal (2012)

After 25 years, USEPA updates water quality standards/criteria to protect people swimming in recreational waters (e.g., lakes, rivers, beaches) from microbial organisms such as bacteria and viruses. Introduces Statistical Thresold Values (STV) and Beach Action Values (BAV) into the beach water quality lexicon.

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Mendocino County Environmental Health Department

Sonoma County Environmental Health Division Marin County Environmental Health Services

San Francisco Public Utilities Commission

East Bay Regional Park District

San Mateo County Environmental Health Division

Santa Cruz County Environmental Health Services
Monterey County Environmental Health Bureau

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

Los Angeles County Sanitation Districts County of Los Angeles Department of Public Health Environmental Health

City of Redondo Beach

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

San Elijo Joint Powers Authority

City of San Diego

City of Oceanside

Encina Wastewater Authority

State Water Resources Control Board

The Beach Report Card's original concept and methodology were created in-part by Heal the Bay's former President, Dr. Mark Gold. This report would not be possible without his vision and unwavered dedication to improving beach water quality and strengthening public health protection.

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