
Heal the Bay
30TH
ANNIVERSARY
2019-2020
BEACH
REPORT CARD

Heal the Bay

HEAL THE BAY
2019-2020
BEACH REPORT CARD

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

SIMA SURF INDUSTRY MANUFACTURERS ASSOCIATION

SONY PICTURES

SWAIN BARBER FOUNDATION

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.

CONTENTS 2019-2020


WELCOME

California beaches had excellent water quality during the summer months of 2019. Out of over 500 beaches across the state, 92% earned good marks (A's & B's) in the summer. The past year saw lower than average rainfall, which led to an improvement in wet weather water quality grades. Less rain means fewer pollutants such as bacteria were washed into the ocean, which resulted in higher grades. Winter grades in dry weather were also better than average this year, likely because the reduced rainfall resulted in fewer lingering effects of runoff during the winter months.

- **San Mateo County** had an unprecedented number of Beach Bummers this year with six. The number one Beach Bummer was Fitzgerald Marine Reserve. Three locations in Pillar Point Harbor made the list at numbers three, six, and ten. Erckenbrack Park in Foster City took the number four spot. Linda Mar at San Pedro Creek was the number seven Bummer this year.

- **Poche Beach** at the creek outlet in Orange County returned to the Beach Bummer list at number two after a brief hiatus (it was on the list in 2018, 2013, 2012, 2011). San Clemente Pier made a second consecutive appearance as a Beach Bummer coming in at number nine.

- **Topanga Beach**, which is no stranger to the Beach Bummer list, was Los Angeles County's only Beach Bummer occupying the number five spot.

- **Mission Bay in San Diego** is once again home to a Beach Bummer. Vacation Isle North Cove is number 8 on the list. This beach was a Bummer in the summer of 2009.

Most years we are unable to grade the majority of Oregon beaches due to a lack of sampling. Our methodology requires that beaches are sampled for at least 75% of the weeks in their summer season — defined as Memorial Day through Labor Day. In this report, we had sufficient sampling data to calculate grades for beaches in Clatsop, Coos, Curry, Lane, Lincoln, and Tillamook Counties. Summer Dry Grades were excellent in these counties with 100% of the beaches receiving A grades. Wet Weather Grades were good but below the five year average with 80% receiving A and B grades. Oregon beaches are not monitored in the winter months so Winter Dry Grades could not be calculated.

Washington's Department of Ecology samples water quality at ocean beaches between Memorial Day and Labor Day. The Makah Tribe in Clallam County monitors beach water quality on a weekly basis all year. Summer Dry Grades for Washington were excellent with 95% of the beaches receiving A and B grades. Wet Weather Grades were exceptional and far above average with 97% receiving A and B grades. Only Clallam County beaches were sampled in the winter months so Winter Dry Grades were only issued to those beaches. Winter Dry Grades at Clallam County beaches were superb, earning 100% A's.

This year, Heal the Bay is expanding the Beach Report Card to include three beaches in Tijuana, Mexico: El Faro, El Vigia, and Playa Blanca. These beaches are popular with locals and tourists, but are impacted by millions of gallons of raw sewage that flow into the ocean through the Tijuana River and impaired sewage infrastructure in parts of the city. We are partnering with Proyecto Fronterizo de Educación Ambiental (PFEA) to help spread awareness about water quality in Tijuana. PFEA is an environmental nonprofit based in Tijuana whose mission is to monitor beach water quality; advocate for pollution reduction and government transparency; assist restaurants with moving away from single use plastics; and advocate for conservation of protected areas and environmental education.

To mark the 30th anniversary of Heal the Bay's Beach Report Card, we assessed water quality policies that this program has helped influence. The most significant policy the Beach Report Card influenced is Assembly Bill 411 (AB411) which was the first law in California to mandate recreational water quality. Another notable policy is the Clean Beach Initiative (CBI), which allocated millions of dollars for water quality improvement projects across the state. We also analyzed past data to examine whether water quality has changed over the last 30 years. We found that dry weather water quality has improved over time, but wet weather water quality has actually declined. We also found that after 2015, when zero-point monitoring was introduced, water quality decreased in all categories. Zero-point monitoring means samples are collected where pollution enters the ocean such as storm drain outfalls or creek mouths and before any ocean dilution occurs. Ensuring that water quality standards are met at locations where pollution has the potential to be highest provides for the greatest public health benefits.

INTRODUCTION

Thirty years ago people were getting sick from going in the ocean, and there was no way for them to know when or where they were at risk. Heal the Bay scientists used data from an epidemiology study they had conducted, and water quality data collected by government agencies, and created the first Beach Report Card (then titled Beach Pollution Report).

The Beach Report Card transformed scientific data into easily-understood grades from A to F and made them publicly available so any ocean user could understand the risk of getting sick. Public concern over water quality grew from there as people became aware of the size and scale of pollution in the ocean. Widespread awareness of water quality issues eventually garnered support for foundational and transformative legislation such as California's AB411 and the U.S. federal Beaches Environmental Assessment and Coastal Health Act (BEACH Act).

We know that our work is far from over. With the numbers of people depending on the ocean for their recreation and livelihoods increasing, it is more important than ever to protect our water quality and our beaches. There have been massive enforcement rollbacks by the EPA which threaten to undo the progress made towards mitigating pollution in the ocean and atmosphere. We need to act with urgency to protect our oceans and our communities, especially as the effects of climate change become more intense. Protecting the environment protects people and we must find solutions to the ever-growing number of existential threats.

The COVID-19 pandemic has affected how people access the beach. The initial safer-at-home orders closed all beaches to prevent crowding, because so many people sought the open space and the peace of mind that our coast and ocean provide. Coastal access was restored unevenly across the state and in many cases, parking lots and restrooms remained closed, limiting visits by people who do not live near the coast. This pandemic experience is a reminder of why it is so important to protect our clean water and beach access everywhere.

Dr. Shelley Luce

Heal the Bay CEO & President

BEACH REPORT CARD BASICS

The BRC uses a simple A-to-F letter grading system to provide water quality information to the public. This annual report issues cumulative grades for beaches on the West Coast, and provides information about other important water quality events that occurred in the past year such as sewage spills and major rainfall events.

Grades are based on routine water quality sampling conducted by County health agencies, State agencies, Tribal agencies, sanitation departments, and dischargers on the West Coast. For recreational health protection, water samples are analyzed for three fecal indicator bacteria (FIB): total coliform, fecal coliform, and *Enterococcus* species. These FIB, in significant quantities, indicate the presence of harmful pathogens in the water.

This report assigns three separate grades for each beach:

Summer Dry Grade

(April through October 2019)

This is the prime recreation season in California when beaches are most active. County governments are required to sample during this period according to the California Beach Bathing Water Quality Standards, as defined in Assembly Bill 411 (AB411). Samples taken during wet weather are not used for these grades.

Winter Dry Grade

(November 2019 through March 2020)

AB411 does not mandate water quality monitoring for recreational purposes during winter months leading many Counties and States to halt water quality monitoring in the winter season. Additionally, recreation generally decreases at beaches during the winter. Therefore, the winter season is graded separately. Samples taken during wet weather are not used for these grades.

Wet Weather Grade

(April 2019 through March 2020)

Rain flushes contaminants and pollution, including bacteria from our streets directly into the ocean through storm drains, rivers and streams, and over impermeable surfaces such as concrete. This untreated stormwater decreases water quality by increasing the amount of pathogens in the ocean to potentially unsafe levels. Wet Weather Grades consist of samples taken during or three days following a rain event greater than 0.1 inches.

Beachgoers who visit beaches during or after a rain event have an increased risk of contracting ear infections, eye infections, upper respiratory infections, skin rashes, and gastrointestinal illness[1,2,3]. Swimmers are advised to stay out of the water for a minimum of three days following a significant rain event (0.1 inches or greater)[4].

[1] Haile, R.W., J.S. Witte, M. Gold, R. Cressey, C. McGee, R.C. Millikan, A. Glasser, N. Harawa, C. Ervin, P. Harmon, J. Harper, J. Dermand, J. Alamillo, K. Barrett, M. Nides, G. Wang. The health effects of swimming in ocean water contaminated by storm drain runoff. 1999. Epidemiology Vol. 10 No.4 355-363.

[2] Colford, J.M., T.J. Wade, K.C. Schiff, C.C. Wright, J.F. Griffith, S.K. Sandhu, S. Burns, M. Sobsey, G. Lovelace, S.B. Weisberg. 2007. Water quality indicators and the risk of illness at beaches with nonpoint sources of fecal contamination. Epidemiology Vol. 10 No. 1 27-35.

[3] Arnold, B.F., K.C. Schiff, A. Ercumen, J. Benjamin-Chung, J.A. Steele, J.F. Griffith, S.J. Steinberg, P. Smith, C.D. McGee, R. Wilson, C. Nelsen, S.B. Weisberg, J.M. Colford. 2017. Acute illness among surfers after exposure to seawater in dry-and wet-weather conditions. American Journal of Epidemiology Vol. 186 No. 7 866-875.

[4] https://www.ioes.ucla.edu/wp-content/uploads/2013healthebayproject-1.pdf

WEST COAST SUMMARY

Summer Dry Grades were excellent across the State this year but lower than average with 92% of California beaches receiving A and B grades. Winter Dry Grades were slightly better than average with 91% of the beaches receiving A and B grades. Wet Weather Grades for the past year were also above average with 65% of the beaches receiving A and B grades.

Rainfall across Coastal Counties in California was 12 percent lower than the historical average. Less rain means fewer pollutants, including bacteria, were flushed into the ocean which resulted in above average Wet Weather grades in 11 out of 17 coastal counties.

CALIFORNIA

FIGURE: 1 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
CALIFORNIA	#	%	#	%	#	%
A	371	84%	328	81%	276	55%
B	36	8%	40	10%	52	10%
C	16	4%	14	3%	24	5%
D	7	2%	8	2%	21	4%
F	12	3%	16	4%	133	26%
A+B	407	92%	368	91%	328	65%
C,D,F	35	8%	38	9%	178	35%

FIGURE: 1.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
CALIFORNIA	#	%	#	%	#	%
A	2033	90%	1287	79%	1087	48%
B	125	6%	141	9%	247	11%
C	47	2%	81	5%	198	9%
D	22	1%	30	2%	136	6%
F	35	2%	81	5%	583	26%
A+B	2158	95%	1428	88%	1334	59%
C,D,F	104	5%	192	12%	917	41%

Note: All averages below refer to the five-year-average unless otherwise indicated.

NORTHERN CALIFORNIA OVERVIEW

Northern California consists of all counties from Del Norte County to Marin County.

Summer Dry Grades in this region were excellent with 95% of beaches receiving A and B grades, which is slightly above average.

Wet Weather Grades were equal to the average with 84% of Northern California beaches receiving A and B grades when it rained.

Only one beach in Northern California (Crescent City Beach at Battery Point Lighthouse) was monitored frequently enough in the 2019-2020 winter months to receive a Winter Dry Grade. This beach received an A+.

The Northern California region received 166 inches of cumulative rainfall in all counties, which was a 13 percent decrease from the historical average of 191 inches. Since most of the rain fell during the winter months when most of these beaches are not monitored the full impact of the decreased rainfall is unknown.

NORTHERN CALIFORNIA

FIGURE: 2 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
NORTH	#	%	#	%	#	%
A	38	88%	1	100%	30	70%
B	3	7%	0	0%	6	14%
C	1	2%	0	0%	3	7%
D	1	2%	0	0%	2	5%
F	0	0%	0	0%	2	5%
A+B	41	95%	1	100%	36	84%
C,D,F	2	5%	0	0%	7	16%

FIGURE: 2.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
NORTH	#	%	#	%	#	%
A	185	89%	2	100%	164	78%
B	8	4%	0	0%	12	6%
C	7	3%	0	0%	10	5%
D	1	0%	0	0%	11	5%
F	6	3%	0	0%	13	6%
A+B	193	93%	2	100%	176	84%
C,D,F	14	7%	0	0%	34	16%

CENTRAL CALIFORNIA OVERVIEW

Central California consists of all counties from San Francisco County to San Luis Obispo County.

Summer Dry Grades were good but below average with 86% of its beaches receiving A and B grades. This region had 6 of the 10 Beach Bummers this year.

Winter Dry Grades were a little below average with 80% of the beaches receiving A and B grades. The five year average is 85% A and B grades.

Wet Weather Grades were mediocre but above average with 73% receiving A and B grades compared to the five year average of 60%.

A total of 117 inches of rain fell in Central California counties, which is 18% below the historical average of 142 inches. The decreased rainfall is most likely the reason behind the higher than average Wet Weather Grades.

CENTRAL CALIFORNIA

FIGURE: 3 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
CENTRAL	#	%	#	%	#	%
A	60	72%	63	69%	49	51%
B	11	13%	10	11%	21	22%
C	3	4%	8	9%	5	5%
D	2	2%	2	2%	2	2%
F	7	8%	8	9%	19	20%
A+B	71	86%	73	80%	70	73%
C,D,F	12	14%	18	20%	26	27%

FIGURE: 3.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
CENTRAL	#	%	#	%	#	%
A	324	78%	236	77%	223	45%
B	52	13%	25	8%	74	15%
C	17	4%	17	6%	59	12%
D	10	2%	6	2%	29	6%
F	13	3%	22	7%	108	22%
A+B	376	90%	261	85%	297	60%
C,D,F	40	10%	45	15%	196	40%

SOUTHERN CALIFORNIA

Southern California consists of all counties from Santa Barbara County to San Diego County.

Summer Dry Grades were excellent but a little lower than average with 93% of the beaches receiving A and B grades.

Winter Dry Grades were excellent and higher than average with 94% of the beaches receiving A and B grades.

Wet Weather Grades were poor yet slightly above average with only 60% of the beaches receiving A and B grades when it rained.

Southern California Counties received a total of 57 inches of cumulative rainfall, which is 4% higher than the historical average of 55 inches. An increase in rainfall usually equates to poorer Wet Weather Grades; however, many of the heavy storms this year were in late March so only a few water quality samples were affected by the increased rainfall.

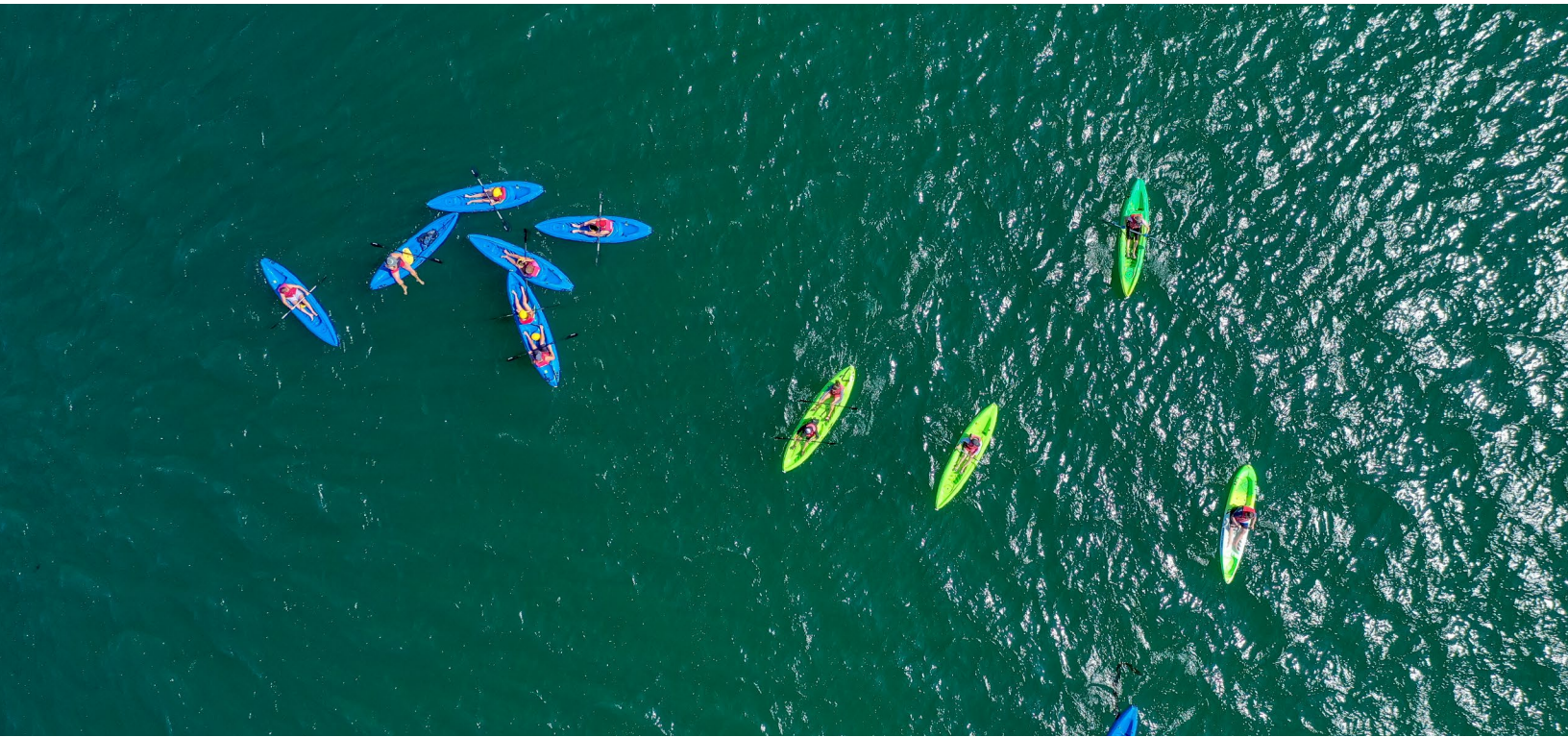
SOUTHERN CALIFORNIA

FIGURE: 4 **2019 -2020**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
SOUTH	#	%	#	%	#	%
A	273	86%	264	84%	197	54%
B	22	7%	30	10%	25	7%
C	12	4%	6	2%	16	4%
D	4	1%	6	2%	17	5%
F	5	2%	8	3%	112	31%
A+B	295	93%	294	94%	222	60%
C,D,F	21	7%	20	6%	145	40%

FIGURE: 4.1 **5 YEAR AVERAGE**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
SOUTH	#	%	#	%	#	%
A	1525	93%	1049	80%	701	45%
B	65	4%	116	9%	161	10%
C	23	1%	64	5%	129	8%
D	11	1%	27	2%	96	6%
F	16	1%	59	4%	462	30%
A+B	1590	97%	1165	89%	862	56%
C,D,F	50	3%	150	11%	687	44%



To earn a spot on the Honor Roll, a beach must be monitored weekly all year and must receive an A+ for all seasons and weather conditions (Summer Dry, Winter Dry, Wet Weather).

This year, 42 out of over 500 monitored beaches made it on the Honor Roll, compared to 33 last year. The Honor Roll is typically dominated by Southern California beaches, in part because many Northern and Central California Counties do not monitor beach water quality year-round.

Orange County had the most beaches on the Honor Roll with 20, which is double what it had last year. Three of the 20 beaches were on the list last year: Dana Point Harbor Youth Dock, Dana Strands Beach, and San Clemente at Avenida Calafia. It would be great to see even more beaches return to the list next year.

San Diego County had 10 beaches on the Honor Roll for a second year in a row. The list of beaches is very similar to last year including five Carlsbad beaches.

Los Angeles County had three beaches on the Honor Roll: Palos Verdes Cove, Palos Verdes Long Point, and Redondo State Beach at Topaz Street. Palos Verdes beaches have been mainstays on the Honor Roll in recent years while other Los Angeles County beaches have failed to make the grade.

Ventura County only had one beach on the Honor Roll this year: Silverstrand at San Nicholas Avenue.

This is down from the three Honor Roll beaches Ventura had last year.

San Luis Obispo County had two beaches earn Honor Roll status. San Simeon Beach at Pico Avenue and Morro Bay City Beach (north of the parking lot) have now appeared on the list four years in a row.

Guadalupe Dunes in Santa Barbara County made the Honor Roll for a second straight year.

Crescent City Beach at Battery Point in Del Norte County is a fresh addition to the Honor Roll as well as Bean Hollow State Beach in San Mateo County.

Three Monterey County beaches made their first appearance on the Honor Roll: Monterey State Beach, Moss Beach at 17 Mile Drive, and Asilomar State Beach at Arena Avenue.

HONOR ROLL 2019-2020

BEACH NAME	COUNTY	REGION
Crescent City, at Battery Point Lighthouse	Del Norte	North
Palos Verdes Estates, at Palos Verdes Cove	Los Angeles	South
Rancho Palos Verdes, Long Point	Los Angeles	South
Redondo State Beach, at Topaz Street	Los Angeles	South
Asilomar State Beach, at Arena Ave.	Monterey	Central
Monterey State Beach	Monterey	Central
Spanish Bay (Moss Beach), at 17 mile drive	Monterey	Central
Bolsa Chica Reserve, at Flood Gates	Orange	South
Dana Point Harbor Youth Dock	Orange	South
Dana Point, at Camino Estrella	Orange	South
Dana Strands Beach (AWMA)	Orange	South
Laguna Beach, at Goff Island Beach	Orange	South
Laguna Lido	Orange	South
Marine Science Institute Beach (SERRA)	Orange	South
Mariposa Beach	Orange	South
Muddy Creek Beach	Orange	South
Newport Bay, Via Genoa Beach	Orange	South
Newport Beach, at 52nd/53rd Street	Orange	South
Riviera Beach	Orange	South
San Clemente, at Avenida Calafia	Orange	South
San Clemente, at Avenida Las Palmeras	Orange	South
San Clemente, at El Portal storm drain	Orange	South
South Aliso County Beach	Orange	South
Surfside Beach, at Sea Way	Orange	South
Table Rock	Orange	South
Treasure Island Beach	Orange	South
Victoria Beach	Orange	South
Cardiff State Beach, at Charthouse parking	San Diego	South
Cardiff State Beach, Las Olas (100 yds. south of Charthouse)	San Diego	South
Carlsbad, at Cerezo Drive	San Diego	South
Carlsbad, at Encina Creek	San Diego	South
Carlsbad, at Palomar Airport Rd.	San Diego	South
Carlsbad, at Poinsettia Lane	San Diego	South
Carlsbad, at Ponto Drive	San Diego	South
Encinitas, San Elijo State Park at north end near stairs	San Diego	South
Oceanside, St. Malo Beach downcoast from St. Malo Road	San Diego	South
Solana Beach, Tide Beach Park at Solana Vista Dr.	San Diego	South
Bean Hollow State Beach	San Mateo	Central
Guadalupe Dunes	Santa Barbara	South
Morro Bay City Beach, 75 feet north of main parking lot	SLO	Central
San Simeon State Beach, at Pico Ave.	SLO	Central
Silverstrand , at San Nicholas Ave.	Ventura	South

FIGURE: 5 | HONOR ROLL

Unfortunately, not every beach makes the Honor Roll. The beaches that received the ten poorest Summer Dry Grades are called Beach Bummers. This year's summer Beach Bummers are:

1. FITZGERALD MARINE RESERVE, AT SAN VICENTE CREEK F

(San Mateo County)

The beach taking the number one spot on the Bummer list comes as a surprise. Not only has Fitzgerald Marine Reserve never appeared on the Bummer list before, but it generally has good summer water quality. This beach is impacted by dry weather runoff which flows into the ocean via San Vicente Creek. This beach is one of six San Mateo County Beach Bummers this year.

2. POCHE BEACH, AT CREEK OUTLET F

(Orange County)

Poche Beach is no stranger to the Beach Bummer list, appearing on the list in 2018, 2013, 2012, and 2011. This beach is impacted by the Prima Deshecha Cañada storm drain (colloquially referred to as Poche Creek) which carries pollution even during dry weather from the Dana Point area. In 2010, Orange County completed the Poche Clean Beach Project: a treatment facility near the creek outlet which removes pollutants from dry weather flows from the storm drain during the summer months. Pollutants including bacteria and viruses are removed via sand filters and UV radiation before the water flows into the ocean[5]. Unfortunately, this project has not done enough to keep the beach off the Bummer list, and Orange County should investigate why the poor grades persist.

3. PILLAR POINT HARBOR, AT CAPISTRANO AVENUE

(San Mateo County) F

Pillar Point Harbor, at Capistrano Avenue is one of three Pillar Point Harbor Beach Bummers this year. There are several storm drains that carry pollutants into the harbor in dry weather, and the seawalls around the harbor prevent pollutants from getting flushed away from the beach.

4. FOSTER CITY, ERCKENBRACK PARK F

(San Mateo County)

Erckenbrack Park is a first time Beach Bummer; however, this area of the San Francisco Bay has had a known record of poor water quality. This beach lies within an engineered patchwork of enclosed channels which are impacted by dry weather runoff from the surrounding residential and commercial developments. Nearby, Aquatic Park and Lakeshore Park beaches have landed on the Beach Bummer list in recent years.

5. TOPANGA BEACH, AT CREEK OUTLET F

(Los Angeles County)

Topanga Beach has appeared on the Beach Bummer list regularly since the list started. A study published in 2014 found that Topanga Lagoon is likely the source of the bacteria pollution at the beach[6]. The lagoon receives high amounts of bird and dog fecal matter so when the lagoon is breached, the fecal matter flows into the ocean resulting in high bacteria concentrations. An ecological restoration of the lagoon is underway which could help mitigate the poor water quality.

6. PILLAR POINT HARBOR BEACH F

(San Mateo County)

Pillar Point Harbor Beach is the second of three Beach Bummers contained within the Pillar Point Harbor. Unfortunately, it appears that the entire harbor was more polluted than normal this past year.

7. LINDA MAR BEACH AT SAN PEDRO CREEK F

(San Mateo County)

Linda Mar Beach is making its third consecutive appearance on the Beach Bummer list this year, and is one of six San Mateo County Bummers. This beach is impacted by runoff during dry weather, which flows untreated into the ocean through San Pedro Creek.

8. MISSION BAY, VACATION ISLE NORTH COVE F

(San Diego County)

Vacation Isle North Cove is an enclosed beach in Mission Bay which is impacted by dry weather runoff from the surrounding commercial and residential development. Pollutants are not easily flushed away from this enclosed beach, which is located in a deep cove. This beach last appeared on the Beach Bummer list in 2009.

9. SAN CLEMENTE PIER F

(Orange County)

San Clemente Pier is making a second consecutive appearance on the Beach Bummer list and is one of

5
6 https://www.ocwatersheds.com/programs/ourws/coastalstreams/poche_
https://www.rcdsmm.org/wp-content/uploads/2019/05/Topanga-Source-ID-Study_FINAL-10_23_14.pdf

two Orange County Beach Bummers this year. This beach is impacted by untreated dry weather runoff that flows into the ocean through a storm drain.

The City of San Clemente installed bird deterrent netting under the restaurant section of the pier in 2019 to help prevent bacteria-containing bird excrement from entering the water. They also capture pigeons and relocate them. The city's Ocean Water Quality Subcommittee is also conducting a study that aims to identify human sources of fecal pollution at the beach[7].

10. PILLAR POINT HARBOR, AT WESTPOINT AVENUE

(San Mateo County) F

Rounding out the Beach Bummer list is Pillar Point Harbor, at Westpoint Avenue, which is the third Pillar Point Harbor Beach Bummer and one of six San Mateo County Beach Bummers this year. Untreated dry weather runoff appears to be causing significant water quality problems in this enclosed harbor. Pillar Point Harbor, at Westpoint Ave. made the Bummer list in 2013 and 2015Z.

BEACH BUMMERS 2019-2020

RANK	LOCATION	SUMMER DRY GRADE	COUNTY	BEACH TYPE
1	Fitzgerald Marine Reserve, at San Vicente Creek Outlet	F	San Mateo	Storm Drain Impacted
2	Poche Beach, at Creek Outlet	F	Orange	Storm Drain Impacted
3	Pillar Point Harbor, at Capistrano Ave.	F	San Mateo	Enclosed
4	Foster City, Erckenbrack Park	F	San Mateo	Enclosed
5	Topanga Beach, at Creek Outlet	F	Los Angeles	Storm Drain Impacted
6	Pillar Point Harbor Beach	F	San Mateo	Enclosed
7	Linda Mar, at San Pedro Creek Outlet	F	San Mateo	Storm Drain Impacted
8	Mission Bay, Vacation Isle North Cove	F	San Diego	Enclosed
9	San Clemente Pier	F	Orange	Storm Drain Impacted
10	Pillar Point Harbor, at Westpoint Ave.	F	San Mateo	Enclosed

FIGURE: 6 | BEACH BUMMERS

[7] https://www.san-clemente.org/home/showdocument?id=54856

IMPACT OF BEACH TYPE

Not all beaches are the same when it comes to water quality. We have categorized California's beaches into three groups for analysis: 1) open beaches, 2) storm drain, stream, and river beaches, and 3) enclosed beaches.

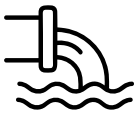
OPEN BEACH

Open beaches do not have obstructions between the beach and open water. They experience more wave action and greater water circulation than an enclosed beach. These beaches do not have storm drains, streams, or rivers flowing into them. As a result, open beaches tend to have better water quality than enclosed or storm drain, stream, or river beaches. Eighty-four open beaches received grades this year.

- Summer Dry Grades were excellent with 98% of the beaches receiving A and B grades.
- Winter Dry Grades were also excellent with 93% of the beaches receiving A and B grades.
- Wet Weather Grades were moderate and a little below average with 73% of the beaches receiving A and B grades.
- Eighteen of the 42 Honor Roll Beaches are open beaches.
- As indicated by the poorer Wet Weather Grades, open beaches are still impacted by stormwater. We advise people to avoid contact with ocean water for at least three days at all beaches following a significant rain event.

STORM DRAIN, STREAM, AND RIVER BEACHES

Beaches with storm drains, streams, or rivers flowing into them receive runoff that carries bacteria. We recommend swimming at least 100 yards away from storm drains, streams, and rivers at the beach. Also, avoid contact with the water for at least three days following a rain event. This year we issued grades to 224 of these beaches.



- Summer Dry Grades were good but a little below average with 90% of the beaches receiving A and B grades.
- Winter Dry Grades were excellent and above average with 91% of the beaches receiving A and B grades.
- Wet Weather Grades were poor but above average this year with 66% of the beaches receiving A and B grades. This is likely due to the low amount of rainfall.
- Five of this year's Beach Bummers were impacted by runoff through a storm drain, river, or stream.

ENCLOSED BEACHES

Enclosed beaches have obstructions like a land mass or jetty blocking the beach from the open water. They are often associated with lagoons, marinas, and harbors. Enclosed beaches have little wave action and poor water circulation, which leads to generally worse water quality. Due to their calm waters, enclosed beaches are inviting for small children, and they are frequently preferred by parents and given names like Baby Beach or Mothers Beach. We calculated grades for 98 enclosed beaches this year.

- Summer Dry Grades for enclosed beaches were good but below average with 89% receiving A and B grades.
- Winter Dry Grades were also good with 84% of the beaches receiving A and B grades.
- Wet Weather Grades were poor but higher than average with 51% of the beaches receiving A and B grades. The higher grades are likely due to the decreased rainfall in 2019-2020.
- Five of this year's Beach Bummers were enclosed beaches.

GRADES BY TIME PERIOD & BEACH TYPE

FIGURE: 7 | **2019 -2020**

OPEN	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	77	92%	64	89%	63	66%
B	5	6%	3	4%	6	6%
C	2	2%	3	4%	10	11%
D	0	0%	0	0%	5	5%
F	0	0%	2	3%	11	12%
A+B	82	98%	67	93%	69	73%
C,D,F	2	2%	5	7%	26	27%

STORM DRAIN	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	182	81%	171	81%	146	56%
B	20	9%	21	10%	24	9%
C	11	5%	5	2%	10	4%
D	6	3%	7	3%	11	4%
F	5	2%	6	3%	68	26%
A+B	202	90%	192	91%	170	66%
C,D,F	22	10%	18	9%	89	34%

ENCLOSED	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	80	82%	59	69%	46	42%
B	7	7%	12	14%	10	9%
C	3	3%	5	6%	3	3%
D	1	1%	1	1%	3	3%
F	7	7%	8	9%	48	44%
A+B	87	89%	71	84%	56	51%
C,D,F	11	11%	14	16%	54	49%

FIGURE: 7.1 | **5 YEAR AVERAGE**

OPEN	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	389	98%	281	89%	247	62%
B	6	2%	15	5%	67	17%
C	1	0%	7	2%	25	6%
D	0	0%	6	2%	12	3%
F	1	0%	7	2%	47	12%
A+B	395	99%	296	94%	314	79%
C,D,F	2	1%	20	6%	84	21%

STORM DRAIN	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	846	90%	599	78%	479	49%
B	45	5%	67	9%	95	10%
C	26	3%	46	6%	99	10%
D	9	1%	19	2%	62	6%
F	18	2%	40	5%	236	24%
A+B	891	94%	666	86%	574	59%
C,D,F	53	6%	105	14%	397	41%

ENCLOSED	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	336	83%	193	70%	103	28%
B	42	10%	40	15%	15	4%
C	8	2%	20	7%	27	7%
D	8	2%	3	1%	26	7%
F	9	2%	19	7%	199	54%
A+B	378	94%	233	85%	118	32%
C,D,F	25	6%	42	15%	252	68%

BEACH REPORT CARD'S IMPACT ON POLICY

The Beach Report Card is not just a tool to help keep the public safe at the beach. It is also a powerful tool used to advocate for water quality policies and improvement projects. With its easy-to-understand format, the Beach Report Card made water quality information accessible to all beachgoers, which in turn, got many people interested in water quality issues. Over the years, Heal the Bay has leveraged public support and the scientific robustness of the Beach Report Card methodology to advocate for water quality policies. Below we outline the major policies that the Beach Report Card has influenced over the years as well as policies that have influenced the Beach Report Card.

30 years of the Beach Report Card

1997

01
AB 411 & Title 17

Mandated summer testing at all major public beaches in California, established the bacteria level standards for recreation, and developed a public notification protocol for poor water quality. AB411 is the keystone piece of legislation for recreational water quality monitoring in California. Heal the Bay was a major proponent of the bill, and the Beach Report Card helped garner widespread support for it. This bill increased the number of monitored beaches across the entire state.

1999

02
AB 538

Heal the Bay sponsored this bill which was passed to augment AB 411. It required water quality monitoring agencies to conduct bacteria pollution source investigations in addition to regular beach monitoring.

2000

03
Clean Beaches Initiative (CBI)

Provided $34 million in state funding for projects that would improve water quality at California's most polluted beaches and identify sources of pollution. More funding was added to CBI under Prop 40 (2002), Prop 50 (2002), and Prop 84 (2006). Heal the Bay was a major advocate for CBI and all subsequent propositions.

2000

04
BEACH ACT

The Beaches Environmental Assessment and Coastal Health (BEACH) Act authorized the Federal EPA to fund recreational water quality monitoring in coastal and great lakes states and territories. The BEACH Act is responsible for the nation-wide water quality monitoring we have today. This funding allowed the Beach Report Card to expand to Oregon and Washington beaches because those states were not allocating resources towards monitoring previously.

2000

05
AB 885

Required the SWRCB to standardize the monitoring for California's on-site water treatment systems (OWTS), which were known to be a significant source of bacterial pollution at ocean beaches. Systems within 600 feet of impaired waters were required to be upgraded to provide disinfection and nutrient removal.

2001

06
SB 72

Sponsored by Heal the Bay, this bill standardized storm water monitoring methods and laboratory standards across the state so that each monitoring program had comparable data. This allowed storm water quality to be assessed on a state-wide level, which in turn, helped improve the integrity of the data used for the Beach Report Card.

2001

07
AB 1192

Also called The Water Quality and Watershed Protection Act. The Act funded programs targeting polluted storm water runoff and water recycling, which would help keep pollution from impacting beaches.

2003

08
AB 740

Also known as the Clean Air, Clean Water, and Coastal Protection Act. This bill authorized bonds to help restore coastal fisheries, protect coastal and marine wildlife habitats, and make improvements to sewer collection and treatment systems, which are a known source of bacteria pollution at ocean beaches.

2003

09
AB 907

Sponsored by Heal the Bay, this bill incorporated environmental education into the science and history/social science education content standards of grades K-12. The program promoted environmental stewardship and helped students make informed decisions about their individual impact on the environment.

2004

10
AB 1876

Amended AB 411 to add beach monitoring locations in the San Francisco Bay. The original regulation only required the monitoring of ocean shoreline beaches with 50,000 visitors and impacted by a pollution source, such as a storm drain, river, or creek. This bill expanded the monitoring coverage so that San Francisco Bay beachgoers can experience the same level of protection their ocean counterparts enjoy.

2011

11
SB 482

Gave the SWRCB oversight of all AB 411 regulations and responsibilities. Also allowed the SWRCB to direct permit fees towards California's Beach Program which increased the amount of funding for water quality monitoring across California.

2012

12
Federal EPA Recreational Water Quality Criteria Updated

Altered the bacteria limits allowed for ocean and Great Lakes recreational areas. These changes did not alter California's limits under AB 411, but they did apply to other states like Oregon and Washington.

2015

13
Zero-Point Monitoring

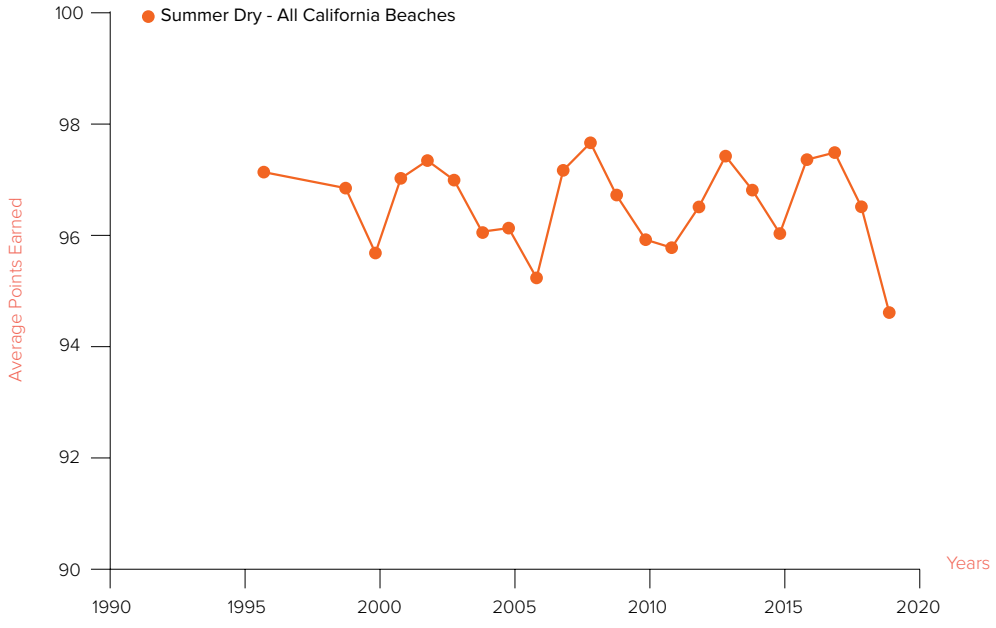
The SWRCB required monitoring agencies to measure water quality at all pollution sources (also called zero-points) along the coast. These include storm drain outfalls, rivers, creeks, and streams. Zero-point monitoring helps ensure accurate levels of bacteria pollution are reported. Heal the Bay had been advocating for zero-point monitoring since the Beach Report Card's inception.

HAVE GRADES IMPROVED OVER TIME?

After 30 years and numerous water quality improvement policies, we wanted to see what the overall change in water quality has been since the Beach Report Card first started. Have grades improved over time? To answer that, we analyzed the trends in grades going as far back as our data allowed. Instead of analyzing letter grades, we used the numeric equivalent of the grade, or Points Earned (Appendix D), for each beach which allowed us to do a wider array of analyses. We will still refer to this metric as "grades" to be more understandable. Here is what we found:

SUMMER DRY GRADES:

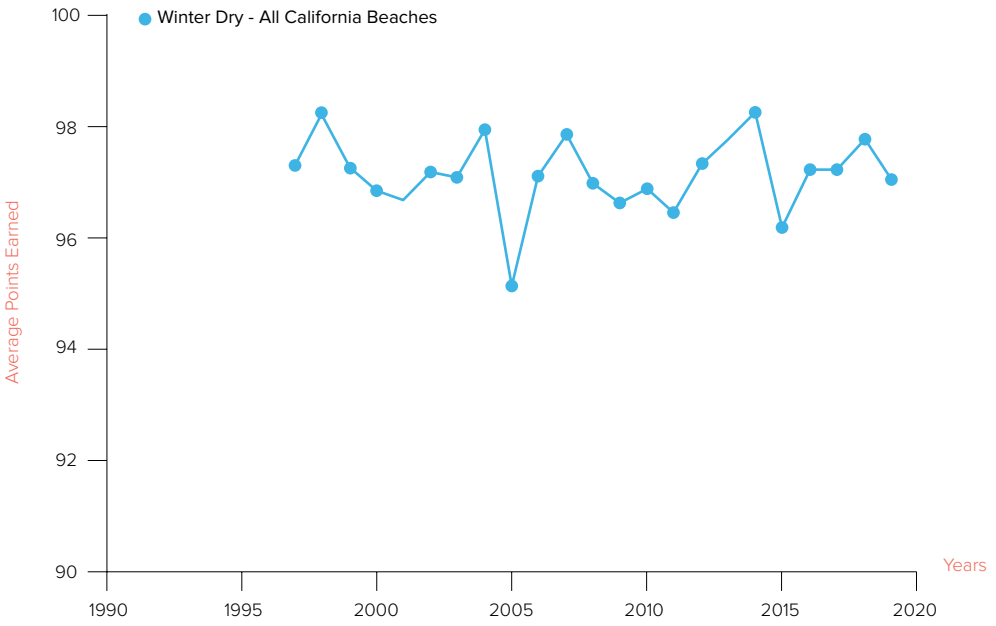
Good news - there was a significant positive trend in grades over the last 30 years. However, the story is a little more complicated than that. After 2015, beaches earned significantly lower grades than they did before 2015. The reason is that the SWRCB mandated zero-point sampling in 2015, which led to samples having higher concentrations of pollution. The water quality did not change in 2015, but the way the samples were collected led to lower grades. Zero-point sampling is necessary to accurately gauge the amount of pollution entering the ocean and is more protective of public health. It should also be noted that Los Angeles County and Humboldt County sampled zero-points starting in 2005 and 2006 respectively.



GRAPH: 1

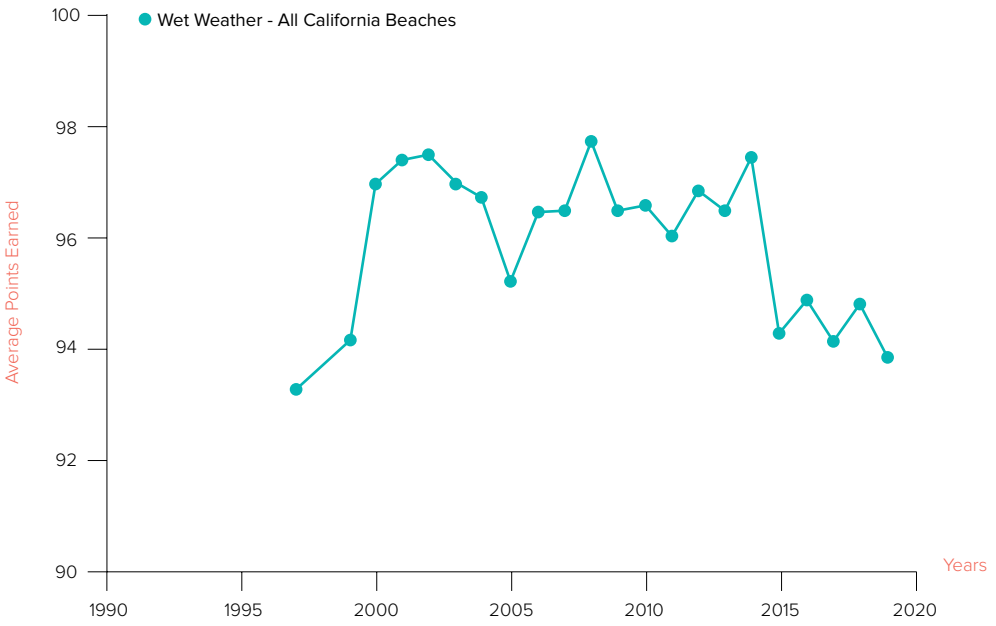
WINTER DRY GRADES:

Water quality under dry conditions in winter months also significantly improved over time. Again, water quality significantly dipped after the zero-point sampling requirement.



WET WEATHER GRADES:

Unlike with dry weather grades, water quality in wet weather has significantly decreased since the Beach Report Card started. We think this trend is largely driven by the zero-point monitoring policy put into place in 2015. Water quality in wet weather was dramatically lower after 2015, which is likely dragging the whole 30 year trend down. Heal the Bay has always advocated that stormwater runoff should be captured, cleaned, and reused instead of allowing it to pollute the ocean. While there have been many capture and reuse projects implemented across the state in the last 30 years, there needs to be a bigger emphasis placed on stormwater flows in addition to dry weather flows.



MORE 30 YEAR STATS

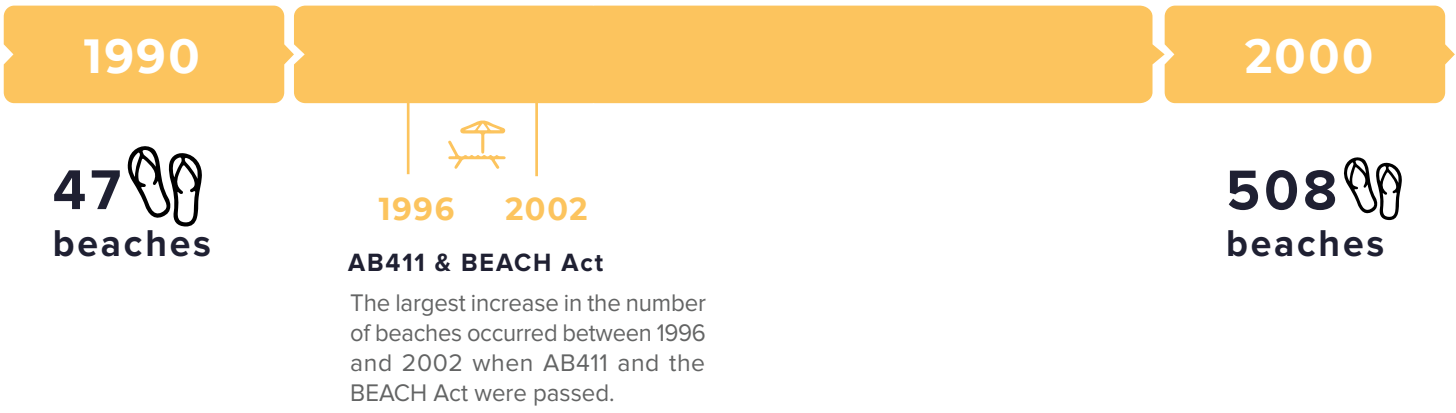
66,605 exceedance events

2,220 exceedance events per year = **132,130 to 396,390** beach advisory days

30 years

There have been 66,605 exceedance events (at least one FIB exceeded) at California beaches in the last 30 years (Summer Dry, Winter Dry, Wet Weather combined). There have been an average of 2,220 exceedance events per year in California. We estimate that this has resulted in 132,130 to 396,390 beach advisory days (# exceedances multiplied by # days under advisory: 2 for low estimate, 6 for high estimate). That translates to 362-1,086 years worth of water quality advisory days.

The number of beaches in the California Beach Report Card has grown from 47 in 1990 to 508 in 2020.



The number of beaches in the California Beach Report Card has grown from 47 in 1990 to 508 in 2020. The largest increase in the number of beaches occurred between 1996 and 2002 when AB411 and the BEACH Act were passed.

CHRONIC BEACH BUMMER ANALYSIS

As part of our retrospective analysis, we also examined how grades at some of the most heavily polluted beaches in California have changed over time. We found that Clam Beach at Strawberry Creek (Humboldt County) and Cowell/Main Beach (Santa Cruz County) have seen a significant decrease in grades over time. Inner Cabrillo Beach, Marina Del Rey Mother's Beach, and Santa Monica Pier (Los Angeles County) have shown no significant increase or decrease over time. However, we urge local governments to continue investing in water quality improvement projects at these beaches on top of what has already been done[8,9,10]. Doheny State Beach (Orange County) and Avalon Beach (Los Angeles County) in Catalina have shown significant positive improvement in grades over time. Avalon Beach has had many water quality improvement projects over the years including sewer line maintenance, bird abatement, and a strict stormwater ordinance for businesses[11].

GRAPH: 2

8. http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/1068_CabrilloQMRA.pdf
9. https://beaches.lacounty.gov/bacteria-tmdl/
10. https://www.smgov.net/Departments/PublicWorks/ContentCivEng.aspx?id=54194
11. http://www.cityofavalon.com/content/3180/3269/3366.aspx

Note: All averages below refer to the five-year-average unless otherwise indicated.

DEL NORTE COUNTY

Del Norte County is the northernmost coastal County in California, and there is only one beach that was monitored: Crescent City Beach at Battery Point Lighthouse. This beach received an A+ for Summer Dry, Winter Dry, and Wet Weather Grades landing it a spot on the Honor Roll.

This County received 53 inches of rain this past year, which is more than any other County in California. But, this was still 6% below the County's historical average of 56 inches. All northern counties had below average rainfall this year.

There were four sewage spills reported across the County sending 14,615 gallons into local waterways. No beaches were reported as impacted, but two spills went into Elk Creek which flows into Crescent Harbor.

DEL NORTE COUNTY

FIGURE: 18 | **2019 -2020**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	1	100%	1	100%	1	100%
B	0	0%	0	0%	0	0%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	0	0%
A+B	1	100%	1	100%	1	100%
C,D,F	0	0%	0	0%	0	0%

FIGURE: 18.1 | **5 YEAR AVERAGE**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	5	100%	2	100%	5	100%
B	0	0%	0	0%	0	0%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	0	0%
A+B	5	100%	2	100%	5	100%
C,D,F	0	0%	0	0%	0	0%

HUMBOLDT COUNTY

Summer Dry Grades were poor but still above average this year with just 60% of the beaches receiving A and B grades.

Wet Weather Grades were good and far above average this year with 80% of the beaches receiving A and B grades.

Humboldt County does not monitor its beaches in the winter months so there were no Winter Dry Grades and no beaches were eligible for the Honor Roll.

Humboldt County received 36 inches of rain, which is 11% lower than the historical average of 41 inches. Most of the rain fell during the winter months when the beaches are not monitored, so we do not know the full impact of the reduced rainfall.

There was one reported sewage spill that sent 5,300 gallons into the Eel River, which flows into the ocean south of Eureka. No beaches were closed as a result of the spill.

HUMBOLDT COUNTY

FIGURE: 18 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	2	40%	NO DATA	NO DATA	1	20%
B	1	20%	NO DATA	NO DATA	3	60%
C	1	20%	NO DATA	NO DATA	0	0%
D	1	20%	NO DATA	NO DATA	1	20%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	3	60%	NO DATA	NO DATA	4	80%
C,D,F	2	40%	NO DATA	NO DATA	1	20%

FIGURE: 18.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	13	52%	NO DATA	NO DATA	8	32%
B	0	0%	NO DATA	NO DATA	6	24%
C	5	20%	NO DATA	NO DATA	3	12%
D	1	4%	NO DATA	NO DATA	4	16%
F	6	24%	NO DATA	NO DATA	4	16%
A+B	13	52%	NO DATA	NO DATA	14	56%
C,D,F	12	48%	NO DATA	NO DATA	11	44%

MENDOCINO COUNTY

Summer Dry Grades were excellent and above average with 100% of the beaches receiving A and B grades.

Wet Weather Grades were also stellar with 100% of the beaches receiving A and B grades.

Mendocino County does not monitor its beaches in the winter months so there were no Winter Dry Grades and no beaches were eligible for the Honor Roll.

Mendocino County received 40 inches of rain, which is on par with the historical average. Most of the rain fell during the winter months when the beaches are not monitored, so we do not know the full impact of this year's rainfall on water quality.

There were four sewage spills across the County which sent a total of 5,209 gallons into bodies of water. No beaches were reportedly impacted by these spills.

MENDOCINO COUNTY

FIGURE: 18 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	5	83%	NO DATA	NO DATA	5	83%
B	1	17%	NO DATA	NO DATA	1	17%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	6	100%	NO DATA	NO DATA	6	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 18.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	26	93%	NO DATA	NO DATA	21	70%
B	1	4%	NO DATA	NO DATA	2	7%
C	1	4%	NO DATA	NO DATA	6	20%
D	0	0%	NO DATA	NO DATA	1	3%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	27	96%	NO DATA	NO DATA	23	77%
C,D,F	1	4%	NO DATA	NO DATA	7	23%

SONOMA COUNTY

This was the second straight year Sonoma County received 100% A's for Summer Dry and Wet Weather Grades.

Sonoma County does not monitor its beaches in winter months so no Winter Dry Grades were generated and no beaches from this County were eligible for the Honor Roll.

Sonoma County received 22 inches of rain, which is 30% lower than the historical average of 31 inches. However, most of the rain fell during the winter months when the beaches are not monitored, so we do not know how this major decrease in rainfall impacted water quality.

There were six sewage spills across the County which sent a total of 5,727 gallons into storm drains, rivers, lakes, or the ocean. No beaches were reportedly impacted, but two spills occurred in the Petaluma River which flows into San Pablo Bay. This is an improvement over last year which saw 45 spills totaling 2.8 million gallons across the county (highest amount in the state).

SONOMA COUNTY

FIGURE: 18 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	7	100%	NO DATA	NO DATA	7	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	7	100%	NO DATA	NO DATA	7	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 18.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	35	100%	NO DATA	NO DATA	34	97%
B	0	0%	NO DATA	NO DATA	1	3%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	35	100%	NO DATA	NO DATA	35	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

MARIN COUNTY

Summer Dry Grades were outstanding for a second straight year with 100% of the beaches receiving A and B grades. Wet Weather Grades were passable but still below average with only 75% of the beaches receiving A and B grades.

Marin County does not monitor its beaches in winter months so no Winter Dry Grades were calculated and no beaches from this County were eligible for the Honor Roll.

Marin County received 14 inches of rain, which is a 34% decrease from the historical average of 22 inches. However, most of the rain fell during the winter months when the beaches are not monitored, so we do not know if there was an impact on water quality.

There were 20 reported sewage spills across the County which sent 11,749 gallons of sewage into bodies of water. Health warnings were issued for spills into Richardson Bay and San Rafael Creek.

MARIN COUNTY

FIGURE: 18 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	23	96%	NO DATA	NO DATA	16	67%
B	1	4%	NO DATA	NO DATA	2	8%
C	0	0%	NO DATA	NO DATA	3	13%
D	0	0%	NO DATA	NO DATA	1	4%
F	0	0%	NO DATA	NO DATA	2	8%
A+B	24	100%	NO DATA	NO DATA	18	75%
C,D,F	0	0%	NO DATA	NO DATA	6	25%

FIGURE: 18.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	106	93%	NO DATA	NO DATA	96	83%
B	7	6%	NO DATA	NO DATA	3	3%
C	1	1%	NO DATA	NO DATA	1	1%
D	0	0%	NO DATA	NO DATA	6	5%
F	0	0%	NO DATA	NO DATA	9	8%
A+B	113	99%	NO DATA	NO DATA	99	86%
C,D,F	1	1%	NO DATA	NO DATA	16	14%

SAN FRANCISCO COUNTY

Summer Dry Grades passed with flying colors this year; 100% of the beaches received an A or B grade. Wet Weather Grades were substandard yet above average this year with 63% receiving A and B grades.

Winter Dry Grades were excellent with 94% of the beaches receiving A and B grades, which is above average.

San Francisco County received 14 inches of rain, which is a 34% decrease from the historical average of 22 inches. San Francisco has a combined sewer system meaning rain runoff flows into the sewer system and gets treated instead of flowing into the ocean. Despite this system, water quality is still negatively impacted when it rains because some pollution makes its way to the ocean in creeks and over surfaces. If it rains enough, the sewers can also overflow, sending sewage into the ocean. .

There were four reported sewage spills across the County totaling 4,715 gallons. No beaches were impacted, however, 100% of the sewage spilled into the San Francisco Bay.

SAN FRANCISCO COUNTY

FIGURE: 19 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	13	81%	12	75%	3	16%
B	3	19%	3	19%	9	47%
C	0	0%	1	6%	1	5%
D	0	0%	0	0%	1	5%
F	0	0%	0	0%	5	26%
A+B	16	100%	15	94%	12	63%
C,D,F	0	0%	1	6%	7	37%

FIGURE: 19.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	60	81%	56	74%	21	24%
B	8	11%	6	8%	17	19%
C	4	5%	2	3%	14	16%
D	1	1%	3	4%	6	7%
F	1	1%	9	12%	30	34%
A+B	68	92%	62	82%	38	43%
C,D,F	6	8%	14	18%	50	57%

EAST BAY: ALAMEDA COUNTY AND CONTRA COSTA COUNTY

The East Bay had good Summer Dry Grades with 88% of the beaches receiving A and B grades, which is on par with average.

Wet Weather Grades were also good and way above average with 88% of the beaches receiving A and B grades.

Beaches in Alameda County and Contra Costa County were monitored frequently enough this year to receive Winter Dry Grades, which has not been the case historically. Coincidentally, 88% of the beaches received A and B grades during dry weather this winter.

Alameda County and Contra Costa County received 14 inches of rain, which is 34% lower than the historical average of 22 inches. This may account for the above average Wet Weather Grades this year.

There were 59 sewage spills across both Counties that sent a total of 226,795 gallons into bodies of water. No Bay beaches were closed because the spills did not occur near any Bay beaches. However, two spills - each over 20,000 gallons - flowed into Lake Temescal and Lake Mer.

EAST BAY COUNTY

FIGURE: 20 **2019 -2020**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	5	63%	5	63%	4	50%
B	2	25%	2	25%	3	38%
C	1	13%	1	13%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	1	13%
A+B	7	88%	7	88%	7	88%
C,D,F	1	13%	1	13%	1	13%

FIGURE: 20.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	29	66%	NO DATA	NO DATA	23	50%
B	10	23%	NO DATA	NO DATA	5	11%
C	3	7%	NO DATA	NO DATA	6	13%
D	2	5%	NO DATA	NO DATA	4	9%
F	0	0%	NO DATA	NO DATA	8	17%
A+B	39	89%	NO DATA	NO DATA	28	61%
C,D,F	5	11%	NO DATA	NO DATA	18	39%

SAN MATEO COUNTY

San Mateo had a bad year from a water quality standpoint. Summer Dry Grades were abysmal with only 44% of the beaches receiving A and B grades -- the lowest percentage in the state.

Wet Weather Grades were poor yet still above average with 58% of the beaches receiving A and B grades.

Winter Dry Grades were also bottom of the class with only 46% receiving A and B grades.

Six San Mateo beaches made the Beach Bummer list this year, which is an unusually high amount of Bummers for a single county. Three of the Beach Bummers are located in Pillar Point Harbor. Despite San Mateo County's poor marks this year, Bean Hollow State Beach landed on the Honor Roll.

San Mateo County received 14 inches of rain, which is 34% lower than the historical average of 22 inches. The decrease in rainfall may explain the above average Wet Weather Grades, though there is still much room for improvement.

There were 18 sewage spills into bodies of water summing to 273,862 gallons. One spill sent 247,000 gallons of raw sewage into San Francisco Bay. No beaches were reported as impacted and most of the spills occurred on the bay side.

SAN MATEO COUNTY

FIGURE: 21 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	6	33%	10	38%	12	46%
B	2	11%	2	8%	3	12%
C	2	11%	5	19%	2	8%
D	1	6%	1	4%	1	4%
F	7	39%	8	31%	8	31%
A+B	8	44%	12	46%	15	58%
C,D,F	10	56%	14	54%	11	42%

FIGURE: 21.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	69	68%	50	65%	32	28%
B	17	17%	8	10%	17	15%
C	6	6%	8	10%	14	12%
D	3	3%	2	3%	11	9%
F	7	7%	9	12%	42	36%
A+B	86	84%	58	75%	49	42%
C,D,F	16	16%	19	25%	67	58%

SANTA CRUZ COUNTY

Summer Dry Grades were terrific and above average this year with 93% of the beaches receiving A and B grades.

Although the Wet Weather Grades were above average, they were still below par with only 69% of beaches receiving A and B grades.

Winter Dry Grades were good with 86% of the beaches receiving A grades.

Cowell Beach West of The Wharf and Capitola Beach, two chronic Beach Bummers, did not make the Beach Bummer list this year. The nonprofit group Save The Waves has partnered with the City of Santa Cruz and other stakeholders to improve the water quality at this iconic beach - their effort being dubbed #CleanCowells. So far, the #CleanCowells campaign has installed bird deterrent netting under the pier, repaired sewer lines, and diverted polluted lagoon water before it can reach the ocean[12].

Santa Cruz County received 25 inches of rain, which is below the historical average of 28 inches. This may account for the better than average Wet Weather Grades.

There were three reported sewage spills across the County, which sent a total 2,254 gallons into bodies of water. One 50 gallon spill reached Capitola Beach via Soquel Creek and resulted in the beach being closed for several days.

SANTA CRUZ COUNTY

FIGURE: 22 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	11	79%	11	79%	8	50%
B	2	14%	1	7%	3	19%
C	0	0%	1	7%	2	13%
D	1	7%	1	7%	0	0%
F	0	0%	0	0%	3	19%
A+B	13	93%	12	86%	11	69%
C,D,F	1	7%	2	14%	5	31%

FIGURE: 22.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	46	71%	45	76%	46	42%
B	9	14%	8	14%	16	15%
C	3	5%	3	5%	18	17%
D	2	3%	0	0%	6	6%
F	5	8%	3	5%	23	21%
A+B	55	85%	53	90%	62	57%
C,D,F	10	15%	6	10%	47	43%

12. https://www.savethewaves.org/cleancowells/

MONTEREY COUNTY

For a second straight year 100% of Monterey County's Summer Dry Grades were A and B grades.

Wet Weather Grades were good with 88% of the beaches receiving A and B grades.

Winter Dry Grades were outstanding with 100% of the beaches receiving A and B grades. Monterey County does not usually monitor its beaches in winter months so there is no average for comparison.

Three Monterey County beaches made the Honor Roll this year: Asilomar State Beach at Arena Avenue, Monterey State Beach, and Spanish Bay at 17 Mile Drive. This is the first time Monterey Beaches have made the Honor Roll.

Monterey County received 23 inches of rain, which is 37% higher than the historical average of 17 inches. The dramatic increase in rainfall did not appear to substantially impact Wet Weather Grades. There were 10 sewage spills across the County that sent a total of 13,437 gallons into rivers, lakes, storm drains, or the ocean. One spill alarmingly dumped 5,607 gallons of raw sewage into the Monterey Bay National Marine Sanctuary.

SAN LUIS OBISPO COUNTY

Summer Dry Grades were superlative with 100% of the beaches receiving A and B grades.

Wet Weather Grades were also exemplary and above average with 95% of the beaches receiving A and B grades.

Winter Dry Grades were superb and above average with 100% of the beaches receiving A and B grades. San Simeon Beach at Pico Avenue, and Morro Bay City Beach (75 feet north of the main parking lot) made it on the Honor Roll this year.

San Luis Obispo County received 12 inches of rain, which is on par with the average historical rainfall total.

There were 13 sewage spills into water bodies amounting to 52,495 gallons. Six separate spills sent a total of 46,316 gallons of raw sewage into the ocean at four recreational beaches, which were subsequently closed.

MONTEREY COUNTY

FIGURE: 23 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	7	88%	7	88%	7	88%
B	1	13%	1	13%	0	0%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	1	13%
A+B	8	100%	8	100%	7	88%
C,D,F	0	0%	0	0%	1	13%

FIGURE: 23.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	36	90%	NO DATA	NO DATA	34	85%
B	2	5%	NO DATA	NO DATA	0	0%
C	1	3%	NO DATA	NO DATA	4	10%
D	1	3%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	2	5%
A+B	38	95%	NO DATA	NO DATA	34	85%
C,D,F	2	5%	NO DATA	NO DATA	6	15%

SAN LUIS OBISPO COUNTY

FIGURE: 24 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	18	95%	18	95%	15	79%
B	1	5%	1	5%	3	16%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	1	5%
A+B	19	100%	19	100%	18	95%
C,D,F	0	0%	0	0%	1	5%

FIGURE: 24.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	84	92%	85	90%	67	71%
B	6	7%	3	3%	19	20%
C	0	0%	4	4%	3	3%
D	1	1%	1	1%	2	2%
F	0	0%	1	1%	3	3%
A+B	90	99%	88	94%	86	91%
C,D,F	1	1%	6	6%	8	9%

SANTA BARBARA COUNTY

Summer Dry Grades were great but slightly lower than average with 94% of the beaches receiving A and B grades.

Wet Weather Grades were deficient and far below the average this year with only 38% receiving A and B grades.

Winter Dry Grades were excellent and above average with 100% of the beaches earning A and B grades.

The windswept Guadalupe Dunes made it on the Honor Roll for a second consecutive year.

Santa Barbara County received 11 inches of rain, which is below the historical average of 13 inches. This decrease in rainfall did not result in an improvement to the County's Wet Weather Grades.

Seven sewage spills totaling 6,503 gallons flowed into storm drains, rivers, lakes, or the ocean. No beaches were reported closed. However, there were four spills into Sycamore Creek, Arroyo Burro Creek, and The Santa Maria River, which all flow into the ocean at popular beaches. The County must develop a beach warning and closure protocol for spills that happen upstream from a beach.

VENTURA COUNTY

Summer Dry Grades were some of the best in class for a second straight year with 100% of the beaches receiving A grades.

Wet Weather Grades were poor and substantially below average with only 67% of the beaches receiving A and B grades.

Winter Dry Grades were superb and above average with 100% of the beaches receiving A grades.

Silverstrand at San Nicholas Avenue made the Honor Roll list.

Ventura County received 11 inches of rain, which is close to the historical average of 12 inches.

Three sewage spills sent 3,191 gallons of sewage into bodies of water. One 1,241 gallon spill happened in Ventura Harbor.

SANTA BARBARA COUNTY

FIGURE: 25 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	13	81%	12	75%	4	25%
B	2	13%	4	25%	2	13%
C	1	6%	0	0%	1	6%
D	0	0%	0	0%	1	6%
F	0	0%	0	0%	8	50%
A+B	15	94%	16	100%	6	38%
C,D,F	1	6%	0	0%	10	63%

FIGURE: 25.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	58	91%	59	78%	31	39%
B	4	6%	7	9%	9	11%
C	2	3%	5	7%	10	13%
D	0	0%	1	1%	10	13%
F	0	0%	4	5%	20	25%
A+B	62	97%	66	87%	40	50%
C,D,F	2	3%	10	13%	40	50%

VENTURA COUNTY

FIGURE: 26 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	38	100%	19	100%	26	67%
B	0	0%	0	0%	0	0%
C	0	0%	0	0%	3	8%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	10	26%
A+B	38	100%	19	100%	26	67%
C,D,F	0	0%	0	0%	13	33%

FIGURE: 26.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	199	100%	76	92%	130	75%
B	0	0%	3	4%	18	10%
C	0	0%	2	2%	15	9%
D	0	0%	1	1%	3	2%
F	0	0%	1	1%	8	5%
A+B	199	100%	79	95%	147	84%
C,D,F	0	0%	4	5%	26	15%

LOS ANGELES COUNTY

Summer Dry Grades were very good but slightly lower than average with 91% of the beaches receiving A and B grades.

Wet Weather Grades were poor with only 42% of the beaches receiving A and B grades, which is average for the County.

Winter Dry Grades were good and markedly above average with 92% of the beaches receiving A and B grades.

Palos Verdes Estates at Palos Verdes Cove, Rancho Palos Verdes Long Point, and Redondo State Beach at Topaz Street made it on the Honor Roll list.

Topanga Beach was the sole Beach Bummer from Los Angeles County this year.

L.A. County received 12 inches of rain, which is close to the historical average of 11 inches. Most of the rain fell late in the season so there was not a noticeable impact on Wet Weather Grades.

There were 68 sewage spills reported across the County which sent 148,276 gallons of sewage into bodies of water. Beaches in Long Beach were closed after 3 separate spills occurred in the Los Angeles River and San Gabriel River, which flow into the ocean near recreational beaches. Historically, beaches in Los Angeles County were never closed for spills that happened upstream so we commend Long Beach for taking the necessary action to protect public health.

LOS ANGELES COUNTY

FIGURE: 27 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	76	80%	73	79%	35	32%
B	10	11%	12	13%	11	10%
C	5	5%	1	1%	5	5%
D	2	2%	4	4%	8	7%
F	2	2%	2	2%	50	46%
A+B	86	91%	85	92%	46	42%
C,D,F	9	9%	7	8%	63	58%

FIGURE: 27.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	392	88%	303	71%	146	32%
B	24	5%	49	12%	49	11%
C	11	2%	37	9%	44	10%
D	8	2%	11	3%	28	6%
F	8	2%	26	6%	195	42%
A+B	416	94%	352	83%	195	42%
C,D,F	27	6%	74	17%	267	58%

ORANGE COUNTY

Summer Dry Grades were excellent and just below the five-year average with 95% of the beaches receiving A and B grades.

Wet Weather Grades were substandard but higher than average with 63% of the beaches receiving A and B grades.

Winter Dry Grades were stellar and higher than the five-year average with 96% of the beaches receiving A and B grades.

A total of 20 beaches made it on the Honor Roll, which is more than any other county and double the amount of beaches from last year.

San Clemente Pier and Poche Beach at the Creek Outlet both made the Beach Bummer list.

Orange County received 11 inches of rain, which is higher than the historical average of nine inches. The increase in rainfall did not appear to impact Wet Weather Grades.

There were 22 sewage spills reported across the County that sent nearly 1.8 million gallons of sewage into bodies of water. In November, 1.4 million gallons of sewage was spilled into Aliso Creek located in Laguna Beach, and most Orange County beaches were closed for several days as a result.

ORANGE COUNTY

FIGURE: 28 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	107	91%	109	92%	69	58%
B	4	3%	5	4%	7	6%
C	2	2%	1	1%	4	3%
D	2	2%	1	1%	5	4%
F	2	2%	3	3%	35	29%
A+B	111	95%	114	96%	76	63%
C,D,F	6	5%	5	4%	44	37%

FIGURE: 28.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	534	94%	457	84%	215	39%
B	22	4%	45	8%	58	10%
C	5	1%	16	3%	47	8%
D	1	0%	8	1%	42	8%
F	6	1%	17	3%	193	35%
A+B	556	98%	502	92%	273	49%
C,D,F	12	2%	41	8%	282	51%

SAN DIEGO COUNTY

Summer Dry Grades were excellent but considerably lower than the five-year average with 90% of the beaches receiving A and B grades.

Wet Weather Grades were good and above average with 82% of the beaches receiving A and B grades.

Winter Dry Grades were good with 88% of beaches receiving A and B grades, which is close to the average.

A total of 10 beaches made it on the Honor Roll which is the second highest amount compared to all other counties.

Mission Bay Vacation Isle North Cove was the number eight Beach Bummer this year.

San Diego County received 12 inches of rain, which is higher than the historical average of nine inches. Most of this rain fell late in the season so there did not appear to be a large negative impact on Wet Weather Grades.

There were 28 sewage spills across the County which sent 113,208 gallons of sewage into bodies of water. A total of 90,000 gallons of raw sewage was spilled into San Mateo Creek, an unchanelized stream which flows into Trestles Beach.

SAN DIEGO COUNTY

FIGURE: 29 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	39	78%	51	75%	63	76%
B	6	12%	9	13%	5	6%
C	4	8%	4	6%	3	4%
D	0	0%	1	1%	3	4%
F	1	2%	3	4%	9	11%
A+B	45	90%	60	88%	68	82%
C,D,F	5	10%	8	12%	15	18%

FIGURE: 29.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	342	93%	154	82%	179	64%
B	15	4%	12	6%	27	10%
C	5	1%	4	2%	13	5%
D	2	1%	6	3%	13	5%
F	2	1%	11	6%	46	17%
A+B	357	98%	166	89%	206	74%
C,D,F	9	2%	21	11%	72	26%

County health officials stated that the Creek was dry at the time of the spill so there was likely no impact on ocean water quality. Close calls like this highlight the need for San Diego County to resume sampling at Trestles Beach despite its history of good water quality. We also urge San Diego County to review their sewage spill protocol as they were unaware of the 90,000 gallon spill until Heal the Bay brought it to their attention.

Oregon's Department of Environmental Quality samples water quality at ocean beaches between Memorial Day and Labor Day and tests for one fecal indicator bacteria, *Enterococcus*. This is in contrast to California, which requires three indicator bacteria to be sampled from April 1 to October 31 every year. Funding for ocean beach monitoring in Oregon comes entirely from the U.S. EPA's Beaches Environmental Assessment and Coastal Health Act (BEACH Act).

Note: All averages below refer to the five-year-average unless otherwise indicated.

OREGON

FIGURE: 9 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	17	100%	NO DATA	NO DATA	28	68%
B	0	0%	NO DATA	NO DATA	5	12%
C	0	0%	NO DATA	NO DATA	2	5%
D	0	0%	NO DATA	NO DATA	2	5%
F	0	0%	NO DATA	NO DATA	4	10%
A+B	17	100%	NO DATA	NO DATA	33	80%
C,D,F	0	0%	NO DATA	NO DATA	8	20%

FIGURE: 9.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	18	90%	NO DATA	NO DATA	17	89%
B	0	0%	NO DATA	NO DATA	1	5%
C	0	0%	NO DATA	NO DATA	0	0%
D	1	5%	NO DATA	NO DATA	1	5%
F	1	5%	NO DATA	NO DATA	0	0%
A+B	18	90%	NO DATA	NO DATA	18	95%
C,D,F	2	10%	NO DATA	NO DATA	1	5%

Most years (including 2019-2020), we are unable to grade the majority of Oregon beaches due to a lack of sampling. Our methodology requires that beaches must be sampled for at least 75% of the weeks in their summer season — defined as Memorial Day through Labor Day. We encourage the State of Oregon to provide additional funding for increased ocean water quality monitoring to meet this minimum requirement and be more protective of public health.

Only 17 beaches - all in Clatsop, Lincoln, and Tillamook Counties - were monitored enough to receive a Summer Dry Grade. Summer Dry Grades were excellent and above average with 100% of the beaches receiving A grades. Six counties received Wet Weather grades, which were good but far below average with 80% receiving A and B grades. Oregon beaches are not monitored in the winter months so Winter Dry Grades could not be calculated.

CLATSOP COUNTY

FIGURE: 10 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	8	100%	NO DATA	NO DATA	7	88%
B	0	0%	NO DATA	NO DATA	1	13%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	8	100%	NO DATA	NO DATA	8	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 10.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	9	100%	NO DATA	NO DATA	8	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	9	100%	NO DATA	NO DATA	8	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

COOS COUNTY

FIGURE: 11 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	3	43%
B	NO DATA	NO DATA	NO DATA	NO DATA	2	29%
C	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
D	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
F	NO DATA	NO DATA	NO DATA	NO DATA	2	29%
A+B	NO DATA	NO DATA	NO DATA	NO DATA	5	71%
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	2	29%

FIGURE: 11.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
D	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A+B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA

LINCOLN COUNTY

FIGURE: 12 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	6	100%	NO DATA	NO DATA	7	54%
B	0	0%	NO DATA	NO DATA	2	15%
C	0	0%	NO DATA	NO DATA	2	15%
D	0	0%	NO DATA	NO DATA	2	15%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	6	100%	NO DATA	NO DATA	9	69%
C,D,F	0	0%	NO DATA	NO DATA	4	31%

FIGURE: 12.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
D	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A+B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA

TILLAMOOK COUNTY

FIGURE: 13 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	3	100%	NO DATA	NO DATA	7	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	3	100%	NO DATA	NO DATA	7	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 13.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	3	100%	NO DATA	NO DATA	3	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	3	100%	NO DATA	NO DATA	3	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

CURRY COUNTY

FIGURE: 14 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	1	33%
B	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
C	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
D	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
F	NO DATA	NO DATA	NO DATA	NO DATA	2	67%
A+B	NO DATA	NO DATA	NO DATA	NO DATA	1	33%
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	2	67%

FIGURE: 14.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
D	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A+B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA

LANE COUNTY

FIGURE: 15 | **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	3	100%
B	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
C	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
D	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
F	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
A+B	NO DATA	NO DATA	NO DATA	NO DATA	3	100%
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	0	0%

FIGURE: 15.1 | **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
D	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A+B	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA

WASHINGTON SUMMARY

Washington's Department of Ecology samples water quality at ocean beaches between Memorial Day and Labor Day and tests for one fecal indicator bacteria, *Enterococcus*. This is in contrast to California, which requires three indicator bacteria to be sampled from April 1 to October 31 every year. Approximately 80% of the funding for ocean beach monitoring in the State comes from the BEACH Act, and the remaining 20% of funding comes from the U.S. EPA's National Estuary Program's Pathogen Prevention, Reduction, and Control Grant. The Makah Tribe in Clallam County also conducts beach monitoring through separate BEACH Program Tribal funding. Unlike the rest of the state, the Makah Tribe monitors beaches on a weekly basis all year. We commend the Makah Tribe for their robust monitoring, and we call on the Washington Department of Ecology to increase monitoring across the rest of the state.

Summer Dry Grades were excellent with 95% of the beaches receiving A and B grades. Wet Weather Grades were exceptional and far above average with 97% receiving A and B grades. Only Clallam County beaches were sampled in the winter months so Winter Dry Grades were only issued to those beaches. Winter Dry Grades at Clallam County beaches was superb, earning 100% A's.

Note: All averages below refer to the five-year-average unless otherwise indicated.

WASHINGTON

FIGURE: 16

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	151	92%	NO DATA	NO DATA	162	95%
B	4	2%	NO DATA	NO DATA	3	2%
C	4	2%	NO DATA	NO DATA	4	2%
D	2	1%	NO DATA	NO DATA	0	0%
F	3	2%	NO DATA	NO DATA	1	1%
A+B	155	95%	NO DATA	NO DATA	165	97%
C,D,F	9	5%	NO DATA	NO DATA	5	3%

FIGURE: 16.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	748	92%	NO DATA	NO DATA	519	82%
B	21	3%	NO DATA	NO DATA	23	4%
C	17	2%	NO DATA	NO DATA	18	3%
D	9	1%	NO DATA	NO DATA	31	5%
F	14	2%	NO DATA	NO DATA	44	7%
A+B	769	95%	NO DATA	NO DATA	542	85%
C,D,F	40	5%	NO DATA	NO DATA	93	15%

CLALLAM COUNTY

FIGURE: 17

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	23	100%	15	100%	22	96%
B	0	0%	0	0%	1	4%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	0	0%
A+B	23	100%	15	100%	23	100%
C,D,F	0	0%	0	0%	0	0%

FIGURE: 17.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	81	89%	30	100%	73	82%
B	4	4%	0	0%	5	6%
C	5	5%	0	0%	2	2%
D	1	1%	0	0%	7	8%
F	0	0%	0	0%	2	2%
A+B	85	93%	30	100%	78	88%
C,D,F	6	7%	0	0%	11	12%

KITSAP COUNTY

FIGURE: 17

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	23	100%	15	100%	22	96%
B	0	0%	0	0%	1	4%
C	0	0%	0	0%	0	0%
D	0	0%	0	0%	0	0%
F	0	0%	0	0%	0	0%
A+B	23	100%	15	100%	23	100%
C,D,F	0	0%	0	0%	0	0%

FIGURE: 17.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	81	89%	30	100%	73	82%
B	4	4%	0	0%	5	6%
C	5	5%	0	0%	2	2%
D	1	1%	0	0%	7	8%
F	0	0%	0	0%	2	2%
A+B	85	93%	30	100%	78	88%
C,D,F	6	7%	0	0%	11	12%

SKAGIT COUNTY

FIGURE: 16

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	3	100%
B	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
C	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
D	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
F	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
A+B	NO DATA	NO DATA	NO DATA	NO DATA	3	100%
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	0	0%

FIGURE: 16.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	14	88%	NO DATA	NO DATA	6	38%
B	0	0%	NO DATA	NO DATA	0	0%
C	2	13%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	1	6%
F	0	0%	NO DATA	NO DATA	9	56%
A+B	14	88%	NO DATA	NO DATA	6	38%
C,D,F	2	13%	NO DATA	NO DATA	10	63%

SNOHOMISH COUNTY

FIGURE: 17 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	15	100%	NO DATA	NO DATA	18	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	15	100%	NO DATA	NO DATA	18	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 17.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	77	99%	NO DATA	NO DATA	44	77%
B	0	0%	NO DATA	NO DATA	2	4%
C	1	1%	NO DATA	NO DATA	4	7%
D	0	0%	NO DATA	NO DATA	2	4%
F	0	0%	NO DATA	NO DATA	5	9%
A+B	77	99%	NO DATA	NO DATA	46	81%
C,D,F	1	1%	NO DATA	NO DATA	11	19%

WHATCOM COUNTY

FIGURE: 16 2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	NO DATA	NO DATA	NO DATA	NO DATA	6	86%
B	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
C	NO DATA	NO DATA	NO DATA	NO DATA	1	14%
D	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
F	NO DATA	NO DATA	NO DATA	NO DATA	0	0%
A+B	NO DATA	NO DATA	NO DATA	NO DATA	6	86%
C,D,F	NO DATA	NO DATA	NO DATA	NO DATA	1	14%

FIGURE: 16.1 5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	19	70%	NO DATA	NO DATA	17	63%
B	1	4%	NO DATA	NO DATA	3	11%
C	2	7%	NO DATA	NO DATA	1	4%
D	2	7%	NO DATA	NO DATA	0	0%
F	3	11%	NO DATA	NO DATA	6	22%
A+B	20	74%	NO DATA	NO DATA	20	74%
C,D,F	7	26%	NO DATA	NO DATA	7	26%

JEFFERSON COUNTY

FIGURE: 17 2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	3	50%	NO DATA	NO DATA	5	83%
B	0	0%	NO DATA	NO DATA	0	0%
C	1	17%	NO DATA	NO DATA	1	17%
D	0	0%	NO DATA	NO DATA	0	0%
F	2	33%	NO DATA	NO DATA	0	0%
A+B	3	50%	NO DATA	NO DATA	5	83%
C,D,F	3	50%	NO DATA	NO DATA	1	17%

FIGURE: 17.1 5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	23	92%	NO DATA	NO DATA	16	84%
B	2	8%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	1	5%
D	0	0%	NO DATA	NO DATA	2	11%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	25	100%	NO DATA	NO DATA	16	84%
C,D,F	0	0%	NO DATA	NO DATA	3	16%

KING COUNTY

FIGURE: 16 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	27	90%	NO DATA	NO DATA	29	97%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	1	3%
D	2	7%	NO DATA	NO DATA	0	0%
F	1	3%	NO DATA	NO DATA	0	0%
A+B	27	90%	NO DATA	NO DATA	29	97%
C,D,F	3	10%	NO DATA	NO DATA	1	3%

FIGURE: 16.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	119	95%	NO DATA	NO DATA	73	79%
B	4	3%	NO DATA	NO DATA	5	5%
C	1	1%	NO DATA	NO DATA	4	4%
D	0	0%	NO DATA	NO DATA	7	8%
F	1	1%	NO DATA	NO DATA	3	3%
A+B	123	98%	NO DATA	NO DATA	78	85%
C,D,F	2	2%	NO DATA	NO DATA	14	15%

MASON COUNTY

FIGURE: 16

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	9	100%	NO DATA	NO DATA	6	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	9	100%	NO DATA	NO DATA	6	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 16.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	43	90%	NO DATA	NO DATA	33	85%
B	2	4%	NO DATA	NO DATA	2	5%
C	3	6%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	2	5%
F	0	0%	NO DATA	NO DATA	2	5%
A+B	45	94%	NO DATA	NO DATA	35	90%
C,D,F	3	6%	NO DATA	NO DATA	4	10%

ISLAND COUNTY

FIGURE: 17

2019 -2020

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	5	56%	NO DATA	NO DATA	9	100%
B	1	11%	NO DATA	NO DATA	0	0%
C	3	33%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	6	67%	NO DATA	NO DATA	9	100%
C,D,F	3	33%	NO DATA	NO DATA	0	0%

FIGURE: 17.1

5 YEAR AVERAGE

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	19	58%	NO DATA	NO DATA	22	81%
B	2	6%	NO DATA	NO DATA	0	0%
C	1	3%	NO DATA	NO DATA	1	4%
D	2	6%	NO DATA	NO DATA	1	4%
F	9	27%	NO DATA	NO DATA	3	11%
A+B	21	64%	NO DATA	NO DATA	22	81%
C,D,F	12	36%	NO DATA	NO DATA	5	19%

GRAYS HARBOR COUNTY

FIGURE: 16 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	9	100%	NO DATA	NO DATA	9	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	9	100%	NO DATA	NO DATA	9	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 16.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	45	100%	NO DATA	NO DATA	35	97%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	1	3%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	45	100%	NO DATA	NO DATA	35	97%
C,D,F	0	0%	NO DATA	NO DATA	1	3%

THURSTON COUNTY

FIGURE: 17 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	3	100%	NO DATA	NO DATA	3	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	3	100%	NO DATA	NO DATA	3	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 17.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	14	93%	NO DATA	NO DATA	3	33%
B	0	0%	NO DATA	NO DATA	3	33%
C	1	7%	NO DATA	NO DATA	2	22%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	1	11%
A+B	14	93%	NO DATA	NO DATA	6	67%
C,D,F	1	7%	NO DATA	NO DATA	3	33%

PIERCE COUNTY

FIGURE: 17 **2019 -2020**

2019-2020	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	27	100%	NO DATA	NO DATA	23	100%
B	0	0%	NO DATA	NO DATA	0	0%
C	0	0%	NO DATA	NO DATA	0	0%
D	0	0%	NO DATA	NO DATA	0	0%
F	0	0%	NO DATA	NO DATA	0	0%
A+B	27	100%	NO DATA	NO DATA	23	100%
C,D,F	0	0%	NO DATA	NO DATA	0	0%

FIGURE: 17.1 **5 YEAR AVERAGE**

5 YEAR AVERAGE	Summer Dry		Winter Dry		Wet Weather	
	#	%	#	%	#	%
A	118	95%	NO DATA	NO DATA	78	96%
B	2	2%	NO DATA	NO DATA	1	1%
C	1	1%	NO DATA	NO DATA	1	1%
D	2	2%	NO DATA	NO DATA	0	0%
F	1	1%	NO DATA	NO DATA	1	1%
A+B	120	97%	NO DATA	NO DATA	79	98%
C,D,F	4	3%	NO DATA	NO DATA	2	2%


BEACH NEWS

The COVID-19 pandemic has upended daily life around the world and has devastated families and communities. As local governments begin to loosen stay-at-home orders and people return to the beach, we must continue to follow social distancing procedures and to keep in mind that a large percentage of people can spread the virus without showing symptoms.

The closure of beaches in many locations only highlighted the importance of beaches in our lives as open spaces for recreation, relaxation, exploration, and places to gather with friends and family. COVID-19 has also exposed major systemic failures; open spaces, including beaches, are not equally accessible to all people and the public health impacts of disease as well as poor water and air quality are not shared equally across communities. Low-income communities of color are the most burdened and vulnerable communities in the United States, bearing the brunt of environmental and economic impacts. As we plan for the future post-COVID-19, we can and must protect everyone.

It is also important to note the potential relationship between COVID-19 and beach water quality. COVID-19 has been detected in sewage, indicating that fecal matter from infected individuals can contain the virus[13]. As we have shown in this report, millions of gallons of raw sewage is spilled into the ocean every year. We do not know how long the virus survives in sewage or in the ocean, and we do not know if someone can contract COVID-19 from ocean water. Experts have stated that the transmission risk in ocean water is likely very low because the virus mainly spreads through person-to-person contact. To minimize risk, we recommend checking the Beach Report Card before you head to the beach; swim at least 100 yards away from a storm drain or river/creek outlet; shower with soap when you get home; and stay out of the water for at least three days following a significant rainfall.

THE BEACH REPORT CARD IS COMING TO TIJUANA, MEXICO

Starting Summer 2020 the Beach Report Card will issue grades to three beaches in The City of Tijuana in Baja California, Mexico: El Faro, El Vigia, and Playa Blanca. Tijuana beaches receive millions of visitors every year, but water quality monitoring data for these beaches is difficult for people to access and interpret.

For decades, the Tijuana River has dumped millions of gallons of raw sewage into the ocean just north of Tijuana on the U.S. side of the border[14]. As a result, beaches in Imperial Beach, California are often closed for months on end. Beaches on the Mexico side of the border can be equally impacted by the River. In addition, most of the sewage in the Tijuana River comes from failing or insufficient sewage infrastructure in The City of Tijuana[15]. So if beaches are not directly impacted by the sewage in the Tijuana River, they are likely still impacted by other sewage infrastructure deficiencies.

Heal the Bay is partnering with Proyecto Fronterizo de Educación Ambiental (PFEA), an environmental nonprofit based in Tijuana. PFEA has been working to keep people and the environment safe since 1991. Their focus is on monitoring beach water quality; advocating for pollution reduction and government transparency; assisting restaurants with moving away from single use plastics; and advocating for conservation of protected areas and environmental education.

The U.S. Federal Government approved a $300 million plan to construct a treatment plant that will intercept polluted Tijuana River[16,17] flows, remove pollutants, and send the water back into the River. While this is a step in the right direction, it will not address Tijuana's deficient sewage infrastructure. We urge U.S. and Mexican governments to work together to provide everyone with proper sanitation and ensure that they have safe places to swim regardless of where they live.

CLIMATE ACTION

Thermal expansion of the ocean and melting glaciers is causing sea levels to rise and eat up more land and beaches around the globe. Coastal development exacerbates the issue by acting as a barrier to the natural movement of beaches inland and cutting off natural sources of sand that would have replenished beaches. Depending on our response to sea level rise and our approach to coastal development, Southern California alone is predicted to lose between 31% and 67% of its beaches[18]. What's even more devastating is the fact that we cannot make that figure 0% because there has not been enough done to stem climate change both locally and globally. The hard truth is losing beaches is an inevitability due to humanity's inaction to properly safeguard them. Now more than ever, it is time to take part. Here is what you can do right now to help save beaches, and the planet as we know it[19].

[13] https://www.cdc.gov/coronavirus/2019-ncov/faq.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fphp%2Fwater.html#COVID-19-and-Water
[14] https://www.waterboards.ca.gov/sandiego/water_issues/programs/tijuana_river_valley_strategy/sewage_issue.html
[15] https://wildcoast.org/wp-content/uploads/2019/08/Issue-Briefing-Tijuana-River-Pollution.pdf

FUNDING SHORELINE MONITORING PROGRAMS

The U.S. EPA's Beaches Environmental Assessment and Coastal Health Act (BEACH Act) was passed in 2000 and provides funding for recreational water quality monitoring at Ocean and Great Lakes beaches. Some states, such as Oregon, rely solely on these grants to sustain their monitoring program. Without the BEACH Act funding, many states would abandon their beach monitoring programs, which would be devastating to public health. Millions of people could get sick by unknowingly exposing themselves to poor water quality. The economic cost would also be severe as coastal recreation and tourism generates well over $100 billion annually[20].

Unfortunately, the amount of money congress allocates to the BEACH Act has not increased significantly since it was adopted in 2000. The Federal Government must increase funding for the BEACH Act so coastal states can keep their communities and visitors safe and healthy.

States will also likely need to take local action to maintain a robust recreational water quality program moving forward. California funds statewide beach monitoring programs with BEACH Act resources as well as Senate Bill 482 (SB482), which funds two-thirds of the non-regulatory based shoreline monitoring in the State. SB482 allocation is overseen by the California State Water Resources Control Board (SWRCB). However, the funds provided are not sufficient as there are many beaches that do not get monitored, and many counties do not conduct monitoring year round.

NOWCAST UPDATE

For the sixth straight summer, Heal the Bay is providing daily water quality predictions for California Beaches at the Beach Report Card with NowCast website and app. NowCast predicts concentrations of bacteria in the water on a daily basis, thus providing additional information to the public and filling in the time gaps of traditional bacteria sampling. NowCast consists of computer models that examine correlations between environmental conditions (such as temperature and tide) and historical bacteria concentrations. The models predict how much bacteria are present in the water given the current local conditions and are verified with sampling data. Visit beachreportcard.org to find daily predictions for over 20 beaches in California. The Beach Report Card with NowCast app is available for free on iOS and Android devices.

RIVER REPORT CARD

Heal the Bay launched the Annual River Report Card in 2019, and will release the 2020 report in July. The River Report Card uses color-grades of Red, Yellow, or Green for 28 freshwater recreation sites in Los Angeles County. Grades are based on levels of bacteria found in the water.

The River Report Card is the most comprehensive water quality report to date on bacterial pollution in popular freshwater recreation areas within the Los Angeles River Watershed, the Malibu Creek

16 https://www.congress.gov/bill/116th-congress/house-bill/5430/text
17 http://www.sdparks.org/content/dam/sdparks/en/pdf/Resource-Management/NOA%20Final%20Report.pdf
18 https://www.usgs.gov/news/disappearing-beaches-modeling-shoreline-change-southern-california
19 https://healthebay.org/climate-action/
20 https://coast.noaa.gov/data/digitalcoast/pdf/econ-report.pdf

Watershed, and the San Gabriel River Watershed. These valued public places are often used for swimming, wading, fishing, kayaking, and other activities, especially during summer months when people seek relief from hot SoCal days.

Before heading to a freshwater recreation area in Los Angeles County check out our River Report Card at healthebay.org/riverreportcard, which is updated regularly during the summer months.

The COVID-19 pandemic has impacted recreation and monitoring at many freshwater sites. Kayaking will not be allowed in the Los Angeles River Recreation Zones this season, and swimming is not currently allowed in Malibu Creek State Park. Heal the Bay will continue our monitoring efforts despite this because there is still the potential for people to come into contact with the water.

APPENDICES 2019-2020

SECTION V: APPENDICES

LAST 10 YEARS BEACH BUMMERS: 2008-2019

2008-2009	2009-2010	2010-2011	2011-2012
Avalon Catalina Island LOS ANGELES COUNTY	Avalon Catalina Island LOS ANGELES COUNTY	Avalon Catalina Island LOS ANGELES COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY
Cabrillo Beach Harborside LOS ANGELES COUNTY	Cowell Beach SANTA CRUZ COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Avalon Catalina Island LOS ANGELES COUNTY
Pismo Beach Pier 40 feet south of the pier SLO COUNTY	Cabrillo Beach Harborside LOS ANGELES COUNTY	Cabrillo Beach Harborside LOS ANGELES COUNTY	Cabrillo Beach Harborside LOS ANGELES COUNTY
Colorado Lagoon I LOS ANGELES COUNTY	Poche Beach ORANGE COUNTY	Poche Beach ORANGE COUNTY	Topanga State Beach LOS ANGELES COUNTY
Santa Monica Pier LOS ANGELES COUNTY	Santa Monica Pier LOS ANGELES COUNTY	Santa Monica Pier LOS ANGELES COUNTY	Poche Beach ORANGE COUNTY
L.A. River Outlet LOS ANGELES COUNTY	Colorado Lagoon LOS ANGELES COUNTY	Colorado Lagoon LOS ANGELES COUNTY	Doheny State Beach at San Juan Creek ORANGE COUNTY
Poche Beach ORANGE COUNTY	Baker Beach at Lobos Creek SAN FRANCISCO COUNTY	Baker Beach at Lobos Creek SAN FRANCISCO COUNTY	Arroyo Burro SANTA BARBARA COUNTY
Surfrider Beach at Malibu Creek LOS ANGELES COUNTY	Capitola Beach west of jetty SANTA CRUZ COUNTY	Capitolia Beach west of jetty SANTA CRUZ COUNTY	Baker Beach at Lobos Creek SAN FRANCISCO COUNTY
Campbell Cove State Park Beach I SONOMA COUNTY	Mission Bay Vacation Isle North SAN DIEGO COUNTY	Mission Bay, Visitor's Center (proj. of Clairemont Dr.) SAN DIEGO COUNTY	Colorado Lagoon LOS ANGELES COUNTY
Doheny State Beach at San Juan Creek ORANGE COUNTY	Santa Ynez, at Sunset Blvd. LOS ANGELES COUNTY	Will Rogers State Beach LOS ANGELES COUNTY	Capitola Beach west of jetty SANTA CRUZ COUNTY

2012-2013	2013-2014	2014-2015	2015-2016
Avalon Catalina Island LOS ANGELES COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY
Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Marina Lagoon, Aquatic Park & Lakeshore Park SAN MATEO COUNTY	Marina del Rey, Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3) LOS ANGELES COUNTY	Clam Beach at Strawberry Creek HUMBOLDT COUNTY
Poche Beach ORANGE COUNTY	Marina del Rey Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3) LOS ANGELES COUNTY	Clam Beach at Strawberry Creek HUMBOLDT COUNTY	San Diego Bay Shelter Island, Shoreline Beach Park SAN DIEGO COUNTY
Cabrillo Beach Harborside LOS ANGELES COUNTY	Cabrillo Beach Harborside I LOS ANGELES COUNTY	Aquatic Park SAN MATEO COUNTY	Monarch Beach, at Salt Creek ORANGE COUNTY
Malibu Pier LOS ANGELES COUNTY	Stillwater Cove MONTEREY COUNTY	Mission Bay, Visitor's Center (proj. of Clairemont Dr.)	Santa Monica Pier LOS ANGELES COUNTY
Marina Lagoon, Aquatic Park & Lakeshore Park	Clam Beach at Strawberry Creek HUMBOLDT COUNTY	Santa Monica Pier LOS ANGELES COUNTY	Marina del Rey Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3)
Doheny State Beach at San Juan Creek ORANGE COUNTY	Santa Monica Pier LOS ANGELES COUNTY	Candlestick Point, Sunnydale Cove SAN FRANCISCO COUNTY	Redondo Municipal Pier, 100 yards south LOS ANGELES COUNTY
Redondo Beach Pier LOS ANGELES COUNTY	Pillar Point Harbor, at Westpoint Ave. LOS ANGELES COUNTY	Stillwater Cove, at Beach and Tennis Club MONTEREY COUNTY	Candlestick Point Sunnydale Cove SAN FRANCISCO COUNTY
Windsurfer Circle SAN FRANCISCO COUNTY	Capitola Beach west of jetty I SANTA CRUZ COUNTY	Cabrillo Beach Harborside LOS ANGELES COUNTY	Pillar Point Harbor end of Westpoint Ave. SAN MATEO COUNTY
Tijuana River Mouth SAN DIEGO COUNTY	Windsurfer Circle SAN FRANCISCO COUNTY	Huntington State Beach, projection of Brookhurst Street ORANGE COUNTY	Pismo Beach Pier 40 feet south of the pier SLO COUNTY

2016-2017	2017-2018	2017-2018
Clam Beach at Strawberry Creek HUMBOLDT COUNTY	Poche Beach, at creek outlet ORANGE COUNTY	San Clemente Pier ORANGE COUNTY
San Clemente Pier ORANGE COUNTY	Lakeshore Park - behind Rec Center SAN MATEO COUNTY	Clam Beach at Strawberry Creek HUMBOLDT COUNTY
Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Linda Mar Beach at San Pedro Creek SAN MATEO COUNTY	Linda Mar Beach at San Pedro Creek MATEO COUNTY
Newport Bay Abalone Avenue Beach ORANGE COUNTY	Clam Beach at Strawberry Creek HUMBOLDT COUNTY	Long Beach City Beach, projection of Coronado Ave. LOS ANGELESCOUNTY
Lakeshore Park - behind Rec Center SAN MATEO COUNTY	Roosevelt Beach, south end of parking lot SAN MATEO COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY
La Jolla Cove SAN DIEGO COUNTY	Luffenholtz Beach near Luffenholtz Creek HUMBOLDT COUNTY	Monarch Beach, at Salt Creek ORANGE COUNTY
Santa Monica Pier LOS ANGELES COUNTY	Santa Monica Pier LOS ANGELES COUNTY	Marina del Rey, Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3) LOS ANGELES COUNTY
Capitola Beach west of jetty SANTA CRUZ COUNTY	Cowell Beach, west of the wharf SANTA CRUZ COUNTY	Cabrillo Beaczh Harborside LOS ANGELES COUNTY
Luffenholtz Beach near Luffenholtz Creek HUMBOLDT COUNTY	Cabrillo Beach Harborside LOS ANGELES COUNTY	Keller Beach South Beach CONTRA COSTA COUNTY
Marina del Rey Mothers' Beach-btwn. Tower and Boat dock (aka MdRH-3) LOS ANGELES COUNTY	Surfer's Beach, southend of riprap SAN MATEO COUNTY	Aquatic Park SAN MATEO COUNTY

		Summer Dry Grade	Winter Dry Grade	Wet Weather Grade
ALAMEDA COUNTY				
	Crown Beach, at 2001 Shoreline Dr.	A	A	B
	Crown Beach, at Bath House	A	A	B
	Crown Beach, at Bird Sanctuary	A	A	A
	Crown Beach, at Sunset Rd.	A	A	A
	Crown Beach, at Windsurfer Corner	A	A	A
	Crown Beach, Crab Cove	C	C	F
CONTRA COSTA COUNTY				
	Keller Beach, North Beach	B	B	A
	Keller Beach, South Beach	B	B	B
DEL NORTE COUNTY				
	Crescent City, at Battery Point Lighthouse	A+	A+	A+
HUMBOLDT COUNTY				
	Clam Beach County Park, at Strawberry Creek	D		B
	Luffenholtz Beach, at Luffenholtz Creek	C		D
	Mad River Mouth (north)	B		A
	Moonstone County Park (Little River State Beach)	A+		B
	Trinidad State Beach, at Mill Creek	A		B
LOS ANGELES COUNTY				
	Escondido State Beach, at Escondido Creek	C	B	B
	Alamitos Bay, at 2nd St. Bridge and Bayshore	B	C	F
	Alamitos Bay, at 56th Place on bayside	A+	A	F
	Alamitos Bay, at shore float	A+	A	F
	Avalon Beach, 100 feet west of the Green Pleasure Pier	A		A+
	Avalon Beach, 50 feet east of the Green Pleasure Pier	A		A+
	Avalon Beach, 50 feet west of the Green Pleasure Pier	A		A+
	Avalon Beach, east of the Casino Arch at the steps	A+		F
	Back of main channel (at depth)	A+	A+	F
	Back of main channel (from surface)	A+	A+	F
	Basin D, near first slip outside swim area (at depth)	A	A	D
	Basin D, near first slip outside swim area (from surface)	A	A	F
	Basin E, center of basin (at depth)	A	A	F
	Basin E, center of basin (from surface)	A	A	F
	Basin E, in front of Boone-Olive Pump Outlet	A	A	F
	Basin E, in front of tide gate from Oxford Basin	A	A	F
	Basin F, center of basin (at depth)	A+	A+	F
	Basin F, center of basin (from surface)	A+	A	F
	Belmont Pier, west side	A	A	F
	Big Rock Beach, at stairs	A	A	A+
	Broad Beach, at Trancas Creek	A	A	A+
	Cabrillo Beach, harborside at boat launch	B	A	F
	Cabrillo Beach, harborside at restrooms	F	F	F
	Cabrillo Beach, ocean side	A	A	A+
	Carbon Beach, at Sweetwater Canyon	A+	A	B
	Castle Rock Beach, at storm drain	A	A	A+
	Colorado Lagoon, north	A	B	F
	Colorado Lagoon, south	A	B	F

	Dan Blocker County Beach, at Solstice Canyon	C	B	D
	Dockweiler State Beach, at Ballona Creek mouth	A	A	F
	Dockweiler State Beach, at Culver Blvd.	A+	A+	B
	Dockweiler State Beach, at Grand Ave.	A+	A+	F
	Dockweiler State Beach, at Imperial Highway storm drain	A+	A+	F
	Dockweiler State Beach, at North Weschester storm drain	A	A	B
	Dockweiler State Beach, at World Way	A+	A+	F
	Hermosa Beach Pier, 50 yards south of pier	A	A	B
	Hermosa City Beach, at 26th Street	A+	A+	B
	Herondo Street (Redondo Breakwater)	A	A	F
	Hyperion Treatment Plant, at One Mile Outfall	A+	A+	A
	Las Flores State Beach, at Las Flores Creek	A	A	A
	Las Tunas County Beach, at Pena Creek	A	A	A+
	Latigo Canyon Creek mouth	A	A	F
	Leo Carrillo Beach, at Arroyo Sequit Creek	C	B	C
	Long Beach City Beach, at 10th Place	A	A	F
	Long Beach City Beach, at 55th Place	A	A	D
	Long Beach City Beach, at 5th Place	B	B	F
	Long Beach City Beach, at 72nd Place	A	A	D
	Long Beach City Beach, at Coronado Ave.	B	B	F
	Long Beach City Beach, at Granada Av.	D	D	F
	Long Beach City Beach, at Molino Av.	A	A	F
	Long Beach City Beach, at Prospect Ave.	C	B	F
	Long Beach Mothers' Beach, north end	A	B	F
	Malibu Pier, 50 yards east of pier	A+	A	D
	Malibu Point	A	A	A+
	Manhattan Beach Pier	A+	A+	B
	Manhattan Beach, at 28th Street	A	A	F
	Manhattan State Beach, at 40th Street	A+	A+	C
	Marie Canyon storm drain, at Puerco Beach	B	A	B
	Marina del Rey Mothers' Beach, at lifeguard tower	A	B	F
	Marina del Rey Mothers' Beach, at playground	A	A	F
	Marina del Rey Mothers' Beach, between Lifeguard Tower and Boat dock	C	F	F
	Will Rogers State Beach, 1/4 mile east of Sunset Blvd. drain			A+
	Avalon Beach, 100 feet east of the Green Pleasure Pier			A+
	San Pedro, Wilder Annex			A+
	Ballona Creek, 50 yards south of creek mouth			A+
	Imperial Highway storm drain, 50 yards north			A+
	Pulga Canyon, 50 yards east of storm drain			A+
	Will Rogers State Beach, Santa Monica Canyon			B
	Santa Monica Pier, 50 yards south of pier			A+
	Santa Monica Beach, at Pico-Kenter storm drain			A+
	Ashland Ave., 50 yards south of storm drain			A+
	Venice City Beach, at Windward Ave.			A+
	Tuna Canyon		A+	A+
	El Matador State Beach, at Encinal Canyon		A+	A+
	Unnamed Creek Mouth, at 24822 Malibu Rd.			A+
	Nicholas Beach, at San Nicholas Canyon Creek	A	A	A+

	Ocean Park Beach, at Ashland Ave. storm drain	A+	A	F
	Palos Verdes Estates, at Malaga Cove rocks	A+	A+	D
	Palos Verdes Estates, at Malaga Cove trail outlet	A+	A+	A
	Palos Verdes Estates, at Palos Verdes Cove	A+	A+	A+
	Paradise Cove Pier, at Ramirez Canyon Creek	D	D	A
	Puerco State Beach, at creek mouth	B	B	F
	Rancho Palos Verdes, Abalone Cove Shoreline Park	A+	A+	B
	Rancho Palos Verdes, Long Point	A+	A+	A+
	Rancho Palos Verdes, Portuguese Bend Cove	A+	A	A+
	Redondo Beach Pier, 100 yards south of pier	A	A	C
	Redondo State Beach, at Sapphire Street	A	A	C
	Redondo State Beach, at Topaz Street	A+	A+	A+
	Royal Palms State Beach	A	A	A+
	Santa Monica Beach, at Montana Ave.	A	A	F
	Santa Monica Beach, at Pico-Kenter storm drain	A	A	F
	Santa Monica Beach, at Strand St.	A+	A	F
	Santa Monica Beach, at Wilshire Blvd.	A	A	F
	Santa Monica Pier	B	D	F
	Surfrider Beach, at lagoon breach	B	B	D
	Topanga Beach, at creek mouth	F	D	F
	Torrance Beach, at Avenue I storm drain	A	A	A
	Unnamed Creek Mouth, at Zumirez Dr.	B		D
	Venice Beach, 50 yards south of Fishing Pier	A+	A+	F
	Venice Beach, at Rose Ave.	A	A	F
	Venice Beach, at Topsail St.	A+	A	F
	Venice Beach, at Windward Ave.	B	A	F
	Venice City Beach, at Brooks Ave. drain	A+	A	F
	Walnut Creek Outlet, at Wildlife Road	A	A	A+
	Will Rogers State Beach, at Pulga Canyon storm drain	A+	A	F
	Will Rogers State Beach, at Santa Monica Canyon	A	A	F
	Will Rogers State Beach, at Temescal Canyon	A+	A	B
	Will Rogers State Beach, Bel Air Bay Club	A	A	C
	Zuma Beach, at Zuma Creek	A	A	A+
MARIN COUNTY				
	Baker Beach, Horseshoe Cove NE	A+		A+
	Baker Beach, Horseshoe Cove NW	A+		A+
	Baker Beach, Horseshoe Cove SW	A+		A+
	Bolinas Beach, at Wharf Rd.	A		A+
	Chicken Ranch Beach, at Creek mouth	A		D
	China Camp	A		B
	Dillon Beach	A+		A+
	Heart's Desire	A		A+
	Lawson's Landing	A		A+
	McNears Beach	B		A+
	Miller Park	A+		A+
	Millerton Point	A		B
	Muir Beach, Central	A		A+
	Muir Beach, North	A+		C

	Muir Beach, South	A+		C
	Paradise Cove	A		A+
	Rodeo Beach, Central	A+		A+
	Rodeo Beach, North	A+		A+
	Rodeo Beach, South	A+		A+
	Schoonmaker Beach	A		A+
	Shell Beach	A		A+
	Stinson Beach, Central	A		F
	Stinson Beach, North	A		F
	Stinson Beach, South	A+		C
MENDOCINO COUNTY				
	Big River at PCH	A+		A+
	Caspar Beach, at Caspar Creek	A		A
	Hare Creek	A		A
	MacKerricher State Park, at Virgin Creek	A		A+
	Pudding Creek Outlet	B		B
	Van Damme State Park, at Little River	A+		A+
MONTEREY COUNTY				
	Asilomar State Beach, at Arena Av.	A+	A+	A+
	Carmel City Beach, at Ocean Ave.	A+	A	A+
	Lover's Point Park, at 16th Street	B	B	F
	Monterey Municipal Beach, at wharf	A	A	A+
	Monterey State Beach	A+	A+	A+
	San Carlos Beach, at San Carlos Beach Park	A	A	A+
	Spanish Bay (Moss Beach), at 17 mile drive	A+	A+	A+
	Stillwater Cove, at Beach and Tennis Club	A	A	A
ORANGE COUNTY				
	1000 Steps Beach, at 9th St.	A+	A+	A
	2000 feet south of SERRA Outfall	A	A	F
	Aliso Creek Ocean Interface	A	A	F
	South Aliso County Beach	A+	A+	A+
	Aliso Beach Park	A	A	C
	Balboa Beach Pier	A	A	A
	Balboa Beach, at 15th/16th Street	A+	A	A
	Balboa Beach, The Wedge	A	A	A+
	Between Pearl & Agate Streets	A	A	A+
	Bolsa Chica Reserve, at Flood Gates	A+	A+	A+
	Bolsa Chica Reserve, at south end of beach	A	A	A
	Camel Point	A+	A+	A
	Capistrano County Beach	A+		A+
	Cleo Street	A+	A	A+
	Corona Del Mar (CSDOC)	A+	A	D
	Crescent Bay Beach	A	A	A+
	Crystal Cove	A+	A+	D
	Crystal Cove (CSDOC)	A	A	B
	Dana Point Harbor Baby Beach, Buoy Line	A	A	A+
	Dana Point Harbor Baby Beach, East End	A	A	A+
	Dana Point Harbor Baby Beach, Swim Area	B	A	A+

	Dana Point Harbor Baby Beach, West End	A	A	A+
	Dana Point Harbor Guest Dock	A	A	A+
	Dana Point Harbor Youth Dock	A+	A+	A+
	Dana Point, at Camino Estrella	A+	A+	A+
	Dana Point, Capistrano County Beach	A+	A	A+
	Dana Point, South Capistrano Bay Community Beach	A	A	A+
	Dana Strands Beach (AWMA)	A+	A+	A+
	Diver's Cove	A	A	A+
	Doheny Beach	A	A	F
	Doheny State Beach, at Last Campground	B	B	F
	Doheny State Beach, at San Juan Creek	C	B	F
	Doheny State Beach, End of the Park	A	A	F
	Doheny State Beach, Mid Beach north of San Juan Creek	A	A	F
	Doheny State Beach, North Beach	C	D	F
	Doheny State Beach, Pedestrian Bridge	A	A	F
	El Moro Beach	A+	A	A+
	Emerald Bay Beach	A	A	A+
	Huntington City Beach, at 17th Street	A+	A	C
	Huntington City Beach, at Beach Blvd.	A+	A+	A
	Huntington City Beach, at Bluffs	A+	A	A
	Huntington City Beach, at Huntington St.	A+	A+	A
	Huntington Harbor, 11th Street Beach	A	A	F
	Huntington Harbor, Coral Cay Beach	A	A	F
	Huntington Harbor, Davenport Beach	A	A	F
	Huntington Harbor, Humboldt Beach	A+	A+	F
	Huntington Harbor, Mothers Beach-Orange County	A+	A	F
	Huntington Harbor, Seagate Lagoon	A	A	B
	Huntington Harbor, Trinidad Lane Beach	A+	A+	F
	Huntington State Beach, at Brookhurst Street	A	A	F
	Huntington State Beach, at Magnolia Street	A	A	F
	Huntington State Beach, at Newland St. (SCE Plant)	A	A	C
	Laguna Beach, at Goff Island Beach	A+	A+	A+
	Laguna Hotel	A	A	A+
	Laguna Lido	A+	A+	A+
	Laguna Main Beach	B	B	B
	Linda Lane Beach	A	A	A+
	Little Corona Beach	A	A	B
	Marine Science Institute Beach (SERRA)	A+	A+	A+
	Mariposa Beach	A+	A+	A+
	Monarch Beach, 150 feet north of Salt Creek Outlet	A	A	A+
	Monarch Beach, at Salt Creek Outlet	D	C	A+
	Muddy Creek Beach	A+	A+	A+
	Newport Bay, 38th Street Beach		A	A
	Newport Bay, Grand Canal		A	F
	Capistano Bay Community Beach			B
	Blue Lagoon		A+	A+
	Newport Bay, 10th Street Beach	A	A	A+
	Newport Bay, 15th Street Beach	A	A	C

	Newport Bay, 19th Street Beach	A+	A	A
	Newport Bay, 43rd Street Beach	A	A	D
	Newport Bay, Abalone Avenue Beach	B	A	F
	Newport Bay, Alvarado/ Bay Isle Beach	A+	A	A+
	Newport Bay, Bayshore Beach	A	A	F
	Newport Bay, Garnet Avenue Beach	A+	A	F
	Newport Bay, Harbor Patrol Beach at Bayside Drive	A	A	F
	Newport Bay, Lido Yacht Club Beach	A	A+	A+
	Newport Bay, N Street Beach	A	A	A+
	Newport Bay, Newport Dunes-East	A	A	F
	Newport Bay, Newport Dunes-Middle	A	A	F
	Newport Bay, Newport Dunes-North	A	B	F
	Newport Bay, Newport Dunes-West	A	A	F
	Newport Bay, Onyx Avenue Beach	A+	A	F
	Newport Bay, Park Avenue Beach	A	A	F
	Newport Bay, Rocky Point Beach	A	A	A+
	Newport Bay, Ruby Avenue Beach	A+	A	F
	Newport Bay, Sapphire Avenue Beach	A+	A	F
	Newport Bay, Via Genoa Beach	A+	A+	A+
	Newport Beach, at 38th Street	A+	A	A+
	Newport Beach, at 52nd/53rd Street	A+	A+	A+
	Newport Beach, at Orange Street	A+	A	A+
	North Aliso County Beach	A	A	B
	Pelican Point Beach	A	A	A+
	Pico drain at North Beach	A	B	B
	Poche Beach	A	A	A+
	Poche Creek Outlet	F	F	A+
	Projection of Bluebird Canyon	A	A	A+
	Riviera Beach	A+	A+	A+
	Salt Creek Beach	A+	A+	A
	San Clemente Pier	F	F	A+
	San Clemente Pier, Lifeguard Building north	A	A	A+
	San Clemente Trafalgar Canyon	A	A	A+
	San Clemente, at Avenida Calafia	A+	A+	A+
	San Clemente, at Avenida Las Palmeras	A+	A+	A+
	San Clemente, at El Portal stomr drain	A+	A+	A+
	San Clemente, North beach at Avenida Pico	A	A	A+
	San Clemente, South Linda Lane storm drain	A+	A	
	San Juan Creek	D	F	F
	Santa Ana River mouth	A+	A	F
	Santa Ana River Mouth	A	A	F
	Seal Beach Pier, 100 yards south of pier	A	A	D
	Seal Beach, at 14th Street	A	A	D
	Seal Beach, at 1st Street	A	A	F
	Seal Beach, at 8th Street	A	A	F
	Sunset Beach, at Broadway	A	A	A
	Surfside Beach, at Sea Way	A+	A+	A+
	Table Rock	A+	A+	A+

	Three Arch Bay	A	A	A
	Treasure Island Beach	A+	A+	A+
	Victoria Beach	A+	A+	A+
	West Street	A+	A+	A
SAN DIEGO COUNTY				
	Border Field State Park, at Monument Rd.	A	F	F
	Border Field State Park, north side of Border Fence	A	F	F
	Cardiff State Beach, at Charthouse parking	A+	A+	A+
	Cardiff State Beach, Las Olas (100 yds. south of Charthouse)	A+	A+	A+
	Cardiff State Beach, Seaside State Park	A	A	A+
	Carlsbad, at Cerezo Drive	A+	A+	A+
	Carlsbad, at Encina Creek	A+	A+	A+
	Carlsbad, at Palomar Airport Rd.	A+	A+	A+
	Carlsbad, at Poinsettia Lane	A+	A+	A+
	Carlsbad, at Ponto Drive	A+	A+	A+
	Coronado, at Ave del Sol	A	A	A
	Coronado, Silver Strand	A+	A	D
	Del Mar, San Dieguito River Beach	A	A	A+
	Encinitas, Moonlight Beach, Cottonwood Creek	B	A	A+
	Encinitas, San Elijo State Park at Liverpool Dr.	A+	A	A+
	Encinitas, San Elijo State Park at north end near stairs	A+	A+	A+
	Imperial Beach Pier	B	A	C
	Imperial Beach, at Carnation Ave.	B	A	F
	Imperial Beach, at Cortez Ave.	B	B	C
	Imperial Beach, at Seacoast Dr.	B	C	F
	La Jolla Shores, at Ave De La Playa	A	A	A
	La Jolla, Children's Pool site 2	A	B	A+
	La Jolla, La Jolla Cove	C	C	F
	Mission Bay, Bahia Point-northside at Gleason Rd.	A	B	A+
	Mission Bay, Bonita Cove north cove	A		A+
	Mission Bay, Campland west of Rose Creek	A	B	B
	Mission Bay, Comfort Station north of Leisure Lagoon	C	C	B
	Mission Bay, Crown Point Shores	A		A+
	Mission Bay, DeAnza Cove, mid-cove	B	A	A
	Mission Bay, Fanuel Park at Fanuel St.	A	B	A
	Mission Bay, Fiesta Island north west shore	C		A
	Mission Bay, Mariners Basin at Balboa Ct.	A+		A+
	Mission Bay, San Juan Cove west of boat launch	A		A+
	Mission Bay, Santa Clara Cove at Portsmouth Ct.	A	A	A
	Mission Bay, Tecolote Shores (swim area)	A		A+
	Mission Bay, Vacation Isle North Cove Beach	F	D	C
	Mission Bay, Vacation Isle Ski Beach	A+		A+
	Mission Bay, Ventura Cove	A		A
	Coronado, at Loma Ave.			A
	Coronado, at North Beach near Ocean Blvd.			A+
	San Diego Bay, Tidelands Park at Mullinix Dr.		B	A
	San Diego Bay, Glorietta Bay Park at boat launch		A	A
	San Diego Bay, Silver Strand			A+

	San Diego Bay, Bayside Park at J Street		C	A
	San Diego Bay, Shelter Island (Shoreline Beach Park)		A	A
	Pacific Beach, at Grand Ave.		A+	A+
	La Jolla, at Palomar Av.		A	A
	Windansea Beach, at Playa Del Norte		A	A+
	La Jolla, at Vista De La Playa		A+	A+
	La Jolla Ravina, south of Nicholson Pt.		A+	A+
	La Jolla, South Casa Beach		A	A+
	La Jolla, at Vallecitos		A	A
	La Jolla Shores, El Paseo Grande (near Scripps)		A+	A+
	Encinitas, San Elijo State Park, at Pipes surf break		A	A+
	Carlsbad, at Batiquitos Lagoon outlet			A+
	Carlsbad, at Tamarack Av.		A+	A+
	Carlsbad, at Carlsbad Village Drive			A+
	La Jolla, Windansea Beach at Bonair St.		A	A+
	Torrey Pines, Los Penasquitos Lagoon outlet		A	F
	Tijuana Slough NWRS, 3/4 miles north of Tijuana River		B	F
	Oceanside, at Surfrider Way			A+
	Oceanside, Harbor Beach at Harbor Drive			A+
	Point Loma, Lighthouse		A	A
	Point Loma, Point Loma Treatment Plant		A+	A
	Sunset Cliffs, at Ladera Street		A	D
	Ocean Beach, at Bermuda Ave.		A	B
	Ocean Beach, Ocean Pier at Narragansett Ave.		A	A
	Ocean Beach Pier, northside at Newport Ave.		A	A
	Ocean Beach, Stub Jetty		A	A
	Mission Beach, Belmont Park		A+	A+
	Cardiff State Beach, San Elijo Lagoon outlet		A	A+
	Ocean Beach, at San Diego River	A	A	A
	Oceanside, 500 feet North of Loma Alta Creek	A+	A+	D
	Oceanside, at Cassidy Street	A	A	A+
	Oceanside, at Forster Street	A	A	B
	Oceanside, at San Luis Rey River outlet	C	B	A
	Oceanside, at Tyson Street	A+	A+	B
	Oceanside, Buccaneer Beach at Loma Alta Creek	A	B	F
	Oceanside, St. Malo Beach downcoast from St. Malo Road	A+	A+	A+
	Pacific Beach, Tourmaline Surf Park at Tourmaline St.	A	A	A+
	Solana Beach, Fletcher Cove at Lomas Santa Fe Dr.	A	A	A+
	Solana Beach, Tide Beach Park at Solana Vista Dr.	A+	A+	A+
	Tijuana Slough NWRS, Tijuana River mouth	A	F	F
SAN MATEO COUNTY				
	Bean Hollow State Beach	A+	A+	A+
	Coyote Point	A	A	B
	Dunes Beach	C	C	C
	Fitzgerald Marine Reserve, at San Vicente Creek	F	F	F
	Foster City, Erckenbrack Park	F	F	F
	Foster City, Marlin Park	F	F	F
	Francis Beach, at stairs	C	C	A

	Gazos Beach, at Gazos Creek	A	A	A+
	Linda Mar Beach, at San Pedro Creek	F	F	F
	Sharp Park Beach, at San Jose Av.		A+	A+
	Venice Beach, at Frenchman's Creek		D	D
	San Gregorio State Beach, at San Gregorio Creek		A+	A+
	Sharp Park Beach, at Birch Ln.		A+	A+
	Oyster Point		A	B
	Aquatic Park		C	F
	Lakeshore Park, behind Rec Center		F	F
	Kiteboard Beach		B	B
	Pescadero State Beach, at Pescadero Creek	A	A	A+
	Pillar Point Harbor Beach, #9	F	F	F
	Pillar Point Harbor, at Westpoint Ave. (# 7)	F	F	C
	Pillar Point Harbor, Capistrano Ave. Beach (# 5)	F	F	F
	Pillar Point, Mavericks Beach at Westpoint Ave. (#8)	D	C	A
	Pomponio State Beach, at Pomponio Creek	A	A	A
	Rockaway Beach, at Calera Creek	A+	A	A+
	Roosevelt Beach, south end of parking lot	B	C	A
	Surfer's Beach, south end of riprap	B	B	A
SANTA BARBARA COUNTY				
	Arroyo Burro Beach	A	A	F
	Butterfly Beach	A	A	D
	Carpinteria State Beach	C	B	F
	East Beach, at Mission Creek	A	B	F
	East Beach, at Sycamore Creek	A	A	F
	El Capitan State Beach	A	A	A
	Gaviota State Beach	A	A	A+
	Goleta Beach	A	A	F
	Guadalupe Dunes	A+	A+	A+
	Hammond's Beach	B	B	F
	Hope Ranch Beach	A	A	F
	Jalama Beach	B	B	A
	Leadbetter Beach	A	A	C
	Refugio State Beach	A	A	B
	Sands, at Coal Oil Point	A+	A+	B
	Summerland Beach	A	A	F
SANTA CRUZ COUNTY				
	Capitola Beach, east of jetty	A	A	B
	Capitola Beach, west of jetty	B	C	C
	Cowell Beach, at Lifeguard Tower 1	A	A	A
	Cowell Beach, at the Stairs	A+	A+	F
	Cowell Beach, west of the wharf	D	D	C
	Mitchell's Cove Beach	A	A	A+
	Sunny Cove Beach			A+
	Lighthouse Beach, at Steamer Lane			A+
	Natural Bridges State Beach	A	A	A
	New Brighton Beach	A	A	B
	Rio Del Mar Beach	A	A	F

	Santa Cruz Main Beach, at the Boardwalk	B	B	B
	Santa Cruz Main Beach, at the San Lorenzo River	A	A	A
	Seabright Beach	A+	A	A
	Seacliff State Beach	A	A	F
	Twin Lakes Beach	A	A	A
SAN FRANCISCO COUNTY				
	Aquatic Park Beach, 211 Station	A	A	B
	Aquatic Park Beach, Hyde St. Pier at Larkin St.	A	A	B
	Baker Beach East, Ocean #15 East	A	A	A
	Baker Beach West, Ocean #16	A+	A+	A
	Baker Beach, Lobos Creek	A	A	B
	Candlestick Point, Jackrabbit Beach	B	B	B
	Candlestick Point, Sunnydale Cove	B	B	C
	Candlestick Point, Windsurfer Circle	B	C	B
	China Beach, at Sea Cliff Ave.	A+	A	B
	Crissy Field Beach East, 202.4 Station	A	B	B
	Crissy Field Beach West, 202.5 station	A	A	A
	Islais Landing at Islais Creek	A	A	F
	Mission Creek Park, at Mission Creek	A	A	F
	Ocean Beach, at Pacheco St.			F
	Ocean Beach, at Vicente St.			F
	Fort Funston, near Lake Merced overflow structure			F
	Ocean Beach, at Balboa Ave.	A+	A+	B
	Ocean Beach, at Lincoln Way	A	A	D
	Ocean Beach, at Sloat Blvd.	A+	A	B
SAN LUIS OBISPO COUNTY				
	Avila Beach 350 yards west of pier, at Creek	B	B	F
	Avila Beach, at San Luis Street	A+	A	A+
	Cayucos Beach, North of pier at storm drain	A	A	A+
	Cayucos State Beach, downcoast of the pier	A+	A	B
	Hearst Memorial State Beach, 100 yards west of the pier at creek outfall	A	A	B
	Morro Bay City Beach, 75 feet north of main parking lot	A+	A+	A+
	Morro Bay City Beach, at Atascadero	A	A	A+
	Morro Bay City Beach, at Morro Creek	A	A	A+
	Morro Strand State Beach, at Beachcomber Drive	A+	A	A
	Olde Port Beach (Harford Beach), North	A	A	B
	Pismo Beach, 40 feet south of the pier	A	A	A
	Pismo Beach, at Ocean View	A+	A	A+
	Pismo Beach, at Wadsworth Street	A	A	A+
	Pismo State Beach, 330 yards north of Pier Ave.	A+	A	A+
	Pismo State Beach, 571 yards south of Pier Ave.	A	A	A+
	Pismo State Beach, at Pier Ave.	A+	A	A
	San Simeon State Beach, at Pico Ave.	A+	A+	A+
	Sewers at Silver Shoals Dr.	A+	A	A
	Studio Drive parking lot near Old Creek	A	A	A
SONOMA COUNTY				
	Black Point Beach	A+		A+
	Campbell Cove State Park Beach	A		A+

	Doran Regional Park Beach	A		A+
	Goat Rock State Park Beach	A+		A+
	Gualala Regional Park Beach	A+		A+
	Salmon Creek State Park Beach	A		A+
	Stillwater Cove Regional Park Beach	A+		A+
VENTURA COUNTY				
	C. I. Harbor, Beach Park at South end of Victoria Ave.	A	A	F
	C.I. Harbor, at Hobie Beach Lakshore Dr.	A	A	F
	County Line Beach	A+		A+
	Emma Wood State Beach, 50 yards South of first drain	A+	A	A
	Faria County Park, at stairs	A+	A	F
	Hobson County Park, at stairs	A+		A+
	Hollywood Beach, at La Crescenta St.	A+		A+
	Hollywood Beach, at Los Robles St.	A+	A+	A
	La Conchita Beach, at Ocean View Rd.	A		A+
	Mandos Cove storm drain	A+		A+
	Marina Park, north end of playground	A+		A+
	Rincon Beach, 25 yards south of the creek mouth		A	F
	Oil Piers Beach, south of storm drain	A+	A	A+
	Ormond Beach, 50 yards north of Oxnard Industrial drain	A	A	A+
	Ormond Beach, at Arnold Rd.	A+	A+	C
	Ormond Beach, at J Street	A+	A	F
	Oxnard Beach Park, at Falkirk Ave.	A+		A+
	Oxnard Beach Park, at Starfish Dr.	A+		A+
	Oxnard Beach, at 5th Street	A+		A+
	Oxnard Beach, at Outrigger Way	A+		A+
	Peninsula Beach, North of South Jetty	A		A+
	Point Mugu Beach, at parking lot	A+		A+
	Port Hueneme Beach Park, 50 yards north of the pier	A	A	C
	Promenade Park, at Figueroa St.	A	A	F
	Promenade Park, at Redwood Apts.	A		A+
	Promenade Park, south of drain at California St.	A+		A+
	Rincon Beach, at the end of the footpath	A+		A+
	San Buenaventura Beach, south of drain at Dover Ln.	A+		A+
	San Buenaventura Beach, south of drain at Kalorama St.	A		A+
	San Buenaventura Beach, south of drain at San Jon Rd.	A	A	F
	San Buenaventura Beach, south of drain at Weymouth Ln.	A+		A+
	Silverstrand, at San Nicholas Ave.	A+	A+	A+
	Silverstrand, at Santa Paula Dr.	A+	A+	C
	Silverstrand, at Sawtelle Ave.	A+	A+	A
	Solimar Beach, south at end of gate access road	A+	A+	F
	Surfer's Knoll, at parking lot	A+	A+	F
	Surfer's Point at Seaside	A	A	F
	Sycamore Cove Beach, 50 yards south of the creek mouth	A		A+
	Thornhill Broome Beach, at parking lot	A+		A+

		Summer Dry Grade	Winter Dry Grade	Wet Weather Grade
CLATSOP COUNTY				
	Cannon Beach at Ecola Creek mouth (2nd Avenue)	A		B
	Cannon Beach projection of Gower Ave. storm outflow	A		A+
	Seaside Beach at 12th Avenue	A+		A+
	Seaside Beach at Broadway turn around	A+		A+
	Seaside Beach at U Avenue	A+		A+
	Tolovana State Park Beach	A+		A+
	Tolovana State Park Beach 50m north of Chisana Creek	A+		A+
	Tolovana State Park Beach 50m south of Chisana Creek	A+		A+
COOS COUNTY				
	Bastendorff Beach at Minor Creek Mouth			B
	Bastendorff Beach Middle Access			A+
	Bastendorff Beach North at Jetty			A+
	Bastendorff Beach South of Minor Creek			A+
	Sunset Bay State Park Beach at North Beach Access			F
	Sunset Bay State Park Beach at Restroom			B
	Sunset Bay State Park Beach South Cove			F
CURRY COUNTY				
	Hubbard Creek Beach 50m north of Hubbard Creek			F
	Hubbard Creek Beach 50m south of Hubbard Creek			A+
	Hubbard Creek Beach at Hubbard Creek			F
LANE COUNTY				
	Heceta Beach at north runoff			A+
	Heceta Beach at south runoff			A+
	Heceta Beach middle			A+
LINCOLN COUNTY				
	Agate Beach at mouth of Big Creek			D
	Beverly Beach 0.1 km North of ramp			A+
	Beverly Beach 0.2 km South of ramp at beach access			A
	Beverly Beach 0.2 km West of creek mouth			B
	D River Beach 200 M South of Restroom			A+
	D River Beach at North corner of parking lot			D
	D River Beach West of Restroom			A+
	Nye Beach 100m north Nye Creek outflow west of NW 6th street	A+		B
	Nye Beach at war memorial west of Olive Street	A+		A+
	Nye Beach Turnaround west of discharge pipe (marine water)	A+		C
	Seal Rock State Wayside Beach at mouth of Hill Creek	A		C
	Seal Rock State Wayside Beach at mouth of Little Creek	A		A+
	Seal Rock State Wayside Beach at north access	A+		A+

TILLAMOOK COUNTY				
	Neskowin Beach Middle at Creek Mouth			A+
	Neskowin Beach south side of Proposal Rock			A
	Rockaway Beach at creek (South 6th Avenue)			A+
	Rockaway Beach at South 1st Avenue Creek			A+
	Short Sand Beach at Short Sand creek (Oswald State Park)	A		A+
	Short Sand Beach middle (Oswald State Park)	A+		A+
	Short Sand Beach North End (Oswald State Park)	A+		A+

		Summer Dry Grade	Winter Dry Grade	Wet Weather Grade
CLALLAM COUNTY				
	Cline Spit County Park - mid	A+		A+
	Cline Spit County Park - north	A+		A+
	Cline Spit County Park - south	A+		A+
	Dakwas Park Beach Neah Bay east	A+	A+	A+
	Dakwas Park Beach Neah Bay mid	A+	A+	A
	Dakwas Park Beach Neah Bay west	A+	A+	B
	Front Street Beach East - mid	A+	A+	A
	Front Street Beach East at Kal Chate St.	A+	A+	A
	Front Street Beach East at Pine Street	A+	A+	A+
	Hobuck Beach - mid south	A+	A+	A+
	Hobuck Beach - north	A+	A+	A+
	Hobuck Beach - south	A+	A+	A+
	Hollywood Beach - east	A		A+
	Hollywood Beach - mid	A+		A+
	Hollywood Beach - west	A+		A+
	Salt Creek Recreation Area - north	A		A+
	Salt Creek Recreation Area - south	A		A
	Sooes Beach - mid	A+	A+	A+
	Sooes Beach - north	A+	A+	A+
	Sooes Beach - south	A+	A+	A+
	Third Beach Neah Bay - east	A+	A+	A+
	Third Beach Neah Bay - mid	A+	A+	A+
	Third Beach Neah Bay - west	A+	A+	A+
GRAYS HARBOR COUNTY				
	Westhaven State Park Half Moon Bay - mid	A+		A+
	Westhaven State Park Half Moon Bay - north	A+		A+
	Westhaven State Park Half Moon Bay - south	A+		A+
	Westhaven State Park South Jetty - mid	A+		A+
	Westhaven State Park South Jetty - north	A+		A+
	Westhaven State Park South Jetty - south	A+		A+
	Westport - The Groynes - east	A+		A+
	Westport - The Groynes - mid	A+		A+
	Westport - The Groynes - west	A+		A+
ISLAND COUNTY				
	Dave Mackie Park Beach in tidal lagoon	A		A+
	Dave Mackie Park Beach north	A		A+
	Dave Mackie Park Beach south	A+		A+

	Freeland County Park Holmes Harbor - east	C		A+
	Freeland County Park Holmes Harbor - mid	A		A+
	Freeland County Park Holmes Harbor - west	A		A+
	Oak Harbor Lagoon - mid	C		A+
	Oak Harbor Lagoon - north west	C		A+
	Oak Harbor Lagoon - south east	B		A+
JEFFERSON COUNTY				
	Fort Worden State Park - mid	F		A+
	Fort Worden State Park - north	A+		A+
	Fort Worden State Park - south	A		A+
	Herb Beck Marina - east	F		C
	Herb Beck Marina - mid	C		A+
	Herb Beck Marina - west	A		A+
KING COUNTY				
	Alki Beach Park - mid	A+		A+
	Alki Beach Park - north	A+		A+
	Alki Beach Park - south	D		A+
	Carkeek Park - mid	A		A+
	Carkeek Park - north	A		A+
	Carkeek Park - south	A+		A+
	Dash Point State Park - east	A+		A+
	Dash Point State Park - mid	A+		A+
	Dash Point State Park - west	A+		A+
	Golden Gardens - mid	D		A
	Golden Gardens - north	A+		A+
	Golden Gardens - south	F		C
	Lincoln Park - mid	A+		A+
	Lincoln Park - north	A+		A+
	Lincoln Park - south	A		A+
	Redondo County Park - mid	A+		A+
	Redondo County Park - north	A+		A+
	Redondo County Park - south	A+		A+
	Richey Viewpoint - mid	A		A
	Richey Viewpoint - north	A+		A+
	Richey Viewpoint - south	A+		A+
	Richmond Beach Saltwater Park - mid	A+		A+
	Richmond Beach Saltwater Park - north	A+		A+
	Richmond Beach Saltwater Park - south	A+		A+
	Saltwater State Park - mid	A+		A+
	Saltwater State Park - north	A+		A+
	Saltwater State Park - south	A+		A+
	Seahurst (Ed Munro) Park - mid	A+		A+
	Seahurst (Ed Munro) Park - north	A+		A+
	Seahurst (Ed Munro) Park - south	A+		A+
KITSAP COUNTY				
	Arness County Park - mid	A+		A+
	Arness County Park - north	A+		A+
	Arness County Park - south	A+		A+

	Fay Bainbridge State Park - mid	A+		A+
	Fay Bainbridge State Park - north	A+		A+
	Fay Bainbridge State Park - south	A+		A+
	Illahee State Park - mid	A		A+
	Illahee State Park - north	A+		A+
	Illahee State Park - south	A		A+
	Indianola Dock - east	A+		A
	Indianola Dock - mid	A+		A+
	Indianola Dock - west	A+		A+
	Joel Pritchard Park - east	A		A+
	Joel Pritchard Park - mid	A+		A+
	Joel Pritchard Park - west	B		B
	Kitsap Memorial State Park mid	A+		A+
	Kitsap Memorial State Park north	A+		A+
	Kitsap Memorial State Park south	A+		A+
	Lions Park - mid	A+		A+
	Lions Park - north	A+		A+
	Lions Park - south	A+		A+
	Point No Point Lighthouse Park mid	A+		A+
	Point No Point Lighthouse Park north	A+		A+
	Point No Point Lighthouse Park south	A+		A+
	Pomeroy Park - Manchester Beach - mid	B		C
	Pomeroy Park - Manchester Beach - north	B		F
	Pomeroy Park - Manchester Beach - south	A		B
	Scenic Beach State Park east	A+		A+
	Scenic Beach State Park mid	A+		A+
	Scenic Beach State Park west	A+		A+
	Silverdale County Park - east	A		A+
	Silverdale County Park - mid	A		A+
	Silverdale County Park - west	A		A+
MASON COUNTY				
	BELFAIR STATE PARK	A+		
	BELFAIR STATE PARK	A+		
	BELFAIR STATE PARK	A		
	Potlatch State Park - mid	A+		A+
	Potlatch State Park - north	A+		A+
	Potlatch State Park - south	A+		A+
	Twanoh State Park - point	A+		A+
	Twanoh State Park - west of dock	A+		A+
	Twanoh State Park - west of point	A+		A+
PIERCE COUNTY				
	Dash Point County Park - east	A+		A+
	Dash Point County Park - east of pier	A+		A+
	Dash Point County Park - west of pier	A+		A+
	Jack Hyde Park - east	A+		
	Jack Hyde Park - mid	A+		A+
	Jack Hyde Park - west	A+		
	Kopachuck State Park mid	A+		A+

	Kopachuck State Park north	A+		A+
	Kopachuck State Park south	A+		A+
	Owens Beach - Point Defiance Park - mid	A+		A+
	Owens Beach - Point Defiance Park - north	A+		A+
	Owens Beach - Point Defiance Park - south	A+		A+
	Penrose Point State Park east	A+		A+
	Penrose Point State Park mid	A+		A+
	Penrose Point State Park west	A+		A+
	Purdy Sandspit County Park - east	A+		A+
	Purdy Sandspit County Park - mid	A+		A+
	Purdy Sandspit County Park - west	A+		A+
	Ruston Way north - projection of Warner St	A		A+
	Sunnyside Beach Park - mid	A+		A+
	Sunnyside Beach Park - north	A+		A+
	Sunnyside Beach Park - south	A+		A+
	Titlow Park - mid	A+		A+
	Titlow Park - north	A+		A+
	Titlow Park - south	A+		A+
	Waterfront Dock/ Ruston Way - north	A		
	Waterfront Dock/ Ruston Way - south	A+		
SKAGIT COUNTY				
	Bayview State Park - mid			A+
	Bayview State Park - north			A+
	Bayview State Park - south			A+
SNOHOMISH COUNTY				
	Edmonds Underwater Park - mid	A+		A+
	Edmonds Underwater Park - north	A+		A+
	Edmonds Underwater Park - south	A+		A+
	Howarth Park - mid			A+
	Howarth Park - north			A+
	Howarth Park - south			A+
	Kayak Point County Park - mid	A+		A+
	Kayak Point County Park - north	A+		A+
	Kayak Point County Park - south	A+		A+
	Marina Beach Edmonds (No Dogs) - mid	A+		A+
	Marina Beach Edmonds (No Dogs) - north	A+		A+
	Marina Beach Edmonds (No Dogs) - south	A+		A+
	Mukilteo Lighthouse Park mid	A+		A+
	Mukilteo Lighthouse Park north	A+		A+
	Mukilteo Lighthouse Park south	A+		A+
	Picnic Point County Park - mid	A+		A+
	Picnic Point County Park - north	A+		A+
	Picnic Point County Park - south	A+		A+
THURSTON COUNTY				
	Burfoot County Park - mid	A+		A+

	Burfoot County Park - north	A+		A+
	Burfoot County Park - south	A+		A+
WHATCOM COUNTY				
	Bellingham Marine Park outer			A+
	Birch Bay County Park - mid			C
	Birch Bay County Park - north			A+
	Birch Bay County Park - south			A+
	Larrabee State Park Wildcat Cove - mid			A+
	Larrabee State Park Wildcat Cove - south			A+
	Larrabee State Park Wildcat Cove - west			A+

About Heal the Bay's Annual Beach Report Card

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

What is the Beach Report Card?

The Beach Report Card transforms complicated water quality data into an easy-to-understand A-F grading format so the public can know where and when it is safe to go in the ocean. 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.

What is the history of the BRC?

Heal the Bay's first Beach Report Card was published in 1991 and covered about 50 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 have played an active role in putting legislation and policies in place to help protect public health.

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 of these illnesses.

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 a 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" of 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. 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 types of fecal indicator bacteria (FIB) including total coliform, fecal coliform, and *Enterococcus spp.* California measures all three FIB, but Oregon and Washington only measure *Enterococcus.* Runoff from 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 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 Project1.

Indicator bacteria themselves 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. 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**
- *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 always come from humans; however, human sewage does regularly end up in the ocean through sewage infrastructure failure and storm drains.

Why is storm drain pollution so significant?

Storm drain runoff is the largest source of pollution for ocean beaches. Storm drains flow untreated to the coast and are often contaminated with motor oil, animal waste, pesticides, yard waste and trash. After a rain, FIB 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 impacted 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 oceangoers are in the water year-round.

The majority of Oregon and Washington water quality monitoring occurs during the summer swimming season (Memorial Day through Labor Day). The Makah Tribe in Clallam County Washington monitors water quality on a weekly basis year-round.

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 DNA to analyze water samples for virus or human pathogenic bacteria, but these techniques are still relatively expensive, and not quantitative. In addition, interpretation of virus monitoring data is difficult because, unlike bacterial indicators, there are no data available to link health risks associated with swimming in beach water to virus densities.

Many epidemiology studies have been conducted on the West Coast and have found a strong correlation between illness rates and FIB concentrations so measuring FIB is a robust way to protect public health[1,2,3]. However, research must be continued to refine how water quality is measured.

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:

$$\text{\% Grade} = \frac{\text{'TOTAL POINTS AVAILABLE'} - \text{'TOTAL POINTS LOST'}}{\text{'TOTAL POINTS AVAILABLE'}}$$

[Note: The Annual and End-of-Summer Beach Report Card methodology is modified slightly to accommodate the longer time period. For example: no greater significance is given to the most recent samples.]

Total Points Available

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

$$\text{\% Grade} = \frac{\text{'TOTAL POINTS AVAILABLE'} - \text{'TOTAL POINTS LOST'}}{\text{'TOTAL POINTS AVAILABLE'}}$$

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.

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:

$$\text{\% Grade} = \frac{\text{'TOTAL POINTS AVAILABLE'} - \text{'TOTAL POINTS LOST'}}{\text{'TOTAL POINTS AVAILABLE'}}$$

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

Wet weather data (>=0.2 inches of rain in previous 72 hours) is graded sepa-

rately 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 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

$$\text{\% Grade} = \frac{\text{'TOTAL POINTS AVAILABLE'} - \text{'TOTAL POINTS LOST'}}{\text{'TOTAL POINTS AVAILABLE'}}$$

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

A	B	C	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%	50
Fecal Coliform	200	40%	
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	50
Fecal Coliform	10%	30%	40%	N/A	
Enterococcus	20%	40%	60%	N/A	
Ratio (when total > 1,000)	25%	50%	75%	100%	

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

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

** Colony forming units per 100 milliliters of ocean water*
SD = Standard Deviation. ***Bold*** *= California State Health Department standards for a single sample*

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

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

Acknowledgements

The entire Beach Report Card program would not be possible without the cooperation of the many monitoring agencies across the West Coast. These agencies include:

Makah Tribe
Washington Department of Ecology
Oregon Department of Environmental Quality
Humboldt County Department of Health & Human Services
Mendocino County Environmental Health Department
Sonoma County Environmental Health & Safety
Marin County Environmental Health Services
San Francisco Public Utilities Commission
East Bay Regional Park District
San Mateo County Health
Santa Cruz County Environmental Health
Monterey County Health Department
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
County of Los Angeles Department of Public Works
City of Redondo Beach
City of Long Beach Department of Health and Human Services
South Orange County Wastewater Authority
County of Orange Environmental Health
Orange County Sanitation District
San Diego County Department of Environmental Health
San Elijo Joint Powers Authority
City of San Diego
City of Oceanside
Encina Wastewater Authority
Port of San Diego
State Water Resources Control Board

The Beach Report Card's original concept and methodology were created in part by former Heal the Bay scientists Dr. Mark Gold, Delaney Alamillo, and Mitzy Taggart. This report would not be possible without their passion and dedication to improving beach water quality and strengthening public health protection.

A special thank you to our funders for their continued support of the Beach Report Card program and the publication of this report:

SIMA SURF INDUSTRY MANUFACTURERS ASSOCIATION

SONY PICTURES

SWAIN BARBER FOUNDATION

2019-20 Beach Report Card

Research and Copy: Luke Ginger
Data Compilation and Analysis: Luke Ginger, Lucy Rieves
Copy Editors: Shelley Luce, Katherine Pease, Talia Walsh
Photography and Design: Photography by Joy Aoki.
Design by: TASON

Heal the Bay