Heal the Bay

2023 River Report Card

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We would like to acknowledge that Heal the Bay is located on the traditional lands of the Tongva and Chumash People and pay our respects to elders past, present, and emerging.

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.

Heal the Bay believes people have a right to know about the quality of the water where they swim and play. We are pleased to provide our community with this science-based, easy-to-use report card. This annual report can be used to make decisions about where to get in the water, as well as policies to protect public health and the environment.

Cover: John Hauser collecting a water sample in the L.A. River at Compton Creek.

HEAL THE BAY

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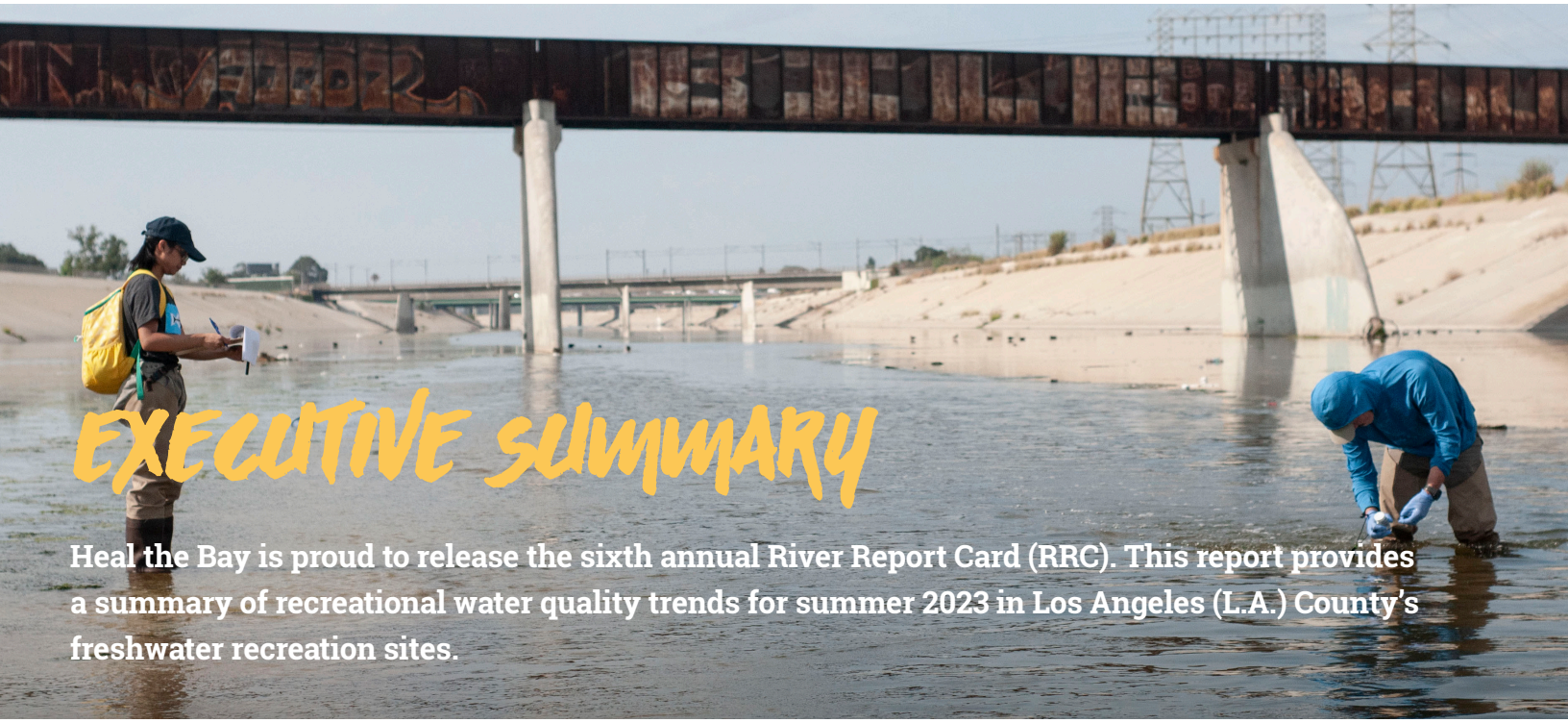


EXECUTIVE SUMMARY

Heal the Bay is proud to release the sixth annual River Report Card (RRC). This report provides a summary of recreational water quality trends for summer 2023 in Los Angeles (L.A.) County's freshwater recreation sites.

L.A. County's rivers, streams, and lakes receive multitudes of visitors each year and are vital to meeting community needs for recreation, green space, and cultural practices. Unfortunately, many freshwater recreation sites in L.A. County suffer from fecal indicator bacteria (FIB) pollution, which indicates the presence of pathogens that can cause infections, skin irritation, and respiratory and gastrointestinal illnesses. Our goal is to highlight water quality concerns, advocate for water quality improvements, and equip community members with the information they need to keep themselves safe and healthy when out enjoying their local swimming hole.

This year, the River Report Card program experienced significant growth, highlighted by the introduction of a new grading methodology.

Last summer in 2023, we updated our grading methodology. Now, like the Beach Report Card (BRC), the River Report Card uses letter grades (A+, A, B, C, D, and F) for both weekly and annual assessments. This shift from a color-coded system (green, yellow, red) to letter grades aligns the RRC with the BRC format, making it easier to understand water quality risks. The new system is based on the latest science and regulatory standards, ensuring a clearer representation of health risks in our rivers and streams. Due to these updates, the criteria for the Freshwater Fails and Honor Roll lists have also changed. Therefore, we are not comparing this year's results with previous years. The previous grading methodology used color grades based on four parameters for both *Escherichia coli (E. coli)* and *Enterococcus* (when available), while our new grading methodology uses two parameters based exclusively on *E. coli* levels, following California's recreational freshwater bacteria objectives. The new methodology results in a health-protective grade that is comparable across sites and scientifically defensible.

Water quality at sites higher in the watersheds and in open spaces, such as Malibu Creek State Park and Upper San Gabriel River, was excellent. Across 35 sites sampled during the summer of 2023, 63%

of Los Angeles County's freshwater recreation sites received A+, A, or B grades, indicating they are safe for swimming with a low health risk. Ten sites received an annual A+ grade (100 points), meaning that the bacteria levels never exceeded the health standards, earning a place on our Honor Roll list. They are:

- Hansen Dam Lake (L.A. River Watershed–Upper)
- Mill Creek at Hidden Springs (L.A. River Watershed–Upper)
- Big Tujunga Creek at Vogel Flats (L.A. River Watershed–Upper)
- Big Tujunga Creek at Delta Flats (L.A. River Watershed–Upper)
- Gould Mesa Creek (L.A. River Watershed–Upper)
- San Gabriel River Upper West Fork (San Gabriel River Watershed)
- San Gabriel River Upper East Fork (San Gabriel River Watershed)
- San Gabriel River East Fork at Cattle Canyon (San Gabriel River Watershed)
- San Gabriel River Upper Cattle Canyon (San Gabriel River Watershed)
- Malibu Creek at Rock Pool (Malibu Creek Watershed)

Water quality declined further down the watershed due to increased urban runoff. To protect public health in these valuable recreational areas, government agencies must continue to conduct water quality monitoring and public notification, while also working to improve water quality at these sites. Among the 35 sites sampled during summer 2023, 37% of sites received C, D, or F grades, indicating increased risk of illness, and contact with the water should be avoided. Six sites received an annual F grade (≤59 points out of 100), meaning that the bacteria levels exceeded the health standards, indicating the highest risk of illness and placing these sites on our Freshwater Fails list. They are:

- 1st place: L.A. River at Compton Creek (L.A. River Watershed–Lower)
- 2nd place: L.A. River at Compton Creek Confluence (L.A. River Watershed–Lower)
- 3rd place: Bull Creek (L.A. River Watershed–Upper)
- 4th place: Tujunga Wash at Hansen Dam (L.A. River Watershed–Upper)
- 5th place: L.A. River at Willow St. (L.A. River Watershed–Lower)
- 6th place: L.A. River at the confluence of Rio Hondo (L.A. River Watershed–Lower)

In 2023, we were excited to welcome 12 local college and university students to our river monitoring program—the highest number of hires in a single summer to date. Students hailed from Long Beach City College, California State University Los Angeles, California State University Long Beach, and Los Angeles Trade Technical College. Additionally, our ongoing partnerships with Los Angeles Trade Technical College (LATTC) and California State University Long Beach (CSULB) have significantly expanded our operational reach. By using their laboratory facilities to process river water samples, we have enhanced our capacity for water quality monitoring and analysis.

With a larger team, we focused on providing training and mentorship, empowering students in their professional development. As the RRC program continues to expand, our commitment to ensuring higfh water quality and protecting public health remains a top priority at Heal the Bay.

Water quality monitoring is essential for safeguarding public health and maintaining ecosystem integrity. By regularly assessing water bodies, we can identify contaminants and pollution levels that pose risks to both human and environmental health. Sites with high levels of bacterial pollution are also likely to be impacted by other pollutants from stormwater runoff. Clean water is fundamental for drinking, recreation, agriculture, supporting diverse aquatic ecosystems, and so much more.

INTRODUCTION

Heal the Bay is proud to release the sixth annual River Report Card. This report provides an overview of recreational water quality trends for summer 2023 in Los Angeles (L.A.) County's freshwater recreation sites.

The rivers, streams, and lakes in L.A. County attract many visitors each year and are essential for providing recreation, green space, and cultural activities to surrounding communities. Our goal is to raise awareness about water quality issues, advocate for improvements, and empower community members with the knowledge they need to stay safe and healthy while enjoying their local swimming and recreation spots.

Many freshwater recreation sites in L.A. County suffer from fecal indicator bacteria (FIB) pollution, which indicates the presence of pathogens that can cause infections and various illnesses. Sources of FIB pollution include urban runoff, leaks or spills from wastewater systems, illegal discharges, and failing wastewater infrastructure. Unlike ocean beaches, there is no statewide oversight, standardization, or funding for freshwater FIB monitoring, nor are there mandated public water quality notifications for freshwater recreational areas. Regulatory permits for discharge into surface waters often require monitoring, but the data collected are not typically shared with the public in an accessible format. Heal the Bay is committed to ensuring everyone is informed about the condition of their local waters, enabling them to make safe choices. Since 2014, we have monitored freshwater recreational areas and introduced the RRC in 2017 to expand water quality information, and make it available for free to the public.

In 2023, we were excited to welcome 12 local college and university students to our river monitoring program—the highest number of hires in a single summer to date. Students hailed from Long Beach City College, California State University Los Angeles, California State University Long Beach, and Los Angeles Trade Technical College. Additionally, our ongoing partnerships with Los Angeles Trade Technical College (LATTC) and California State University Long Beach (CSULB) have significantly expanded our operational reach. By using their laboratory facilities to process river water samples, we have enhanced our capacity for water quality monitoring and analysis.

With a larger team, we focused on providing training and mentorship, empowering students in their professional development. As the RRC program continues to expand, our commitment to ensuring water high quality and protecting public health remains a top priority at Heal the Bay.

Since Heal the Bay began monitoring freshwater recreation sites and publicizing water quality data, positive changes have occurred, including increased bacterial monitoring and public notification in L.A. River recreation zones. Users of the weekly RRC saw significant changes starting in the summer of 2023 when we updated our grading system from color-coded (red, yellow, and green) to A+ through F letter grades. Heal the Bay overhauled our grading methodology, guided by a Technical Advisory Committee made up of water quality experts. The U.S. Environmental Protection Agency (USEPA) and the California State Water Resources Control Board (State Water Board) have established guidelines for safe levels of FIB in water, which can signal harmful germs leading to infections or illnesses like skin irritation, respiratory issues, and stomach problems. This new methodology resulted in a letter-grade system that offers more nuanced water quality information than our previous system, aligning with the latest water quality objectives. This year, weekly and annual grades were calculated exclusively by analyzing two metrics: the most recent single sample and the 30-day geometric mean values for *E. coli*, following California's recreational freshwater objectives for water quality. The grade also took into account the magnitude of exceedance of the *E. coli* single sample and weighted the single sample higher than the geometric mean for the weekly grade. Our previous methodology utilized single samples and geometric means for *E. coli* and *Enterococcus* (when available) but we weighted all metrics equally and did not take magnitude into account. *Enterococcus* data was not available for all sites. By focusing exclusively on *E. coli* levels in our current methodology, we have increased the comparability across sites as well as acceptance of our methodology among government agencies at state and local levels. This strategic alignment not only reduces confusion among the public but also facilitates collaboration with local health departments, ensuring consistent and comprehensive water quality information for stakeholders. More details on the methodology are provided in the following section. We are excited to continue sharing the new methodology on our RRC website, and we are confident it will be more informative for users.

The criteria and methodology for the Freshwater Fails and Honor Roll lists have also changed. Further, this is the first year that we have calculated annual grades for sites using the new methodology. As a result, we will refrain from comparing this year's results to previous results that used a different grading methodology.

This year's Freshwater Fails list identifies sites with annual F grades, indicating poor water quality and high bacteria levels that pose significant health risks, and where water contact should be avoided. The list includes six sites with scores below 59 points. In the L.A. River Watershed–Lower, four sites made the list: L.A. River at Compton Creek (1st place), Compton Creek Confluence (2nd place), L.A. River at Willow St. (5th place), and L.A. River at Rio Hondo Confluence (6th place). In the L.A. River Watershed–Upper, the two sites are Bull Creek (3rd place) and Tujunga Wash at Hansen Dam (4th place).

Conversely, the Honor Roll list includes sites with annual A+ grades, indicating excellent water quality with bacteria levels well below health standards and the lowest risk of illness. Ten sites fell into the A+ category (earning all 100 points), meaning that the bacteria levels never exceeded the health standards. The L.A. River Watershed–Upper has five sites on the Honor Roll (Hansen Dam Lake, Mill Creek at Hidden Springs, Big Tujunga Creek at Vogel Flats, Big Tujunga Creek at Delta Flats, and Gould Mesa), the San Gabriel River Watershed has four sites (San Gabriel River Upper West Fork, San Gabriel River Upper East Fork, San Gabriel River East Fork at Cattle Canyon, and San Gabriel River Upper Cattle Canyon), and the Malibu Creek Watershed has one site (Malibu Creek at Rock Pool).

In 2023, 63% of L.A. County's freshwater recreation sites received annual grades of A+, A, or B, indicating low health risks, while 37% received grades of C, D, or F, indicating higher risks. To protect public health, ongoing water quality monitoring and public notification are essential, along with efforts to improve water quality at these sites.

Water quality monitoring is essential for safeguarding public health and maintaining ecosystem integrity. By regularly assessing water bodies, we can identify contaminants and pollution levels that pose risks to both human and environmental health. Sites with high levels of bacterial pollution are also likely to be impacted by other pollutants from stormwater runoff. Clean water is fundamental for drinking, recreation, agriculture, and supporting diverse aquatic ecosystems.

RIVER REPORT CARD BASICS

L.A. County's rivers, streams, and lakes host numerous popular recreation areas that are vital to many peoples' quality of life.

Sampling, Locations, and Dates

Heal the Bay collects water samples weekly during the summer (June to September) at 12 freshwater sites in L.A. County. Two sites are located in the Malibu Creek Watershed and 10 sites are located in the L.A. River Watershed. Heal the Bay uses the Defined Substrate Technology (DST) method to quantify FIB (total coliform, *E. coli*, and *Enterococcus*) utilizing Colilert™ and Enterolert™ (IDEXX, Westbrook, ME). Any samples collected within three days of 0.1 inches or more of rain were not included in this report because of the negative impact that rain has on water quality. We advise the public to avoid contact with the water for at least three days after a rain event of 0.1 inches or more, as rainfall poses a flood/swift water risk and washes harmful contaminants into waterways.

In addition to monitoring, Heal the Bay compiles water quality data from other monitoring programs and government agencies that oversee some of the same locations that Heal the Bay monitors as well as 23 other locations. Typically, agencies collect samples every week and quantify levels of *E. coli*. For the L.A. River Watershed, data is collected and shared by the Los Angeles River Watershed Monitoring Program (LARWMP)[1] and the City of L.A., Bureau of Sanitation and the Environment (LASAN).[2] The locations in the San Gabriel River Watershed are monitored by the San Gabriel River Regional Monitoring Program (SGRRMP).[3] Data have been collected by these groups for many years and were made public promptly starting in 2017 in the L.A. River Watershed and 2018 in the San Gabriel River Watershed. Site locations, monitoring groups, and date ranges are detailed in Appendix A.

Complete field and laboratory protocols are available in Heal the Bay's Quality Assurance Project Plan (QAPP), which was approved by the USEPA, with reviewers from the State Water Board, and the LASAN Environmental Monitoring Division.

The River Report Card Has A New Look! Grading Methodology Update

Heal the Bay began using an updated grading methodology in June 2023. Therefore, our weekly grades and annual reports will look different moving forward. Instead of color-coded grades (green, yellow, and red), which we issued from 2017 to 2022, we are now using A+, A, B, C, D, and F letter grades similar to Heal the Bay's BRC. This type of grading system is an improvement because it allows us to convey information on a wider variety of water quality scenarios, and it provides more continuity between our two report cards.

Update Need And Process

The motivation for the change in grading came from the acknowledgment that, while the color-coded RRC grades provided important information, there was room for improvement in terms of providing a more robust and scientifically-backed grading system that was also in alignment with our well-known BRC. Further, the State Water Resources Control Board revised the Bacteria Water Quality Objectives in 2018, which necessitated

1 Los Angeles River Watershed Monitoring Program

2 City of L.A., Bureau of Sanitation and the Environment (LASAN)

3 San Gabriel River Regional Monitoring Program

a realignment of our grading methodology to meet updated standards for *E. coli*. With input from a Technical Advisory Committee (TAC) formed in 2022, we seized the opportunity to enhance our grading system by refining bacterial indicators and addressing variability in bacteria measurements. By updating how we calculate grades through a robust process, we have strengthened the foundation for our future advocacy efforts and increased the acceptance of our methodology among government agencies at the state and local levels.

Switch To Letter Grades

The RRC transitioned from color-based grades (red, yellow, green) to letter grades (A+, A, B, C, D, F) to align with the BRC grading system. Heal the Bay's BRC has been established for over 30 years and is widely recognized across the state. As a result, many members of the public are already familiar with interpreting water quality grades in a letter format. By adopting a consistent letter grading system for both ocean beaches and freshwater recreation sites, we can convey the same information. This unified approach enhances accessibility and clarity for the public when viewing water quality information (**FIGURE 1**). To provide additional context, **FIGURE 1B** summarizes the different scenarios for final grades for each possible water quality scenario.

Indicators And Objectives Chosen

The new RRC grading methodology is based solely on *E. coli* levels, in alignment with California's Water Quality Policy. The previous RRC methodology used both *E. coli* and *Enterococcus* (when available) data to generate grades, based on USEPA's recreational water quality criteria,[4] although California only requires monitoring of *E. coli* for freshwater recreation. The TAC recommended focusing solely on *E. coli* for grading and following California's recreational freshwater bacteria objectives,[5] which aligns with state regulations and provides for better comparability across sites.

- To determine water quality grades, Heal the Bay analyzes the most recent single sample bacteria measurement and the 30-day geometric mean. These measurements capture different aspects of fecal indicator bacteria at a site. The single sample (SS) provides the most recent water quality data, while the geometric mean (GM) represents the site's average water quality by considering recent water quality history. When used together, these two parameters are complementary because they account for different water quality scenarios.

- The RRC grades are based on California's recreational freshwater bacteria objective thresholds for *E. coli*, associated with a 32/1000 illness rate among water recreators.[6] The statistical threshold value (STV) is equivalent to the single sample threshold and is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. The STV for *E. coli* is 320 colony-forming units (cfu) per 100 milliliters (ml) and is considered health protective (**TABLE 1**). The STV value is not to be exceeded by more than 10% of the samples collected in 30 days. These thresholds have been substantiated by numerous epidemiological studies across various water bodies and geographic regions. They ensure that bacteria concentrations remain health protective, as illness rates below these thresholds are not statistically different from those observed in individuals who do not engage in water recreation in untreated waters. The GM of *E. coli* is not to exceed 100 cfu/100ml, calculated weekly (**TABLE 1**).

By aligning with California's standards, the RRC methodology aims to reduce confusion among the public and ensure consistency with water quality information provided by local health departments. This

4 USEPA's Recreational Water Quality Criteria

5 California's Recreational Freshwater Bacteria Objectives

6 Bacterial Objectives, Waterboards

alignment will facilitate clearer communication about water quality risks and enhance public understanding of the RRC grading system.

Illness Rate of 32/1000 Recreators		
	Geometric Mean (GM) cfu/100 ml	Statistical Threshold Value (STV) cfu/100 ml
E. coli	**100**	**320**

TABLE 1. Freshwater bacteria objectives used by the State of California. Heal the Bay uses the above limits in the River Report Card based on California's recreational freshwater bacteria objective thresholds for *E. coli*, associated with a 32/1000 illness rate among water recreators.

Detailed Overview Of Weekly And Annual Grading Methodology

During the summer, the RRC website provides regularly updated weekly grades for each site. To offer a comprehensive view of each site's water quality over time, we also display historical grades from previous weeks. This approach helps users understand trends and variations in water quality. During wet weather, the River Report Card will not issue grades due to potential physical hazards in freshwater bodies, such as swift-moving water and flooding. Instead, we will issue advisories to caution users about these risks when it rains, ensuring safety and awareness of potential dangers. In contrast, the BRC does issue weekly advisories during wet weather and generates annual grades based on wet weather data.

The RRC weekly grades are based on various exceedance scenarios and their corresponding grades (refer to **FIGURES 1A** and **1B**). Under our updated grading methodology, we have introduced the A+ grade to differentiate situations where there is no exceedance from those where a single sample is near the threshold but remains within acceptable limits. As a result, a B grade is not an option for weekly grades, though it is possible as an annual average (see explanation below). This new A+ category allows us to provide a more nuanced assessment of water quality, acknowledging scenarios where a sample is close to, but does not exceed the set standards.

Weekly Grading Steps:

1) The new grading system for water quality at recreation sites starts with a base score of 100 points, which is adjusted based on measured bacteria concentrations. The SS component accounts for 60 points and the GM accounts for 40 points (**TABLE 2**).

2) Since SS and GM measurements capture different properties of FIB concentrations at a particular site, we decided to give more weight to the SS measurement as it would result in a more health-

protective grade. Further, it is likely more useful for the public in real time because it prioritizes the most recent water quality information. As we are publishing the grades weekly over the summer, the SS gives us a more accurate result of the most recent water quality measurement. For example, a single spike in bacteria will not necessarily translate into an elevated GM and if we give more weight to the GM it can lead to scenarios where recreation sites with a spike in fecal contamination receive a passing grade.

Grade Component	Points Available
E. coli Single Sample Concentration	60
E. coli Geometric Mean Concentration	40
Total Points Available	**100**

TABLE 2. Grade Component for the Single Sample and Geometric Mean. Point weighting for each grade component.

3) The extent to which the grade is lowered depends on how far the SS concentration deviates from California's recreational freshwater objective of 320 Most Probable Number (MPN)/100ml. A graded site will lose a percentage of the 60 points available based on the risk category as specified in **TABLE 3**. The lower threshold for the moderate exceedance category was set based on the SS or STV threshold determined by the State of California, while the slight and high-risk categories were established by using the lower and upper 95% confidence interval for culture methods (IDEXX) to account for variability and magnitude. It was decided to enact only a minimal penalty for single samples that fall into the slight category because those samples do not technically exceed California's objectives. A larger penalty was given to samples that exceeded the upper limit of the 95% confidence interval for the method.

Risk Categories				
	None	**Slight**	**Moderate**	**High**
E. coli Concentration	<244	244–319	**320**–415	>415
Percentage of Points Lost	0%	10%	40%	60%

TABLE 3. Scoring categories for *E. coli* concentration in a Single Sample. The threshold for moderate exceedance was determined based on the 32/1000 illness rate recommended by the EPA, while the thresholds for slight and high exceedances were established using the lower and upper 95% confidence intervals of the 32/1000 illness rate provided by IDEXX, respectively, to account for measurement variation. All *E. coli* concentrations are reported in MPN/100ml. The numbers in red represent the upper and lower limits of the 95% confidence interval for culture methods. Exceedances of California's objective will fall into either the moderate or high category.

4) The GM component takes into account the recent water quality history of the recreation site. The GM of all samples collected in the last 30 days for a particular site will be calculated and categorized based on **TABLE 4**. The percentage of points lost will be deducted from the 40 points available as specified in **TABLE 2**. The remainder will be used to create the final grade. There must be a minimum of four samples collected in the previous 30 days for a site to receive the points available for the GM component.

Risk Category		
	Non-exceedance	**Exceedance**
E. coli Concentration	<100	≥100
Percentage of Points Lost	0%	70%

TABLE 4. Scoring categories for the 30-day geometric mean of *E. coli* concentration. The exceedance threshold was determined based on the EPA's freshwater objectives for a 32/1000 illness rate, which is 100 MPN/100ml. All concentrations are reported in MPN/100ml.

Calculating the Weekly Grade

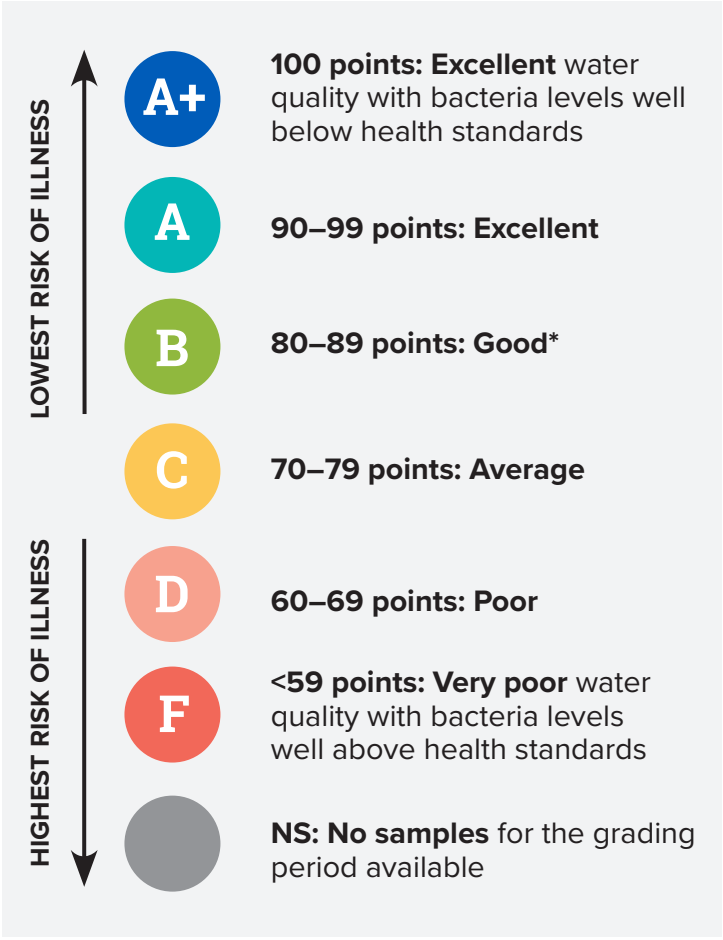
First, the number of remaining points for SS and GM concentrations are added together and then divided by 100 total available points to obtain a percentage score. This percentage score is then matched against a grading system outlined in **FIGURE 1**, which assigns letter grades to the score.

Why a "B" Grade is Not Issued in Weekly Grades*

Under our updated grading methodology, a B grade is no longer an option for weekly grades. This decision was reached by the TAC after reviewing various water quality scenarios. Initially, it was proposed that if a water sample slightly exceeded a quality standard, it should receive a "B" grade aiming to account for minor deviations from the standard without penalizing the site too harshly.

However, TAC members determined that assigning a "B" grade would be inappropriate if the sample did not technically exceed the water quality objective. They considered that even a small exceedance should not lower the grade unless it surpassed the objective. To address this, we introduced an "A+" category. This new grade differentiates between situations with no exceedances and those where a single sample is near the threshold but still within acceptable limits.

A)



B)

Single Sample Exceedance	Geometric mean Exceedance	Final Grade
None	None	A+
Slight	None	A
Moderate	None	C
High	None	D
None	Exceedance	C
Slight	Exceedance	D
Moderate	Exceedance	F
High	Exceedance	F
Single Sample Exceedance	**No Geometric mean Available**	**Final Grade**
None	NA	A+
Slight	NA	A
Moderate	NA	D
High	NA	F

FIGURE 1. Letter grades and exceedances scenarios. A) Criteria for assigning letter grades based on the percentage of available points retained for weekly and annual grades. Note, that a B grade is not possible for weekly grades but is possible for annual grades. See text for further explanation of grades.). B) Summary of different exceedance scenarios and their corresponding grades. Heal the Bay's new grading methodology is based on compliance with state water quality standards and the protection of public health.

For annual grades, however, we calculate the average score by totaling the points obtained at a specific location during the sampling period, from the first to the last sample. In this context, assigning a “B” grade is possible, reflecting a broader view of water quality over time.

Explanation of “A+” Grade

The A+ grade allows us to distinguish between scenarios with no exceedances and those where a single sample is close to the threshold but remains within acceptable limits. This approach ensures a more accurate representation of water quality, avoiding the assignment of a B grade for cases that do not technically breach the standards but still deserve recognition for their proximity to the limit. The A grade applies when the sample falls within the lower half of the 95% confidence interval of the IDEXX Colilert method, indicating it is close to, but does not exceed, the objective (see **TABLE 3**).

This new grading category of A+ also aligns with our new “Honor Roll” list, highlighting sites with consistent water quality excellence.

Calculating the Annual Grades

After the sampling period concludes, we calculate the average of all the weekly grades for each sampling location to determine the annual grade, which reflects the water quality at each site. The full grading methodology and steps are in Appendix A.

- Average Points: this represents the average score (total points on a 100-scale) obtained at a specific location during the sampling period from the first sample taken to the last sample. The percentage of points earned follows **FIGURE 1**. For example, if the average points obtained were 100%, it would result in an "A+" grade. Similarly, if the average points were between 90% and 99%, it would result in an "A" grade.

Freshwater Fails, Honor Roll Sites

Because of our updated grading methodology, the definitions for “Freshwater Fails” and “Honor Roll” sites changed slightly.

This year, the "Freshwater Fails" list refers to sites with very poor water quality, where bacteria levels significantly exceed health standards. These sites fall into the F grade category, with an average score of 59 points or below (≤ 59 points out of 100), indicating the highest risk of illness as shown in **FIGURE 1**. During the sampling period, from the first to the last sample taken, the average points obtained at these sites were 59 points or less. This means that bacteria levels consistently exceeded health standards.

This year, the "Honor Roll" list comprises sites with consistently excellent water quality. These sites have bacteria levels well below health standards, indicating the lowest risk category, and earning an A+ grade (100 points) as shown in **FIGURE 1**. The average points obtained at these sites during the sampling period (from the first sample taken to the last sample), was 100 points, meaning that the bacteria levels never exceeded the health standards. While A or B grades indicate sites close to the threshold but still within acceptable limits, only those with A+ grades represent water quality with no exceedances.

Presentation of Results

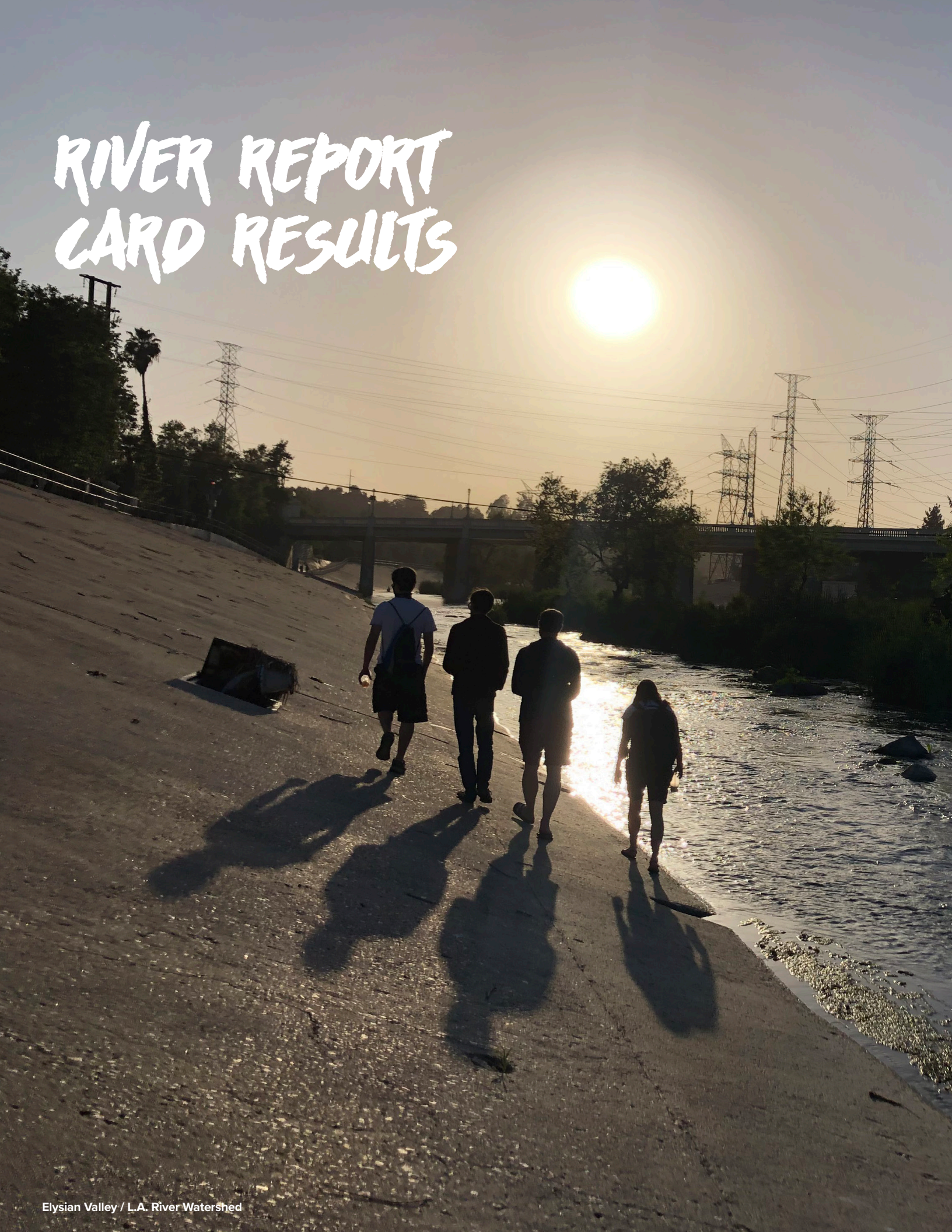
For our analysis, we grouped sites by watershed. For the L.A. River Watershed, we further divided it into three areas: 1) official recreation zones, 2) popular recreation sites outside of official zones (Upper L.A. River Watershed), and 3) Lower L.A. River sites not designated for recreation. Each site's grades were compared to those of all sites in L.A. County as well as within its respective watershed or zone.

The 2023 updated grading system differs significantly:

- **Parameters:** Focuses exclusively on *E. coli* levels, utilizing the most recent SS and the 30-day GM values, with a higher weighting on the SS to provide more health-protective assessments (see **TABLE 1** and **TABLE 4**).
- **Magnitude and Variability:** Considers the magnitude of exceedances, using *E. coli* risk categories (see **TABLE 3**).
- **Threshold:** Uses California's recreational freshwater objective threshold value for *E. coli* (see **TABLE 1**).

Due to these substantial changes in methodology, direct comparisons with previous years would be misleading. Instead, this year's results establish a new baseline for future assessments under the current system.

RIVER REPORT CARD RESULTS



Elysian Valley / L.A. River Watershed

LOS ANGELES COUNTY OVERVIEW

Across all 35 sites graded throughout summer 2023, 29% of the grades we issued were A+ (10 sites), 26% were A (9 sites), 9% were B (3 sites), 11% were C (4 sites), 9% were D (3 sites), and 17% were F (6 sites) (FIGURE 2). This indicates that 63% of Los Angeles County's freshwater recreation sites received A+, A, or B grades, indicating they are safe to swim with a low health risk; and 37% of sites received C, D, or F grades, indicating the highest risk of illness, and contact with the water should be avoided.

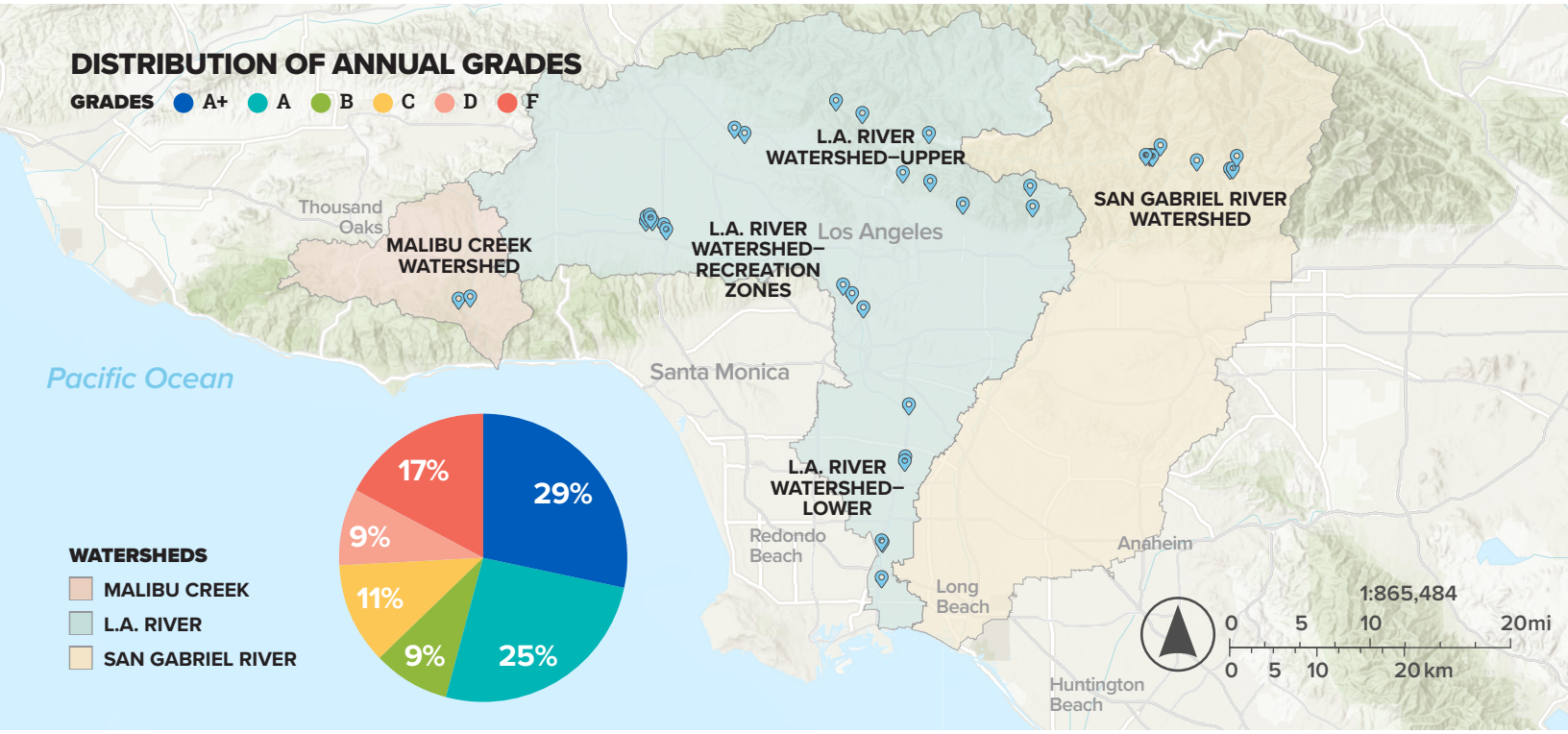


FIGURE 2. 2023 Distribution of Annual Grades. Across all L.A. County sites and by region: Malibu Creek Watershed, San Gabriel River Watershed, L.A. River Watershed: Recreation Zones, Upper, and Lower.

The good news is that the majority of freshwater sites (54%), received annual grades of A+ or A. All sites in the Malibu Creek and San Gabriel River Watersheds received A+ or A annual grades. Out of all the assessed sites, 22 (63%) received annual grades ranging from A+ to B (excellent to good), while only six sites (17%) received an F grade and exhibited very poor water quality, with the majority of these poor-quality sites located in the Lower L.A River (**FIGURE 2**).

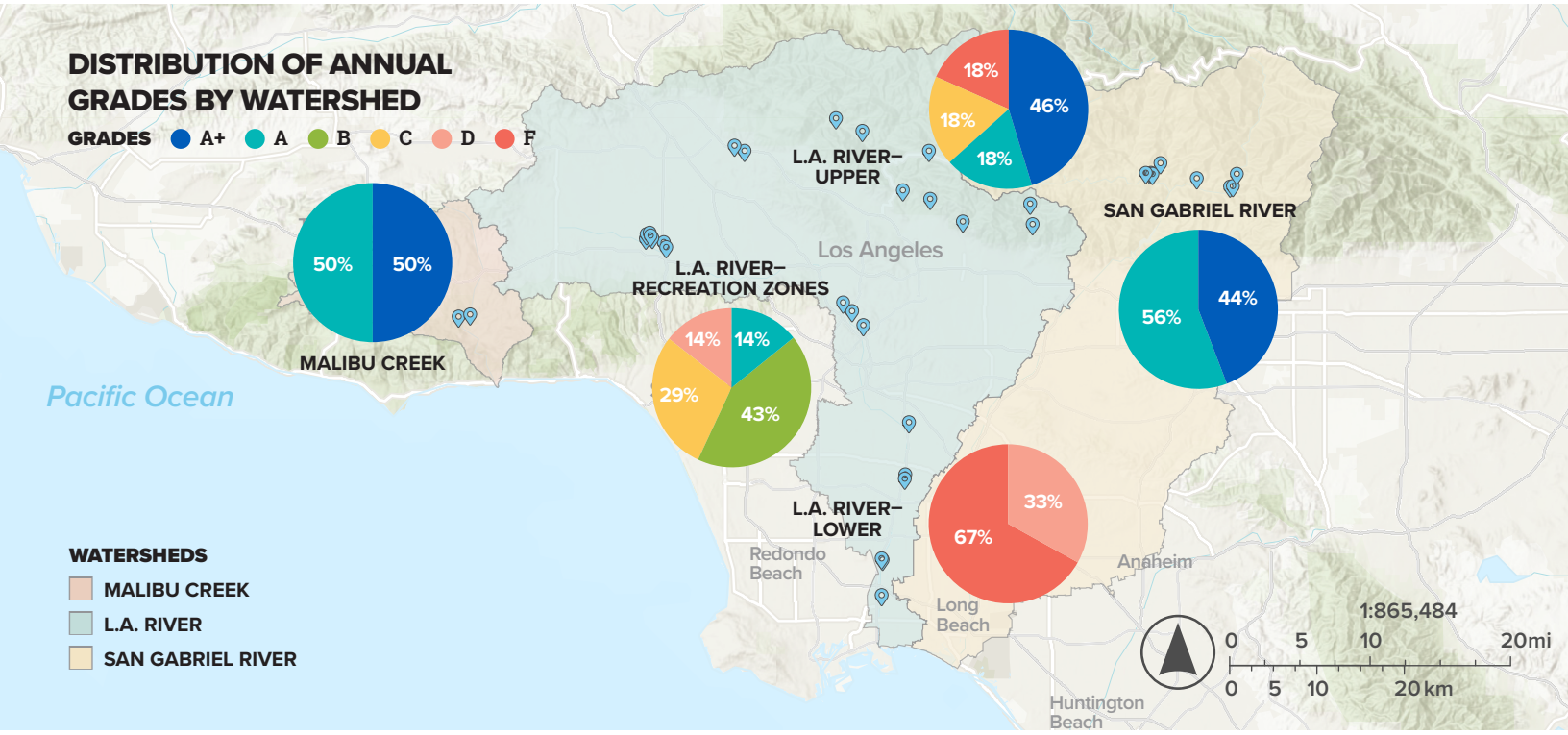


FIGURE 3. Distribution of Annual Grades by Watershed. Annual grades across all 35 freshwater monitoring sites in L.A. County: Malibu Creek Watershed, San Gabriel River Watershed, L.A. River Watershed: Recreation Zones, Upper, and Lower. (**TABLES 5–9**) show the percentages of grades for each watershed.

The North Santa Monica Bay[7,8] encompasses some of L.A . County's most beautiful natural areas, including the Santa Monica Mountains, Topanga Canyon, and Malibu Creek. These areas are located in the northwest corner of Los Angeles County, bordered by the Santa Monica Mountains (to the north, west, and east), and the Pacific Ocean to the south. The Malibu Creek Watershed (highlighted in light pink on the map in **FIGURE 3**) spans 109 square miles, extending from the northwestern end of Los Angeles County and the southern end of Ventura County. This year, we used the 10-digit-Hydrologic Unit Code scale to delineate the boundaries for the Malibu Creek Watershed on the map. Heal the Bay monitored two sites within this watershed: Malibu Creek at Rock Pool and Las Virgenes Creek at Crags Road. Both sites exhibited excellent water quality, with Rock Pool earning an A+ annual grade and Las Virgenes receiving an A annual grade. Notably, Rock Pool has been included in the Honor Roll list for its excellent water quality for summer 2023 (**FIGURE 3** and **TABLE 5**).

MALIBU CREEK

GRADE	# SITES	%
A+	1	50%
A	1	50%
B	0	0%
C	0	0%
D	0	0%
F	0	0%
A+A+A+B	2	100%
C+D+F	0	0%

TABLE 5. Malibu Creek Watershed 2023 Annual Grades.

7 North Santa Monica Bay

8 Enhanced Watershed Management Program for Malibu Creek Watershed

The San Gabriel River Watershed (highlighted in light yellow on the map in **FIGURE 3**) includes nine popular recreation sites within the Angeles National Forest, monitored by the San Gabriel River Regional Monitoring Program (SGRRMP).[3] This year, four of these sites earned a spot on the Honor Roll list, indicating they consistently met the highest water quality standards with A+ grades. The other five sites also demonstrated excellent water quality, meeting the criteria for an A annual grade, with only slight increases in bacteria levels observed (**FIGURE 3** and **TABLE 6).** However, besides these successes, the East Fork of the San Gabriel River faced ongoing and significant pollution and trash challenges.[9] Despite its natural beauty and minimal upstream urban development, which generally contribute to excellent water quality, the area is frequently overwhelmed by garbage, graffiti, and discarded items such as rotting food, barbecue grills, and float toys. This pollution not only spoils the scenic landscape but also poses a threat to the watershed's overall health, highlighting the need for improved waste management and conservation efforts to protect this vital resource.

The Los Angeles River Watershed[10] spans approximately 834 square miles, bordered by the headwaters of the Santa Monica, Santa Susana, and San Gabriel Mountains to the north and west. In the southern part of the watershed, it collects runoff from urbanized areas surrounding downtown Los Angeles which is highly developed. This Watershed includes the Upper and Lower portions and the Recreation Zones in the L.A. River and it is one of the most diverse in terms of land use patterns.

The L.A. River Watershed–Upper[11,15] is one of the largest watersheds in the L.A. Basin, covering approximately 613 square miles in the midwest portion of L.A. County (highlighted in light green in **FIGURE 3**). This watershed

SAN GABRIEL RIVER

GRADE	# SITES	%
A+	4	56%
A	5	44%
B	0	0%
C	0	0%
D	0	0%
F	0	0%
A+A+B	9	100%
C+D+F	0	0%

TABLE 6. San Gabriel River Watershed 2023 Annual Grades.

exhibits significant variation in conditions across sites, affecting downstream ecology, water quality, and flooding. The LARWMP[1] and LASAN[2] monitored eleven recreational and swimming sites within the L.A. River Watershed–Upper, including Unregulated Swim sites, which lack lifeguards and restrooms and are located in tributaries of the L.A. River Main Channel, many within the Angeles National Forest. Additionally, LASAN monitored two sites in Lake Balboa in the Sepulveda Basin, where swimming is prohibited, but other recreational activities are permitted.

In 2023, the annual grades for the L.A. River Watershed–Upper varied significantly. Five recreational sites, located in less developed areas with minimal urban runoff, made the Honor Roll list (A+ grade), indicating excellent water quality. Conversely, two sites were placed on the Freshwater Fails list (F grade), signaling the highest risk of illness; contact with the water at these sites should be avoided (**FIGURE 3** and **TABLE 7**). These failing sites are within urbanized areas of the watershed (Tujunga Wash at Hansen Dam and Bull Creek), likely reflecting higher bacteria levels due to various sources (e.g., animal waste and human sources).

9 LA Times: Trash heaps and wild parties: Blight invades a beloved L.A. escape

10 Los Angeles River Watershed

11 Los Angeles River Watershed Upper

L.A. RIVER–UPPER

GRADE	# SITES	%
A+	5	46%
A	2	18%
B	0	0%
C	2	18%
D	0	0%
F	2	18%
A+A+B	7	64%
C+D+F	4	36%

TABLE 7. L.A. River Watershed–Upper 2023 Annual Grades.

The L.A. River Watershed–Recreation Zones[12,13] includes two segments: the 2.5-mile Elysian Valley River Recreation Zone and the 2-mile Sepulveda Basin River Recreation Zone. These zones encompass six sites monitored by LARWMP[1] and LASAN.[2] The public can access and enjoy the river for recreational activities such as fishing and kayaking in designated areas from Memorial Day to the last week of September. Heal the Bay also monitored three sites in Elysian Valley and one site in the Sepulveda Basin at Burbank Boulevard. The water quality at L.A. River at Benedict St (Frogspot) was excellent in 2023, earning an annual grade of A. L.A. River at Rattlesnake Park, Steelhead Park, and Sepulveda Dam received B grades, indicating good water quality. All four of these sites have a lower risk of illness compared to other sites that showed average to poor water quality. The L.A. River at Sepulveda Basin at Balboa Boulevard and Burbank Boulevard received C grades, indicating a higher risk of illness. L.A. River at Sepulveda Basin Middle was the only site with a D annual grade in this section of the watershed. In 2023, none of these sites qualified for the Honor Roll or Freshwater Fails list due to their varied water quality grades (**FIGURE 3** and **TABLE 8**).

L.A. RIVER–RECREATION ZONES

GRADE	# SITES	%
A+	0	0%
A	1	14%
B	3	43%
C	2	29%
D	1	14%
F	0	0%
A+A+B	4	57%
C+D+F	3	43%

TABLE 8. L.A. River Watershed–Recreation Zones 2023 Annual Grades.

The L.A. River Watershed–Lower,[14,15] one of the most industrialized areas within the L.A. River Watershed, is located in southeast Los Angeles County, spanning approximately 43.7 square miles. From the Rio Hondo to the Pacific Ocean, the Lower L.A. River traverses industrial, residential, and commercial zones, including storage facilities, freeways, rail lines, and rail yards. Despite the industrial surroundings, numerous trails and paths along this stretch are popular for hiking, horseback riding, and bird watching. In 2023, the L.A. River Watershed–Lower received annual grades solely of Ds and Fs, placing it at the top of this year's Freshwater Fails list (**FIGURE 3** and **TABLE 9**). Both Compton Creek and the L.A. River at Compton Creek Confluence suffer from significant pollution, indicating a chronic fecal contamination issue. This is notable given that Compton Creek supports a soft-bottom riparian/wetland habitat just before it joins the Los Angeles River.

L.A. RIVER–LOWER

GRADE	# SITES	%
A+	0	0%
A	0	0%
B	0	0%
C	0	0%
D	2	33%
F	4	67%
A+A+B	0	0%
C+D+F	6	100%

TABLE 9. L.A. River Watershed–Lower 2023 Annual Grades.

12 Los Angeles River Watershed Upper
13 L.A. River Recreation
14 Los Angeles River Watershed Lower
15 The Lower LA River Revitalization Plan

FRESHWATER FAILS

F

Freshwater Sites With Highest Health Risk And Bacteria Levels Well Above Health Standards

The Freshwater Fails list identifies the sites with the worst water quality, where bacteria levels significantly exceed health standards, posing the highest risk of illness. To qualify for the list, sites must have an annual grade of F. The 2023 list includes six recreational sites with annual grades of F and average scores of 59 points or lower, indicating consistently high bacteria levels (**TABLE 10**). Contact with water at these sites should be avoided.

Rank	Site	Watershed	Grade
1	Compton Creek	L.A. River Watershed–Lower	F
2	L.A. River below the Compton Creek Confluence	L.A. River Watershed–Lower	F
3	Bull Creek	L.A. River Watershed–Upper	F
4	Tujunga Wash at Hansen Dam	L.A. River Watershed–Upper	F
5	L.A. River at Willow Street	L.A. River Watershed–Lower	F
6	L.A. River below the Rio Hondo Confluence	L.A. River Watershed–Lower	F

TABLE 10. Freshwater Fail sites across L.A. County received the lowest average scores (≤ 59%), earning annual grades of F. These sites exhibit very poor water quality, with bacteria levels significantly exceeding health standards, posing the highest risk of illness. The average scores at these sites ranged from 55 points to 44 points, representing the lowest points for F grades this year.


L.A. River at Willow Street

HONOR ROLL

Freshwater Sites With Lowest Health Risk And Bacteria Levels Well Below Health Standards

This year, the Honor Roll list features sites with consistently excellent water quality, where bacteria levels remain well below health standards, indicating the lowest risk of illness. To qualify for the list, sites must have an annual grade of A+. The 2023 list includes ten recreational sites, each achieving an average score of 100 and earning an annual grade of A+, resulting in no ranking for this list. These sites maintained the highest possible water quality, with bacteria levels never exceeding health standards (**TABLE 11**).

Among the ten sites on the Honor Roll list, five are located in the scenic L.A. River Watershed–Upper, and four are in the San Gabriel River Watershed. Additionally, Malibu Creek at Rock Pool from the Malibu Creek Watershed joins the list this year.

Site	Watershed	Grade
Hansen Dam Lake	L.A. River Watershed–Upper	A+
Hidden Springs	L.A. River Watershed–Upper	A+
Big Tujunga Creek at Vogel Flats	L.A. River Watershed–Upper	A+
Big Tujunga Creek at Delta Flats	L.A. River Watershed–Upper	A+
Gould Mesa	L.A. River Watershed–Upper	A+
San Gabriel River Upper West Fork	San Gabriel River Watershed	A+
San Gabriel River Upper East Fork	San Gabriel River Watershed	A+
San Gabriel River East Fork at Cattle Canyon	San Gabriel River Watershed	A+
San Gabriel River Upper Cattle Canyon	San Gabriel River Watershed	A+
Rock Pool	Malibu Creek Watershed	A+

TABLE 11. Honor Roll sites across L.A. County that received the highest average scores (100 points), earning annual grades of A+. These sites exhibit excellent water quality, with bacteria levels never exceeding health standards, posing the lowest risk of illness.

MALIBU CREEK WATERSHED OVERVIEW

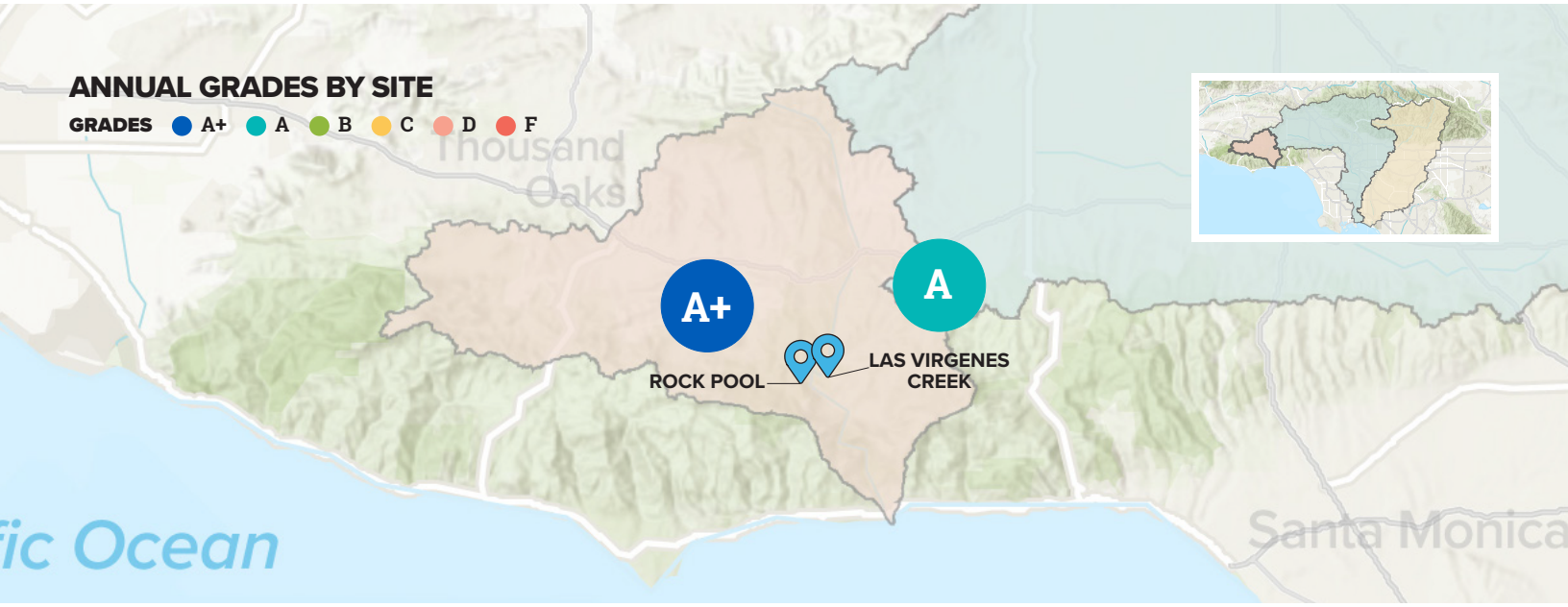


FIGURE 4. Malibu Creek Watershed Annual Grades by Site. Annual grades at Malibu Creek Watershed sites during the 2023 monitoring season.

The Malibu Creek Watershed spans 109 square miles, extending from the northwestern end of Los Angeles County and the southern end of Ventura County.[8] Since 2014, Heal the Bay has regularly monitored two recreation sites in the Malibu Creek Watershed: Malibu Creek at Rock Pool and Las Virgenes Creek at Crags Road. These popular swimming holes in Malibu Creek State Park are easily accessible and frequently used for recreation. Both sites are listed as impaired for bacteria by the State Water Board and USEPA. This year, both demonstrated excellent water quality, with A+ and A annual grades (**FIGURE 4** and **TABLE 5**).

Malibu Creek at Rock Pool made the Honor Roll list in 2023, maintaining bacteria levels consistently well below health standards, posing the lowest risk of illness. The site earned an A+ annual grade (100 points) and showed stable levels throughout the sampling period, indicating overall excellent water quality (**FIGURE 5**).

Las Virgenes Creek at Crags Road received an A annual grade. During the sampling period, 27% of the monitoring days had a C grade, while the remaining days showed excellent water quality, earning an A+ (**FIGURE 5**), highlighting the importance of checking the weekly grades before swimming.


Rock Pool

Breakdown of 2023 Annual Grades Over the Summer Season

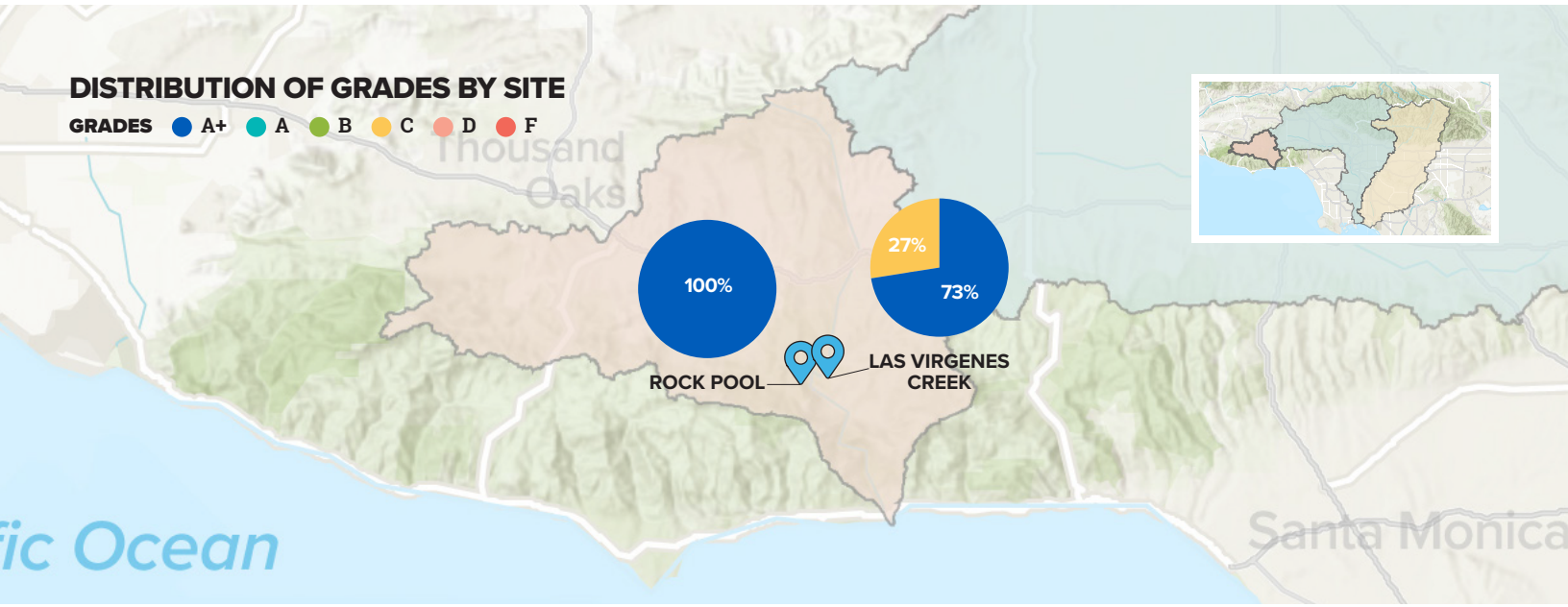


FIGURE 5. Malibu Creek Watershed Distribution of Grades by Site. Breakdown of Weekly Grades as percentages for two sites at Malibu Creek Watershed during the 2023 monitoring season.


Las Virgenes Creek

SAN GABRIEL RIVER WATERSHED OVERVIEW

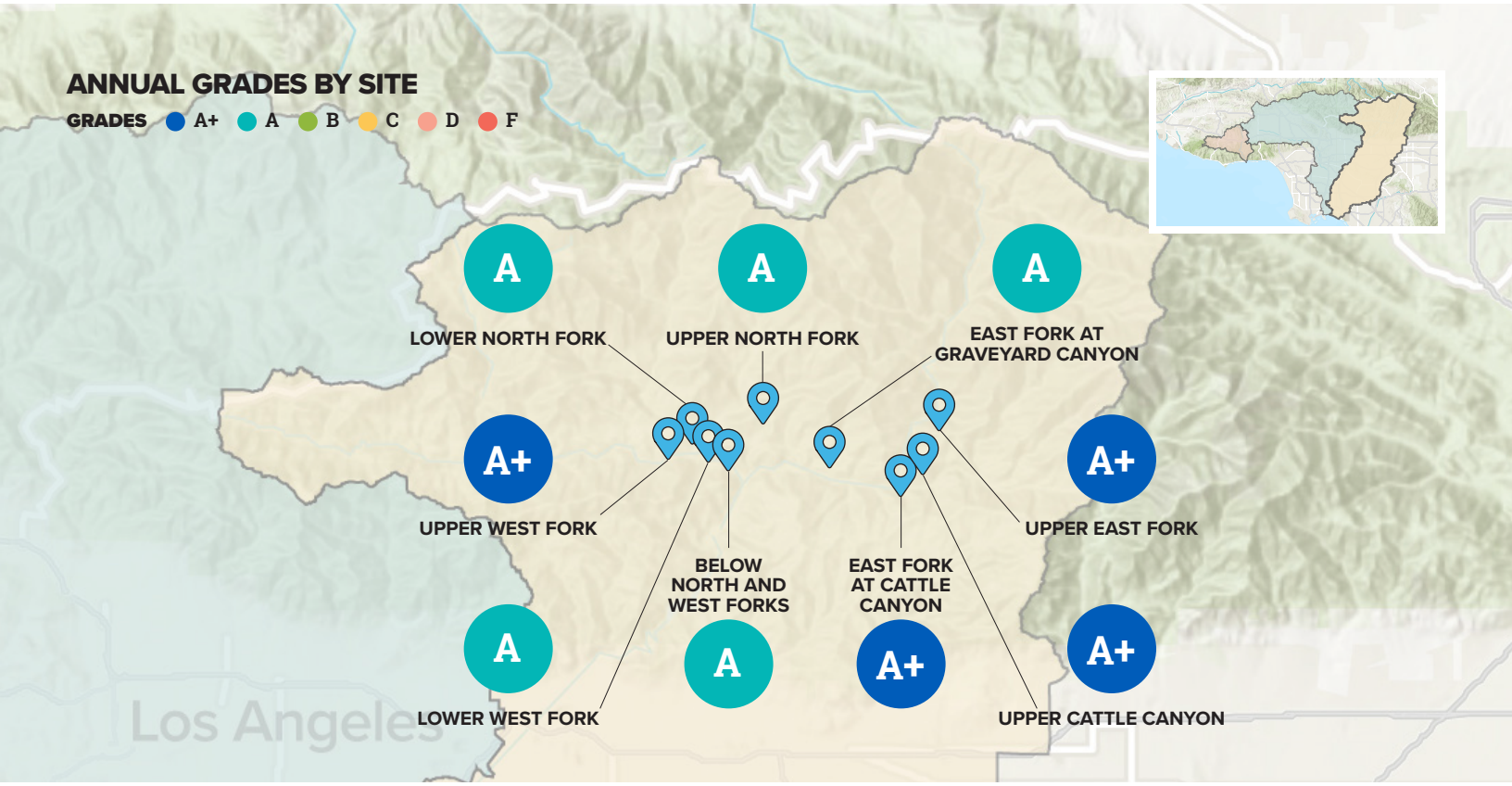


FIGURE 6. San Gabriel River Watershed Annual Grades by Site. Annual grades at San Gabriel River Watershed sites during the 2023 monitoring season.

The San Gabriel River Watershed contains nine popular recreation sites within the Angeles National Forest, monitored by the SGRRMP.[3] Despite the generally excellent water quality due to minimal upstream urban development, the East Fork of the San Gabriel River faces ongoing and significant pollution and trash challenges.[9] The natural beauty of the area is often marred by garbage, graffiti, and discarded items such as rotting food, barbecue grills, and float toys. While these sites attract many visitors, the pollution poses a threat to the watershed's health, underscoring the need for improved waste management and conservation efforts to protect this vital resource.

This year's Honor Roll list includes four sites within the San Gabriel River Watershed: San Gabriel River Upper West Fork, San Gabriel River Upper East Fork, San Gabriel River Upper Cattle Canyon, and San Gabriel River East Fork at Cattle Canyon. All these sites exhibited excellent water quality, with bacteria levels consistently well below health standards, posing the lowest risk of illness. Each site received an A+ annual grade (**FIGURE 6** and **TABLE 6**).

In addition, five sites in the San Gabriel River Watershed—San Gabriel River Lower North Fork, San Gabriel River Upper North Fork, San Gabriel River at Lower West Fork, San Gabriel River East Fork at Graveyard Canyon, and San Gabriel River Below North and West Fork—earned

Breakdown of 2023 Annual Grades Over the Summer Season

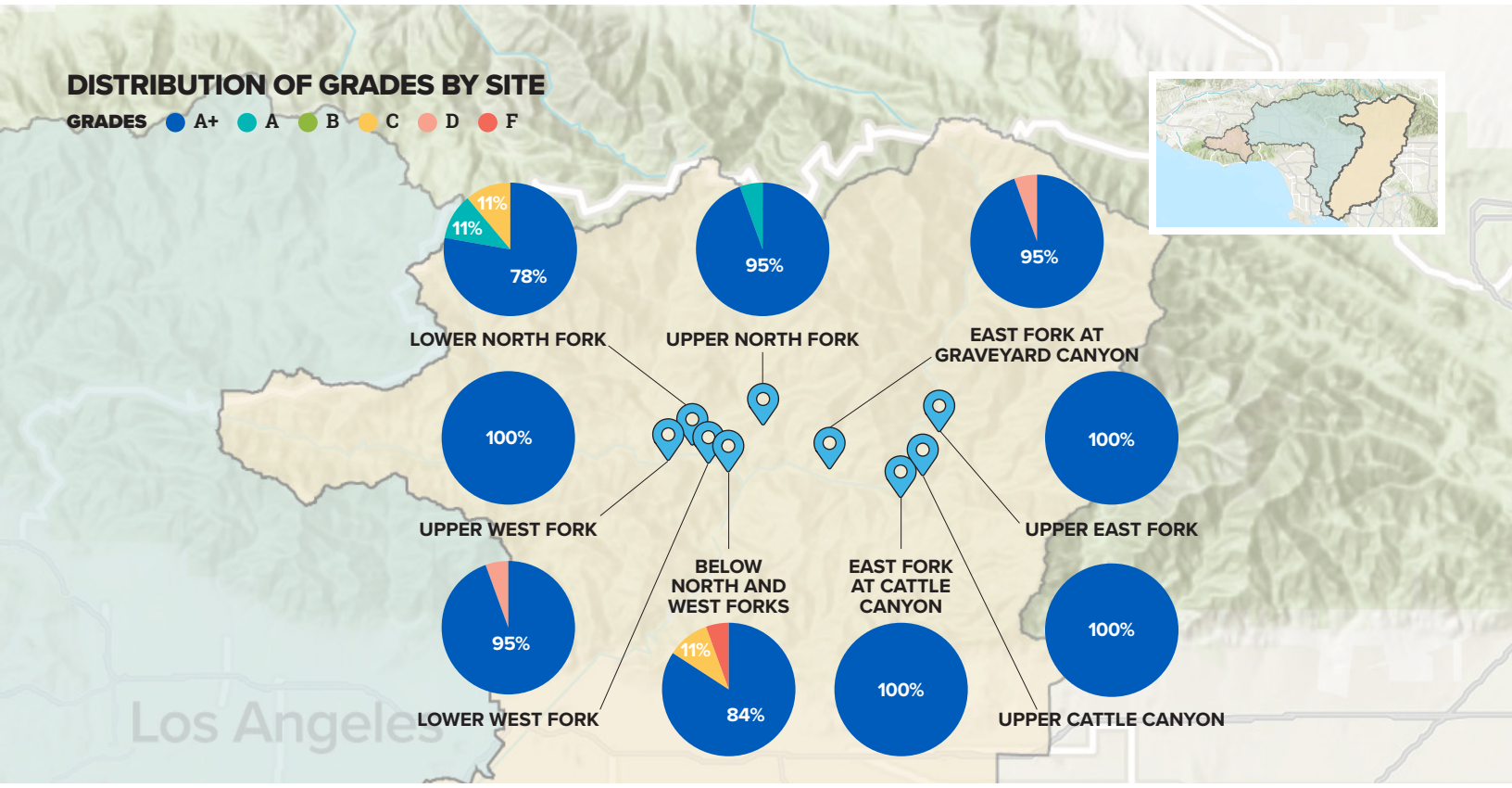


FIGURE 7. San Gabriel River Watershed Distribution of Annual Grades by Site. Breakdown of Weekly Grades as percentages for nine sites in the San Gabriel River Watershed during the 2023 monitoring season. Percentages ≤ 10% are excluded from the pie charts; refer to Appendix A for all values.

an A annual grade. This grade indicates excellent water quality, approaching the highest standards and remaining within acceptable limits. However, during the sampling period, 5% of the days when samples were collected at San Gabriel River East Fork at Graveyard Canyon and San Gabriel River Lower West Fork received a D grade, indicating poor water quality on those days (**FIGURES 6** and **7**).

In contrast, at the San Gabriel River Lower North Fork site, 11% of the sampling days received A and C grades, indicating good to average water quality throughout the period. At San Gabriel River Below North and West Forks, water quality fluctuated on weekly sampling days showing grades ranging from C (11%) to F (5%) during portions of the monitoring period. Despite these fluctuations, all these sites generally maintain excellent water quality (**FIGURES 6** and **7**).

Efforts to manage this influx of visitors and maintain the area have been hampered by a lack of resources and enforcement. Rangers and volunteers struggle to keep up with the increasing volume of litter and vandalism, leading to concerns over water contamination and the overall degradation of the environment. The situation highlights the urgent need for funding for resource management, increased outreach and education, continued stewardship, and more robust conservation strategies to protect this valuable natural resource.

L.A. RIVER WATERSHED—UPPER OVERVIEW

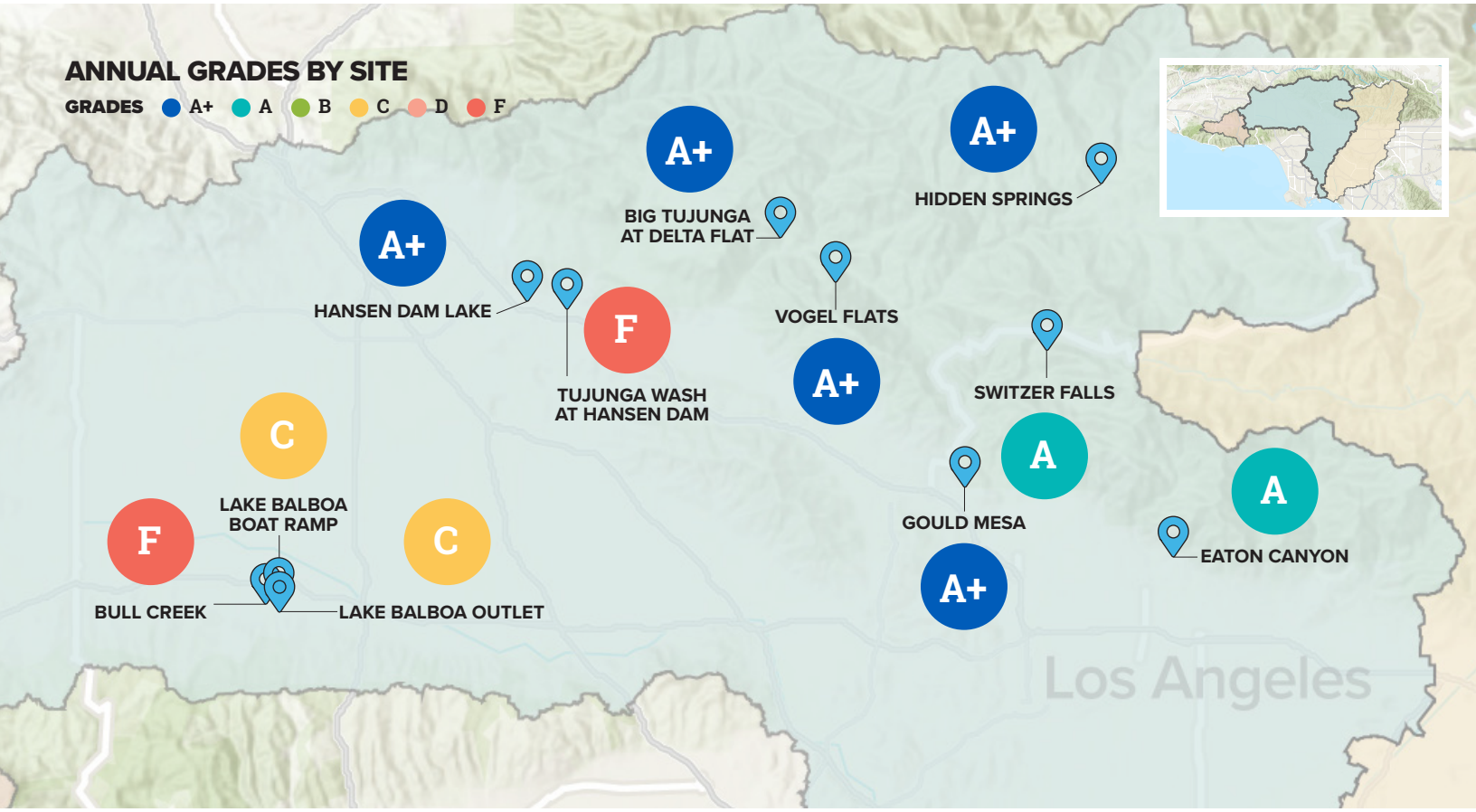


FIGURE 8. Los Angeles River Watershed–Upper Annual Grades by Site. Annual grades at Los Angeles River Watershed–Upper sites during the 2023 monitoring season.

The L.A. River Watershed–Upper[11,15] is part of one of the largest watersheds in the L.A. Basin. This watershed exhibits significant variation in conditions across sites, affecting downstream ecology, water quality, and flooding. LARWMP[1] and LASAN[2] monitored eleven recreational and swimming sites within the L.A. River Watershed–Upper, including Unregulated Swim sites, which lack lifeguards and restrooms and are located in tributaries of the L.A. River Main channel, many within the Angeles National Forest. Additionally, LASAN monitored two sites in Lake Balboa within the Sepulveda Basin, where swimming is prohibited, but other recreational activities are permitted.

In 2023, the annual grades across the L.A. River Watershed–Upper varied widely (**FIGURE 8**). Five recreational sites, located in less developed areas with minimal urban runoff, made the Honor Roll list (A+ grade), indicating excellent water quality. Conversely, two sites were placed on the Freshwater Fails list (F grade), signaling the highest risk of illness; contact with the water at these sites should be avoided. These failing sites are within urbanized areas of the watershed (Tujunga Wash at Hansen Dam and Bull Creek), likely reflecting higher bacteria levels due to various sources (e.g. animal waste and human sources) (**FIGURE 8**).

Breakdown of 2023 Annual Grades Over the Summer Season

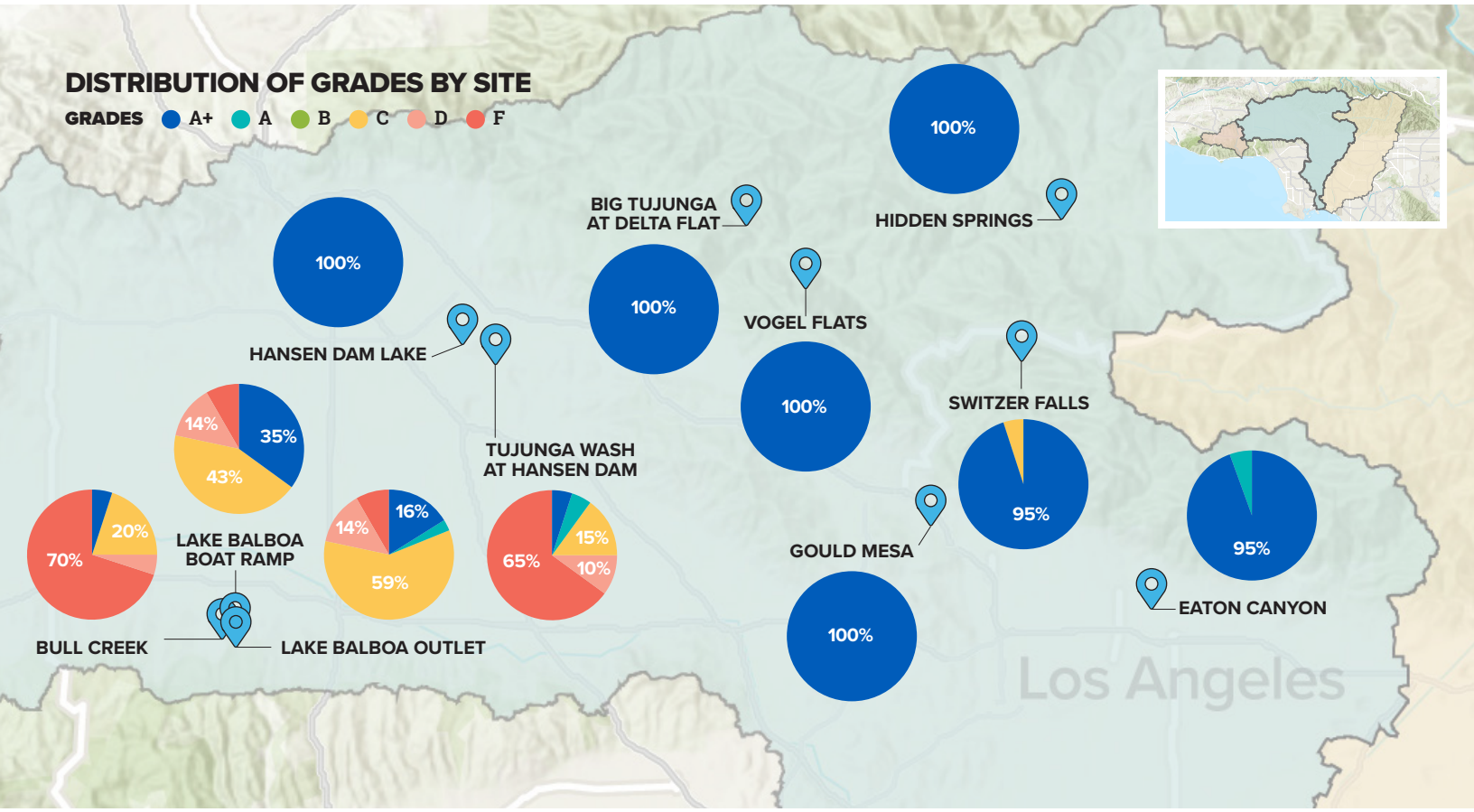


FIGURE 9. Los Angeles River Watershed–Upper Distribution of Annual Grades by Site. Breakdown of Weekly Grades as percentages for eleven sites in the Los Angeles River Watershed–Upper during the 2023 monitoring season. Percentages ≤ 10% are excluded from the pie charts; refer to Appendix A for all values.

In 2023, the distribution of Annual Grades by the site are as follows: Hansen Dam Lake, Big Tujunga Creek at Delta Flat, Big Tujunga Creek at Vogel Flats, Mill Creek at Hidden Springs, and Gould Mesa campground all made the 2023 Honor Roll. All of these sites exhibited excellent water quality, maintaining bacteria levels consistently well below health standards, posing the lowest risk of illness, and receiving A+ annual grades (**FIGURES 8** and **9**).

Eaton Canyon and Switzer Falls earned an A annual grade, indicating excellent water quality that approaches the highest standards and remains within acceptable limits. Despite having A+ weekly grades 95% of the time, both sites exhibited some fluctuations. Eaton Canyon showed A grades 5% of the time, while Switzer Falls had C grades 5% of the time. Overall, both sites maintained excellent water quality (**FIGURE 9**).

Tujunga Wash at Hansen Dam and Bull Creek are included on this year's Freshwater Fails list, each receiving an F annual grade, indicating they are unsafe for swimming or water contact. These sites reached an all-time low in the summer of 2023 and continue to suffer from severe fecal pollution. Tujunga Wash at Hansen Dam had F grades on 65% of the sampling days while Bull Creek had F grades on 70% of the sampling days (**FIGURE 9**). These failing sites are located

within urbanized areas of the watershed, likely reflecting higher bacteria levels from various sources such as animal waste and human activities.

The other two sites monitored by LASAN in Lake Balboa within the Sepulveda Basin are the Boat Ramp and Outlet, both receiving C annual grades (**FIGURE 8**). Swimming is prohibited at these sites, but other recreational activities are permitted. At Lake Balboa Boat Ramp, 65% of the sampling days had average to very poor water quality (C–F grades), while the remaining days displayed excellent water quality, earning A+ weekly grades despite fluctuations (**FIGURE 9**).

In contrast, the Lake Balboa Outlet experienced poorer water quality compared to the Boat Ramp site (**FIGURE 9**). Throughout the sampling period, 81% of the days had average to very poor water quality (C–F grades), with the remaining days displaying excellent water quality, earning A+ or A grades.

Due to the Bobcat Fire, Hermit Falls and Sturtevant Falls have been closed since 2022. Monitoring at Vogel Flats began in 2020 to replace Sturtevant Falls. Millard Campground was dropped from monitoring in 2019 due to limited recreational use.

Lake Balboa

L.A. RIVER WATERSHED—RECREATION ZONES OVERVIEW

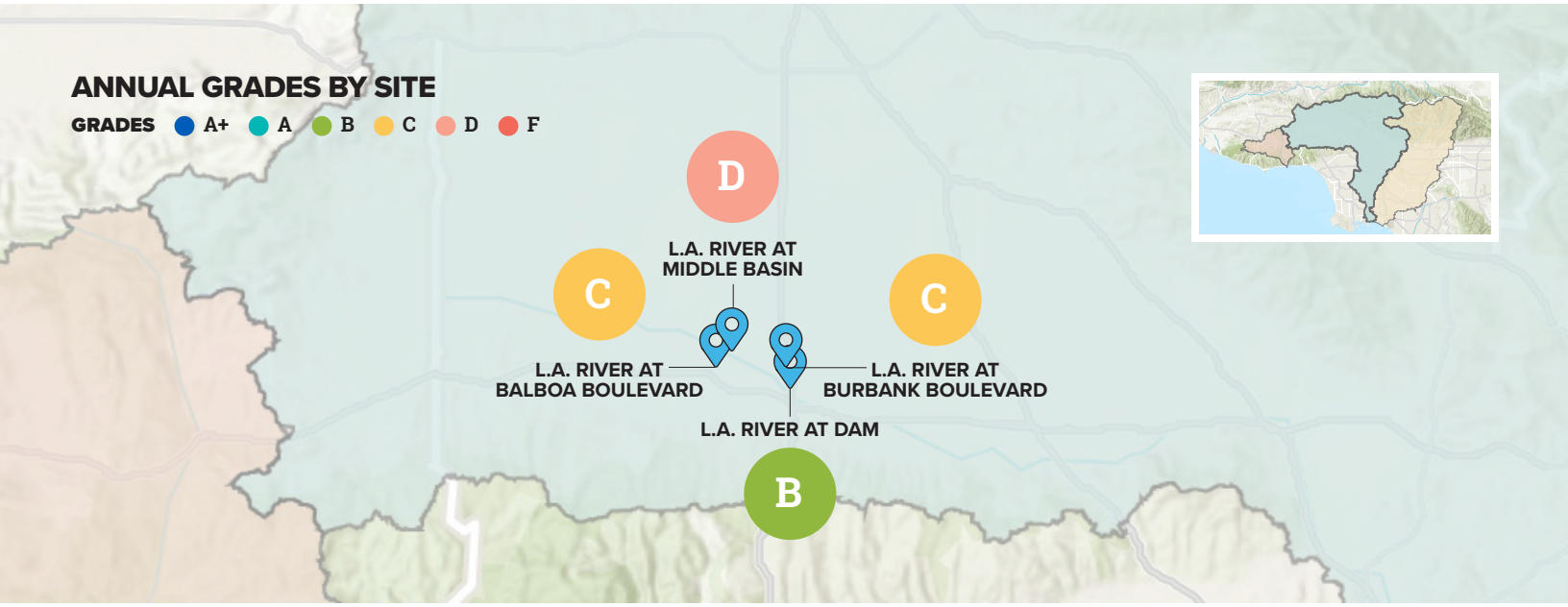


FIGURE 10. L.A. River Watershed–Sepulveda Basin Recreation Zone Annual Grades by Site. Annual grades at Los Angeles River Watershed–Sepulveda Basin Recreation Zone during the 2023 monitoring season.

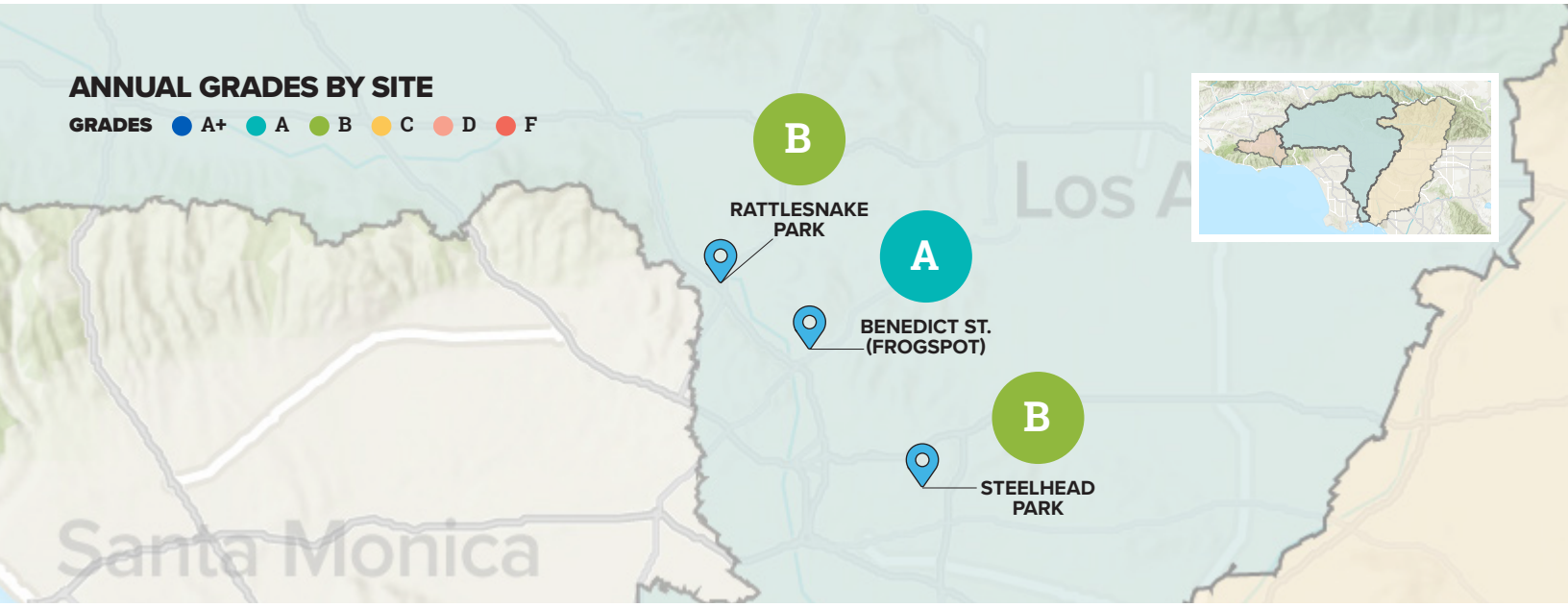


FIGURE 11. L.A. River Watershed–Elysian Valley Recreation Zone Annual Grades by Site. Annual grades at L.A. River Watershed–Elysian Valley Recreation Zone sites during the 2023 monitoring season.

The L.A. River Watershed–Recreation Zones[12,13,15] include two segments: the 2.5-mile Elysian Valley River Recreation Zone (encompassing Upper, Middle, and Lower Elysian Valley) and the 2-mile Sepulveda Basin River Recreation Zone (Upper Sepulveda Basin Kayak Zone, Middle Basin, and Lower Basin [at Dam]). These zones encompass six sites monitored by LARWMP[1] and LASAN.[2] Heal the Bay also monitored three of those sites in the Elysian Valley that correspond to: Rattlesnake Park (Upper), Benedict St (Frogspot) (Middle), and Oso/Steelhead Park (Lower) in addition to one site in the L.A. River Sepulveda Basin at Burbank Boulevard. These sites are kayak entry and exit locations and were selected as locations where people were most likely to come into contact with the water.

Breakdown of 2023 Annual Grades Over the Summer Season

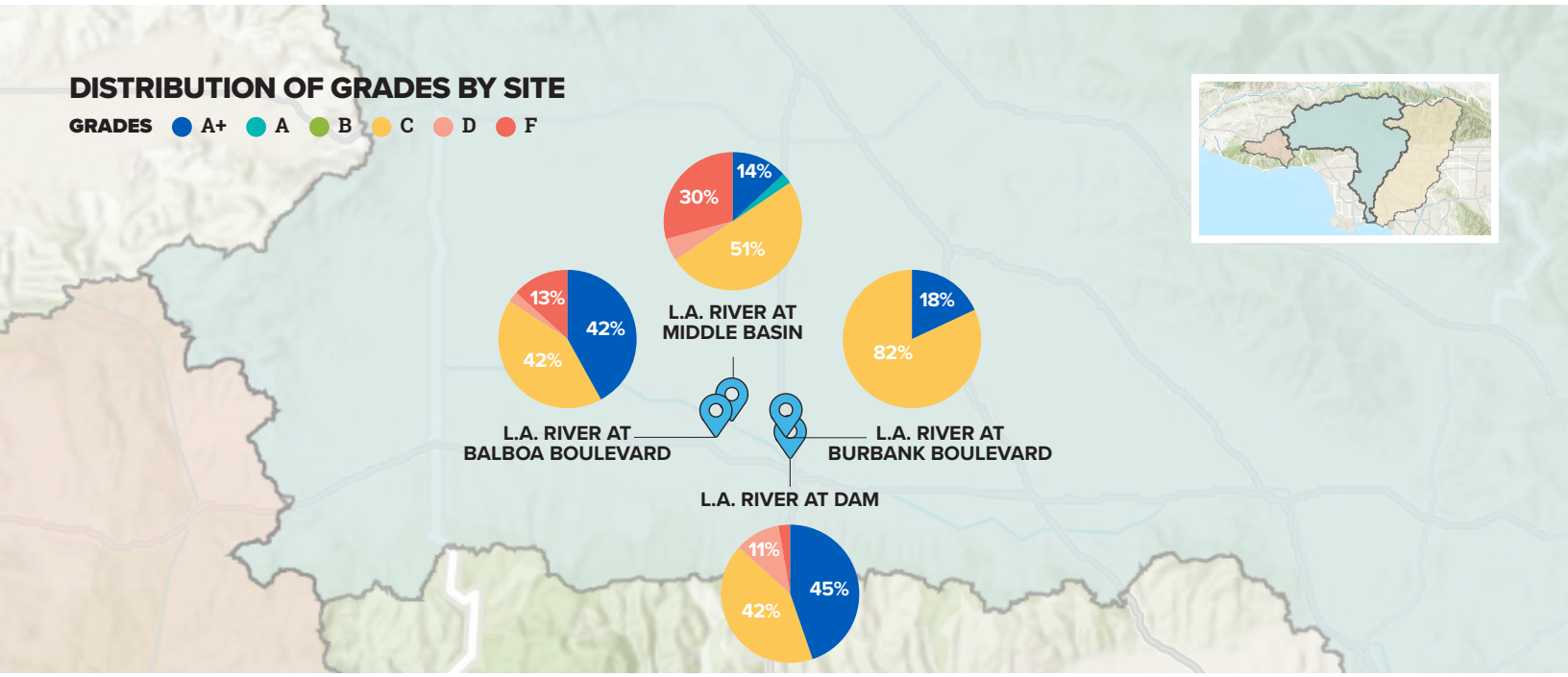


FIGURE 12. L.A. River Watershed–Sepulveda Basin Recreation Zone Distribution of Annual Grades by Site. Breakdown of Weekly Grades as percentages for four sites in the L.A. River Watershed–Sepulveda Basin Recreation Zone during the 2023 monitoring season. Percentages ≤ 10% are excluded from the pie charts; refer to Appendix A for all values.

In 2023, four sites in the L.A. River Watershed–Recreation Zones showed excellent to good water quality. L.A. River at Benedict St. (Frogspot) earned an A annual grade, with 69% of the sampling days displaying excellent water quality, reflected in weekly A+ grades despite some fluctuations (**FIGURES 11** and **13**). These grades are associated with a low health risk.

L.A. River at Rattlesnake Park, Steelhead Park, and Sepulveda at Dam received B annual grades, indicating good water quality with a relatively low health risk. However, these sites exhibited variability, with C to F grades on 63%, 58%, and 56% of the sampling days, respectively (**FIGURES 12** and **13**), indicating significant fluctuations in water quality.

Breakdown of 2023 Annual Grades Over the Summer Season

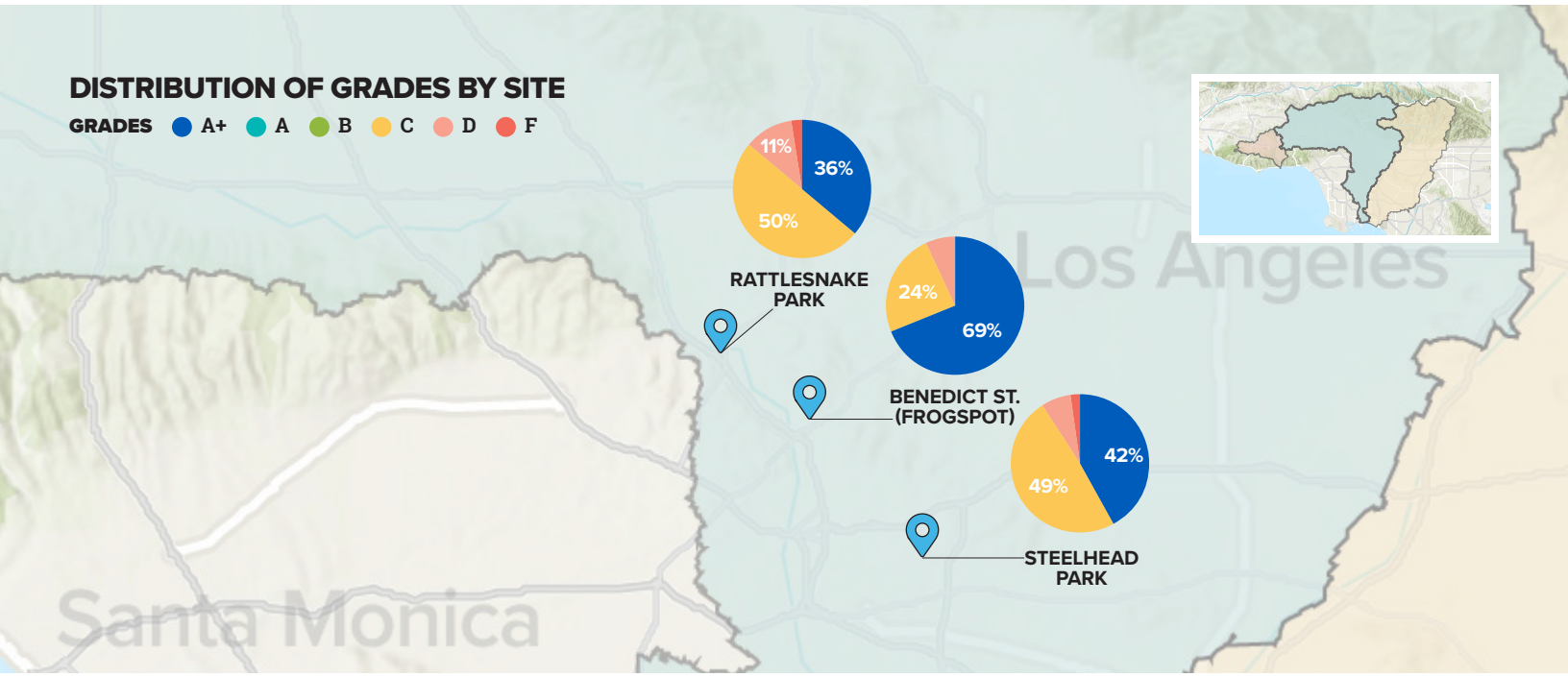


FIGURE 13. L.A. River Watershed–Elysian Valley Recreation Zone Distribution of Annual Grades by Site. Breakdown of Weekly Grades as percentages for three sites in the L.A. River Watershed–Elysian Valley Recreation Zone during the 2023 monitoring season. Percentages ≤ 10% are excluded from the pie charts; refer to Appendix A for all values.

The L.A. River Sepulveda Basin Recreation Zone sites at Balboa Boulevard and Burbank Boulevard received C annual grades in 2023, indicating a higher risk of illness. Despite this, 42% and 18% of the sampling days at these sites, respectively, displayed excellent water quality, earning weekly A+ grades amidst fluctuations (**FIGURE 12**).

The L.A. River in the Sepulveda Basin Middle was the only site with a D annual grade in this section of the watershed. 80% of the sampling days at this site displayed poor water quality, resulting in weekly C to F grades (**FIGURES 10** and **12**).


Sepulveda Basin / Photo: Los Angeles District USACE

L.A. RIVER WATERSHED—LOWER OVERVIEW

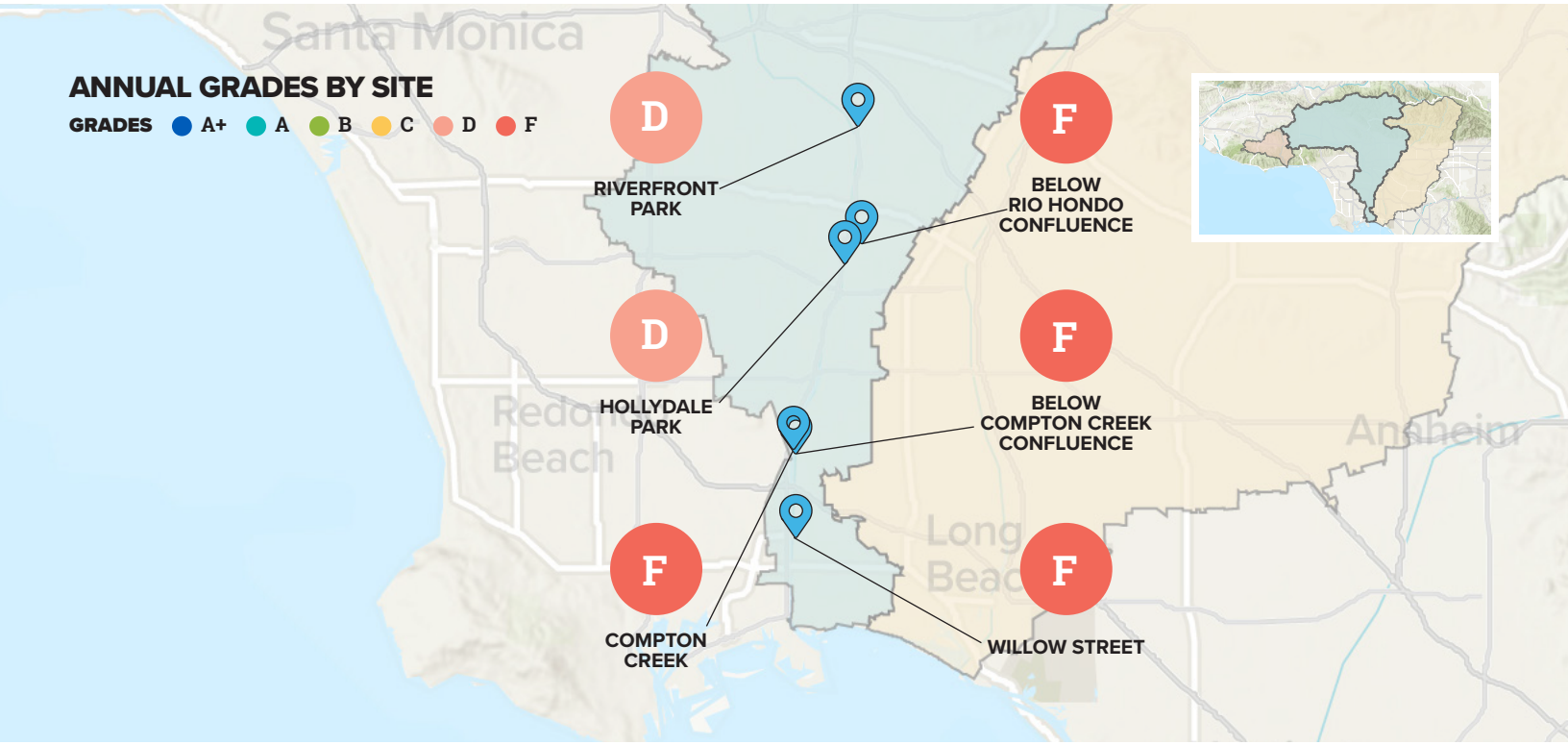


FIGURE 14. L.A. River Watershed–Lower Annual Grades by Site. Annual grades at L.A. River Watershed–Lower sites during the 2023 monitoring season.

The Lower L.A. River spans 19 miles from Vernon to Long Beach and serves as a crucial resource for many communities in Southeast Los Angeles County.[14,15] It is one of the most industrialized areas within the L.A. River Watershed. This year marks the third year of Heal the Bay's sampling efforts in the lower portion of the L.A. River, located south of Downtown L.A.. Six sites were sampled including L.A. River at Riverfront Park, L.A. River below the Rio Hondo Confluence, L.A. River at Hollydale Park, Compton Creek, L.A. River below the Compton Creek Confluence, and L.A. River at Willow Street before the River reaches the Pacific Ocean. All sites, except for Compton Creek, have a concrete riverbed and banks, and none are officially designated for recreational use. Despite the industrial surroundings, the river channel is frequently used by runners, walkers, horseback riders, bird watchers, and cyclists.

In 2023, sites in the L.A. River Watershed–Lower received annual grades of D and F, placing four sites at the top of this year's Freshwater Fails list. These sites had average annual scores of 59% or lower, indicating consistently high bacteria levels, and receiving F grades. Compton Creek holds the number one spot with the lowest average score, followed by L.A. River below Compton Creek Confluence in second place. Both suffer from significant pollution, indicating chronic fecal contamination issues (**FIGURE 14**).

Breakdown of 2023 Annual Grades Over the Summer Season

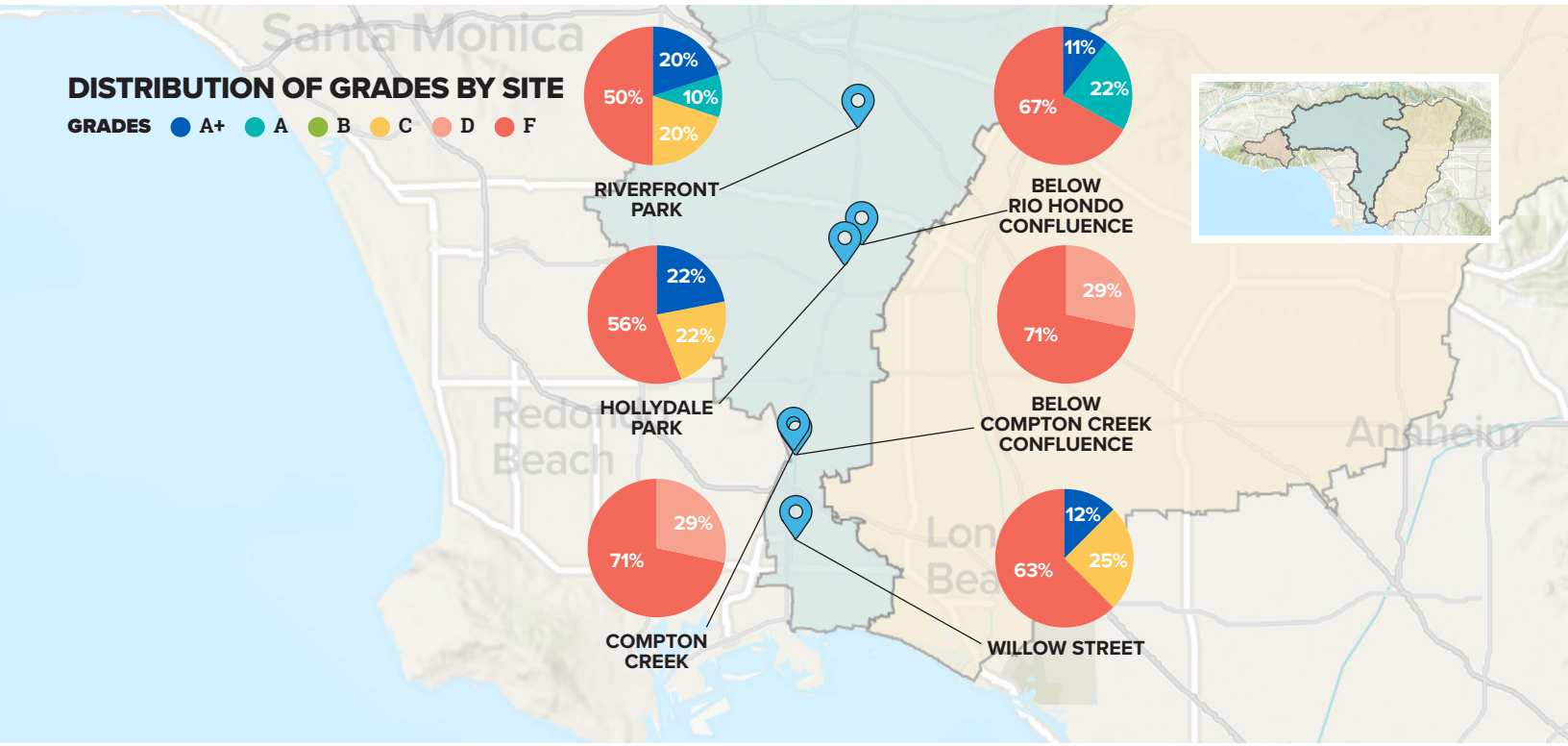


FIGURE 15. L.A. River Watershed–Lower Distribution of Annual Grades by Site. Breakdown of Weekly Grades as percentages for six sites in the L.A. River Watershed–Lower during the 2023 monitoring season. Percentages ≤ 10% are excluded from the pie charts; refer to Appendix A for all values.

Compton Creek (several hundred yards upstream from its confluence with the L.A. River) and the L.A. River below Compton Creek Confluence (near the Dominguez Gap Wetlands) are both located in Long Beach. Notably, neither site received any weekly grade higher than a D during the sampling period, despite Compton Creek having a soft bottom similar to the L.A. River Recreation Zones (**FIGURES 12** and **13**). Compton Creek, which supports a soft-bottom riparian habitat just before it joins the Los Angeles River, continues to suffer from significant pollution issues.

The L.A. River below Rio Hondo Confluence, located in South Gate where the Rio Hondo flows into the L.A. River, received an annual F grade and is part of this year's Freshwater Fails list. Despite this poor rating, the site exhibited variability, achieving A+ and B weekly grades on 33% of the sampling days (**FIGURE 15**), which indicates excellent water quality. Nonetheless, these fluctuations and overall poor water quality at this site still pose a higher health risk.

The L.A. River at Willow St. in Long Beach represents the southernmost freshwater section of the L.A. River. South of Willow Street, the river mixes with ocean water to form the L.A. River Estuary. This site received an annual F grade and is part of this year's Freshwater Fails list. Despite this poor rating, the site showed variability, with 12% of the sampling days achieving an A+ grade and 25% receiving a C grade (**FIGURE 15**).

L.A. River at Riverfront Park in Maywood, located upstream from the Rio Hondo Confluence, and L.A. River at Hollydale Park, situated downstream from the Rio Hondo Confluence, are not included on this year's Freshwater Fails list despite experiencing poor water quality. Both sites received a D annual grade. L.A. River at Riverfront Park, previously identified as one of the most polluted sites in L.A. County, showed variability with A+ and A weekly grades on 30% of sampling days, indicating occasional excellent water quality, and C grades on 20% of those days (**FIGURE 15**). Similarly, the L.A. River at Hollydale exhibited fluctuations with 22% of sampling days ranging from A+ to C grades (**FIGURE 15**). Despite these variations, both sites still pose a higher health risk.

L.A. River

CONCLUSIONS AND RECOMMENDATIONS

Water quality in open spaces higher in the watershed, such as Malibu Creek, L.A. River–Upper, and San Gabriel River Watersheds maintained excellent A+ annual grades. However, water quality declined further downstream due to increased urban runoff entering the waterway, affecting both the L.A. River–Upper and Lower Watershed areas with F annual grades.

Heal the Bay is thrilled to present the sixth annual RRC, offering a comprehensive evaluation of recreational water quality trends during summer 2023 at Los Angeles County's freshwater recreation sites. This year marked a milestone with the adoption of a new grading methodology, aligning with the BRC format for enhanced clarity and understanding of water quality risks. This transition from a color-coded system to letter grades (A+, A, B, C, D, F) for both weekly and annual assessments is grounded in current scientific and regulatory standards providing a clearer assessment of health risks in rivers and streams. Notably, we revised the criteria for the Freshwater Fails and Honor Roll lists. As a result of these updates, this year's results are not directly comparable with previous years.

Moving forward, our grading system will feature weekly and annual letter grades on the RRC website, providing historical data for each site to track water quality trends over time. We are also planning to standardize all past bacteria level results since 2017, issuing past grades with our new methodology, and enabling comparative analyses over time. This initiative will start over the next year, marking the first step towards a comprehensive and consistent assessment framework.

Across Los Angeles County, our monitoring efforts revealed that 63% of freshwater recreation sites received A+, A, or B grades, indicating these areas are safe for swimming with low health risks. Notably, 10 sites achieved an annual A+ grade, demonstrating consistently excellent water quality and earning a place on our prestigious Honor Roll list. This list includes five sites in the L.A. River Watershed–Upper, four in the San Gabriel River Watershed, and one site at Malibu Creek Watershed. These exceptional locations represent the highest standards of water quality, ensuring safe and healthy environments for public enjoyment. The San Gabriel River Watershed mostly consists of natural areas that decrease the amount of suspended sediments, nutrients, and other pollutants that reach the waterways. Nevertheless some areas are still at risk, such as the East Fork of the San Gabriel River.[9] Some ways of mitigating this would be the addition of sanitary facilities, signage, increased funding, and more strict enforcement of trash management regulations. Malibu Creek, which is a popular recreation spot, demonstrated stable and commendable water quality. The L.A. River Watershed–Upper stands out with five Honor Roll sites, predominantly located in natural, mountainous areas. In these natural landscapes, water runoff permeates the soil, where plant roots filter contaminants before the water reaches rivers and streams, leading to better water quality. However, some parts of the L.A. River Watershed–Upper which are in more urbanized areas or near equestrian facilities (i.e. Tujunga Wash at Hansen Dam) fail due to higher bacterial levels resulting from human activity or animal waste. The proximity to equestrian facilities in the upper parts of the streams can also have adverse effects on water quality downstream due to the addition of sediment, nutrients, and chemicals into the waterways.


Compton Creek

For example, while horse waste is organic and biodegradable, the physical, biological, and chemical properties of horses and their waste can significantly harm water quality, human health, and aquatic life.[16] The nutrients excreted by horses can promote harmful algae blooms, reducing oxygen levels in water and endangering aquatic species. Furthermore, activities like heavy grazing can exacerbate the issue by exposing soil, leading to increased sediment in water bodies, which further damages aquatic habitats. Additionally, bacteria such as fecal coliform from horse manure pose health risks to humans, and chemicals used in horse care can be toxic to both humans and aquatic organisms. Effective management practices are essential to mitigate these environmental and health impacts.

The L.A. River Watershed–Recreation Zones exhibited varying water quality across different sites. The Elysian Valley segment mostly showed excellent to good water quality, especially at Benedict St. (Frogspot), which earned an annual grade of A. However, there were significant fluctuations in water quality at the L.A. River at Rattlesnake Park, Steelhead Park, and Sepulveda Basin at the Dam, which were reflected in lower grades on many sampling days, but still had overall good water quality. In contrast, the Sepulveda Basin segment generally had poorer water quality, with sites at Balboa and Burbank Boulevards receiving C grades and the Middle Basin site receiving a D grade, indicating a higher health risk due to elevated bacteria levels on most sampling days. The variability across these zones could be due to urban runoff, and highlights the necessity for ongoing monitoring, targeted water quality improvement efforts to ensure safer recreational conditions, and regular use of the River Report Card to check current conditions.

However, other challenges persist downstream where urban runoff contributes to declining water quality. Our monitoring efforts revealed that 37% of sampled sites received C, D, or F grades, signaling a higher risk of illness and advisories against water contact. Six sites received annual F grades due to bacteria levels exceeding health standards, placing them on the Freshwater Fails list. This year's list is dominated by four sites from the L.A. River Watershed–

16 Equestrian-Related Water Quality Best Management Practices (2004)

Lower and two from the L.A. River Watershed–Upper. Compton Creek in the L.A. River Watershed–Lower holds the number one spot with the lowest average score, followed by the L.A. River at Compton Creek Confluence. Our monitoring of the Lower L.A. River in this area revealed significant and concerning variability in water quality across the sampled sites. This section of the river, extending from Vernon to Long Beach, is heavily industrialized and not officially designated for recreational use, yet it remains popular with the public for various activities. The six sampled sites along this section consistently exhibited high bacteria levels, earning them annual grades of D and F, and placing them on the Freshwater Fails list. These sites are characterized by chronic fecal contamination, posing a significant health risk. Conversely, some sites, such as the L.A. River at Riverfront Park and Hollydale Park, demonstrated sporadic improvements, occasionally achieving excellent weekly grades, though they still received overall D grades due to persistent pollution issues.

In third and fourth place we find Bull Creek and Tujunga Wash at Hansen Dam, respectively, which were discussed above. The fifth place went to L.A. River at Willow St. and the sixth to L.A. River at the confluence of Rio Hondo, near where the Urban Orchard park[17] and Southeast LA Cultural Center[18] projects are being planned. To protect public health in these valuable recreational areas, government agencies must continue to conduct water quality monitoring and public notification, while also working to improve water quality at these sites. For more information, refer to the River News section.

The variability in water quality, particularly the presence of high bacteria levels in industrial areas, underscores the need for targeted remediation efforts and enhanced monitoring to protect public health in these heavily utilized urban waterways. The Lower L.A. River serves as an important space for surrounding communities, highlighting the need for public water quality information and a deeper understanding of water quality issues amidst ongoing changes in and around the L.A. River channel.

Many of L.A. County's waterways and riparian corridors are used by unsheltered individuals for shelter and basic needs such as washing. With limited or no access to clean water, sanitation, and health care, this community is disproportionately affected by poor water quality. Providing shelter, clean water, and restrooms for the unhoused will help keep them safe. Recent research indicates that homeless encampments were not a significant source of fecal pollution in San Diego-area waterways.[19]

In urban Los Angeles, extensive development has replaced natural soils that previously absorbed rainwater. Consequently, stormwater runoff from paved surfaces now quickly flows along smooth streets into rivers and channels leading to the ocean. Pollution from much of the 870-square-mile watershed[20] accumulates and reaches the lower watershed. However, there is still a need to understand why the lower portion of the river experiences heavier pollution compared to the upper reaches.

In conclusion, the 2023 RRC highlights the critical importance of water quality monitoring and advocacy to protect public health and environmental well-being. With ongoing collaboration and improvements in our methodology, we are dedicated to promoting safe and enjoyable freshwater recreation experiences for all residents of L.A. County. Together, we can work towards healthier waterways and a brighter future for our communities. Visitors are encouraged to consult weekly water quality updates before swimming or visiting a recreation site, especially during the summer.

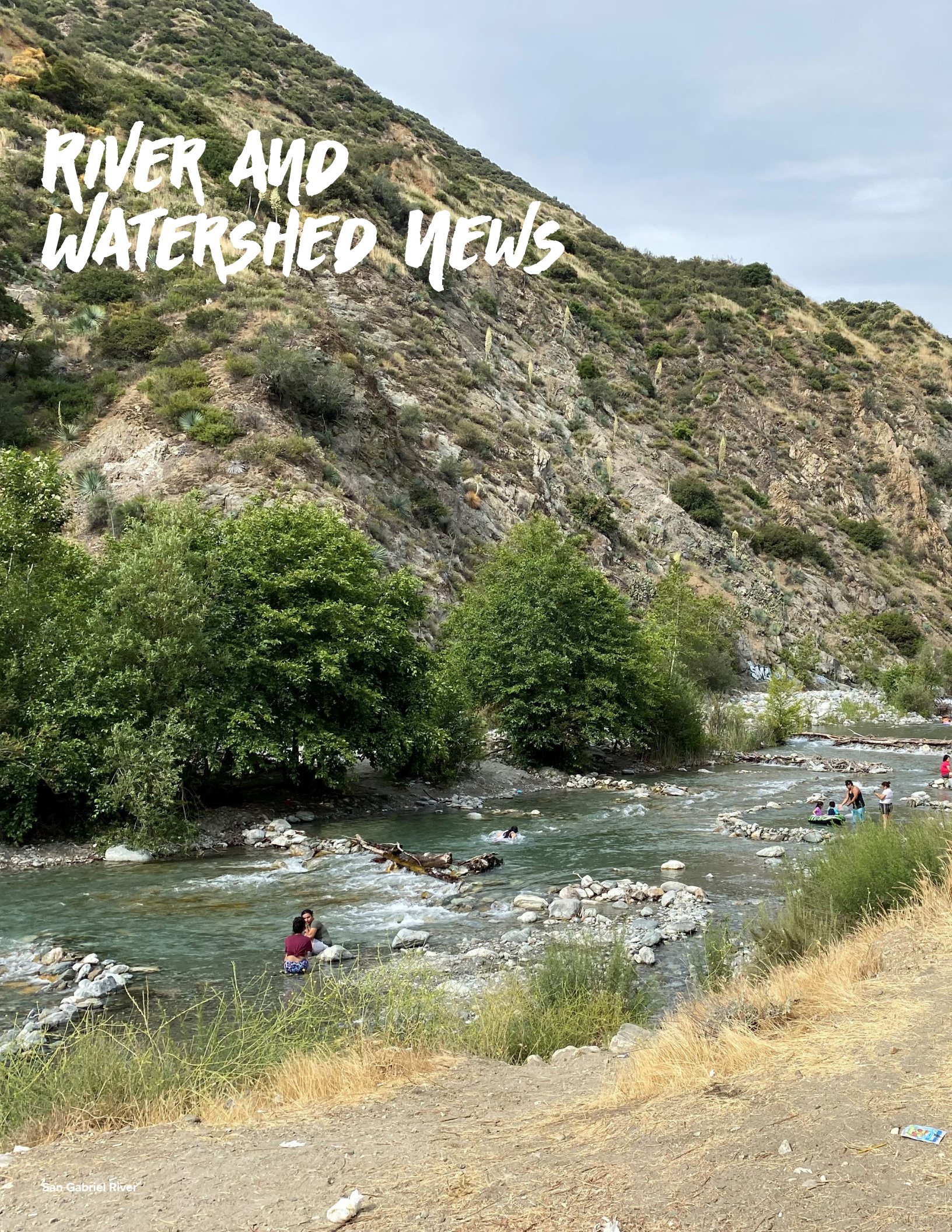
17 Urban Orchard

18 SELA Cultural Center

19 San Diego River Contamination Study (2020)

20 Urban Waters and the Los Angeles River Watershed (California)

River and Watershed News



San Gabriel River

Assembly Bill 1066 Update

Assembly Bill (AB) 1066[21] was signed into law in 2021. The bill, authored by Assemblymember Bloom and sponsored by Heal the Bay, tasks the California Water Quality Monitoring Council (Monitoring Council) with defining and identifying high-priority freshwater recreation sites across the state, and recommending an appropriate monitoring program. AB 1066 is a critical first step in establishing a monitoring and public notification mandate, similar to the mandate of AB 411 (Wayne, 1997) for ocean beaches, to achieve public health protections for freshwater. Unfortunately, the implementation of AB 1066 is behind schedule due to a lack of funding associated with the bill. The July 2023 deadline for the Monitoring Council to compile data and develop proposed criteria for high-priority recreation areas has passed with no progress. The December 2023 deadline for the Monitoring Council to make recommendations for a uniform statewide freshwater monitoring program to the State Water Board has also passed. However, there appears to be some recent movement, with a one-time discretionary contract funding allocation by the State Water Board to support implementation. Work will likely begin in the spring of 2025; however, the funding amount is unfortunately not enough to support the full requirements of the bill. Heal the Bay is in regular communication with the Monitoring Council and other partners and is working to identify additional funding, help develop the strategy, and advocate for a quicker timeline and meaningful implementation progress.


East Fork at Cattle Canyon

San Gabriel National Monument Expansion

President Biden's expansion of the San Gabriel Mountains National Monument[22] on May 2, 2024, includes areas of the Angeles National Forest, extending south and west to protect biodiversity, historical sites, and Indigenous homelands. For millennia, the region has been inhabited by Indigenous groups like the Gabrielino, Kizh, Tongva, Chumash, Kitanemuk, Serrano, and Tataviam peoples, who continue to use the area for traditional purposes.[23] Areas within the National Monument, especially the East Fork of the San Gabriel River, are heavily utilized by the public for recreation and as respite from increasingly hot summers; however, the region suffers from unsustainable visitor numbers and a lack of resources, resulting in trash, vandalism, and environmental concerns. Local Indigenous leaders and non-profit groups, including Heal the Bay, came together to support the expansion while asking for equitable balanced access, increased resources for planning, infrastructure, operations and maintenance, community education, and stewardship.

21 Assembly Bill 1066

22 San Gabriel National Monument Expansion

23 Indigenous Peoples of the LA River Basin

Stormwater Capture Progress to Improve Water Quality

The 2022–2023 and 2023–2024 rain seasons are now the second wettest two consecutive rain seasons for Los Angeles since 1879.[24] This rain season, over 25 inches of rain fell near Downtown L.A., with 8.5 inches recorded in a single rain event. When it rains in a heavily urbanized area like L.A., that rain flows over all of our rooftops, sidewalks, roads, and parking lots and picks up all of the pollution that has built up on those surfaces including bacteria. That's how stormwater runoff has become the number one source of water pollution that impacts human health and aquatic life.

There is momentum in Los Angeles to capture, clean, and reuse stormwater, rather than forcing it into our storm drain system, through our rivers, and out to the ocean. With the intense rainfall during the last rain season, L.A. captured more than 96 billion gallons of stormwater. That is roughly one-third of the 25 inches of rain that fell in L.A., and with climate change, we are likely to receive rainfall in less frequent but more intense storms requiring new stormwater infrastructure to capture more rain where and when it falls. Nearly five years after the launch of the L.A. County Safe, Clean Water Program (SCWP),[25] the Regional Oversight Committee approved the first Biennial Report announcing many accomplishments including 126 infrastructure projects representing over $1.4 billion in investments.

The Biennial Report also included recommendations to improve the program, including watershed planning with metrics to measure success. Heal the Bay, along with our partners at Natural Resources Defense Council and LA Waterkeeper, representing three of the L.A. region's leading water advocacy organizations, developed and shared a new report[26] with L.A. County

Big Tujunga Creek

decision-makers tasked with overseeing the ambitious SCWP called "Vision 2045: Thriving in a Hotter and Drier L.A. County, through Local Stormwater Capture and Pollutant Reduction." This report offers metrics to measure success under the SCWP, including a goal to capture 300,000 acre feet (98 billion gallons) of new stormwater by 2045, doubling what we captured this year, and tripling what we capture in a typical water year. L.A. County committed to meeting this goal, which will tackle the number one source of water pollution in Los Angeles, and provide many co-benefits to the people, land, and waters of L.A.

Heal the Bay advocates for nature-based multi-benefit stormwater capture projects to address the bacterial pollution that we have documented in this report. We also track the implementation of and advocate for progress on the L.A. Regional Stormwater Permit (MS4 permit) as well as infrastructure upgrades to address sewage discharges.

24 Season Rainfall Precipitation

25 Safe Clean Water Los Angeles

26 Vision 2045 Final Report

Low-impact Development Rollback at City of L.A.

Low-impact development (LID) uses natural processes to manage stormwater and protect water quality and habitat in urban areas. In heavily urbanized Los Angeles, LID offers a huge opportunity for distributed stormwater capture and water quality improvement and is identified as a critical compliance tool in every Watershed Management Program under the Regional MS4 Permit. Unfortunately, in 2024, the City of Los Angeles altered the low-impact development ordinance, removing requirements for smaller land parcels. These smaller projects make up the vast majority of development that will now be unregulated. The result will be negative impacts on communities, public health, and ecosystems from continued poor water quality.

Los Angeles River Project Updates

Over the last year, there has been progress on projects along the L.A. River that will improve water quality, enhance ecosystem function, increase biodiversity, and benefit communities. One project that is set to break ground and be completed in 2024 is the Bowtie Wetlands[27] Demonstration, along the Elysian Valley region of the River. The project is led by the Nature Conservancy in partnership with the landowner, California State Parks, and will daylight a storm drain and divert the runoff to a new wetland habitat. The wetlands will clean the water, providing ecological benefits as well as community access and opportunities for recreation, education, and enjoyment. The location of this project will have benefits on water quality for the Elysian Valley area and the designated recreation zone by reducing pollution inputs.

Another project that made progress but is farther away from implementation is the Sepulveda Basin[28] Vision Plan. This plan is led by the City of L.A., Bureau of Engineering and has goals of increasing ecosystem function using nature-based solutions, increasing the resilience of the Basin, creating natural functioning of the L.A. River and tributaries, improving water quality, and enhancing recreational, educational, and cultural programming, among others. The final Vision Plan was released in June 2024 and includes 47 project ideas that could be implemented and built over approximately the next 20 years.

Finally, one project that Heal the Bay and partners are concerned about is a long-term sediment removal project in the Glendale Narrows section of the L.A. River proposed by the U.S. Army Corps of Engineers (USACE). The project will span 10 years and is likely to have significant negative impacts on biology, hydrology, and water quality. Heal the Bay and its partners have asked for additional public outreach on the project as well as a full environmental analysis to be conducted. Unfortunately, it appears that this project is moving forward without a full environmental analysis. The project also appears to contradict approaches taken in the Los Angeles River Ecosystem Restoration Project[29] (LARER or ARBOR), which is led by the City of L.A. and USACE. The LARER project, approved in 2016, purports to create, restore, and establish historic riparian and freshwater marsh habitat, and reintroduce ecological and physical processes to 11 miles of the L.A. River. The USACE's proposed project to remove significant sediment and native vegetation from the Glendale Narrows is in direct opposition to the LARER project and takes an outdated approach to flood risk management.

27 The Bowtie- Rio de Los Angeles State Park

28 Sepulveda Basin Vision Plan

29 Los Angeles River Restoration Project

Appendices

Dig deeper into the River Report Card by accessing our appendices. Available at: Appendix A

Acknowledgements

We would like to thank current and former Heal the Bay staff who have contributed to this project and report, including Tracy Quinn, Dr. Katherine Pease, Dr. Alison Xunyi Wu, Dr. Tania Pineda Enríquez, Annelisa Moe, Matthew King, Cameron Weeks, and Gabriele Morgan. Heal the Bay staff responsible for conducting monitoring included: Dr. Alison Xunyi Wu, Dr. Tania Pineda Enriquez, Blaire Edwards, Thais Arata, Alejandra Miranda, Amy Flores, Eliana Garcia, Lyanne Fernandez, David Martinez, Vina Rose Matias, Giselle Ponce, John Hauser, Zaria Alam, Leslie Ma and Sun Chowdhury.

We would like to thank Dr. Varenka Lorenzi, Dr. Christine Whitcraft, and other California State University Long Beach staff who provided us with the opportunity to expand our program to the Lower L.A. River. We would like to thank Manuel Robles and Dr. Rachael Harper Delupio for their continued partnership with Los Angeles Trade Technical College.

We appreciate the advice and resources from Erick Burres and the Clean Water Team. We thank California State Parks and Santa Monica Mountains National Recreation Area for access to water sampling locations.

2023 Annual River Report Card

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