THE SAN DIEGO RIVER PARK FOUNDATION

THE STATE OF THE SAN DIEGO RIVER 2020

WHAT DOES THIS REPORT TELL US?

We first put together the State of the River Report to try and answer one of the most commonly asked questions we receive:

"Is the River healthy?"

The San Diego River is a large and complex natural system with many factors affecting its overall health and vitality. The River plays an important role in sustaining wildlife, supporting recreation, and providing water for a thirsty region. Despite the critical roles the River plays in our community, it also faces some distressing trends and challenges.

Throughout the year, The San Diego River Park Foundation coordinates volunteers to collect data that informs the State of the San Diego River Report. This data is related to trash, invasive nonnative plants and water quality. Because these impacts are most often associated with urban influence, this report focuses on data for the Lower San Diego River.

The San Diego River Park Foundation compiles and interprets this data into easy-to-understand letter grades for each data point and each segment of the Lower River. These segments are then grouped into eight Sections, defined by similar geography and land use.

These letter grades form an annual Report Card that provides a tool for determining good watershed management.

The State of the River Report is designed to present a snapshot of the condition of the River and has been the guiding force behind The San Diego River Park Foundation's award-winning Healthy River, Healthy Communities program. The data used for the Report Card establishes the action plan for restoring and improving the San Diego River in the coming year.

Read on to learn more about the data collection, factors that affect the health of the River and what the data tell us this year.

A MESSAGE FROM THE CEO

With lots of rain and tremendous success on efforts to remove trash from the San Diego River, 2020 started out very promising.

The River has been impacted by COVID-19 and it still has significant systemic problems.

The State of the River is a D for 2020.

REPORT CARD GRADE:

D

After initially being on hold due to the Pandemic, thanks to a few dedicated, and very careful volunteers our monthly water quality monitoring program has continued. This program has been providing data to public agencies, researchers and others for more than a decade. We were also able to complete our fall River Blitz survey which is so essential to having a comprehensive "snapshot" of the River's health. Led by the River Park Foundation staff, these volunteer scientists due amazing and important work. Thank you to all!

When it comes to the health of the River there are no easy answers. We continue to need to better understand the issue of how much water is needed for a healthy river system. Water for environmental benefit is a topic you may hear more about in the future.

Thank you to the project partners, The San Diego River Park Foundation staff and its volunteers, and everyone who was involved with this year-long effort. Great work!

Wishing you good health,

Rob Hutsel

Rob Hutsel
President and CEO

USING INDICATORS TO DETERMINE HEALTH

The health and condition of the San Diego River is influenced by many different factors, such as presence of trash or invasive plants in or near the river and the quality of the water itself.

Each factor we have selected is a tool to measure of health of the River. Together, these serve as indicators that point to the condition of the entire Lower River.

OUR INDICATORS

TRASH:

We categorize trash into the four of the most common categories, defined by source: encampments, litter, stormwater debris and dumping. The higher the trash volume per acre, the lower the grade.

INVASIVE PLANTS:

We evaluate canopy coverage of certain invasive, non-native species in the riverbed: Brazilian pepper tree, giant reed, eucalyptus, pampas grass, Canary Island date palm, Mexican fan palm, castor bean and tamarisk. High total canopy coverage means a low grade.

WATER QUALITY:

We collect data at multiple locations along the San Diego River and then aggregate data of the four key water quality parameters below. This is then integrated into an index value. Low index values mean a low grade.

TEMPERATURE: How hot or cold the water is

CONDUCTIVITY: Ability of the water to pass an electrical current, which is directly related to the concentration of ions in the water (used as a measurement of dissolved solids, like salts)

FLOW: How much water is moving past a cross-sectional area at a given time

DISSOLVED OXYGEN: How much oxygen is dissolved or carried in the water

WHERE DOES THE DATA COME FROM?

Citizen science, sometimes called community science, is research conducted by nonprofessional and/or amateur scientists, under the guidance of scientists and using scientific protocols.

The data provided by citizen scientists through the River Park Foundation's programs is valuable and extensive, allowing us to create and advance a work plan to promptly address issues.

Data is collected by volunteers through:

River Blitz:

Twice each year, volunteer teams are led by trained captains to collect data using our custom smartphone tool called Mappler. These comprehensive surveys are conducted in April and October, with the spring survey focusing on invasive plants and the fall survey focusing on trash.

River Assessment Field Team:

The River Assessment Field Team volunteers visit different locations in the riverbed at least twice weekly to update data by adding new trash sites, updating existing sites, and removing sites that have been successfully cleaned. This team greatly increases the accuracy of our trash maps, which in turn supports our clean-up team and other land managers.

RiverWatch:

RiverWatch volunteer teams collect water quality data using an electronic sonde, field forms and nutrient test kits. RiverWatch monitoring follows strict protocols (QA/QC procedures). Data used in this report was collected by volunteers during our monthly RiverWatch water quality monitoring for Water Year 2020 (October 2019 - September 2020).

Mappler

To view complete data on trash, invasive plants, and water quality, please visit our Online Information Center:

www.sandiegoriver.org/online_info_center.html

THANK YOU!

Data collection during COVID-19:
More than half of this water year was impacted by the pandemic and related restrictions on gatherings. While modified for safety, these community science programs continued during the lockdowns and closures thanks to the commitment of volunteers.

TRASH:

Significant increase in trash as pandemic interrupts trash management systems

RESULTS:

In fall 2020, our annual survey documented 133,070 pounds of trash in the San Diego riverbed compared to 56,770 pounds documented in 2019. This 134% increase mostly occurred after March 2020 and the COVID-19 pandemic, in part due to:

- Trash from homeless encampments is the largest source of trash in the lower river in normal circumstances, but the pandemic quickly resulted in an increase in the number of encampments as homeless service organizations adapted to the changing environment.
- Riverbed trash management systems were interrupted as a result of enforcement changes due to health recommendations, redirection of enforcement resources to other emergency activities, and decreases in land owners' resources and reduced capacity for maintenance.
- Our volunteer clean-up events were paused from mid-March through May. While they were resumed with modified protocols thanks to the dedication of our volunteers, events were smaller and large events have been suspended. The average pre-pandemic clean-up this year removed 2,600 pounds of trash, and the modified clean-ups during the pandemic remove 1,400 pounds on average.

GRADE:

D+

QUICK FACTS:

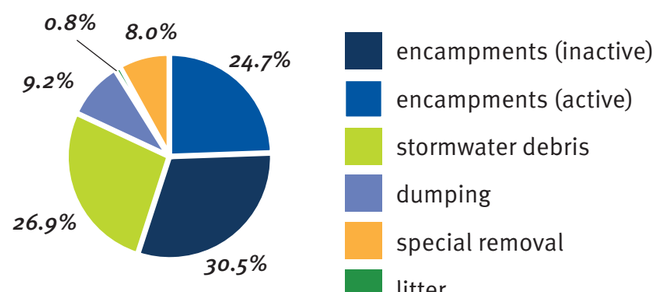
- COVID-19 greatly impacted the trash accumulation and management in the river, leading to a significant increase in total trash documented, especially in Santee.
- The survey team (RAFT) effectively pivoted to connecting outreach providers to those experiencing homelessness and sharing data with resource organizations, based on data from 188 surveys!
- Despite challenges, volunteers were still able to remove 166,857.5 pounds of trash and contribute 3,900 hours of service in clean-ups this water year.

TRASH GRADES BY SECTION

SECTIONS	1	2	3	4	5	6	7	8
Size (acres)	312	52	153	104	61	87	53	171
Trash quantity (pounds)	3,115	7,105	14,315	31,745	17,255	0	28,175	38,605
Trash density (pounds/acre)	9.98	136.63	93.56	305.24	282.87	0	531.60	225.76
Cumulative Grade	A	D	C	F	F	A	F	F

TRASH SOURCES:

In order to work on long-term solutions, we must know the source of trash issues along the River. Sourcing gives us critical information to advocate to policymakers so resources are allocated for addressing significant issues impacting the health of the River. This year, the two largest sources were homelessness and stormwater debris, accounting for 82.1% of the trash identified in October 2020 River Blitz surveys.



WATER QUALITY:

Marginal improvements result from wetter than average year

RESULTS:
Water Year 2020 (WY20) was a wetter than average year, with 13.60 inches of rain in the Lower River (compared to the average over our 16 years of monitoring of 9.62 inches). While this increased flow is in part responsible for a marginal improvement in overall water quality, the river's grade for water quality remains poor.

The San Diego River transports substances of natural origin (such as leaf litter or soils), but also transports pollutant loads (such as fertilizers and bacteria) from the homes and businesses of the 550,000 people living in the watershed, which is known as non-point source pollution. Fertilizers, for example, cause unnatural algae and plant growth in the river, and when these then die back, their decomposition depletes oxygen in the River. While rainfall can help to increase the score, the health of the San Diego River is reliant on responsible actions by the human residents of the watershed to limit these harmful inputs.

GRADE:

D

QUICK FACTS:
- The poorest water quality in WY20 was recorded in March, while in past years, it is usually in fall (November in WY19 and September in WY18, for example) after a long, dry summer.
- Volunteers sampled monthly at 15 locations, and mobilized to adapt to COVID-safe sampling protocols to avoid gaps in our 16-year dataset for water quality monitoring.

INVASIVE PLANTS:

Invasive mapping and removal effort continues to improve habitat

RESULTS:
In this water year, staff, interns and volunteers completed 25 surveys to document and map invasive plant species along the San Diego River and its tributaries as part of a major mapping update for the Exotic Weed Eradication Master Plan Update. More information about this effort is included as a special feature on pages 10-11.

This special survey effort allowed us to conduct comprehensive additional surveys in the Lower San Diego River from Grantville to the ocean, including five tributaries. In that area, 52.6 acres of invasive plant species were identified, with the top species being Brazilian peppertree, eucalyptus, and giant reed (in that order). There have also been multiple restoration and removal projects being completed and implemented in the riverbed this last year. These projects account for approximately 10.1 acres of riverbed being restored, including removal of invasive plant species.

GRADE:

D

QUICK FACTS:
- Our mapping revealed that 6% of the riverbed from Grantville to the ocean is covered by invasive plant species coverage, despite multiple restoration and invasive removal projects
- Giant reed and Brazilian peppertree continue to be the dominant invasive species
- San Diego River Park Foundation volunteers removed approximately 9.6 acres of invasive plants this water year

WHAT CAN *YOU* DO?

You can help by replacing invasive plants on your property with native plants, cleaning your hiking gear before exploring new areas to prevent seeds from spreading, or by volunteering!

THANK YOU!

Our thanks to the many volunteers who participated in invasive plant mapping and removal efforts this year, to the Invasive Plant Work Group, and the many partners who collaborate on this work.

SPECIAL FEATURE: INVASIVE PLANT MANAGEMENT

The San Diego River Park Foundation has become much more active in managing invasive plants in recent years, thanks in part to funding from the San Diego River Conservancy, the City of San Diego, and the State of California Department of Water Resources (in partnership with the San Diego County Water Authority and the Resource Conservation District).

WHY THIS COORDINATED EFFORT?

Lands along the San Diego River are broken into many different parcels, each with different owners and land managers. This fragmented land ownership means that there are many different stakeholders and management styles (or lack thereof, in some cases) managing invasives. Successful control will rely on watershed scale coordination.

While invasive plants don't change as dynamically as trash, the number and size of invasive plants does change over time and unfortunately, new invasives are introduced and take root every year. Removing them before they become established causes less disruption. Preventing them in the first place is even better.

WHAT IS AN INVASIVE PLANT?

An invasive plant is a plant that originates from outside our region that causes economic or ecological harm to the environment in which it is introduced. We usually focus on a targeted list of the most harmful and the fastest growing, such as those pictured below.

WHY DO WE CARE ABOUT INVASIVE PLANTS?

Invasive species cause harm to the environment by:

- Disrupting natural ecological processes
- Causing stress or extinction to local species
- Creating flooding and fire hazards

DOWNLOAD MAPPING AND VIEW THE UPDATED DATA:

www.sandiegoriver.org/online_info_center.html

Top row (L to R): Giant reed, Brazilian peppertree, Canary Island palm, eucalyptus, Mexican fan palm, castor bean
Bottom row (L to R): eupatory, water primrose, pampas grass, saltcedar, Algerian sea lavender, yellowflag iris

OVERALL GRADE FOR THE SAN DIEGO RIVER

2020

For the water year ending September 2020, the San Diego River received an overall grade of D, or POOR.

Breakdown of Grades by Section

SECTIONS	1 Estuary	2 Mission Valley (West)	3 Mission Valley (Central)	4 Mission Valley (East)	5 Grantville	6 Mission Trails Regional Park	7 Santee (West)	8 Santee (East)	Overall Grade
Trash	A	D	C	F	F	A	F	F	D+
Water Quality		D	C	D	D	C	C	F	D
Invasive Non-Native Plants	A	D	D	D	F	A	D	C	D
Cumulative Grade	A	D	C	C	F	B	F	C	D

Grading Criteria by Indicator

NARRATIVE	Grade	Invasive Plant Percent Cover	Trash Density (Pounds/Acre)	Water Quality Index
Excellent	A	< 2%	< 35	> 75
Good	B	2.0 - 2.9%	35 - 69	50 - 74.9
Fair	C	3.0 - 3.9%	70 - 104	36 - 49.9
Poor	D	4.0 - 4.9%	105 - 139	25 - 35.9
Very Poor	F	> 5%	> 140	> 25

These grades are a planning tool that allows us to educate the public, landowners, stakeholders and policymakers to help to address these issues and ultimately, to improve this grade over time.

SO... IS THE RIVER HEALTHY?

The preceding pages explained a breakdown of the methods and data points we use to present this evaluation of the current health of the San Diego River. Of course, the River is more than just water, and when we consider its health, we should also consider the entire ecosystem that depends upon the River.

The most simple answer to the question of whether the River is healthy is no. By evaluating trash, invasive plants, and water quality, the overall grade for this year's Report Card is D, which points to poor health.

The impacts of more than half a million people living in its watershed, the area that drains into the River, are significant. Some areas of the River are in great shape, and while we have seen marked improvements in some segments over the last decade, many of the urban sections suffer.

Trash, water quality and invasive non-native plants tell part of the story of the River's health. There are other indicators too, such as bacteria levels, contaminant levels in fish tissue, benthic invertebrate community health and more.

Additional community-based monitoring can supplement public agency programs and help inform and engage citizens. There is a need to expand these programs to reach urban tributaries of the River to identify sources of the problems, to increase management of some areas, and to continue cleaning the River until long-term solutions can be found.

WHAT CAN WE DO?

Community involvement is critical to ensuring the River has a strong and powerful voice demanding a better future! In order to affect change, the River Park Foundation is dedicated to engaging community leaders, policymakers, scientists, agencies, researchers and the public to work hand in hand to advance the goals for improving the River's health.

How do we get the overall grade to an A?
Additional funding, research, stewardship and resources are needed.

Join us as a volunteer, as a researcher, as an advocate or as a donor to help achieve this vision for the River and community.

Contact us to learn more about how you can get involved! Learn more:
www.sandiegoriver.org

OUR THANKS TO:

All volunteers who participated in our citizen science, clean-up and restoration programs, especially these core volunteers and leaders:

AJ (Art) Votek
Al Field
Alex Ibarra
Alon Boyd
Andrew Reed
Angelica Grunloh
Anne Hoang Mai Wegmann
Anne Sheridan
Becca Dayton
Bill Graham
Bob Stafford
Brady Kerr
Brent Wilder
Brianna Prince
Bruce Engelbert
Carol Gilbertson
Chris Anderson
Christine VanSpronsen
Clarisse Goetzen
Clint Lariscy
Cynthia Irmer
Danny Jarvis
Dave Loveland
David Loveland
Dennis Fraher
DeVerna Rogers
Emma Chantegros
Evan Casey
Everett Neuman
Gabriel Santana
Gary Strawn
George Liddle
Gianna Peterson
Ginny Buerger
Grace Oh-Willeke
Isac Lee
Jade Johnson
Jaidacyn Madrigal
Jasmin Agustin
Jason Winblad
Joe Nelson
John Fraher
John Kennedy
John Krzeminski
John Wasilewski
Josh Keyton
Juan Salgado
Julio Sanchez
Kevin Endo
Kimber Husak
Lillan Van Husen
Lindy Harshberger
Magdelinda Leyva-Garcia
Marius Panciu
Mark Drieling
Mark Hardcastle
Marlon Benjamin
Maxwell Blaine
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Paul Bareno
Paul Doucette
Phil Fry
Phillip Wade
Quynh Giang
Rachel Shoumake
Rick Manley
Rupert Burg
Ryan Sullivan
Sabrina Huey
Shane Conta
Stephanie Ayerdis
Susan Mason
Tiffany Lamb
Tom Fetzer
Tom Younghusband
Vince Caldwell
Will Nicewonger

Project Leadership:
The San Diego River Park Foundation

Thanks to report authors: Sarah Hutmacher, Jennifer Frey, Morgan Henderson, Aixa Willoughby, and to John Kennedy for authoring the water quality report.

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THE SAN DIEGO RIVER PARK FOUNDATION

PROGRAM FUNDERS:

Our thanks to the many sponsors who enable us to conduct these citizen science programs, including:

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The San Diego River Park Foundation is a 501(c)3 nonprofit dedicated to creating a better future for the historic San Diego River.

To learn more or to get involved:

www.sandiegoriver.org

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