2025

San Diego Bay

Water Quality Monitoring Report

SAN DIEGO COASTKEEPER

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SAN DIEGO COASTKEEPER

Dear Reader,

Over the past year, our monitoring in San Diego Bay has revealed a clear and encouraging picture of surface water quality conditions across the Bay. In 2025, we observed three key patterns:

- **Nutrients remained persistently elevated, but did not surpass water quality objectives**
- **Bacteria levles were low across all sites**
- **Metals, including copper, lead, and zinc, were not detected**

Together, these findings suggest generally good water quality conditions across San Diego Bay. This is a promising result given the Bay's long history of intensive industrial use, naval operations, and urban development.

These insights would not be possible without the dedication of our staff, volunteers, partners, and community members who support this work. Whether in the field or behind the scenes, their contributions help generate high-quality data that informs our understanding of local water quality and supports long-term protection efforts.

This year is especially meaningful as we celebrate 30 years of protecting clean water. Over the past two years, our San Diego Bay monitoring program has grown into a powerful tool for understanding local water quality and informing solutions. At a time when water systems across the country are facing increasing pressure from urbanization, aging infrastructure, and climate-driven extremes, local data and community engagement are more important than ever.

We hope this report helps you better understand the current condition of San Diego Bay, the factors that influence it, and the shared responsibility we all have in protecting it for the future.

With gratitude,
Water Quality Monitoring Team

ABOUT SAN DIEGO COASTKEEPER

Founded in 1995, San Diego Coastkeeper safeguards our region's coastal and inland waters through a strategic blend of community science, education, grassroots outreach, policy advocacy, and legal enforcement of environmental laws.

Mission:

Protecting and restoring swimmable, drinkable, and fishable waters in San Diego County.

Fundamental Right to Clean Water

We are guided by the belief that humans and the environment share a fundamental right to clean water.

Inherent Value of Waterways and Ecosystems

We believe in the inherent value of San Diego's rivers, streams, canyons, and coastline, as well as the ecosystems and biodiversity they support.

Diverse Stakeholder Engagement

We are dedicated to engaging with diverse partners and stakeholders to protect and restore clean water for the communities and traditions that depend on it.

Fearless Advocacy

We are committed to addressing environmental threats directly, fearlessly, and on the basis of sound scientific and legal principles, even when doing so challenges popular opinion.

Strategic, Multifaceted Approach

We believe a strategic combination of science, advocacy, education, and community engagement is the most effective way to address existing and emerging water quality issues.

PROJECT PURPOSE

Using Community Science as a tool – gathering data for multifaceted goals.

This program creates a pathway for interested community members to:

- Learn the scientific tools they need to understand their local watersheds.
- Get involved with San Diego Bay and the local community.
- Directly influence local resource management by collecting data that informs regulatory decisions about the protection and management of San Diego Bay water quality, marine and riparian habitats, and the waterways that flow into the Bay. Volunteers engage in sampling opportunities, community events, shoreline and Bay cleanups, and advocacy efforts.

The data collected is shared with the public on San Diego Coastkeeper's website and is used in advocacy to improve the Bay's water quality for the people and wildlife who use and depend on it. This includes stressing the need for improvements to stormwater and wastewater infrastructure, better flood control, more climate-resilient enhancement projects, and habitat restoration projects. The data is also uploaded to the California State Water Quality Control Board's California Environmental Data Exchange Network (CEDEN), where it will help inform future regulatory actions to reduce pollution. Coastkeeper also shared our data with the Port and U.S. Navy in our role as technical advisors on the update of the Bay's 10 year Integrated Natural Resource Management Plan (INRMP).

Program goals include:

Environmental Stewardship

Increase environmental literacy and knowledge among community members, connect volunteers to the outdoors, and improve the ecological health of San Diego Bay and the Pueblo, Chollas, Sweetwater, and Otay watersheds.

Equitable Access

Provide program material and training in both English and Spanish, and increase diversity and representation in the conservation and environmental workforce.

Active Monitoring

Establish a visible watchdog presence on the Bay through regular water quality monitoring and pollution patrols in our Coastkeeper patrol boat.

Community Engagement

Connect volunteers to local environmental issues and advocacy efforts, and invite volunteers to community events and campaigns.

METHODS

Field Measurements & Sample Collection

Community-Powered Science

Our monitoring program is led by trained staff, with support from volunteers, partners, and community members.

All participants are trained by staff in water quality science, field safety, and standardized sampling methods. When volunteers or partners join monitoring efforts, they receive hands-on instruction to ensure consistency and accuracy in the field. Monitoring is conducted as a coordinated unit under staff direction and follows strict quality assurance protocols, with staff reviewing all field and laboratory documentation to maintain data integrity.

What We Measure:

In Field	Bacteria	Nutrients	Heavy Metals
Temperature, pH, Dissolved Oxygen, Salinity, & Turbidity	Total Coliform, *E. coli,* & Enterococcus	Total Nitrogen, Total Phosphorus	Copper, Lead, and Zinc

Methods:

1. **Sites -** 4 Sites are monitored bimonthly
2. **In-Field Measurements -** Staff work together, visiting each site and taking *in situ* measurements, including temperature, pH, dissolved oxygen, salinity, and turbidity, as well as field observations including weather, tide, wildlife activity, and visible pollution.
3. **Sample Collection -** Staff collect samples aboard *Clean Sweep*, San Diego Coastkeeper's patrol boat, for laboratory analysis, including nutrients, heavy metals, total suspended solids, and bacteria.
4. **Preserve and Transport -** Samples are placed on ice, logged using Chain-of-Custody forms, and delivered to a certified laboratory.
5. **Certified Laboratory Analysis -** Samples are analyzed using EPA-approved methods at an ELAP-certified laboratory to ensure accuracy and comparability.

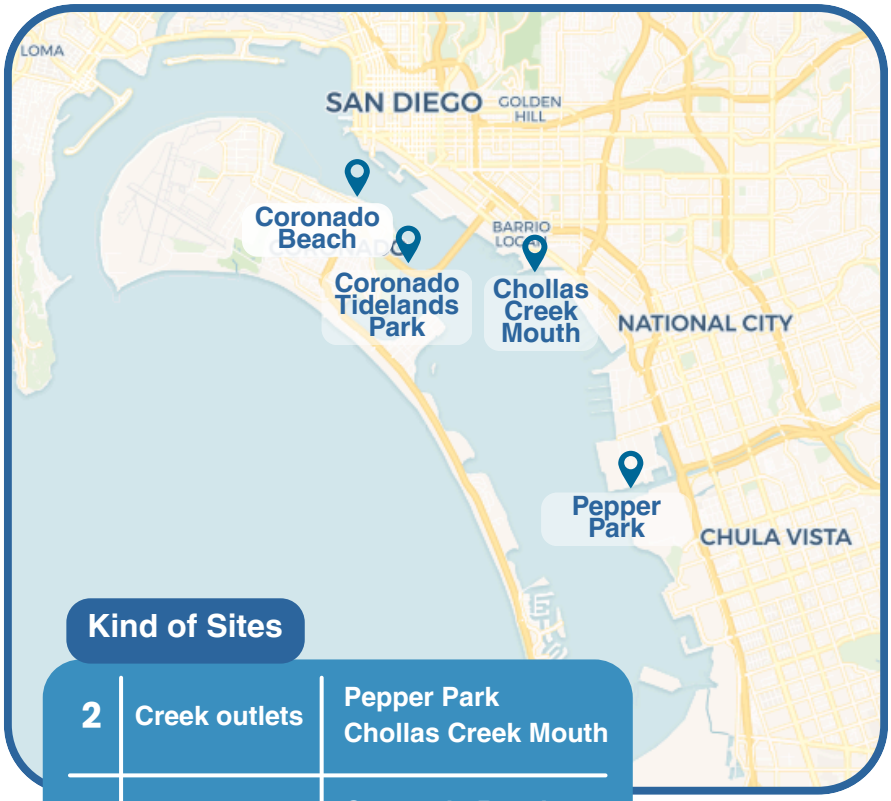
SITE DESCRIPTION

San Diego Bay is one of Southern California's most important coastal resources, supporting recreation, commerce, and a wide range of ecological habitats. The Bay has been extensively modified over the past century through dredging, shoreline armoring, and development to accommodate the Port of San Diego, naval operations, and urban growth. These alterations have transformed much of the Bay's historic tidal wetlands and mudflats into deepwater channels, industrial areas, and marinas, with only small pockets of natural habitat remaining. Areas like the Sweetwater Marsh National Wildlife Refuge and the South San Diego Bay National Wildlife Refuge now represent some of the last significant remnants of the Bay's original salt marsh ecosystem, providing critical habitat for fish, birds, and other wildlife.

Our Monitoring Network

San Diego Coastkeeper monitors four sites throughout San Dego Bay every other month. Sites were selected to represent major freshwater inflows, sensitive habitat, high-use recreation, and areas of heavy boat traffic. Together, these locations provide a snapshot of how water moves through the Bay, and how conditions vary between creeks and open waters.

Go to www.sdcoastkeeper.org/san-diego-bay-map for an interactive map and graphs of our water quality data.



Kind of Sites

2	Creek outlets	Pepper Park Chollas Creek Mouth
2	Recreation	Coronado Beach Coronado Tidelands Park

Meet *Clean Sweep*

San Diego Coastkeeper is proud to operate *Clean Sweep*, our 19' x 8' fiberglass-hulled Boston Whaler Patrol Skiff. Docked conveniently in San Diego Bay, this center-console vessel plays a vital role in our on-the-water work. Clean Sweep supports offshore water quality sampling and Marine Protected Area (MPA) patrols, and also serves as a platform for impact tours—bringing donors, partners, and community members out onto the Bay to experience firsthand the places we work to protect.

NUTRIENTS

Nutrients are naturally occurring in aquatic systems and can be beneficial. However, excess nitrogen and phosphorus can fuel algal growth, reduce water clarity, and lower oxygen levels, stressing fish and other aquatic life.

Data Collection:

Nitrogen
Supports plant growth, but too much can trigger harmful algal blooms.

Phosphorus
Even the smallest increases can trigger rapid algal growth and degrade water quality.

Field Parameters
Temp., pH, dissolved oxygen, salinity, & turbidity — overall water conditions & ecosystem health.

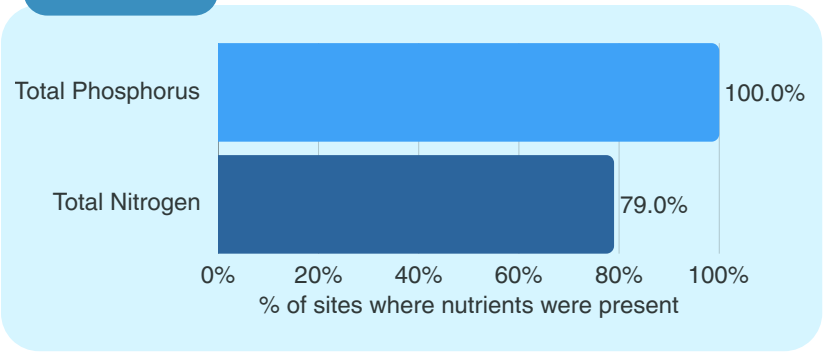
Results:

Total nitrogen and phosphorus concentrations remained below applicable water quality objectives throughout the 2025 monitoring period, meeting standards 100% of the time. However, both nutrients were still frequently detected. Nitrogen (water quality objective: 1.0 mg/L) was detected in 79% of samples, while phosphorus (water quality objective: 0.1 mg/L) was detected in 100% of samples, with highest concentrations occurring during the wet season.

Total Phosphorus

Total Nitrogen

Detections



These patterns suggest that while nutrient levels are not currently exceeding regulatory thresholds, inputs, particularly from stormwater runoff, are influencing water quality. Seasonal trends in other field parameters, including temperature, salinity, dissolved oxygen, and turbidity, followed expected patterns, with lower salinity and higher turbidity observed after storm events. Continued monitoring is important to track whether nutrient inputs increase over time, as sustained enrichment could elevate the risk of algal blooms, reduced water clarity, and oxygen stress for aquatic life.

Sources of excess nutrients:

Urban Runoff
- Dog Poop
- Fertilizer and landscaping

Creek Inflows
Deliver indirect runoff from the top of the watershed

Stormwater Runoff
- Parking Lots
- Ship Yards
- Naval Grounds

Maritime Activity
- Private marina operations
- Vessel Discharge
- Liveaboard Communities

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BACTERIA

Enterococci fecal bacteria are used as an indicator for the potential presence of pathogens in enclosed bays, estuaries, and inland systems, as established in the California Regional Water Quality Control Board's water quality control plan for the San Diego Basin, when the salinity is ≥ 1 ppt the majority of the calendar year.

High levels of fecal bacteria in San Diego Bay would pose a health risk to recreators and subsistence fishers, potentially leading to waterborne illnesses and infections.

Results:

Bacteria levels remained consistently low across all monitoring sites in San Diego Bay throughout the 2025 monitoring period. Enterococci did not exceed applicable water quality objectives at any site, and *E. coli* was detected only at low concentrations, indicating good bacterial water quality across the Bay.

Enterococci

All Sites
0% fail

Pass
Fail

These findings suggest that fecal contamination was limited during the monitoring period and that conditions remained suitable for recreational uses from a bacterial water quality perspective. Continued monitoring, particularly near where tributaries enter the Bay and after storm events, will help ensure that localized sources are identified and addressed.

Sources of bacteria:

Stormwater Runoff:

#1 Driver of Bacterial Spikes

- Urban runoff
- Pet feces
- Wildlife inputs
- Industrial site runoff

Dry Weather Sources:

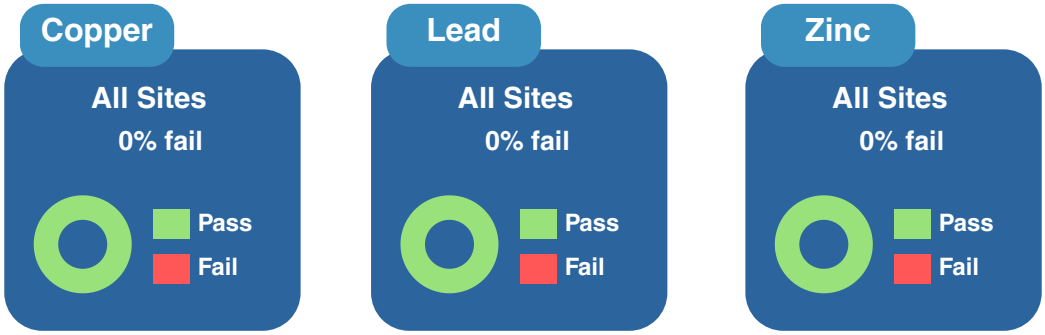
- Leaking wastewater infrastructure
- Illicit discharges
- Sediment reservoirs
- Concentrated wildlife activity

METALS

Heavy metals such as copper, lead, and zinc are routinely monitored throughout San Diego Bay due to their persistence in the environment and ability to accumulate in sediments and marine organisms over time. Portions of the Bay have been listed as impaired under Section 303(d) of the Clean Water Act for legacy contaminants, including metals, largely due to historic industrial activity, shipbuilding, and urban runoff. The Bay sediment in many areas is burdened with metals and other industrial pollutants from decades of industrial and military activity. Tracking these metals is critical for understanding ongoing water quality conditions and protecting the Bay's ecological health.

Results:

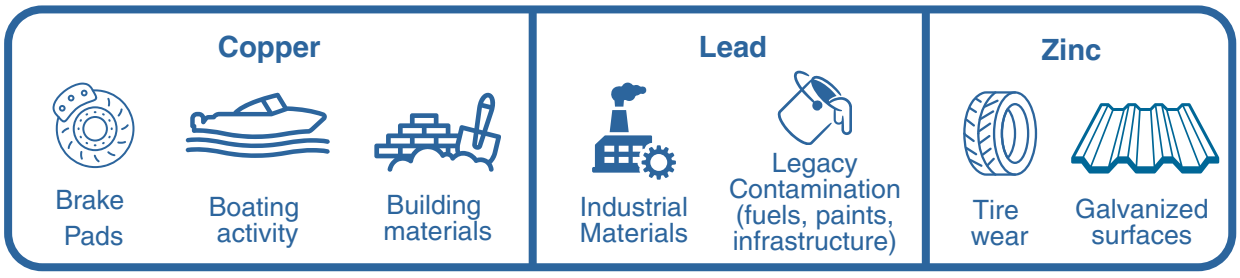
In 2025, **copper, lead, and zinc were not detected at any monitoring sites** throughout the year. These findings indicate that dissolved metal concentrations were consistently low during the sampling period and below applicable detection limits.



While metals remain a known concern in San Diego Bay, particularly in sediments and legacy-impacted areas, our results suggest that they were not present in the upper water column at levels of concern at the time of sampling. Continued monitoring is important to ensure that changing conditions, including storm events and the resuspension of sediments, do not lead to elevated concentrations in the future.

Potential Sources:

Copper, lead, and zinc can enter San Diego Bay from a variety of urban and maritime sources.



Additional inputs can come from shipyards, marinas, and industrial discharges. Even when not detected in the water column, these metals can persist in sediments and may be remobilized under certain environmental conditions, reinforcing the need for ongoing monitoring and source control.

PROGRAM ACHIEVEMENTS

This program has been successful in immeasurable ways, helping us meet our goals and expand our reach to a variety of educational, professional, and social backgrounds. Goal metrics are shown for January 2025 – December 2025. New opportunities for collaboration and partnerships continue to develop with other community groups and environmental non-profits, including The Living Coast Discovery Center and San Diego Bird Alliance.

Environmental Stewardship

- 7 sampling events with partner organizations, including 2 rounds of sampling for PFAS “forever chemicals” and HF183, a genetic marker indicating human sewage in the water (reports pending)
- 9 boat patrols and Marine Protected Area (MPA) watches, during which staff found and reported 40+ crab pots and lobster traps illegally placed within MPA boundaries to the California Department of Fish and Wildlife (CDFW)
- Staff and intern participation in the annual National Oceanic and Atmospheric Administration (NOAA) Green Sea Turtle Survey

Community Engagement

- Expanded volunteer opportunities for outreach and community events, including Family Science, Technology, Engineering, Art, Math (STEAM) Days with Ocean Connectors, the San Diego Seed Swap at the Water Conservation Garden, and an Earth Day Fair at Point Loma Nazarene University
- Hosted a 30x30 Annual Conference field trip: a boat tour of San Diego Bay and Cabrillo MPA with California Natural Resources Agency (CNRA) Secretary Wade Crowfoot, Ocean Protection Council (OPC) senior staff, California Coastkeeper Alliance (CCKA), and partner organizations
- Community cleanups, including kayak cleanups and water quality demonstrations with Ocean Connectors, sponsored cleanups, and inland cleanups

Team Highlight

Volunteer and Outreach Manager, Lesly Gallegos, received the 2025 Sustainability Champion Award from the City of Chula Vista and its Sustainability Department, in recognition of her work along San Diego Bay and throughout the South Bay.

FUTURE ACTIONS

Coastkeeper will continue its current Bay monitoring program through 2026, in order to build a strong two-year dataset of ambient water quality that will inform future management of the Bay. In 2027, we will transition to focus on monitoring during and after rain events, when stormwater runoff has the biggest impact on the Bay's water quality.

- Ensure that the updated 10 year Integrated Natural Resource Management Plan for the Bay has clear goals for protecting water quality, increasing acreage of key wildlife habitats, protecting Green sea turtles and other key marine species, and increasing resilience to sea level rise. Coastkeeper is a member of the Port and Navy's Technical Advisory Committee, which is drafting the Plan for completion in 2027.

- Secure new public funding for the City of San Diego's stormwater system to address a $6 billion deficit that has left the system near collapse.

- Ensure that the State Water Board develops a new stormwater permit to address polluted runoff from large big box stores, parking lots and other currently unregulated pollution sources.

- Work with the Port of San Diego to ensure that any new commercial development of the Bay waterfront, particularly the Pangaea and TopGolf projects, comply with the Public Trust doctrine, maintain or expand equitable public access, and avoid impacts to Bay water quality and wildlife.

- Continue monitoring and pollution investigations in the Pueblo, Chollas, Sweetwater, and Otay watersheds to address pollution sources that may affect downstream water quality in the Bay.

ACKNOWLEDGEMENTS

This program could not have accomplished all these goals and gathered important data without the amazing support of our program funders, our San Diego Coastkeeper staff, partners, and volunteers.

"Ocean Connectors has worked with San Diego Coastkeeper over the past several years to bring hands-on environmental education to our local San Diego Community. This collaborative effort has inspired participants to remove over 5,000 lbs of pollution from our wetlands in the past year alone."
~ Janaira Quigley, ED at Ocean Connectors

Community Partners

- Ocean Connectors
- National Oceanic and Atmospheric Administration (NOAA)
- Port of San Diego & U.S. Navy
- Dr. Matt Verbyla's Safe WaTER Lab at San Diego State University (SDSU)

Program Funders

- Page Family Foundation

Community Coalitions/Meetings

- Port Environmental Action Committee
- Chula Vista Wildlife Advisory Group (WAG)

Program Staff

- Laura Fuller, Community Science Director
- Marie Diaz, Interim Community Science Director
- Lesly Gallegos-Stearns, Volunteer and Outreach Manager
- Camila Ruiz, Community Science Coordinator
- Nicole Nelli, Community Science Intern
- Dylan Berk, Beach Cleanup Intern

Contact

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Get Involved

Create an account on our volunteer platform:

https://sdcoastkeeper.galaxydigital.com

Get monthly volunteer opportunities sent to your inbox:

https://bit.ly/4mEq7ve