Bay Adapt Impact Report

2021–2025

How the Bay Is Adapting to Rising Seas

BAY ADAPT
REGIONAL STRATEGY FOR A RISING BAY

bcdc

COVER AND THIS PAGE: MAURICE RAMIREZ/CITY OF ALAMEDA

Contents

The Road Ahead

A VISION FOR THE FUTURE

"As sea levels rise, the Bay Area's diverse communities come together to transform how we live, work, plan, and adapt along our changing shorelines."

— ONE BAY VISION FROM THE RSAP

KARL NIELSEN/RESILIENT BY DESIGN

When the San Francisco Bay Conservation and Development Commission (BCDC) adopted the Bay Adapt Joint Platform in 2021, it achieved a meaningful milestone in the movement toward consensus on the shared challenges and potential solutions for adapting to rising sea levels in the Bay Area.

This Impact Report highlights the significant progress the Bay Area has made in sea level adaptation by implementing the Joint Platform over the last four years. We now have enough information about the impacts and consequences of sea level rise to make the shift to action and implementation.

The road has had its share of ups and downs. Over four years, we've emerged from a global pandemic and flourished under a pro-climate federal administration with unprecedented support and funding for climate and environmental justice. We've also seen major public support in California with the passage of the 2024 Climate Bond. However, we know that funding levels change not with the tides, but with changes in local, regional, state, and federal administrations. All the while, the urgency to do more—and faster—has never faltered. It's time now to reflect on where we are, celebrate the successes we've achieved, and contemplate where we go in the future.

In 2023, California reached a major milestone by enacting Senate Bill 272, which requires regional and local action to address rising sea levels. This new law is a watershed moment for the region. It propelled BCDC to establish the Regional Shoreline Adaptation Plan. Cities and counties around the Bay Area are preparing to develop local plans to address the challenge. What we've long known in the Bay Area is now confirmed by state law: Adapting to sea level rise is not optional. Coordinated action is the key to faster, effective, equity-driven action around the region.

The Bay Adapt Joint Platform is more than a static policy platform; it is an ongoing call to action.

It challenges us to imagine a Bay Area where we don't just survive climate change, but build a future that is more just, beautiful, and resilient because of the ways it has challenged us. That future is within reach, but only if we continue to rise boldly, together.

Zack Wasserman
Chair, San Francisco Bay Conservation and Development Commission

Bay Adapt's Impact Through the Years

Convened by the San Francisco Bay Conservation and Development Commission (BCDC) in 2020 to develop a shared vision around adaptation, Bay Adapt has brought together hundreds of people from community groups, environmental organizations, universities, businesses, governments, and more to find shared solutions to protect people and natural and built environments from sea level rise. Created through dozens of expert working groups, public forums, ten community and stakeholder focus groups, over 50 presentations, an environmental justice caucus, and led by a Leadership Advisory Group, the Bay Adapt Joint Platform presents nine key actions to achieve faster, better, and more equitable adaptation to a rising bay.

Six guiding principles set the Joint Platform in a vision where every community can thrive in the face of climate change:

1. **Support socially vulnerable communities.**
2. **Put nature first whenever possible.**
3. **Solve interconnected problems simultaneously.**
4. **Practice inclusive, community-led governance.**
5. **Support existing efforts while planning for the long term.**
6. **Pick the right strategy for the right place at the right time.**

ILLUSTRATION BY SOPHIA ZALESKI

While the snapshots included in this Impact Report are not exhaustive, they spotlight many stories that illustrate the collective progress made by the Bay Area to meet the climate challenges of this decade and beyond.

The Bay Area Is Rising Together

The Bay Adapt Joint Platform reflects a profound shift in how the Bay Area approaches climate adaptation. Nearly 1,000 interested parties helped shape the Platform, and 55 cities, counties, agencies, and nonprofits have endorsed it since. Over four years, the Bay Adapt Joint Platform has evolved from a bold vision into a living movement for regional action, equity, and resilience in the face of rising seas. This report celebrates the transformational progress we've made across our five key pillars: People, Information, Plans, Projects, and Progress.

PEOPLE

Powering Change From the Ground Up

At the core of the Bay Adapt Joint Platform is the belief that the wisdom to face climate change already lives within our communities. Since 2021, nearly 1,000 Bay Area residents—from East Oakland youth to San Rafael immigrant leaders—have stepped into their roles as climate champions. Through programs like the **Shoreline Leadership Academy** and **New Voices Are Rising**, these local leaders are shaping adaptation efforts with courage, creativity, and lived experience. Groundbreaking coalitions such as the Oakland-Alameda Adaptation Committee and the Bay Area Regional Collaborative are proving that when we lead together, we lead better.

INFORMATION

Turning Data Into Action

The region has never been better equipped to make informed, forward-thinking decisions. New tools like shallow groundwater maps, the **Regional Shoreline Adaptation Plan Atlas** (developed by BCDC), and the **Baylands Resilience Framework** (created by the San Francisco Estuary Institute) are transforming abstract risks into concrete strategies. Stories told through the online magazine **KneeDeep Times** and Save the Bay's **Flood Report Cards** are making climate science relatable and urgent. In the face of emerging threats like land subsidence and contaminated groundwater, Bay Area communities are not retreating; they are responding with clarity, collaboration, and purpose.

≈1,000
residents have engaged in programs in their community

$880,000
paid out in stipends to compensate participants for their time

Residents in East Oakland share their vision for a resilient shoreline at a community partnership co-led by BCDC and Hood Planning for the Regional Shoreline Adaptation Plan in 2024.

KARL NIELSEN

The five categories and nine actions in the Bay Adapt Joint Platform

PLANS
Vision With a Mandate

The first major "checked box" from the Joint Platform was the **Funding and Investment Framework,** developed by the Metropolitan Transportation Commission/Association of Bay Area Governments and the BCDC. The framework compared the $110 billion cost of adaptation by 2050 to the $230 billion cost of inaction. Under SB 272, local governments are now creating Subregional Shoreline Adaptation Plans grounded in the region's bold **One Bay Vision**. This vision, laid out in the **Regional Shoreline Adaptation Plan**, dares to imagine a future where every community is safe, connected, and thriving. From the Petaluma River Baylands to Bayview-Hunters Point, adaptation planning is embracing nature-based solutions, environmental justice, and long-term resilience.

$230 billion

estimated cost of damages due to inaction by 2050, including assessed value of properties and major roadways at risk.

PROJECTS
Building the Future Today

Resilience is not just an idea for the future; we are building it right now. Over 35 shoreline adaptation projects have been completed since 2021, spanning more than 44,000 acres. Projects like Eden Landing and the North Richmond Horizontal Levee blend ecological restoration with public access and community design. Propelled by Measure AA and a $10 billion state climate bond (Proposition 4), these efforts are creating a shoreline that protects both people and nature, now and for generations to come.

PROGRESS
Tracking Momentum, Inspiring Action

Launched in 2025, **Bay Adapt Currents** is a new beacon for regional transparency and learning. This interactive platform tracks policy wins, project milestones, community engagement, and scientific insight, creating a living dashboard of regional momentum. It reminds us that progress is possible and that together, we are building something far greater than the sum of our parts.

Bay Area communities are not waiting for change; we are leading it. We are building a shoreline that reflects our highest values: equity, ecology, community, and courage.

Bay Adapt is not a destination; it's a promise to rise, together.

35

adaptation projects have been completed since 2021

44,000

acres of projects have been completed, and many of them include significant restoration components

People

Across the Bay Area, a growing movement continues to elevate the voices of communities on the frontlines of sea level rise, building on the momentum from the groundbreaking Oakland Shoreline Leadership Academy (2021). Community-based climate leadership programs, innovative coalition-building efforts, and stronger partnerships among public agencies and local organizations are transforming the adaptation landscape by building local capacity, embedding equity into planning and project design, and ensuring that frontline residents shape the future of resilience in the region.

PHOTOS BY: GREENBELT ALLIANCE (RESILIENT ROOTS), NATALIE MATIAS/WATERSHED PROJECT (WWILD), PAIGE GREEN/CANAL ALLIANCE (CONSEJO PROGRAM), PHOENIX ARMENTA/BCDC (SHORELINE LEADERSHIP ACADEMY), DIANA FU (ESTUARY YOUTH COUNCIL)

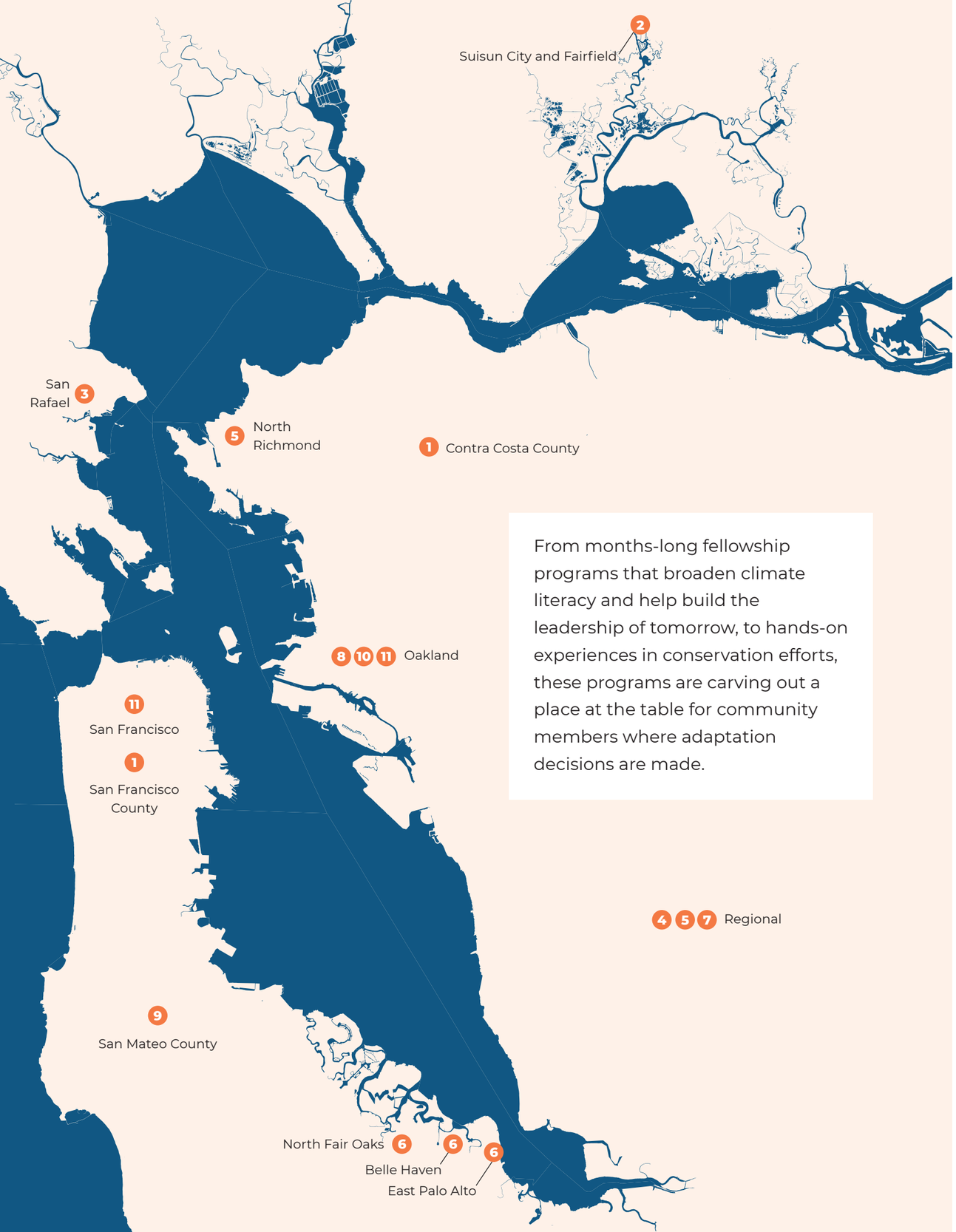

Resilient Roots


WWILD


Estuary Youth Council


Shoreline Leadership Academy


Consejo Program



From months-long fellowship programs that broaden climate literacy and help build the leadership of tomorrow, to hands-on experiences in conservation efforts, these programs are carving out a place at the table for community members where adaptation decisions are made.

Many initiatives have emerged around the region:

1 San Francisco Shoreline Leadership Academy

Empowering San Francisco youth to restore and protect shorelines

Who: BCDC and the Exploratorium

2 Resilient Roots Climate Leaders Network

Training Fairfield and Suisun City residents as grassroots climate leaders

Who: Greenbelt Alliance and Sustainable Solano

3 Consejo Program

Canal District community members shaping local sea level rise solutions

Who: Canal Alliance in San Rafael

4 Estuary Youth Council

Youth voices guiding estuary restoration and climate adaptation.

Who: SanFrancisco Estuary Partnership with Nuestra Casa, Mycelium Youth Network, and Restore the Delta

5 Wildcat Watershed Innovation Leadership and Development Program and Green Careers

Building environmental literacy and green careers across the Bay

Who: Watershed Project

6 Climate Change Community Teams and Youth Climate Collective

Neighbors co-creating climate resilience in vulnerable communities

Who: Climate Resilient Communities (CRC)

7 New Voices are Rising

Youth learning and leading on environmental justice issues

Who: Rose Foundation

8 Catalysts Action Leadership Institute

Oakland youth advancing climate justice through lived experience

Who: Frontline Catalysts

9 Environmental Justice Academy

Immigrant and low-income residents advocating for climate equity

Who: Nuestra Casa

10 Youth Action Board, Young Adult Leadership Program, and Environmental Justice Cohort

East Oakland youth leading systems change for justice

Who: HOPE Collaborative

11 Youth Leadership Council

Students designing climate solutions in Oakland and San Francisco

Who: Mycelium Youth Network and local schools

Scan QR Code for more information online about these initiatives:

Information

New tools and resources offer tangible assistance with adaptation plans and projects by providing more focused information and guidance. It is now standard for plans and projects to use updated statewide sea level rise projections. Greater and more accessible data and planning guidance is bringing adaptation within the reach of more communities than ever.

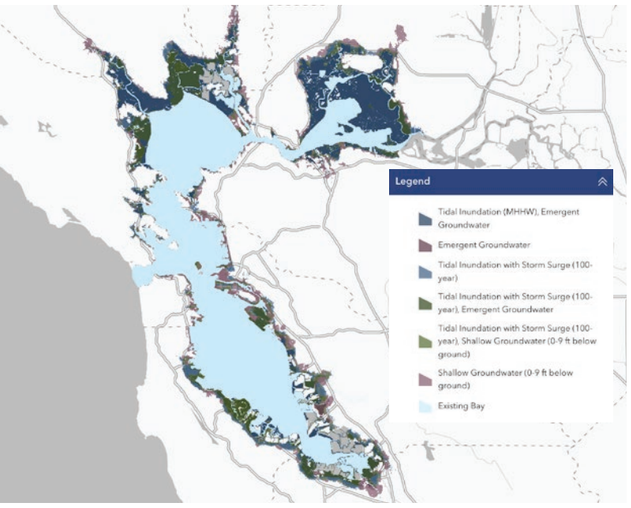
KARL NIELSEN/GREENBELT ALLIANCE

Suisun City

BROADENING PUBLIC UNDERSTANDING OF CLIMATE CHANGE IMPACTS

The Bay Area is home to several initiatives advancing shoreline resilience and public engagement on sea level rise. The Sierra Club's **Bay Alive Campaign** educates and mobilizes residents around nature-based solutions, such as wetlands and horizontal levees, through grassroots advocacy and accessible storytelling. Save The Bay's **Flood Resilience Report Cards** provide data-driven assessments of readiness for flooding and sea level rise on a city level, guiding public accountability and local action. The digital magazine **KneeDeep Times** highlights community-led climate adaptation efforts and trains emerging climate reporters to share real stories from the front lines. Meanwhile, the Bay Area Council's **Waterfront Initiative** brings private sector leadership into the conversation, promoting sustainable waterfront development, improved ferry access, and new funding pathways for shoreline adaptation. Together, these efforts reflect a growing regional commitment to collaborative, equitable, and innovative responses to climate change.

RSAP Atlas map shows groundwater and coastal flood hazards in a 3.1 ft scenario.



BASING PLANS AND PROJECTS ON THE BEST SCIENCE, DATA, AND KNOWLEDGE

The region's incredible brain trust of climate experts continues to innovate and share the latest and greatest on sea level rise science. Below is a sampling of some of the original research and information that has emerged in the last four years.

Groundwater Mapping (2022-2025)
Given the urgency of more accurate information on groundwater rise, a report by the Pathways Climate Institute and the San Francisco Estuary Institute (SFEI) produced a high-quality dataset on shallow groundwater rise for Alameda, Marin, San Francisco, Contra Costa, and San Mateo counties. As part of the RSAP Atlas, BCDC also created a combined sea level rise and shallow groundwater rise hazard dataset for the entire region using results from CoSMoS-Groundwater models.

OneShoreline Planning Policy Guidance (2023)
OneShoreline's Planning Policy Guidance is a standardized yet evolving resource to help San Mateo County and its cities anticipate increases in flooding, sea level rise, and shallow groundwater rise in their planning documents and zoning ordinances. It also streamlines approval processes for new private development projects in areas near the Bay that are subject to these foreseeable climate impacts.

State of California Sea Level Rise Guidance 2024 Science & Policy Update (2024)
Published by the Ocean Protection Council (OPC), this report updates the best available science on sea level rise and coastal impacts and suggests pragmatic and practical approaches for using this new scientific information in planning and decision-making. The report offers greater certainty and a more accurate estimate of the amount of sea level rise expected through 2050.

Scan QR Code for more information online about these initiatives:

KARL NIELSEN/RESILIENT BY DESIGN

Regional Climate Science Consortium (2024)
To address the urgent need for focused science on adaptation to sea level rise, San Francisco State University is convening a first-of-its-kind meeting of scientists focused on innovative guidance for nature-based adaptation along shorelines in the San Francisco Bay. Funded by the State Coastal Conservancy, this Consortium will identify scientific needs, summarize findings and advice, and provide guidance on environmental and shoreline projects.

Baylands Resilience Framework (2025)
Developed by the San Francisco Estuary Institute (SFEI), the Framework is a science-based planning tool that provides quantitative metrics, such as tidal marsh connectivity, sediment supply, and wave attenuation. These metrics help identify where restoration, sediment placement, or other nature-based interventions can most effectively support flood protection, habitat health, and ecosystem services.

Regional Shoreline Adaptation Plan Atlas (2025)
The Regional Shoreline Adaptation Plan Atlas is an online mapping tool developed by BCDC to provide access to regionally consistent datasets on existing conditions, coastal hazards, Strategic Regional Priorities, and assets at risk of flood exposure.

Plans

Building on the mandates of SB 379 (2015) and SB 272 (2023), a majority of cities and counties have already started to plan for sea level rise adaptation. While there is positive momentum, the funding landscape for climate has shifted and changed in unexpected ways. This section highlights several examples of how plans for adaptation, as well as funding, are advancing in the Bay.

KARL NIELSEN

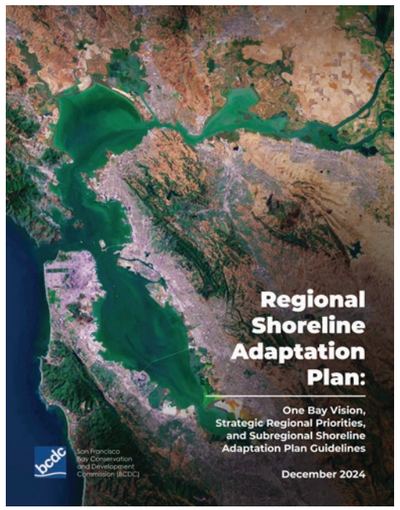
ALIGNING LOCAL AND REGIONAL PLANS INTO A UNIFIED ADAPTATION APPROACH

Plans and policy for sea level rise adaptation is happening around the Bay, at multiple scales. Below are highlights of some of the regional and local planning efforts over the last four years.

Regional Planning

Estuary Blueprint (2022)
San Francisco Estuary Partnership's (SFEP) Estuary Blueprint is the Bay Area's collective call to stewardship. This vibrant, consensus-driven roadmap brings together over 70 agencies, tribal partners, frontline communities, and scientists to care for the entire San Francisco Bay-Delta Estuary. It is designed to accelerate wetland restoration, champion nature-based climate resilience, streamline green infrastructure, and ensure equitable participation in adaptation and restoration efforts.

Regionally Advancing Living Shorelines (2022)
The Regionally Advancing Living Shorelines Project in San Francisco Bay, a program of the San Francisco



BCDC Regional Shoreline Adaptation Plan Workshop with Hood Planning and The Watershed Project, in October 2024.

Estuary Institute, prepares the designs, environmental review documentation, and permits needed for 10 new living shoreline climate adaptation projects. In addition to advancing projects, partners also plan to monitor existing living shoreline pilot projects (which will inform design of future projects), prepare guidance for a programmatic permit approach, and advance a framework for collaboration.

SB 272: Sea Level Rise Adaptation Planning (2023)
Senate Bill 272 requires all coastal cities and counties to develop comprehensive sea level rise adaptation plans by 2034. The law states that the California Coastal Commission (for the outer coast) and BCDC (for the San Francisco Bay shoreline) develop guidelines and ultimately approve or deny plans based on compliance with those guidelines. Jurisdictions that complete approved plans will receive priority for state funding to implement shoreline protection and adaptation projects.

Regional Shoreline Adaptation Plan (2024)
BCDC's Regional Shoreline Adaptation Plan (RSAP), adopted in response to SB 272, helps pull priorities for a resilient San Francisco Bay shoreline into a region-wide vision. It guides cities and counties in creating Subregional Shoreline Adaptation Plans that align local decisions with regional goals. The RSAP bases local planning on the best available science, links it to funding, prioritizes on-the-ground adaptation projects, and advances innovative policy.

Plan Bay Area 2050+
Plan Bay Area 2050+, created by the Metropolitan Transportation Commission/Association of Bay Area Governments, charts a bold, long-term vision for a more equitable, connected, and climate-resilient Bay Area. As the region's official blueprint for housing, transportation, the economy, and the environment, it elevates adaptation to sea level rise as a pillar of regional growth. The newly developed plan's Resilient Project List highlights transformative, future-focused infrastructure projects designed to protect vulnerable communities, strengthen critical systems, and safeguard the shoreline.

Priority Conservation Areas (2024)
As part of Plan Bay Area 2050+, the Metropolitan Transportation and the Association of Bay Area Governments expanded their Priority Conservation Area Program in 2024 to include a new Climate Adaptation designation, reflecting the growing need to align conservation with climate resilience. This update supports projects that protect natural and working lands, enhance urban greening, and address climate vulnerabilities, particularly in communities most at risk. In 2024, the Transportation Commission awarded $8.5 million to 13 projects under the refreshed PCA framework.

Basin Plan Climate Change Amendment (2024)
The 2024 update to the Basin Plan, introduced by the San Francisco Bay Regional Water Quality Control Board, incorporates climate change and sea level rise, empowering regulators, planners, and project partners to align coastal restoration, wetland protection, and flood mitigation with a climate science study. It clarifies permitting and design guidance, enabling projects to move faster, smarter, and more sustainably.

Sediment for Wetlands Adaptation Action Plan (2025)
BCDC co-developed the *San Francisco Bay Sediment & Soil Beneficial Reuse Action Plan* to protect wetlands—one of the most endangered ecosystems in the region. A joint project with the Environmental Protection Agency, Coastal Conservancy, Water Board, San Francisco Estuary Institute, and San Francisco Bay Joint Venture, the plan demonstrates how the region can restore wetlands by reusing sediment and soil more effectively.

Local Planning*

City of Burlingame Zoning Code Update (2021)
The City of Burlingame comprehensively updated its zoning ordinance in 2021 to provide regulations for the Bayfront, including guidelines to make new development resilient to sea level rise. The new code includes a Bayfront Commercial District, as well as public access, flood protection, and sea level rise performance guidelines.

Petaluma River Baylands Strategy (2023)
The Petaluma River Baylands Strategy is a science-based strategy developed by Sonoma Land Trust and partners to restore tidal marshes, wetlands, and uplands in the lower Petaluma River, strengthening flood protection and ecological resilience.

Novato Creek Baylands Strategy (2024)
Led by Marin County Flood Control and partners, this strategy outlines phased restoration plans for the Novato Baylands to balance flood risk reduction, habitat enhancement, and cultural resource protection. Key components include hydraulic modeling of the baylands, evaluation of current operations at Pacheco Pond, and collaboration with the Federated Indians of Graton

KARL NIELSEN

*Curated highlights, not an exhaustive list.

Rancheria to ensure cultural resource considerations are integrated into the planning process.

San Francisco Waterfront Flood Study (2024)
The Draft San Francisco Waterfront Flood Study combines seismic and climate resilience measures to protect infrastructure, neighborhoods, and historic piers from three feet of sea level rise and 100-year storms. Developed by the Port of San Francisco and U.S. Army Corps of Engineers, and supported by a potential $8.8 billion in federal investment, this effort represents one of the largest flood risk management opportunities in San Francisco's history.

Suisun Landscapes Project (2025)
San Francisco Estuary Institute has completed the Suisun Landscapes project, a multi-year, multi-million-dollar initiative funded by the Delta Stewardship Council and the U.S. Bureau of Reclamation. This project delivers ecological data and tools to support restoration in Suisun Marsh. A related vulnerability analysis for Solano County is underway to develop adaptation strategies by 2026.

San Rafael Sea Level Rise Adaptation Project
A collaborative effort led by the City of San Rafael and Canal Alliance, this project is designed to protect the Canal District—one of Marin County's most vulnerable communities—from sea level rise, flooding, and storms through community-driven planning.

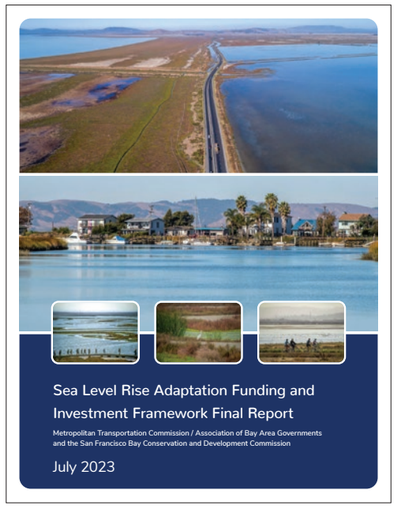
Sea Level Rise Adaptation Planning Study for Marin County's Transportation System (2025)
Funded by Measure AA, the Transportation Authority of Marin's study, adopted in 2025, evaluates sea level rise threats to Marin's transportation system. The study builds on previous adaptation planning efforts conducted by Marin County and its regional partners to develop a plan that supports Marin County's transportation system.

Yosemite Slough Neighborhood Adaptation Plan (YSNAP)
Led by the San Francisco Planning Department in collaboration with local partners, YSNAP centers on racial equity and nature-based solutions to protect Bayview-Hunters Point from 3.5 – 7 feet of sea level rise by 2100, while enhancing ecological and shoreline access. By leveraging community expertise, YSNAP aims to develop a replicable model for climate adaptation in vulnerable urban neighborhoods, positioning Bayview-Hunters Point for future state and federal investment in resilience infrastructure.

PAIGE GREEN/CANAL ALLIANCE

Opposite: Community members learn about flooding and share their ideas in San Rafael.

Below: Sea Level Rise Adaptation Funding and Investment Framework Report, by MTC/ABAG and BCDC (2023).



$96 billion

Estimated cost to adapt to sea level rise and storm surge by 2050.

$6.5 billion

Forecasted public revenue between now and 2050 to pay for sea level rise adaptation.

FIGURING OUT HOW TO FUND ADAPTATION

Regional Sea Level Rise Funding and Investment Framework (FIF) (2023)
The Funding and Investment Framework is a joint report published by the Metropolitan Transportation Commission/Association of Bay Area Governments with BCDC. This data-driven and collaborative research project identified near-term needs for sea level rise adaptation and investigated possible funding solutions. It found that while the cost of tackling this regional challenge is significant, failing to adapt would result in a much larger deficit.

California Climate Bond (2024)
California voters made a generational investment in a safer, more resilient future when they passed Proposition 4, the $10 billion Climate Bond. With $1.2 billion dedicated to coastal resilience, this historic funding will help protect lands, waters, and communities from the accelerating threats of sea level rise and climate disruption.

San Francisco Bay Restoration Authority
The Restoration Authority is a regional agency created to fund shoreline projects that will protect, restore, and enhance San Francisco Bay with revenue from the Measure AA parcel tax. The Authority has issued over $159 million in grants for over 40 restoration projects around the Bay. Just between 2022 and 2024, they released over $57 million to fund projects.

U.S. Environmental Protection Agency Bay Program Funding (2022)
The San Francisco Bay Restoration Act was signed into law in December 2022, establishing the Environmental Protection Agency's San Francisco Bay Geographic Program. Championed by Representative Jackie Speier and the late Senator Dianne Feinstein, the program secured $54.4 million in federal funding for 2023 to support wetland restoration, water quality improvements, and climate adaptation projects across the Bay Area.

Scan QR Code for more information online about these initiatives:

Projects

Even as adaptation planning gets off the ground, projects are already in various stages of design, funding, testing, construction, and monitoring. Additionally, progress in both the regulatory environment and in multi-sector collaboration is helping to accelerate projects and make them more efficient.

KARL NIELSEN

Eden Landing

FUNDING AND FACILITATING FASTER ADAPTATION PROJECTS

Many adaptation and habitat restoration projects are underway in the Bay Area, ranging from planning to construction stages. Learn more about three highlighted examples and more information on all the projects can be found in the SAPMAP online.

Shoreline Adaptation Projects Under Development

- On the Horizon
- Planning
- In Progress

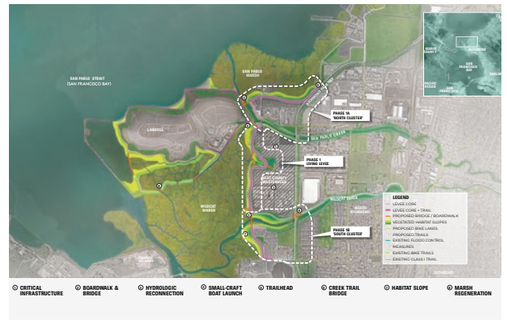
Source: Shoreline Adaptation Project Map (2025)

Data is summarized based on "site status" column. "On the Horizon" includes "proposed" projects; "Planning" includes projects categorized as "planning/ scoping" or "permitting"; and "In Progress" includes projects that are "in-progress/implementation", "construction in-progress", or "construction planned."

0 1 2 4 Miles N

North Richmond Horizontal Levee

The North Richmond Horizontal Levee Project achieved significant milestones in advancing climate resilience, habitat restoration, and community engagement along the East Bay shoreline. Led by West County Wastewater with support from the San Francisco Bay Restoration Authority (SFBRA), this project combines flood protection, habitat restoration, and community input through a nature-based "living levee" design.

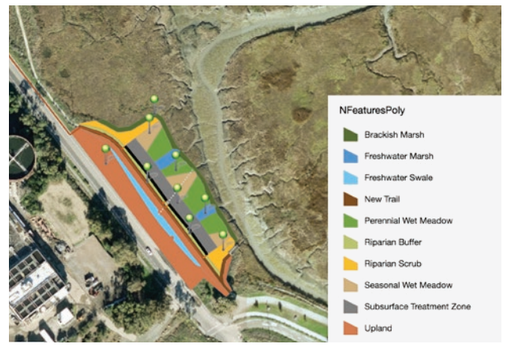


Eden Landing

As part of the South Bay Salt Pond Restoration Project, Eden Landing Phase II intends to restore over 1,300 acres of former salt ponds to tidal marsh and enhance over 700 acres of managed ponds in Alameda County. The project includes restoring tidal marsh, managed wetlands, ecotones, 4.5 new miles of Bay Trail, and monitoring, emphasizing community engagement and flood protection. Building on nearly $7 million in existing grants, $1.15 million awarded by SFBRA in 2024, a main feature of the project is the construction of habitat zones that would provide gradual transitions from tidal marshes to upland habitats.

Palo Alto Horizontal Levee

The Palo Alto Horizontal Levee Pilot Project is a pioneering nature-based infrastructure initiative designed to address sea level rise, enhance habitat, and improve water quality. Located next to the City's Regional Water Quality Control Plant, the project features a horizontal levee that filters treated wastewater, provides flood protection, and supports the migration of tidal marsh habitats inland as sea levels rise.



MITHUN (NORTH RICHMOND), KARL NIELSEN/RESILIENT BY DESIGN (EDEN LANDING), CITY OF PALO ALTO (PALO ALTO)

REFINING AND IMPROVING REGULATORY PROCESSES

Bay Restoration Regulatory Integration Team (BRRIT) (2019)

The BRRIT enhances the permitting process for multi-benefit habitat restoration projects, as well as flood management and public access infrastructure in the San Francisco Bay and along the shoreline of the nine Bay Area counties. Since its inception, 32 projects have been brought to the BRRIT, and 10 have been fully permitted.

BCDC Regulatory Improvements

In 2024, BCDC completed a year-long evaluation of its permitting program, identifying projects to improve the program systematically over the next several years. The first priority BCDC is addressing among those that emerged is the roll-out of an improved pre-application process, which will help applicants better understand permitting pathways and receive faster decisions.

Regulatory Pathways for Nature-Based Solutions (2024)

Published by the San Francisco Estuary Project and Environmental Science Associates, this white paper sheds light on the permitting challenges associated with nature-based solutions and horizontal levee projects, identifying potential regulatory and permitting pathways and making recommendations for improvements.

California Assembly Select Committee on Permitting Reform (2025)

The California Assembly Select Committee on Permitting Reform, chaired by Assemblymember Buffy Wicks, published a new report outlining best practices for permitting housing, electricity, water, and transportation projects.

ENCOURAGING COLLABORATION AMONG PEOPLE DOING PROJECTS IN THE SAME PLACES

OneShoreline (2020)

OneShoreline, San Mateo County's regional sea level rise agency, is redefining how communities prepare for climate change by uniting cities, agencies, and residents around bold, collaborative action. From building multi-benefit flood protection projects to guiding future development with resilience in mind, OneShoreline is weaving together public safety, ecological restoration, and inclusive planning in one strategy.

Bay Area Regional Collaborative Memorandum of Understanding (2024)

Seven regional and state agencies[1] entered into an MOU committing to work together to address the growing threats of flooding and sea level rise in the Bay Area. By coordinating their respective roles and authorities, the partner agencies plan to accelerate implementation of adaptation projects, increase the region's ability to compete for grants, and support partnerships to advance multi-benefit projects at scale.

State Route 37

A model of multi-agency collaboration, the Highway 37 Sea Level Rise Project unites Caltrans, the Metropolitan Transportation Commission, and four counties—Marin, Sonoma, Napa, and Solano—to plan climate-resilience upgrades for this flood-prone corridor. The effort integrates wetland restoration, transportation resilience, and social equity, aligning ecological and economic goals through a collaborative approach. In addition, a new partnership among state transportation and resource agencies has spurred positive discussions and actions that continue to move these integrated goals forward.

Oakland Alameda Adaptation Committee (OAAC) (2021)

The Oakland Alameda Adaptation Committee is a coalition of over 30 stakeholders, including community-based organizations, Tribal liaisons, staff from the Port of Oakland and the cities of Alameda, Oakland, and San Leandro, and various agency representatives. The OAAC is setting a precedent for climate adaptation planning that is inclusive and science-based, addressing both environmental and social equity concerns in the Oakland-Alameda region.

Scan QR Code for more information online about these initiatives:

Defining terms for nature-based solutions

Ecotone levee: gentle slopes or ramps placed bayward of flood risk management levees and landward of a tidal marsh. When properly vegetated, they can provide a wetland-upland transition zone habitat, attenuate waves, provide high-tide refuge for marsh wildlife, and allow room for marshes to migrate upslope with sea level rise. (Adaptation Atlas)

Living levee: a term used to describe a form of ecotone levee that provides a transitional habitat on a gentle, ecologically diverse slope.

Aerial view of Highway 37

JUSTIN LEWIS/SONOMA LAND TRUST

[1] Agencies participating in the agreement include the Association of Bay Area Governments; the Bay Area Air Quality Management District; the California State Coastal Conservancy; Caltrans District 4; the Metropolitan Transportation Commission; the San Francisco Bay Regional Water Quality Control Board; and the San Francisco Bay Conservation and Development Commission (BCDC). The partners' amplified coordination will be guided by the inter-agency Bay Area Regional Collaborative.

Progress

A key component of ensuring that adaptation is successful is the ability to track progress, or lack of progress, and evaluate our efforts. In addition to tracking data on engagement, plans, and projects, the region has been making meaningful efforts to guide decisions, make the data understandable and accessible, and tell the stories that summarize where we are going and how the work is going.

King tide in the city of Alameda, December 2024.

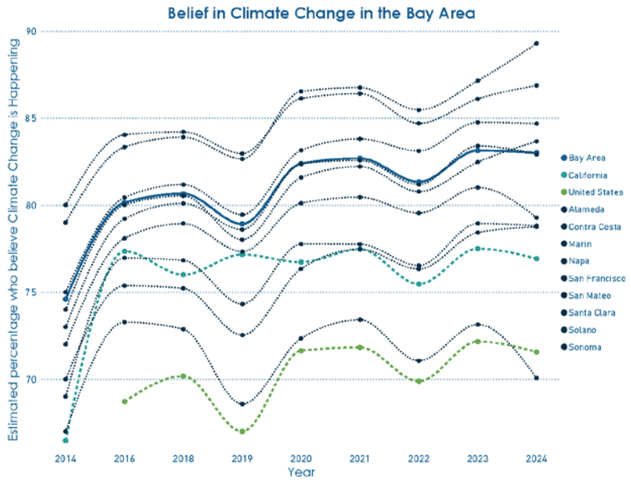
TRACKING AND REPORTING PROGRESS TO GUIDE FUTURE ACTIONS

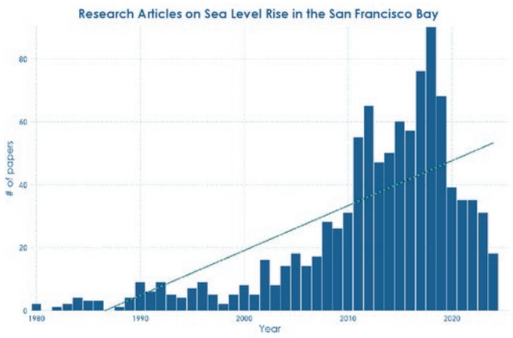
Bay Adapt Currents: Metrics That Move with the Tides (2025)

Bay Adapt Currents is an interactive and data-driven dashboard for tracking sea level rise adaptation in the Bay Area. It features graphics showing trends in community perceptions of climate change, news articles, and peer-reviewed scientific research, sea level rise policies already in action in 55 Bay Area cities, and other urgently-needed information.

Shoreline Adaptation Project Mapping Program (SAPMAP)

BCDC and MTC's Shoreline Adaptation Project Mapping Program is a visionary leap toward a resilient Bay Area shoreline, turning scattered adaptation efforts into a unified, living map. Based on the EcoAtlas platform, SAPMAP spatially tracks coastal restoration, flood-reduction, and resilience projects across the region, empowering planners, funders, and communities with clarity and coordination (see page 26).





This page: Graphics in the Bay Adapt Currents platform feature data in accessible way.

Opposite: The Watershed Project, Greenbelt Alliance, and North Richmond community partners celebrate the opening of new wayfinding signage in North Richmond on the site of the future living levee as part of a BCDC shoreline workshop.

Scan QR Code for more information online about these initiatives:

KARL NIELSEN/BCDC

Moving Forward

The stories and successes highlighted in this report show the accelerating pace of projects, capacity building, awareness, and technical knowledge, preparing the Bay Area for sea level rise. These stories honor the original intention of the Bay Adapt Joint Platform, but the landscape has become more complex during the last four years, which affects how implementation moves forward in the future.

We have decades of clearly identified work ahead, as well as the vision, frameworks, and resources to light the path. Inevitably, we will face "unknown unknowns"—the unexpected curveballs that force us to pivot and face new horizons.

And still, there is so much room for growth and innovation. Looking ahead, we must keep our established visions at the forefront while making the path flexible and ambitious. The Bay Area is full of brilliant and passionate minds committed to a better future for our children and grandchildren. As rising tides challenge and change the world we know, we must rise to the occasion with innovation and imagination.

We can learn continually from our efforts about what is or isn't working, and develop new solutions from what we learn. This can take the form of learning from project performance, listening better to communities, and developing new governance and decision-making models that better incorporate uncertainty and collaboration.

New ideas not captured in the current Joint Platform can present exciting new avenues for accelerating adaptation. Across the region, visionary ideas are emerging, from elevating transit corridors to "living levees" to projects that create ecologically rich floodplains. The Bay Adapt Joint Platform is not static; it must evolve with new data, new leaders, and new ideas. Today's challenges demand tomorrow's ideas.

So, what's next?

What we know for certain is that we need to speed up the pace of our work. Even if some projects may not need to be in place for decades, we need to lay the foundation today, if not yesterday. There is much to do, and the faster we build capacity and funding, plan for the future, and get projects on the ground, the less we will have to react to catastrophes in the future.

We've been listening and observing. Here are some trends and priorities we can use to help guide our work for the *next* four years:

- Ensuring that environmental justice and equity remain front and center in planning and implementation, and are not an afterthought.
- Restoring and enhancing wetlands before they are lost—and this will happen sooner than we think.
- Starting the decades-long work of building major infrastructure projects.

KARL NIELSEN/RESILIENT BY DESIGN

- Priming ourselves and our decision-makers to adapt regulatory frameworks that make permitting at all levels work for, not against, innovative shoreline projects.
- Establishing commitments to put local and regional financing tools in place to diversify and expand funding options.
- Inspiring the current and next generation of residents to love the Bay, understand what's at stake as waters rise, and become stewards for the long haul.
- Staying committed to regionalism. The Bay Area works better when we work together.

In short, we need to establish more and better systems in the coming decades to accelerate projects *before* flooding occurs.

The Bay Adapt Joint Platform was foundational in establishing consensus around some of these big-picture moves. But the world is not stagnant, and our actions shouldn't be either. Four years in, we can honor and implement the world we envisioned in 2021 and, at the same time, continuously update that vision.

The question that we will continue to ask ourselves is: How can we stay on the edge of progress? And how can you contribute—with your expertise and actions—to ushering in the world we know is possible?

Credits and Acknowledgements

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Coastal Conservancy

Bay Adapt Implementation Coordination Group - ICG
The Bay Adapt Implementation Coordinating Group is a peer advisory, accountability, and convening body. It includes representatives of organizations responsible for implementing Bay Adapt projects, reviewing program progress, and providing their peers with analysis and recommendations to best implement Joint Platform tasks. Members of the ICG provided direct input and revision for the content of this Impact Report.

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Endorsements for the Joint Platform
Visit bayadapt.org/endorsements/

Cities and Counties
City of Alameda
City of Albany
City of Berkeley
City of Corte Madera
City of Dublin
City of El Cerrito
City of Hayward
City of Mountain View
City of Pleasanton
City of San Leandro
City of San Rafael
City of Union City
Town of San Anselmo
County of Alameda
County of Contra Costa
County of Marin
County of Napa
County of San Mateo
County of Santa Clara
County of Solano
County of Sonoma

Regional, State, and Federal Agencies
Association of Bay Area Governments (ABAG)
Bay Area Regional Collaborative (BARC)
SF Regional Water Quality Control Board
Caltrans
California State Controller
State Coastal Conservancy
State Lands Commission
San Francisco Bay National Estuarine Research Reserve
San Francisco Bay Restoration Authority

Non-Profit Organizations
American Institute of Architects California (AIA CA)
AIA San Mateo County
Bay Area Climate Adaptation Network (BayCAN)
Bay Area Council
Bay Planning Coalition
Building Industry Association
Exploratorium
Friends of Five Creeks
Greenbelt Alliance
Marin Conservation League
NorCal Resilience Network
Nuestra Casa
Rise South City
San Francisco Estuary Institute (SFEI)
Silicon Valley Leadership Group
San Francisco Bay Area Planning and Urban Research Association (SPUR)

Other Public Entities
Alameda County Mayors' Conference
Bay Area Clean Water Agencies (BACWA)
California State Controller
Coastal Hazards Adaptation Resiliency Group (CHARG)
Contra Costa County Sustainability Commission
East Bay Dischargers Authority (EBDA)
Hayward Area Shoreline Planning Agency (HASPA)
San Francisquito Creek Joint Powers Authority/SAFER Bay
Bay Area Rapid Transit (BART)

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Bay Adapt Impact Report Credits

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Bay Adapt Impact Report

2021–2025

This Impact Report highlights the significant progress the Bay Area has made in sea level adaptation by implementing the Bay Adapt Joint Platform over the last few years. It highlights key trends and milestones across its five main categories: People, Information, Plans, Projects, and Progress.

While the snapshots included are not exhaustive, they shed a spotlight on many stories that illustrate the collective progress made as the Bay Area rises to meet the climate challenges of this decade and beyond.

Learn more at bayadapt.org

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