

# NATURE



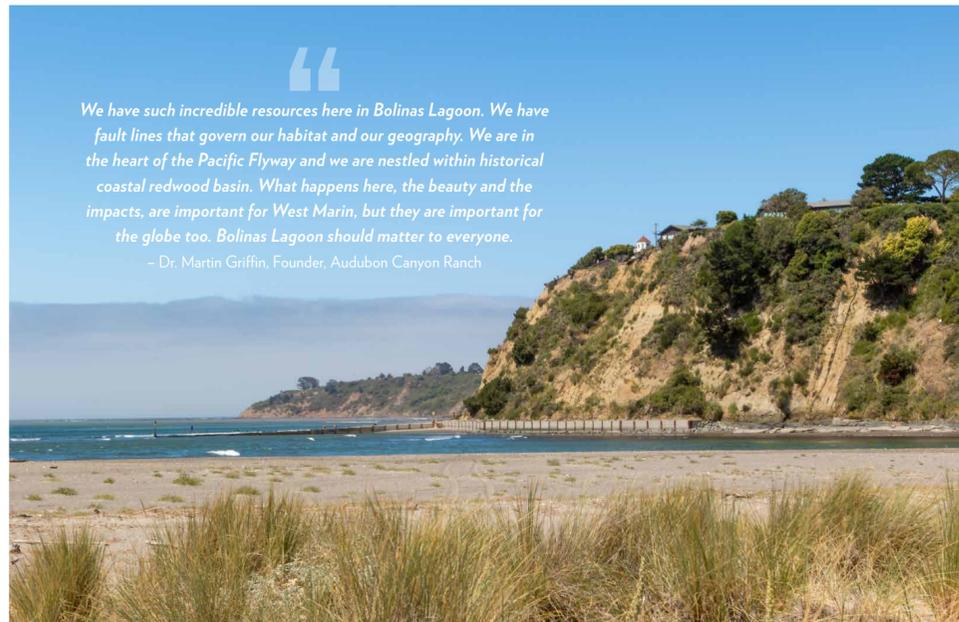
JUST 15 MILES northwest of bustling San Francisco, tucked between the rolling hills of Bolinas Ridge and the lower Point Reyes peninsula, lies the 1,100 acre Bolinas Lagoon tidal estuary. Perched atop the San Andreas Fault, this special place where the land meets the sea, is home to some of the richest and most diverse habitats in the world.



ITS CHANNELS, mudflats, marshes, and streams shelter and feeds multitudes of plants, marine mammals, birds, fish, and invertebrates, including rare and special-status species. Tens of thousands of local shorebirds, seabirds, and migrants along the Pacific Flyway rely on the lagoon for food, while its protected sandbars and islands provide pupping grounds and year-round resting sites for hundreds of harbor seals. Threatened and endangered steelhead trout and coho salmon maneuver through its waters to reach their upstream spawning grounds.



THE LAGOON'S incredible natural abundance led to its designation as an Audubon Important Bird Area, a State and National Treasure, and one of only seven Ramsar Wetlands of International Importance in the western United States. However, alongside its history of protection and recognition is a story of dramatic change that threatens the future of Bolinas Lagoon.



*We have such incredible resources here in Bolinas Lagoon. We have fault lines that govern our habitat and our geography. We are in the heart of the Pacific Flyway and we are nestled within historical coastal redwood basin. What happens here, the beauty and the impacts, are important for West Marin, but they are important for the globe too. Bolinas Lagoon should matter to everyone.*

– Dr. Martin Griffin, Founder, Audubon Canyon Ranch

# WHO WE ARE



**Marin County Parks** – leads the effort to restore, preserve, manage, and care for the lands of Bolinas Lagoon for this and future generations.

**National Park Service and Greater Farallones National Marine Sanctuary** – help protect and preserve the conservation, recreational, cultural, ecological, and aesthetic qualities of Bolinas Lagoon and the surrounding landscape.

**One Tam** – inspires community support for ecosystem restoration, education, and stewardship on and around Mount Tamalpais

**Science Partners** – including Audubon Canyon Ranch, UC Davis Bodega Marine Laboratory, and Point Blue Conservation Science, along with numerous other organizations, agencies, and academic institutions help provide critical research to support management and planning.

## AND YOU...

The most important partner in protecting Bolinas Lagoon is you! Whether it's getting your hands dirty helping in the field, donating to a project, or advocating for its protection, you can take pride in knowing that you are an important part of a long tradition.

## VOLUNTEER

Get outside and enjoy the lagoon's breathtaking scenery while helping restore critical habitats and recreation areas.

Contact **Kate Bimrose** at [kbimrose@farallones.org](mailto:kbimrose@farallones.org) or (415) 970-5245.

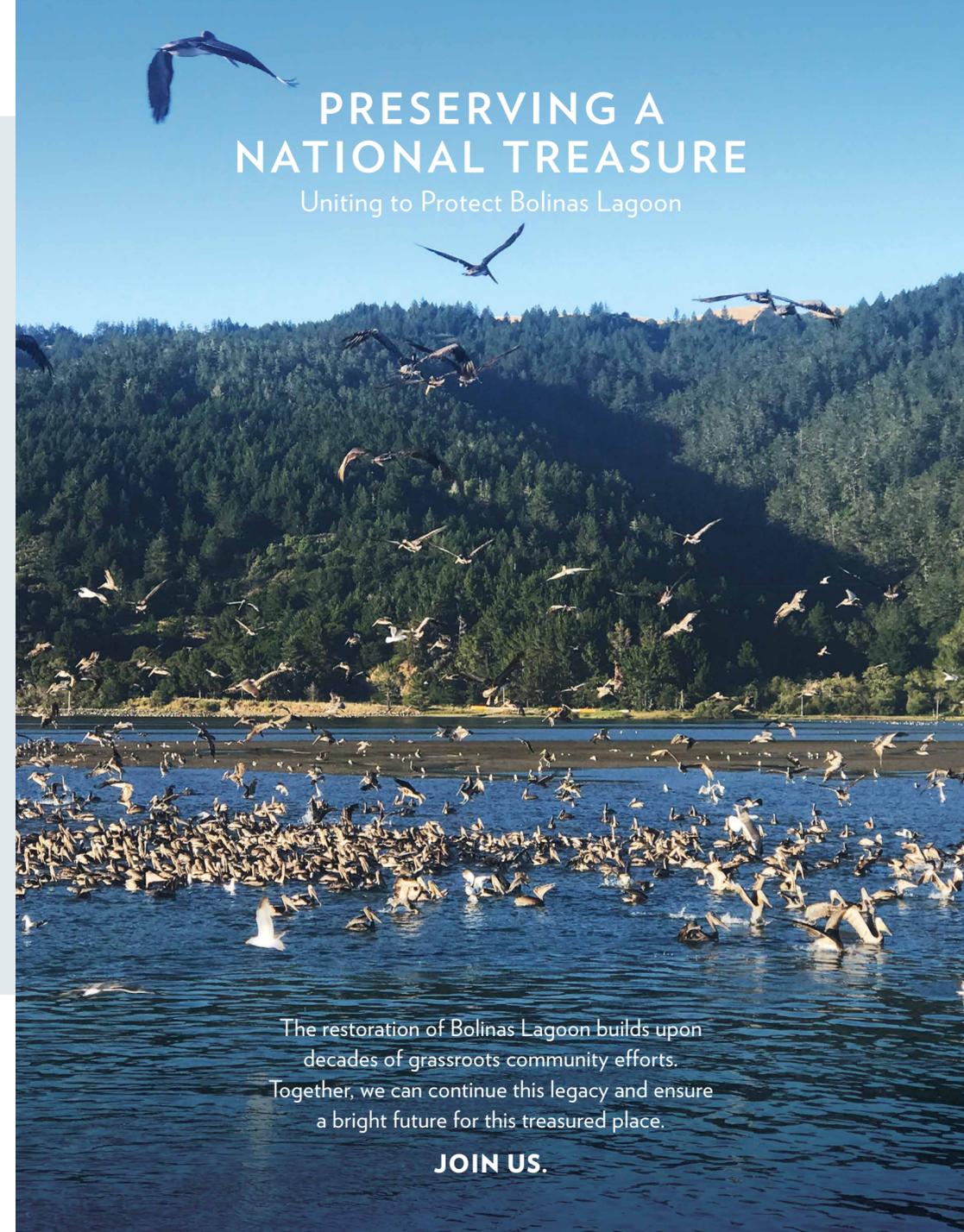
## GIVE

You can support Bolinas Lagoon by making a tax-deductible donation through One Tam.

Contact **Matt Leffert** at [mleffert@parksconservancy.org](mailto:mleffert@parksconservancy.org) or (415) 561-3069.

# PRESERVING A NATIONAL TREASURE

Uniting to Protect Bolinas Lagoon



The restoration of Bolinas Lagoon builds upon decades of grassroots community efforts. Together, we can continue this legacy and ensure a bright future for this treasured place.

JOIN US.



THE BEAUTIFUL LANDSCAPES, THE SEA, THE BEACHES, AND THE LAGOON—these are what we work to protect. As members of the community, local organizations, and agency representatives, we are all connected to this land and the cultural and personal values it holds for **past, present, and future generations.**

The treasures of Bolinas Lagoon are also shared by the thousands of visitors who find enjoyment, inspiration, and solace **from** its surrounding hills and shores. **Birds, seals, fish, and invertebrates**—including rare and endangered species—also depend on **the lagoon and its environment**, and we aim to preserve it.

As members of the Marin County Board of Supervisors' Bolinas Lagoon Advisory Council, we proudly carry on the legacy of preservation, collaboration, community, and stewardship.

Local conservation networks, land managers, **the fishing community**, environmentalists, scientists, and residents must continue to join forces to meet today's challenges while planning for the future. Putting our collective plans into action will take all of us working together.

We pledge our dedication to the Bolinas Lagoon restoration because we are all stewards of this land. We invite you to join us in this effort.

Sincerely,  
Bolinas Lagoon Advisory Council

Chair

Co-Chair

BOLINAS LAGOON  
ADVISORY COUNCIL  
MEMBERS INCLUDE  
REPRESENTATIVES FROM:

Audubon Canyon Ranch

Bolinas Rod and Boat Club

College of Marin

Community At-Large

Community of Bolinas

Community of Stinson Beach

Golden Gate National  
Recreation Area

Greater Farallones National  
Marine Sanctuary

Marin County Parks

Point Blue Conservation Science

Point Reyes National Seashore

Seadrift Homeowners Association



Cover photo: Clint Graves  
Additional photography:  
Parks Conservancy and  
NPS staff and volunteers

# LEGACY

## ...OF CHANGE

For tens of thousands of years, Bolinas Lagoon and its surrounding watershed hosted some of the region's richest natural habitats. Early settlers were quick to take advantage of this abundance. By the mid-1800s the region's resources were feeding a newly booming San Francisco Bay Area's seemingly insatiable appetite for raw materials.

Logging, farming, and residential development eventually transformed this once connected ecosystem of upland hills, forests, streams, and marshes into the fragmented landscape, channelized waterways, and hardened shorelines we see today. Roadway flooding, fish passage barriers, and creek and wetland habitat loss have increased. Invasive species have penetrated the landscape, and native eelgrass, fish, and clam populations have largely disappeared.

Future climate change and sea level rise will further test these fragmented habitats and challenge both human and wildlife residents to find new ways to adapt and survive.



Community volunteers are continuing a long tradition of caring for Bolinas Lagoon by helping remove invasive species and restore native habitats on Kent Island.

*How lucky we are to live in such a rich, biologically diverse tidal estuary and watershed! But, if you think we humans are lucky, just ask the pelicans, the shorebirds, the seals and the anchovies how happy they are to live on the Bolinas Lagoon. It is way past time we humans reverse any negative impacts we have had on the ecosystem before we lose this treasure.*

— Barbara Boucke, Stinson Beach Resident

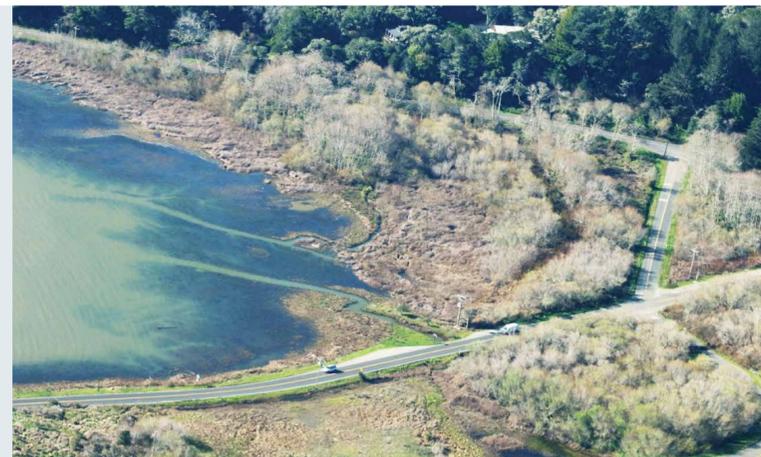
## ...OF PRESERVATION AND COMMUNITY CARE

Although humans have contributed to the challenges facing Bolinas Lagoon, we also hold the solutions.

Starting in the 1960s, dedicated individuals and environmental groups came together to protect the lagoon. The Bolinas Lagoon Foundation was instrumental in raising the funds and political awareness needed to support restoration. Organizations like Audubon Canyon Ranch purchased and gifted land to Marin County to help create the Bolinas Lagoon Open Space Preserve, protecting much of this landscape from future development.

Today, the Bolinas Lagoon Advisory Council, scientists, and the local community continue to support ongoing efforts to reverse past damage and ensure the lagoon's resilience to future changes.

# RESILIENCY



The Bolinas "Y" intersection at the north end of the lagoon is an example of how roadway development fragments habitats and prevent the lagoon from shifting in response to sea level rise.

BOLINAS LAGOON has existed in a state of constant change for over 7,000 years, as winds, waves, tides, and earthquakes sculpted its complex network of habitats. Yet, in less than 200 hundred years, human land-use changes have altered the lagoon's ability to shift with these natural processes. Climate change, and its accompanying storm surges, high tides, and sea level rise, will further challenge the lagoon's ability to adapt, threatening both its built and biological systems.

Understanding that change is constant and future impacts are uncertain, it is critical we prioritize long-term solutions that promote the lagoon's natural evolution and that support the processes that have allowed it to thrive for thousands of years.

The projects described on the next page address many of the challenges to the lagoon's ecological diversity, physical processes, and resilience to future changes. The projects represent just some of the work completed, underway, and prioritized for the future of Bolinas Lagoon. All projects come from the community-driven 2008 *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management*.

*Boating in and through the Bolinas Lagoon confirms that the only constant in this world is that something will change. The channels move and the sand is forever shifting. The waves are big one day and small the next. I feel lucky to have spent fifty years fishing from such a beautiful and challenging spot.*

— Josh Churchman, Community Member and Commercial Fisherman

# ACTION

AFTER YEARS of community efforts to raise awareness about Bolinas Lagoon, the US Army Corps of Engineers released a draft feasibility study in 2002 that proposed dredging 1.4 million cubic feet of sediment from the lagoon, including all of Kent Island and much of the Pine Gulch Creek delta and north basin. The potential impacts of this proposal sparked a call for a more adaptive and innovative approach.

In 2008, community members, scientists, agencies, and local organizations came together to create the *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management*, which includes over 25 recommendations for restoring the lagoon and its watershed.

Today, we are putting that vision into action and you can help! Residents, public agencies, local organizations, and other stakeholders are working together to restore habitats, protect wildlife, keep roads safe, and preserve the lagoon's stunning natural beauty. Numerous studies and ongoing monitoring of physical processes, habitat, and wildlife support these projects and help guide future planning.



Without restoration, flooding on Olema-Bolinas Road will continue to worsen as sea levels rise.

*The North End Project provides an outstanding opportunity to create a new and productive breeding site for the California State-Threatened Black Rail, which breeds in very specific and local transitional marsh habitats here.*

— Peter Pyle, Institute of Bird Populations

## SOME OF THE PROPOSED PROJECTS INCLUDE\*:

**KENT ISLAND VEGETATION MANAGEMENT** restores the island's ability to naturally shift with tides and currents, and allows native plants that are important for pollinators, birds, and other wildlife to return to the island.

**NORTH END WETLAND ENHANCEMENT AND SEA LEVEL RISE ADAPTATION** restores critical wetland habitats and reconnect the lagoon to its upland creeks, benefiting numerous wildlife species, reducing flooding on local roads, and allowing the lagoon to shift and expand with storms and sea level rise.

**SEADRIFT EUROPEAN GREEN CRAB REMOVAL** relies on volunteer support to remove thousands of invasive crabs each year, protecting the diversity of Seadrift and Bolinas Lagoons, safeguarding local commercial fisheries, and supporting farms that utilize the crabs to fertilize their crops.

**EASKOOT CREEK REHABILITATION** brings key habitats and natural processes back to this highly channelized and impaired creek system, and will help reduce local flooding.

**PINE GULCH CREEK RESTORATION** reestablishes habitat for fish and other wildlife now and in the future by reducing sediment build-up and reconnecting the creek, its floodplain, and the lagoon.

# BOLINAS LAGOON PROJECTS PAST, PRESENT, AND FUTURE...



\*Projects here represent some of the priorities identified in the *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management*.

# NOW AND TOMORROW

**1834** Native American Coast Miwok lived beside Bolinas Lagoon for thousands of years prior to the arrival of Europeans, during which time the lagoon was a place of extraordinary abundance. Rafael Garcia is awarded Rancho Baulinas through a Mexican land grant, making his family the first to introduce agriculture and livestock.

**1849** Logging on Rancho Baulinas to meet the demands of the California Gold Rush sends sediment streaming into the north end of the lagoon.

**1860s-1960s** The lagoon's hills and shoreline are eventually carpeted with farms, ranches, roads, and residential development which fill wetlands, fragment habitats, channelize streams, and greatly increase sediment into the lagoon.

**1960-1967** Dipsea Road and inner Seadrift Lagoon are developed. The County of Marin Master Plan proposes a four lane freeway with shopping malls and thousands of homes. The Nature Conservancy, Marin Conservation League, and Audubon Canyon Ranch give Kent Island to Marin County on the condition that it be kept as a nature preserve.

**1974-1981** The Bolinas Lagoon Technical Advisory Committee is established. The county designates the lagoon as a nature preserve and develops the *Bolinas Lagoon Resource Management Plan*. The lagoon is included in the newly established Gulf of the Farallones National Marine Sanctuary.

**1994-2002** The Committee to Save Bolinas Lagoon forms and begins fundraising and campaigning on behalf of the lagoon. Bolinas Lagoon is designated as a state and national treasure and a Wetland of International Importance. The Army Corps of Engineers releases draft feasibility study recommending extensive dredging of the lagoon.

**2008** The *Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management* is created as a result of scientific studies and community input.

**2009-2010** Invasive European green crab removal begins in Seadrift Lagoon. Invasive spartina removal begins in Bolinas Lagoon. Caltrans begins runoff and sediment management along on Highway 1.

**2012-2013** The Kent Island Restoration Project begins to restore dune habitats and remove invasive species. Caltrans finishes roadwork along Highway 1, removing invasive species and reducing runoff and debris entering the lagoon.

**2014-2017** The Marin County Board of Supervisors approves prioritization of the North End Restoration Project. Conceptual designs for the North End Restoration Project are developed to reduce flooding, increase road safety, restore creek, wetland, and riparian habitats, and plan for sea level rise.

The future of Bolinas Lagoon lies in our hands, will you join us?