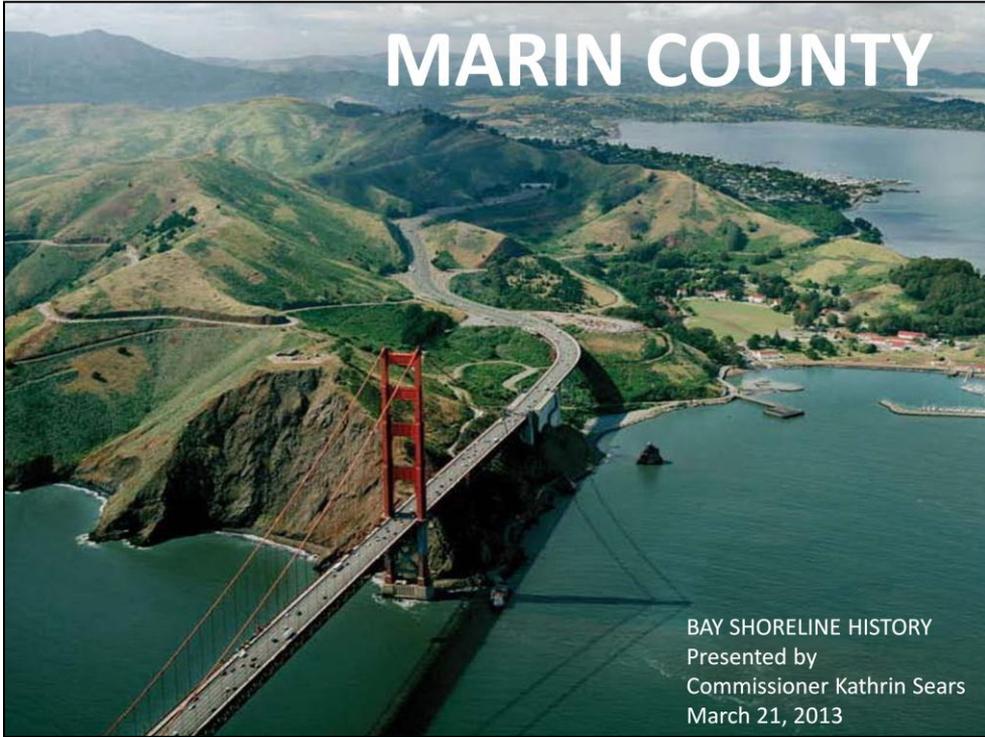
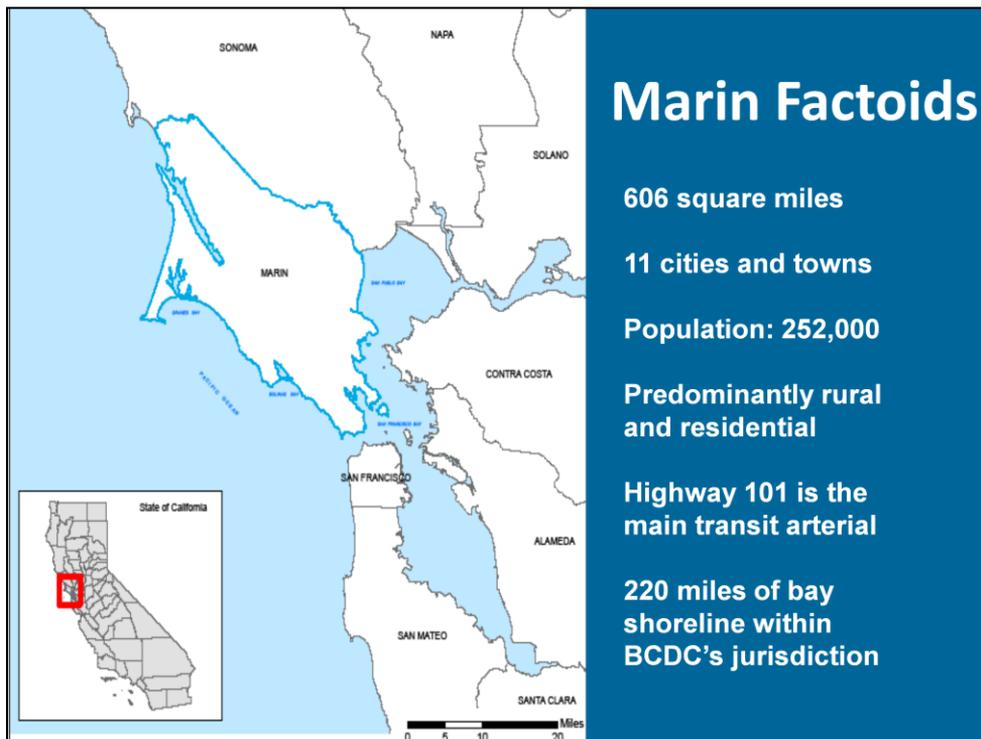


# MARIN COUNTY



BAY SHORELINE HISTORY  
Presented by  
Commissioner Kathrin Sears  
March 21, 2013

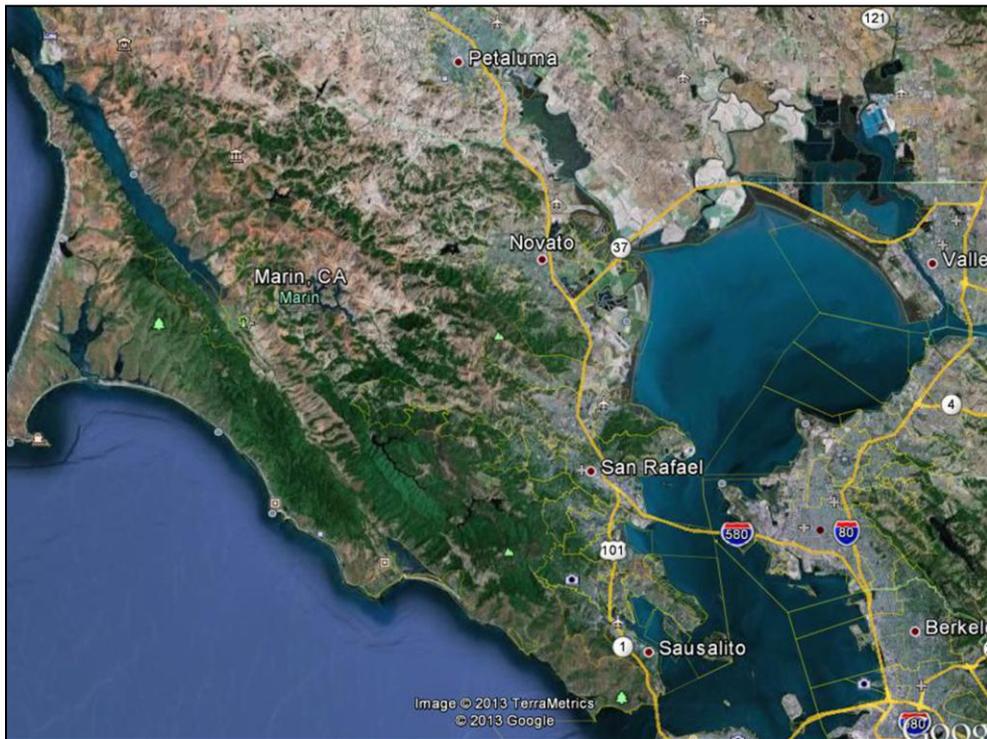


Marin was one of the original 27 counties when California was admitted to the Union in 1850 and encompasses 606 square miles.

In 1920 the population was 27, 000 and by 1940 had just about doubled to 53,000. With the post-war economic boom, by 1960 the population was up to 146,000.

Today the current population is about 252,000.

There are 11 cities and towns, the 2 largest being San Rafael and Novato, each with about 55,000 residents. The county is predominantly rural and residential, with commercial and light industrial concentrated along the 101 corridor.



The peninsular geography of Marin separates it from the rest of the San Francisco Bay Area, and effectively slowed development compared to other bay counties.

The 3 most significant events that shaped Marin's population and development were the **1906 earthquake and fire**, which saw tens of thousands of refugees flee the City; the **opening of the Golden Gate Bridge in 1937**; and the **post-WWII economic boom** that brought suburbanization of what had been small communities along the 101 corridor.

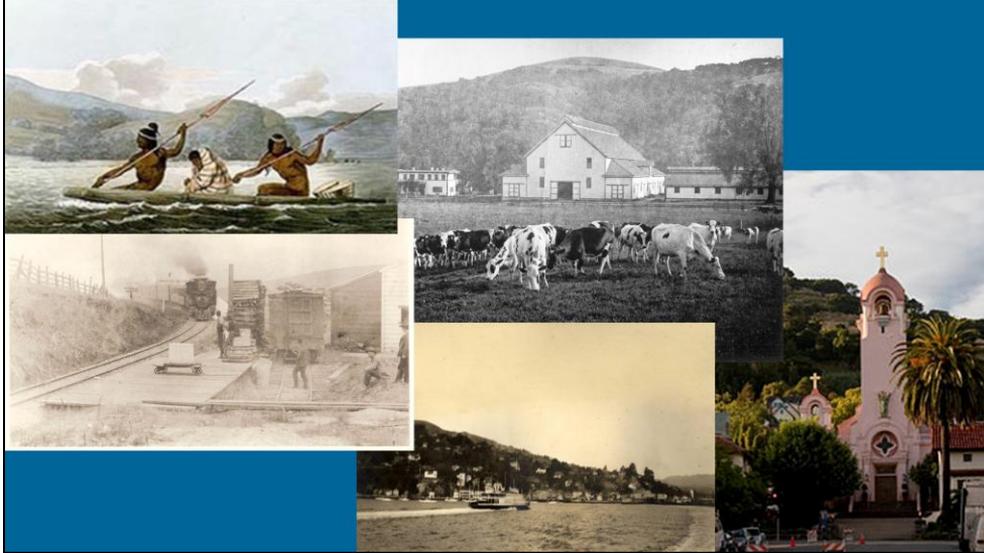
Marin has an abundance of protected agricultural land, open space and parklands. The best known are the **Point Reyes National Seashore** which includes the Phillip Burton Wilderness Area (at Drake's Estero); **Muir Woods National Monument**; and the **Golden Gate National Recreation Area**, established in 1972. In addition to Mt. Tamalpais State Park, there are 6 other State Parks, including China Camp and Angel Island.

Marin County Parks and Open Space also operates many parks in the County, including 4 along the bay shore, as well as many open space preserves, and we'll talk about two, Bothin Marsh in Mill Valley and Aramburu Island near Tiburon.

Marin's primary industries until WWII were the fisheries, dairy and lumber, all of which relied on the Bay's commerce of shipping and ferries.

Military installations also have played a significant role throughout Marin's development, from Hamilton Field in the North, to Romberg in Tiburon, to Sausalito's ship-building legacy, to Fort Baker in the shadow of the Golden Gate Bridge.

# Marin Prior to the 1900s



## Pre-Colonial Period :

Early development was closely linked to the natural heritage of the San Francisco Bay. Marin was part of the Coastal Miwok territory. The Coastal Miwok flourished along the bay shoreline, but were pushed to virtual extinction by 1900.

## 1800s

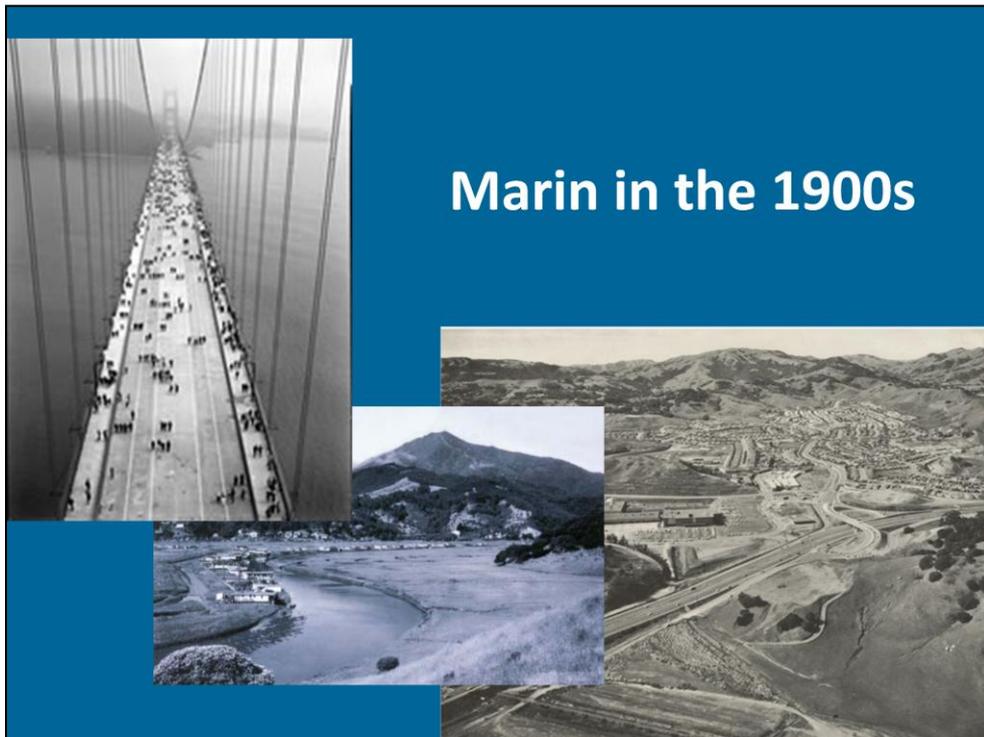
Spanish and Mexicans settled in Marin in the early 1800's and Mission San Rafael Archangel, established in 1817, operated the first ranch in the area.

Discovery of gold in the late 1840s intensified migration to the area and increased immigration of Chinese, who established a major shrimp fishing industry at what is now China Camp State Park. It is believed to have been the largest and most productive in the San Francisco Bay Area.

By 1860, Marin was the largest dairy county in the state, producing 25% of the state's butter. Logging of the redwood forests was in full swing by the 1870s, and the lumber was transported by barge from Corte Madera, Tiburon and Sausalito to San Francisco and points beyond.

Ferries from San Francisco docked in Sausalito – travel time was about 30 minutes –

some things have not changed.



Early 1900s -

The 1906 SF earthquake and fire brought 10s of thousands of refugees to Marin County. While most eventually returned to the City, Marin's population began to grow.

When the Golden Gate Bridge opened in 1937, Marin began to develop more rapidly. The County is far more developed and populous in the southern third. The central third of the County and the City of San Rafael, being the oldest settled community, have a preponderance of commercial and industrial uses, while the northern third, being furthest from San Francisco and the Bridge, is more agricultural and least developed, though that, too, is changing.

The post-war era of the 40s and 50s saw increased development along the 101 corridor, which meant that many wetland areas were filled in. For instance, about 50% of the homes in the Town of Corte Madera are post-war construction on landfill. But the infill began much earlier:

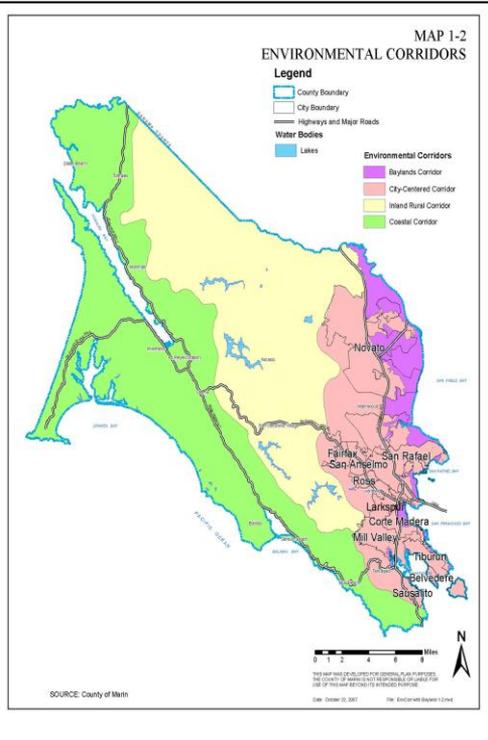
Established in 1926, The Meadowsweet Dairy was the principal industry in Corte Madera, operating on 1,400 acres of pastureland converted from marshland through a system of floodgates. Today several large shopping centers and residential developments sit adjacent to the Bay and significant tidal marshes.

# Marin's Countywide Plan and Environmental Corridors

1935: first "Marin Planning Program"  
1972: first "modern" Countywide Plan  
2007: Most recent update

Critical role of watershed planning

4 identified planning corridors:  
~ Coastal  
~ Inland Rural  
~ City-Centered  
~ Baylands (added in 2007)



The first modern Countywide Plan was produced in 1972, and most recently updated in 2007.

Marin County has long maintained a tradition of environmental planning balanced with the recognition of the essential linkages between land use, transportation, housing and watershed protection. Marin is known for its distinctive natural setting and environmental and agricultural heritage. That Marin is surrounded by water on three sides reinforces the critical role of watershed planning.

The 606 square miles of land and water that make up Marin County are divided into four environmental corridors:

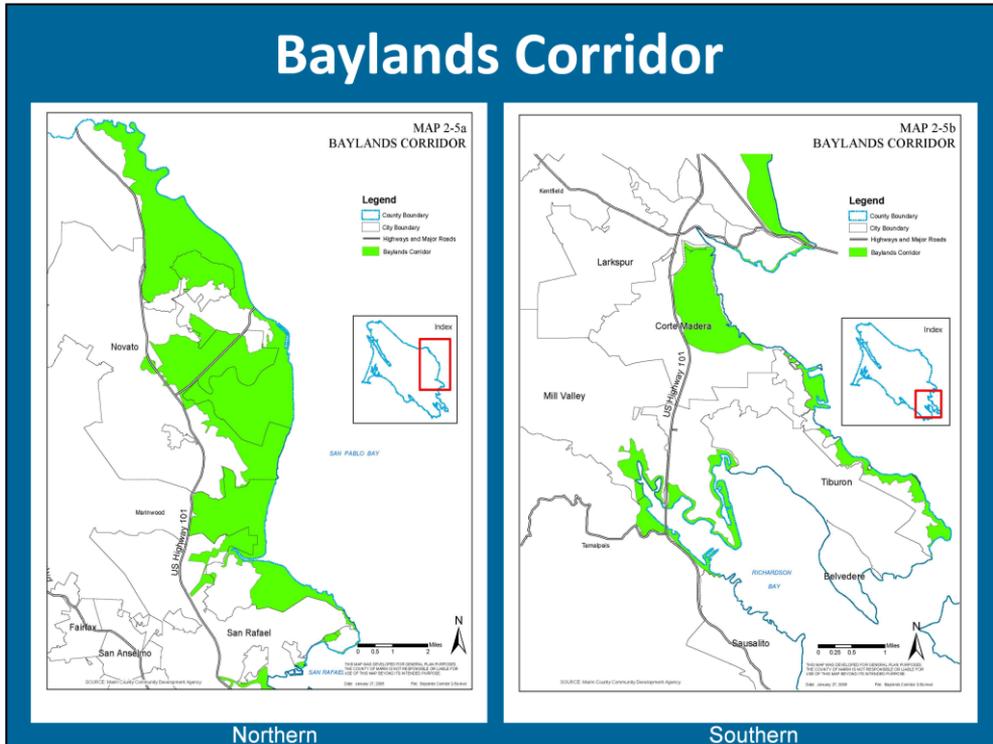
**Coastal, the green on the left:** along the west side of the County from the Sonoma County line to the Pacific Ocean side of the Golden Gate Bridge; primarily designated for federal parklands, recreational uses, and agriculture;

**Inland Rural, the yellow:** in the central and northwestern areas, is predominantly agricultural;

**City-centered, the pink:** along Hwy 101 – primarily designated for urban development and protection of environmental resources, divided into 6

planning areas based generally on watersheds; and the ...

# Baylands Corridor



**Baylands Corridor**, encompassing certain lands along the shoreline of San Pablo Bay to the north, San Francisco Bay, and Richardson's Bay. The designated areas generally contain marshes, tidelands, and diked lands that were once wetlands or part of the bays, and adjacent to largely undeveloped uplands.

Baylands ecosystems, vital to the health of our bays, have undergone tremendous change, as historic tidal areas were diked for agricultural use, marshes filled and drained for development, and channels dredged and straightened for navigation.

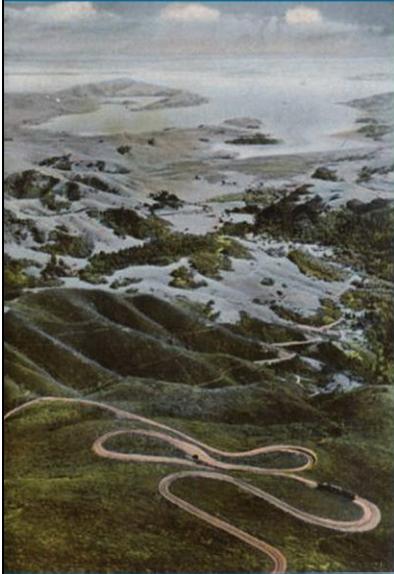
## Goals of the Baylands Corridor Designation

Preserve and enhance the diversity  
of the baylands ecosystem, including:

- Tidal marshes
- Adjacent uplands
- Seasonal marshlands  
and wetlands
- Rocky shorelines
- Lagoons
- Agricultural lands
- Low-lying grasslands  
overlying historic  
marshlands



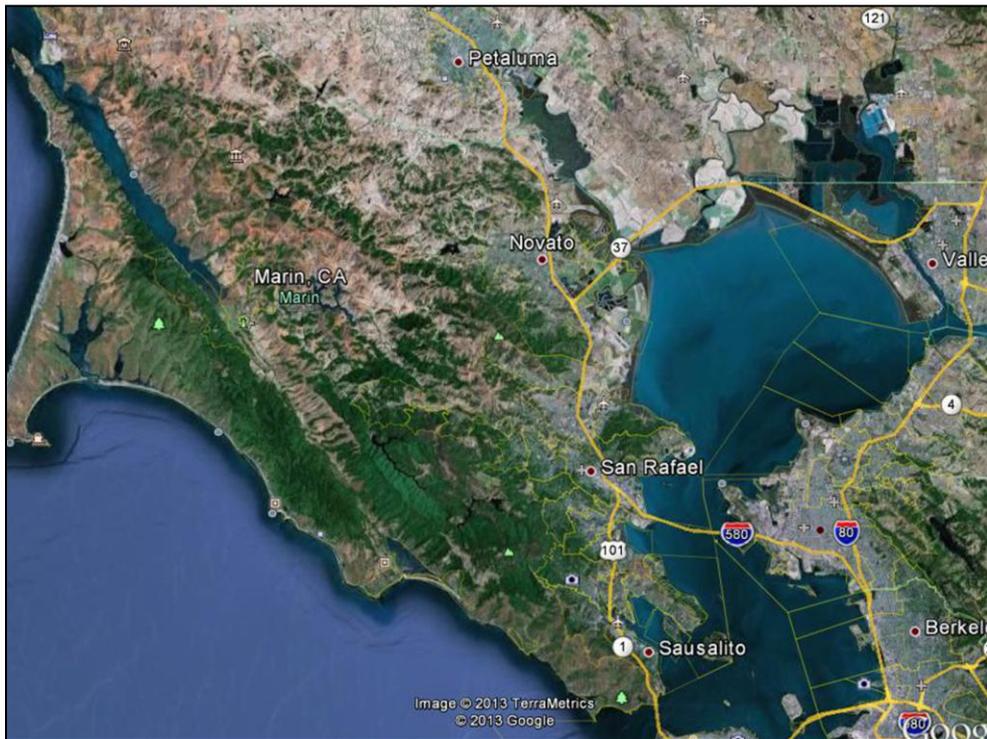
The Baylands Corridor designation, added to the Countywide Plan in 2007, recognizes the unique environmental characteristics of this area and the need to protect its important resources. Key policy requirements were added, including required Environmental Assessments for all projects in the corridor.



*“People have a fundamental yearning for great bodies of water. But the very movement of the people toward the water can also destroy it.”*

*- from “A Pattern Language:  
Towns, Buildings, Construction”*

This is from a 1917 postcard

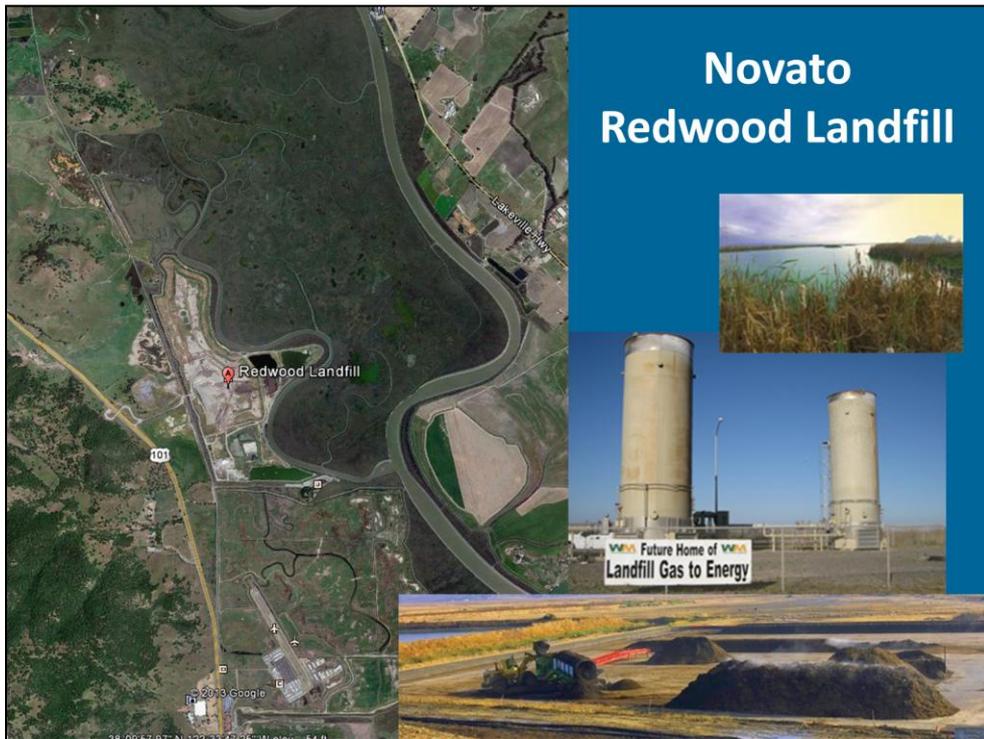


We will take a trip along the bay shoreline, starting at the mouth of the Petaluma River in Novato and heading south to the Golden Gate Bridge.

# Novato and San Pablo Bay



What you see here is the Redwood Landfill at the top, the mouth of the Petaluma River and the Hamilton Field area.



REDWOOD LANDFILL – opened 1958, the siting of this facility, adjacent to wetlands and the Petaluma River, continues to be contentious.

The good news is that 180 acres of the original 600-acre site were restored to wetland status in partnership with the Marin Audubon Society in 2003.

## Hamilton Field



What would eventually become **Hamilton Air Force Base** had its origins in the late 1920s, when the airfield was first established on what had been marshland. During World War II, Hamilton became a fighter base and was an important West Coast air training facility. The airfield was rapidly expanded to a wartime status, with construction of hangars and other structures.

In 1976, the airfield was closed and the area used as an introduction center for refugees from Southeast Asia.



Today Hamilton Field is a mixed-use community with hangars converted into office space for businesses and over 1000 homes. The most impressive remnants of the military era are the airplane hangars, but many other historic buildings have been preserved, as well.

There are over 70 acres of parks and open space and 50 acres of community facilities, including a library and the Marin Museum of Contemporary Art.

# Wetlands Restoration



Most exciting of all, Hamilton Field is part of a huge tidal wetland restoration effort. Almost 1,000 acres of airfield will become seasonal wetlands, alive with fish and shorebirds.

## Central Marin: San Rafael & Point San Pedro



Central San Rafael has several features of interest along the shoreline, including the Santa Venetia development, China Camp State Park and the San Rafael Rock Quarry at Point San Pedro.

# Santa Venetia



In the early 1900s the land on which hundreds of homes now stand was all tidal marsh. The homes were built in the 40s and 50s after developers raised the elevation and at a time when the County did not have policies to regulate this sort of development.

Santa Venetia began to sink as the soil fill compressed. Homes were eventually below sea level and levees were constructed to provide protection from tide and flood waters. Santa Venetia is very vulnerable to flooding and is the site of significant watershed and flood control projects.

# China Camp State Park



The park, along the shore of the San Pablo Bay, includes an extensive intertidal salt marsh, meadow, and oak habitats, and a variety of wildlife.

A Chinese shrimp-fishing village thrived on this site in the 1880s. Nearly 500 people, originally from Canton, China, lived in the village. Over 90% of the shrimp they netted were dried and shipped back to China or to other Chinese communities throughout the US.

By the 1890s, competitive fishing interests and State officers applied heavy pressure on the Chinese fishermen, attempting to regulate them out of business. By 1905, the village's prosperity had seriously declined and the residents became an important source for labor in road building, quarrying, brick building, and local railroad construction and agriculture.

# San Rafael Rock Quarry



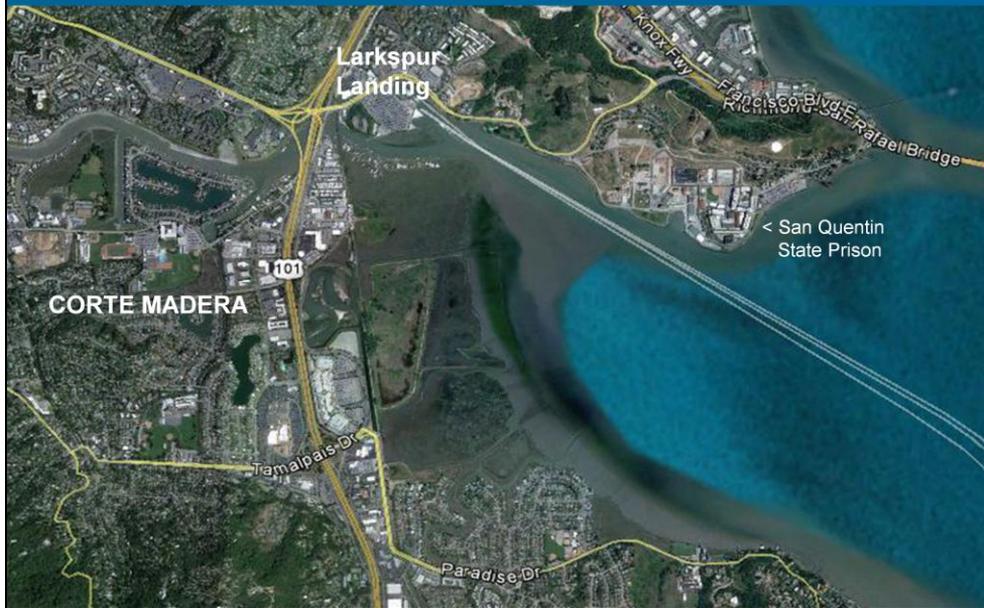
The SRRQ property consists of almost 750 acres (over 1 square mile) of land and underwater areas.

The geographic highlight and physical low point of the quarry is the Main Quarry Bowl, aka the “pit,” a jagged, benched gash in the earth that, measuring west to east, is six football fields wide and drops from 250 feet above sea level to an equal distance below. At the bottom is a 50-foot-deep basin of rainwater.

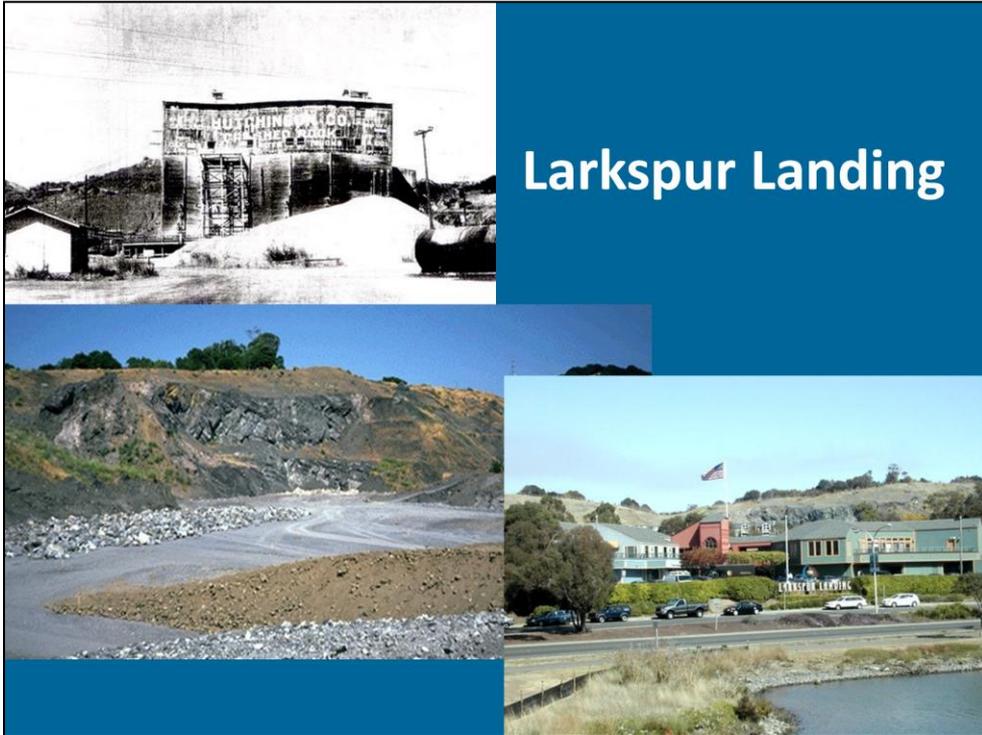
The quarry mines, processes and ships between 1 and 1.5 million tons of rock and aggregate a year. Having bay frontage means eight-ton boulders, riprap and gravel can be placed directly on barges, then guided by tugboat to destinations like Pacifica and the Delta.

There is an inherent tension between the operators who see years ahead of rock quarrying and residents and developers who would prefer other uses. BCDC may someday see a proposal to turn the “pit” into a marina development.

## Larkspur, San Quentin & Corte Madera



South of San Rafael are the towns of Larkspur and Corte Madera, as well as, San Quentin State Prison.



As you can see, we're big on quarrying adjacent to the bay. The shopping center was opened in the mid-70s and includes transit-oriented housing. This was, incidentally, where the final scenes of the movie "Dirty Harry" were filmed in 1971.

The southern terminus for the SMART train will eventually be located here, easing gridlock on 101.



Across the road is the Golden Gate Ferry terminal, which began service from Larkspur to San Francisco in 1976. Today the ferry carries 5,300 passengers each day.



San Quentin State Prison has been part of the Marin community since 1852.

Marin County's land use regulations do not apply to any State use, prison or otherwise, but that hasn't stopped consideration of how the 275 acre site might be used if the State were to close the prison, or permit shared use of some portion of the site if Death Row is closed.

"The Bay Area's economic future depends upon sound land use decisions that reinforce the need for jobs, housing, and transit connectivity. It would be a tragedy for California to ignore the unique opportunity that San Quentin offers to help us in that quest."  
JIM WINDERMAN, PRESIDENT & CEO  
BAY AREA COUNCIL

**One vision that would protect these wetlands could be a mixed-use project that might:**

- Retain prison operations
- Move the ferry to a deeper water site, thus reducing ferry transit time and creating the opportunity to restore habitat
- Bring rail, ferry, bus, vehicular and pedestrian traffic to a single hub
- Create private commercial, residential, and recreational facilities

Seldom do we confront an issue as complex as the future of San Quentin Prison with its Condemned Inmate Complex. The age of the facility, costs of expansion and operation and the needs of the greater community demand a solution that breaks with the past.

## Corte Madera



Above is the original “Highway 101” – before the Richardson’s Bay Bridge was constructed, the road went through Mill Valley and over the hill to Corte Madera. The new highway was constructed along the wetlands in the 30’s, in anticipation of the GGB opening.



With an average elevation of just 39 feet above sea level, about half of Corte Madera's 4.2 acres is built on landfill from the post-war construction era. This is a view of the development to the east of the freeway.

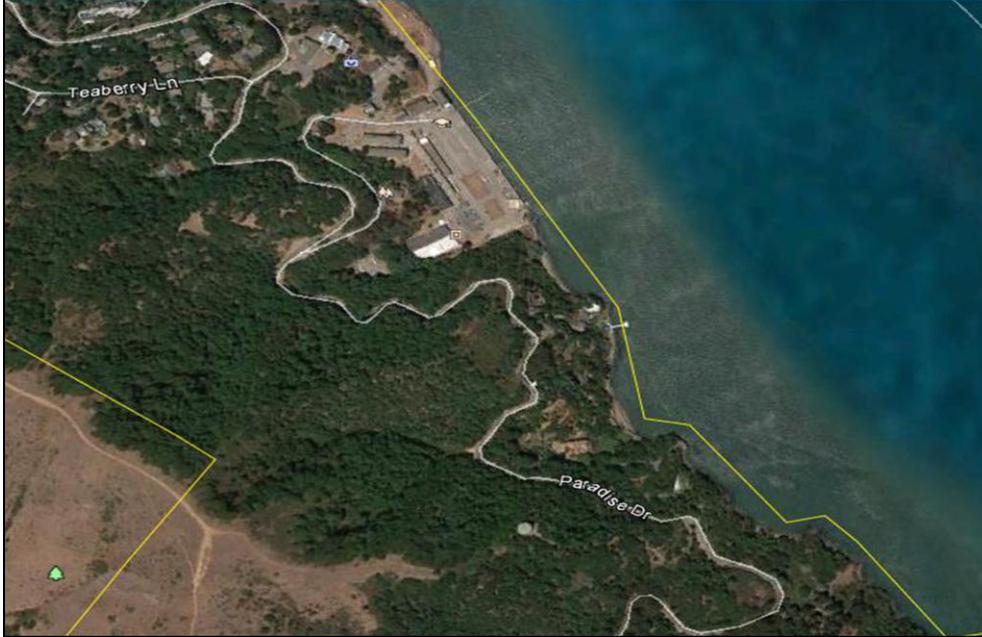


...seen here in the lower mid center of this image. The filled marshlands that were once dairy pastureland are now shopping centers and housing developments.

However, like Hamilton Field, there is a significant effort to restore the remaining wetlands that you see in the center of this picture.



## Romberg Tiburon Center



Just south of Paradise Cay is the Romberg Tiburon Center, with a rich and varied past that reflects the changing environment and Marin's history.

Like so many other areas in Marin, this property began as a cattle ranch. The deep-water just offshore, however, made it an ideal site for processing fish. As early as 1877, large vessels from as far away as Alaska offloaded their cod catch here.

In 1904 the federal government had a coaling station built to serve the Navy on the former fish processing plant site.



Romberg Tiburon Center –  
early/mid 20<sup>th</sup> century

In 1931 the Navy loaned part of the property to the State of California to establish the state's first nautical training school – The California Maritime Academy. In the early 30s it was also the site of cable winding for the Golden Gate Bridge construction.

WWII brought yet another change: the Navy Net Depot built huge steel anti-submarine nets. One version was laid across the entrance to San Francisco Bay, spanning seven miles in length and weighing 7000 tons.

# Romberg Tiburon Center Today



Today the property is a marine research facility: San Francisco State's Romberg Tiburon Center for Environmental Studies.



There were many proposals over the years. The outcomes could have been worse!

In 1912 there was a proposal to cut a four mile channel from Tennessee Valley Cove on the Pacific Ocean side of the County through to Richardson's Bay, creating a "back door" shipping channel. The idea was revisited in 1936 when the Navy was considering the area as a potential submarine base. Fortunately, the idea went no where.

In December, 1935, Joseph Strauss, chief engineer for the Golden Gate Bridge, proposed filling in the northern half of Richardson's Bay to create an amusement park, coliseum and airfield, among other things. This idea never materialized, either.

In the 1960s, there was yet another plan to fill in Richardson's Bay, but this time not for an amusement park but for another housing development. Again, fortunately, the bay was NOT filled in, and...

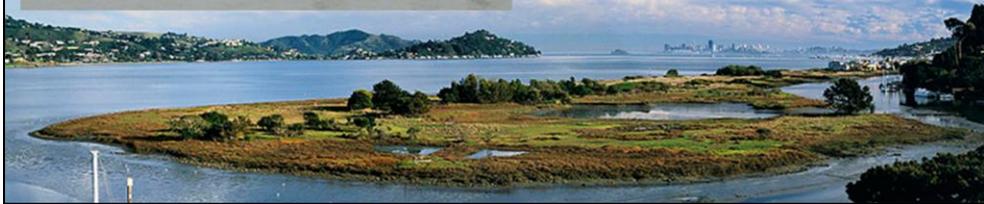
## Upper Richardson's Bay: Aramburu Island and Bothin Marsh



...in 1962 a 900 acre parcel was acquired by Audubon, creating the Audubon Richardson Bay Center and Sanctuary. It has been named an Important Bird Area and is a significant resting area on the Pacific Flyway for migratory birds.

Richardson's Bay is one of the most pristine estuaries on the Pacific Coast in spite of its urbanized periphery. It supports extensive eelgrass areas and sizable undisturbed intertidal habitat. Besides the sanctuary, the bay is home to marsh and tidal zones, marine and aquatic life, anchor outs, houseboats, marinas and a significant portion of the Bay Trail.

# Aramburu Island Restoration



While there are numerous natural islands in our bay, Aramburu is not one of them.

As mentioned a moment ago, many years ago there were several plans to entirely fill the northern portion of Richardson's Bay. While those ideas were squashed, there was still heavy development along Strawberry Point, and much of the excavated earth was dumped just offshore, ultimately creating the man-made Strawberry Spit. A channel was cut through at the midpoint – homes were built on the southern half and the northern portion was left undeveloped and is now a County preserve.

The 17-acre island is managed by the **Marin County Department of Parks and Open Space**, and in the past couple of years has received a significant face-lift from the **Richardson Bay Audubon Center and Sanctuary**.

# Aramburu Island Demonstration Project

- First constructed project in SF Bay designed to test natural shoreline approaches to wind-wave erosion and SLR
- Constructed in 2011/2012
- Initial monitoring results from 2012 storms look great!



This project grew out of the Cosco Busan oil spill in 2007, when the freighter dumped 58,000 gallons of bunker oil.

When Richardson Bay Audubon staff and volunteers went out in boats looking for oiled and sick birds, they were surprised to find western and Clark's grebes, ruddy ducks, and surf scoters—birds that only come to shore when stressed—taking refuge on Aramburu.

# Aramburu Island Demonstration Project

## Pre-Project

Island had eroded up to 70 feet

Large wind-wave scarp



## Post-Project

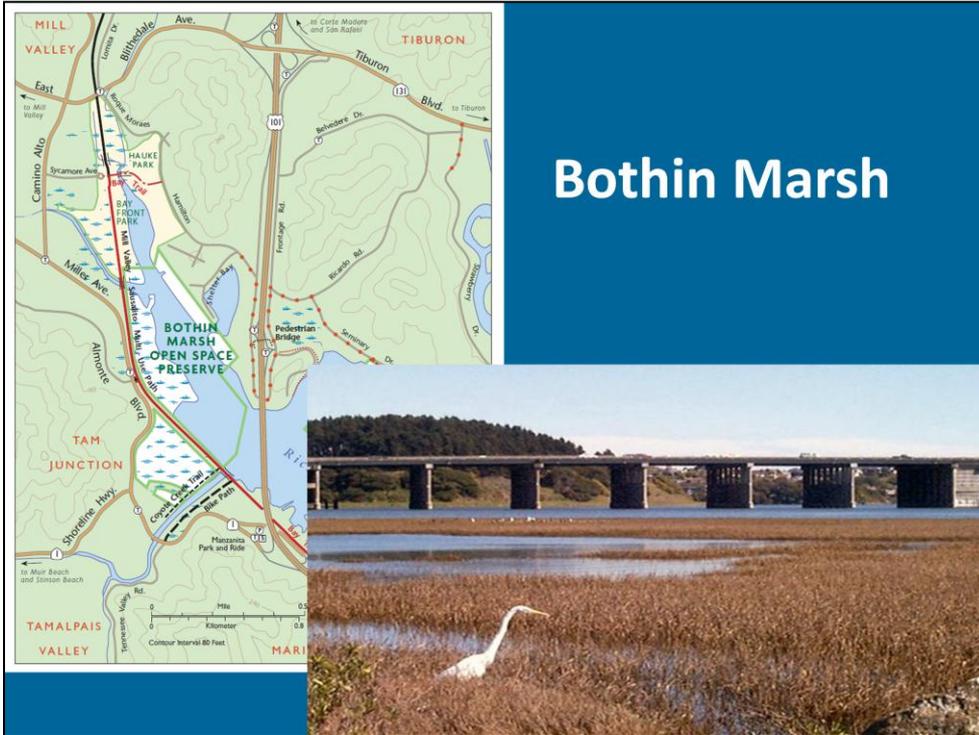
Project survived large December 2012 winter storms



Audubon and the county embarked on a restoration project to stabilize the eroding eastern shoreline, enhance wetland and terrestrial habitats to encourage seabird and seal use, and redesign the terrain to provide resilience in the face of sea-level rise.

The restoration created a gentle rise between the higher elevations and the intertidal zone with coarse sediment that should give the habitats time to transition as sea levels rise.

# Bothin Marsh

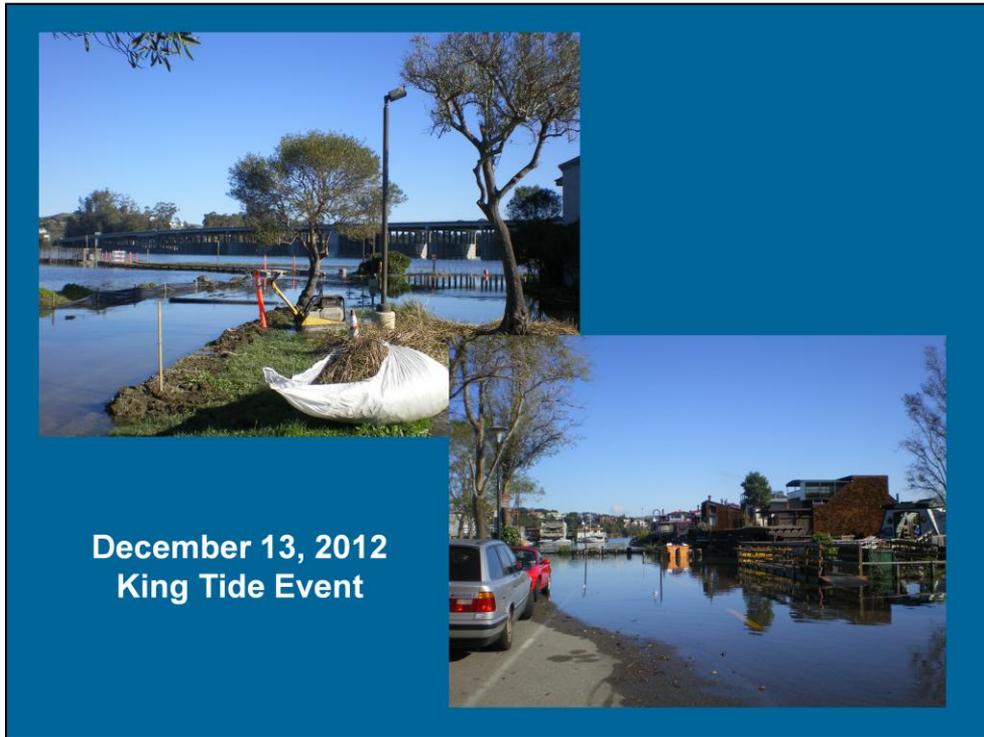


Bothin Marsh is over 100 acres, and is a mix of tidal wetlands, sloughs and Bay that provides habitat for hundreds of native bird and wildlife species. It is a resting stop for over 400 species of migratory birds. Marin County Open Space and Save the Bay are partnering to control invasive plants and create upland habitat for endangered wildlife.

## Bothin Marsh and Multi-Use Pathway



Bothin Marsh is bisected by a multi-use pathway that was created in the 1970s on top of former railroad tracks. The multi-use path is very popular and heavily used by cyclists, hikers, runners and strollers.



And here in the upper left corner is the same multi-use path on December 13, 2012, that could then be used by kayakers. This was a clear sunny day, and a reminder that with sea level rise, this year's King Tide will soon be just another high tide.



This might be better named the “Park and Paddle”, perhaps.

There are some obvious issues with our transit infrastructure that we need to address now. As we map what our assets and vulnerabilities are, we are reminded that our marshes can act as protection from some of the effects of rising tides, but not all, by any means.

## Sausalito and Lower Richardson's Bay



From the days of shrimping and herring fisheries, to the rum-running bootleg days of Prohibition, to the war efforts in the 40s and into the modern era, Sausalito has always been connected to the water and always diverse, reflecting the immigration trends and economic developments of the region. Portuguese boat builders, Italian fishermen, Chinese shopkeepers, rail yard workers, ferry crewmen, and dairy ranchers all built Sausalito in its early years.

Sausalito became a transit hub with the arrival of the first rail line from the north, becoming the connecting link between most Northern California trains and ferries and San Francisco, but it became a social and cultural hub after the Golden Gate Bridge opened in 1937.

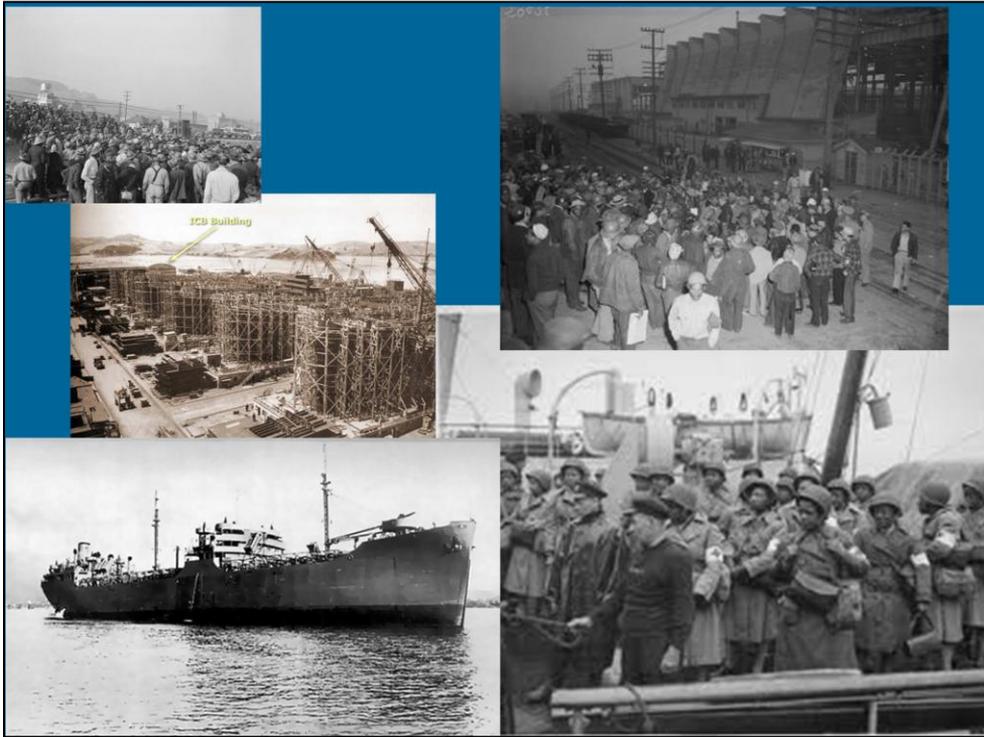
# The Marinship



Then came World War II.

This historic WWII-era shipyard is at the northern end of Sausalito and was one of six “emergency” shipyards commissioned in 1942 by the US Maritime Commission in the Bay Area.

The 210 acre yard was built in just a few months, by filling in tidal areas with soil from an adjacent hillside. Much remains today of the war era : the property still contains 15 major buildings, the remnants of 5 slipways, railroad tracks and other evidence of what it took to build 93 Liberty Ships between 1942 and 1945, each one produced in just 28 days.



While the war effort was in full swing, the shipyards were in operation 24 hours a day, every day, and 20,000 workers came from all over the country to fill the ranks as welders, boilermakers, electricians, painters and many other skilled crafts.

Quickly-assembled temporary housing was built just north in what is now Marin City. Another battle was also heating up, one for the civil rights of all workers, black and white alike. A young black lawyer named Thurgood Marshall took a case against the boilermakers union filed on behalf of black workers at the Marinship. The case went to the California Supreme Court and the workers won, beginning the integration process of the trade unions.

The Marinship did not die with the end of the war, though all of the migrant workers who came lost their jobs – and this, according to many, was the beginning of the houseboat community on Richardson's Bay.

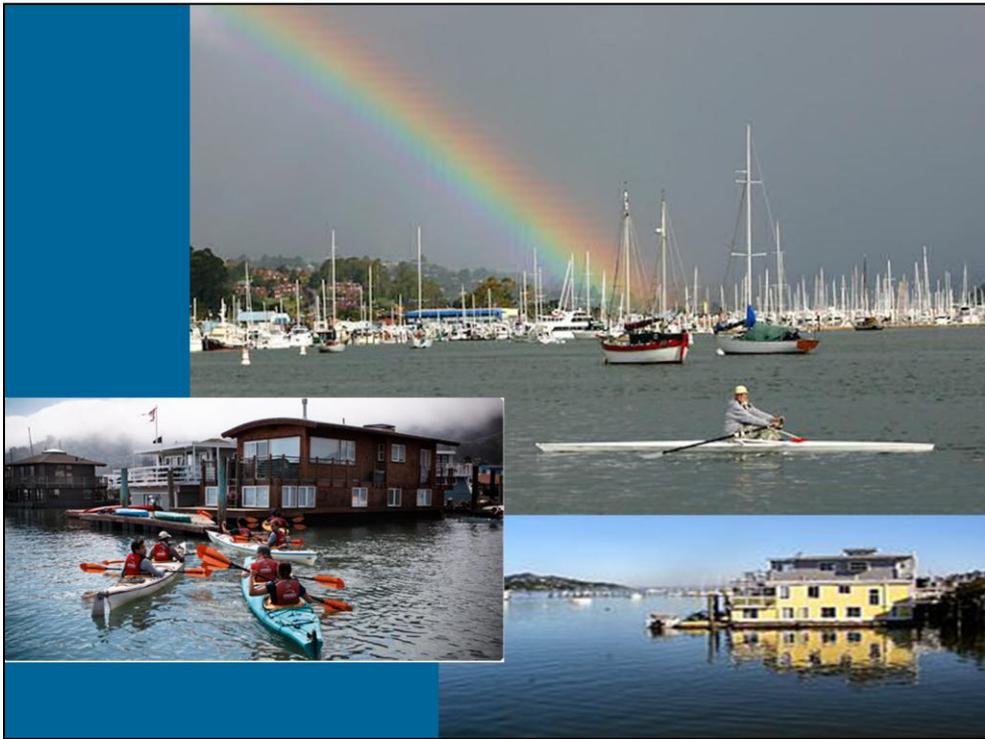


Today the Marinship is a busy light industrial zone and still a vibrant marine-centered community that serves the recreational boat harbor that has formed on the site, with boat builders, sail makers and many of the other businesses that serve the marinas. It is also the home of a thriving artist community.

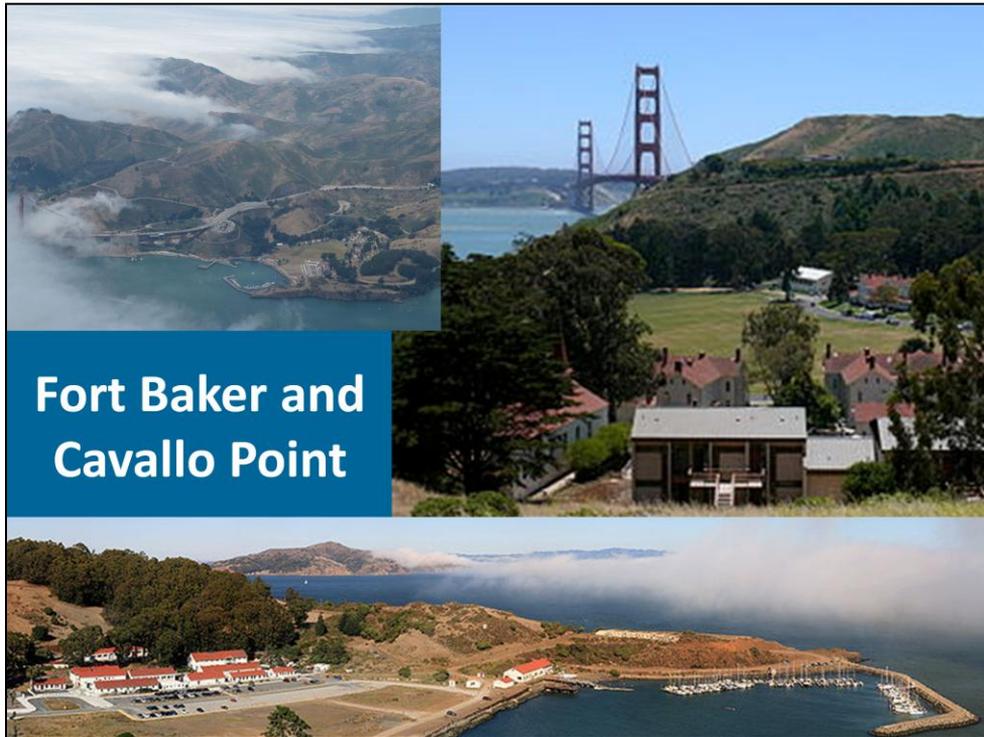
The Army Corps of Engineers built the Bay Model, a complete bay-delta system, with real water and "real" tides and currents. Its pipes and hydraulics simulate the water environment of San Francisco Bay and the Delta, everything from oil spills to upstream dams, and from water diversions to floods caused by global warming.



This is another view of the waterfront along Sausalito that shows how the bay is utilized. The area at the top is the Audubon Sanctuary, which is closed to boating from October to March for migratory birds and nesting. The reddish band in the middle gives a loose outline of where the “anchor outs” are located, just outside of the navigational channel.



Richardson's Bay along the Sausalito shoreline supports many activities and lifestyles, from the houseboats in the marinas, to the live-aboards anchored outside of the channel, to recreational sailors and visiting boaters. And because of the efforts of the Richardson's Bay Regional Agency, (RBRA) which monitors water quality and helps manage the anchorage, the sustainability of this resource remains a focus at the policy level. (The RBRA is a JPA established in 1984, made up of the County of Marin, Sausalito, Mill Valley, Tiburon and Belvedere.)



## Fort Baker and Cavallo Point

Our last stop on this tour of Marin's bay shoreline is just to the south of Sausalito, at the foot of the Golden Gate Bridge.

Now part of the GGNRA, Fort Baker was established in 1850 as a coastal defense position just inside the gate. After 150 years, the US Army left in 2000. In another example of repurposing land, five years later the National Park Service and the City of Sausalito reached agreement with developers of the 142 room Cavallo Point resort and conference center to honor the historical significance of the property and buildings. Also at Fort Baker are the Bay Area Discovery Museum, the Institute at the Golden Gate and other non-profits.

One remnant of its military past is Horseshoe Cove, the marina seen at the bottom. The harbor is managed by the Presidio Yacht Club under the sponsorship of Travis Air Force Base, for use by active, reserve, and retired military, and now also by civilians with endorsements from club members. There are several veterans who live aboard boats in the marina.

The National Park Service is currently reviewing potential uses for this marina and it remains to be seen what changes may occur.



# Bay Trail

The intersection of how we use the land and the water continues to play a major role in Marin County.

And what better way to understand how all of this is linked than to use the Bay Trail?



Our understanding of the importance of our resources has evolved over the decades and now is one of the most compelling aspects of land use – and watershed – planning. Protecting, conserving and restoring our shorelines has become an imperative as we face climate change.

And now Liz Lewis, Principle Watershed Planner for the Marin County Department of Public Works, will describe some of the projects our County is undertaking to achieve those goals.