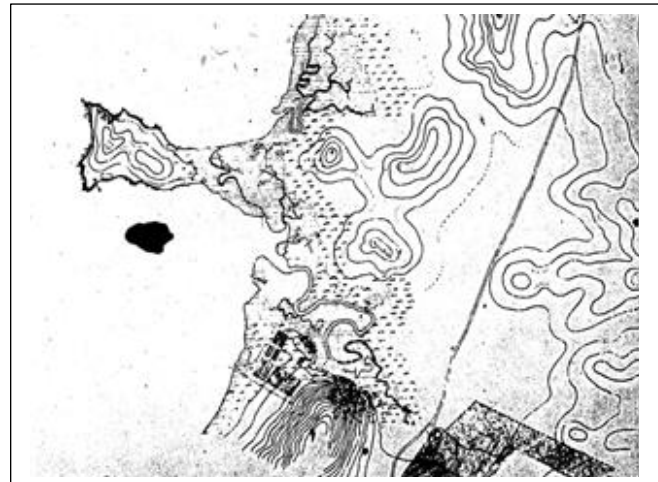
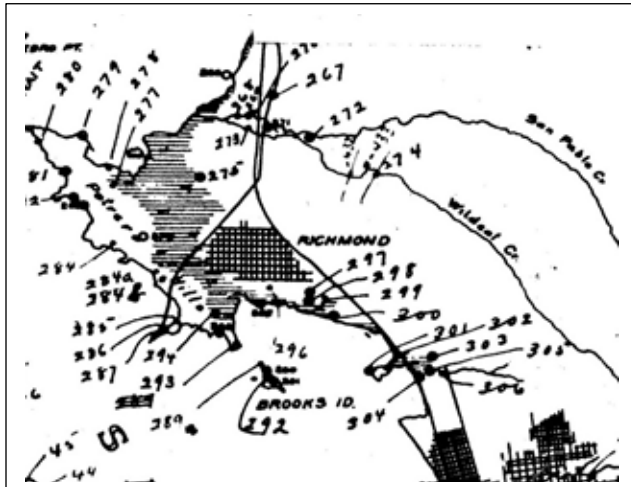


Tales of the Bay Shore -- Pt. Isabel-Stege area

Geology: The “bones” of the shoreline from Albany to Richmond are a sliver of ancient, alien sea floor . Millions of years ago, this sliver caught on the edge of North America as it overrode the Pacific. Fleming Point (now the race track), Albany Hill, Pt. Isabel, Brooks Island, the hillocks inland, and the Potrero San Pablo at Pt Richmond – all are part of this Novato Terrane, as are the hills across San Pablo Strait. Millions of years later, erosion left their hard rock as hilltops in a valley. Still later – only about 5000 years ago, rising seas from the melting glaciers of our last Ice Age flooded the valley, forming today’s San Francisco Bay. Most of the “alien” hilltops became islands. Some slowed currents, which dropped their sediments, forming marshes that barely linked the islands to the shore.



Left: Portion of 1911 map of San Francisco Bay, with multiple remains near Pt. Isabel and Stege.

Right: 1853 U.S. Coastal Survey map showing N. end of Albany Hill, Cerrito Creek, and Pt. Isabel.

Native Americans: Native Americans would have watched the slow rise of today’s Bay. Although their changes of population and culture remain shadowy, when Europeans reached North America the East Bay was the home of Huchiun Ohlone peoples. Living in villages of fewer than 100 people, they gathered, hunted, fished, and tended the land with pruning and burning to encourage useful plants. They made reed boats, beautiful baskets, nets, traps, mortars, and a wide variety of implements and decorations. They moved seasonally to find food, but along the shellfish-rich shoreline they gradually built up substantial mounds of debris – shell mounds -- that kept them above floods and served as homes, burial sites, refuse dumps, and more.

Two of the Bay’s densest clusters of these mounds lay in the area from Albany Hill to Pt. Isabel, at the mouth of Cerrito Creek, and a short way northwest at Stege, near the mouth of Baxter Creek. There were also settlements on Brooks Island and Pt. Richmond. The Richmond area’s largest mound, at Ellis Landing near today’s Harbour Way, was 460 feet long and 17 high, with another 11 feet subsided.

Only buried fragments of the mounds remain – our city builders dug them out for building materials or flattened them for fill. The upper reaches of today’s Meeker Slough, for example, follow the old sandy beach along the Bay. But long before that, Europeans had destroyed the Ohlone’s way of life. European diseases ravaged populations. Natives were rounded up into missions or forced into peonage on ranchos, leading to even more deaths.

Ranchos to dynamite: A newly independent Mexico granted 18,000 acres north of Cerrito Creek to Francisco Castro, a long-serving soldier. His son Victor named narrow, rocky Pt. Isabel for a daughter, and built a landing, slaughterhouse, and hotel to take advantage of its access to deep water.

Although Victor Castro remained prosperous after the United States seized California, squatters' claims and disputes among his siblings forced him to sell off most of his land to pay lawyers. A widow, Minna Quilfeldt, bought 500 acres in the 1850s. She married a failed goldminer and fur trader, Richard Stege, who used the land to raise bullfrogs and develop a resort a short way up Baxter Creek, east of today's I-580. After her death, he gradually sold off what became known as Stege.

Meanwhile, in the 1870s, transcontinental railroad tracks reached north, opening the way for the shoreline's next chapter: dynamite. Mining and railroads had brought this new and powerful explosive to San Francisco in the 1860s, almost as soon as Alfred Nobel found ways to stabilize and detonate nitroglycerine. Dynamite was made first in San Francisco, in Glen Canyon and then the dunes south of today's Golden Gate Park. But repeated explosions drove Giant Powder to Fleming Point in today's Albany in 1879. Explosions there continued to kill dozens of the (mostly Chinese) workers and threaten the growing cities – one spread fire to a dynamite-loaded schooner, which would have flattened much of Berkeley had a courageous superintendent not quenched it in time. After an 1892 blast destroyed the adjacent Judson & Sheppard acid works (dynamite making needed both nitric and sulfuric acid), Giant moved north to an unsettled peninsula, Pt. Pinole, where it remained until the East Bay Regional Park District took over in the 1970s. Judson & Sheppard Chemical began making its own dynamite at the mouth of Cerrito Creek, with Albany Hill to protect settlement from the blasts.

Meanwhile, about 1880, California Fuse and Cap had begun manufacturing detonators on the former Quilfeldt/Stege holdings, at what is now UC Berkeley's Richmond Field Station. This and packing dynamite were safer occupations that employed many women. In 1897, Stauffer Chemical acquired more of Stege's land to make sulfuric acid for explosives, and about 1902, Stauffer affiliate Vigorit Powder began making and shipping dynamite at Pt. Isabel.

When a 1905 blast destroyed the works at Albany Hill, Judson moved north to join Vigorit. But in 1907, 3000 pounds of nitroglycerin exploded, destroying buildings and killing the newlywed mixing expert. Within a few years, Vigorit packed up and moved north to Hercules, where California Powder, driven out of San Francisco, had built a plant and substantial company town. Hercules Powder flourished there into the 1950s – though fatal explosions continued.

Teddy Roosevelt attacked the DuPont "powder trust" that linked all these firms and fixed prices with others. The trust was busted, but the real effects on price or competition are debated.

At Stege, California Cap continued making detonators through both World Wars. In 1949, though, it closed and sold the land UC Berkeley. This area became the Richmond Field Station; ambitious planning for its future is underway. Stauffer's plant just south passed to other chemical companies, which continued to make products including pesticides until 1997. The legacy of mercury, iron pyrites, and other chemicals made the marshes at Stege among the most toxic in the Bay. In the rust-red waters, many fish developed mixed or deformed sex organs. Despite remediation, you would not want to eat food from these sites. It seems ironic that the US EPA Region 9 lab is located here.

As their piers molder into marsh and mud, the most visible legacy of the dynamite makers may be the eucalyptus trees planted to muffle the sounds of explosions and catch debris. On the East Bay shoreline, the presence of old eucalyptus generally signals a legacy of explosives.



Above: Early 1930s aerial photo of S. Richmond shoreline, with Stege, Pt. Isabel, and Albany Hill dark with eucalyptus. Powder companies planted the tall, fast-growing trees to buffer explosions. Pt. Isabel was later flattened and widened, but trees remain at Albany Hill and Stege, now UC's Richmond Field Station.

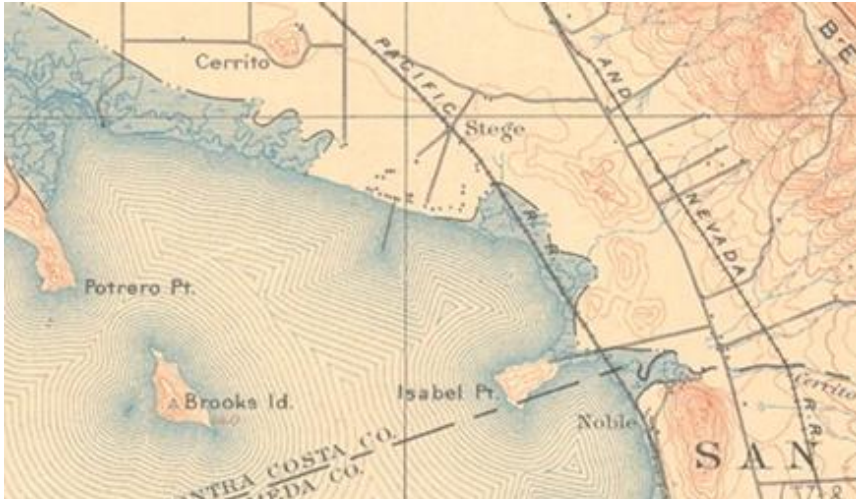
A sandy beach extends west from Stege. Compare the single line of breakwaters just past the Stege pier with the dogleg breakwaters in the 1939 photo below.

Depression and World War II to today: Point Isabel almost returned to nature after dynamite-making ceased. During the 1930s, the San Pablo Avenue Sportsmen's Club leased it for fishing and duck hunting; remodeling the powder house into a clubhouse. You can still see remnants of offshore blinds. During World War II, the Navy closed Pt. Isabel as a shooting range. (A former pistol range is just north.)

After World War II, though, old Pt. Isabel all but vanished. In the 1950s, the Santa Fe Railway, which had acquired much of the East Bay shoreline, dynamited the rocky, 50-foot hill to level and broaden the point for development. Stege Sanitary District, under orders to stop dumping raw sewage, bought a portion for a treatment plant (now owned by EB MUD and mothballed). Stege let Tepco dump discards from its china manufacturing on the south shore, where artists now collect fragments on "Tepco Beach." To the north, Santa Fe built the railroad that now is the Bay Trail, and filled tidelands with lead-acid batteries and other debris. Much of the toxic material was buried and capped in the 1980s, before the East Bay Regional Park District created the popular dog park. Hoffman Marsh east of Pt. Isabel remains, a remnant of original marsh. But now it drains through artificial Hoffman Channel, which divides Point Isabel from "Battery Point."

Although citizen protest gradually stopped Bay fill after the 1960s, fill may make a kind of comeback as global warming melts ice caps, raising sea levels and threatening our largely fill-based shorelines, protected by concrete rubble rip-rap. One idea is to re-create broad marshes to buffer the impact of waves. So this stretch of shoreline may come full circle.

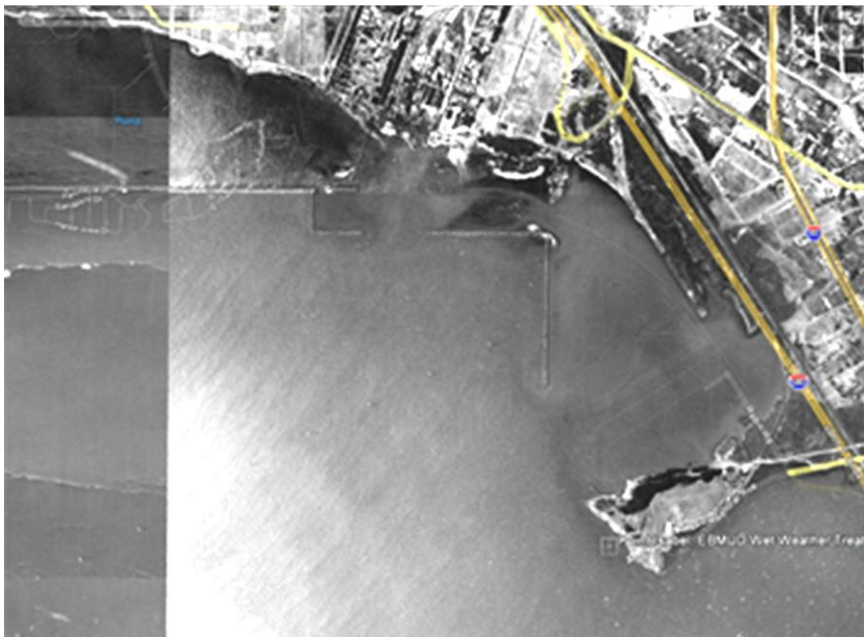
Susan Schwartz, President, Friends of Five Creeks. Corrections and suggestions welcome!



Left, south Richmond shoreline 1899, USGS map. Narrow Pt. Isabel is almost an island. Stege is firm land with marshes east and west. There is a pier at Stege, but no breakwater.

Nobel Station, at the dynamite plant below Albany Hill, is misspelled at lower left.

California and Nevada R.R., inland, is today's BART.



Left, south Richmond shoreline 1939, aerial photo on Google earth. This is closer range than the map above: Albany Hill, Brooks Island, and Potrero Point are not shown.

The dogleg breakwater missing in the earlier aerial photo above has been built, probably as a Depression-era public-works project. Marsh may be filling in behind it. These breakwaters remain, with more extensive marsh today.

The future Marina Bay project is faintly outlined upper left. Future freeways and major roads are yellow; compare with 1993 photo below to see extent of fill.



Left, south Richmond shoreline 1993, aerial photo on Google Earth. In the 1950s and early 1960s, Pt. Isabel was flattened and broadened and a new shoreline railway (now Bay Trail) built.

By 1993, behind the rail route, Hoffman Marsh had filled in and drains via Hoffman Channel. The former Stouffer Chemical site had been filled. Marina Bay has been built on fill. On its northeast, artificial Meeker Slough follows the old sandy shoreline.

King Tides are a foretaste of sea-level rise from global warming.

The worldwide rise of sea levels is accelerating, mainly due to melting ice, but also because water expands as it warms. For the Bay Area, sea level rise from 2010 is projected at 2-12 inches by 2030, 5-24 inches by 2050, and 17-66 inches by 2100.

- Most damage is caused by storm tides -- simultaneous high tides, storms, large waves, and heavy freshwater runoff. Sea-level rise increases these effects. Waves, for example, become more powerful as they move across longer stretches of deeper water.
- Coastal cliffs and beaches are retreating due to storms and rising seas.
- Bay Area wetlands, such as tidal marshes, are likely to keep up with sea level until about 2050. After that, their survival will depend on abundant sediments or room to move inland. But human development, especially dams, has greatly reduced replenishment of mud and sand. Because most of the Bay is ringed by development, marshes are unlikely to move inland. Wetland and marsh wildlife may have nowhere to go.

Fascinating interactive maps of how sea-level rise may affect Bay Area communities are at “Our Coast, Our Future,” <http://data.prbo.org/apps/ocof/>.

We will need to deal with sea-level rise with some mixture of all of the following:

- ***Slow climate change by reducing emissions of greenhouse gases:*** We can do this in many ways: Generate energy with sun, wind, tides, or other methods that produce little or no greenhouse gases. Use transportation that emits less greenhouse gas. Build cities more compactly. Improve energy efficiency of buildings, industry, and farming. Reduce various kinds of waste. Increase carbon storage (sequestration). Many on-line carbon calculators will help you calculate your own global-warming footprint and how to reduce it. But ***significant effects require collective political action.***
- ***Harden and build higher and drier:*** Build, raise, or strengthen levees. Build dams, gates, or locks to control tidal flows. Strengthen bridges, docks, and seawalls against higher waves and storm surge. Strengthen and protect tunnels and pipes that are below high-tide levels. Elevate building pads or other surfaces. ***This will cost billions of dollars and require unprecedented planning and cooperation.***
- ***Accommodate:*** Build floating buildings, docks, and bridges. Build to accommodate floods, from building on piers to using ponds and permeable surfaces to manage floodwaters. Accept that some roads, parks, etc. will be temporarily inaccessible.
- ***Maintain and increase tidal marshes and “living shorelines”*** that can absorb waves and surges. (Coastal wetlands, such as salt marshes, also can capture and store carbon.) Provide corridors so that plants and animals can move to areas where they can survive, or move them deliberately. ***These efforts can ease but not solve the problem.***
- ***Move:*** Move houses, roads, and critical infrastructure such as pipelines, railroads, and airports away from the Bay shore, low-lying areas subject to flood, and areas that have subsided below sea level (mainly parts of the South Bay and large areas in the Delta). ***History suggests that people are reluctant to relocate in this way.***

A longer version of this handout, including information on what you can do, is at <http://www.fivecreeks.org/info/GlobalWarming.shtml>.