

Restoring and Protecting Nature in the Eastshore State Park

Susan Schwartz, Friends of Five Creeks

As the glaciers of the last Ice Age melted, some 8000 years ago, the rising Pacific gradually drowned the huge river that had poured through the Golden Gate toward the Farallons. With Native Americans there to watch, valleys became San Francisco, San Pablo, and Suisun Bays.

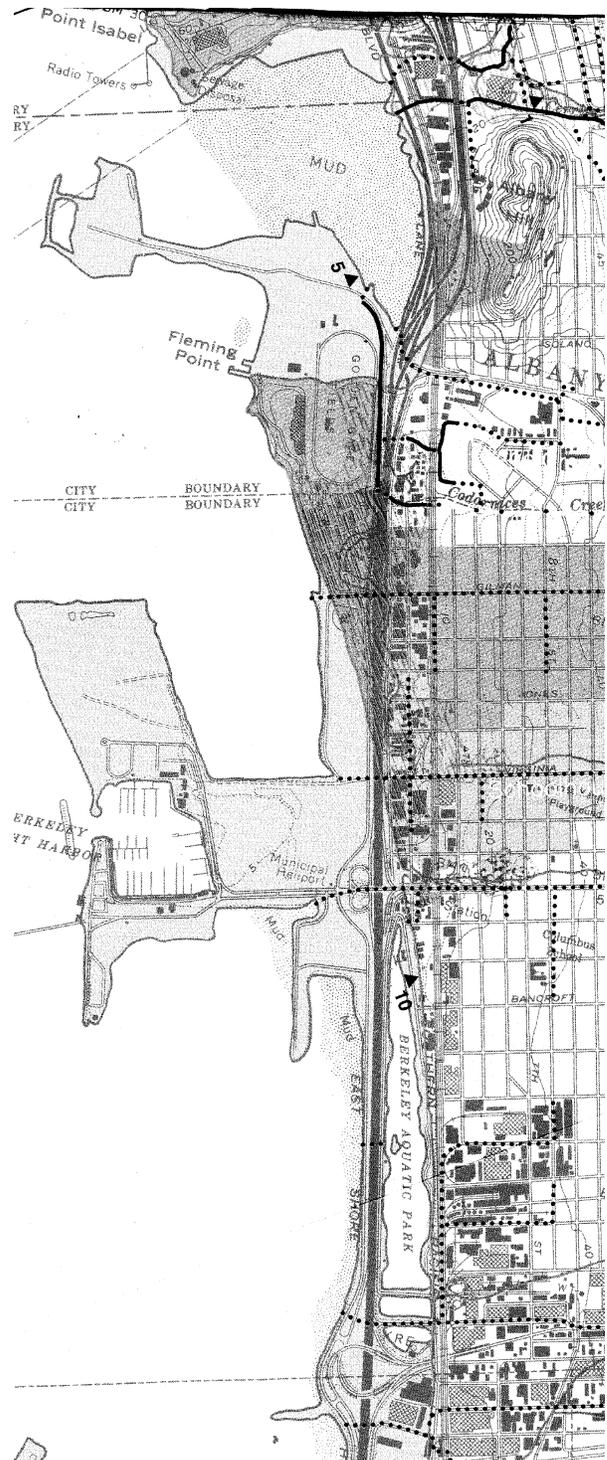
Peaks of a range of hills older and west of today's East Bay hills were left as islands – Albany Hill, Fleming Point, Pt. Isabel, Brooks Island, the Potrero Hills. From the still-rising hills of today, creeks carried soil and eroding rock to changing shoreline, while currents swept sand and mud from the Sacramento River along the shore. Together, these formed today's "flatlands" as wet, grassy meadows.

Opposite the Golden Gate, strong tidal currents swept away mud, leaving the heavier sand particles. A beach and low dunes thus formed a golden crescent along the shore from about today's Virginia Street to the sandstone bluff at Fleming Point. North of that, a shallow inlet lapped the west edge of Albany Hill.

Behind the sandy beach, Schoolhouse, Codornices, and Marin Creeks flowed into a tidal slough that wandered north behind the hill at Fleming Point. Creek mouths north and south of these – Strawberry and Cerrito Creeks – reached the Bay. At those two creek outlets, debris from thousands of years of Indian habitation formed large shell mounds.

The map at right shows the original shoreline (dark and shaded) and the shoreline today. Settlers dredged the sand, bulldozed the shellmounds, and filled the Bay westward with garbage, construction debris, and mud from dredging projects. Draw a line connecting the three peninsulas (you can barely see the tip of Emeryville's at bottom). That is how much of the Bay we planned to fill. Our sparkling Bay would have been a narrow ship channel.

Led by Save the Bay, conservationists finally stopped Bay filling in the 1980s. Led by Citizens for Eastshore State Park, we have a new park along most of the shore of Emeryville, Berkeley, and Albany. The new Bay Trail invites us to see nature reclaiming our waste.



Modern and original shoreline, from Creek and Watershed Map of Oakland & Berkeley, by Janet M. Sowers, William Lettis & Assoc., & San Francisco Estuary Institute, published by Oakland Museum of California, www.museumca.org/creeks

Mouth of Strawberry Creek: Strawberry Creek is the reason there is a Berkeley. The year-round water supply led founders of the school that became UC Berkeley to choose it for their campus -- and for lots they could sell for financing. At the creek's mouth (south of the present outlet pipe), a rare piece of solid shore fairly near deep water became a Gold Rush landing, quickly followed by a hotel, grain mill, and other businesses. Berkeley's first park, Willow Grove Park, was on the creek, and a dance pavilion once spanned the channel.

As sewage polluted the creek; roofs and streets increased runoff, flooding, and erosion; and land became costly, this asset became a liability. Below the UC campus, the creek was almost entirely enclosed in pipes by the end of the 1930s.

Piped Strawberry Creek now reaches the Bay from beneath University west of Sea Breeze Market. The shallow cove here is attractive to birds, but plagued by refuse borne on eddies, and by invasive plants, particularly perennial pepperweed. Friends of Five Creeks volunteers are controlling the invasives along the shoreline all the way to Shorebird Park, at the west tip. Natives are filling in nicely.

The Berkeley Meadow: University Avenue is built on fill around the Berkeley Pier, which stretched much farther into the Bay in the days of streetcars and ferries. The bumps you feel while driving it are the old pier timbers, which do not sink with the rotting fill.

You can see this sinking also in the Berkeley Meadow, the broad peninsula connecting the mainland to the Marina. Here winter ponds form where the rubble and garbage have subsided. Weeds, neglect, surprising garden escapees, and a few natives -- coyote brush, willows, elderberry, mugwort -- turned this into an urban wildlife refuge.

Herons, egrets, and ducks feed in the ponds. Rabbits and ground squirrels are prey for snakes, harriers, and the ghostly kite. Burrowing owls use abandoned squirrel tunnels, and with kestrels hunt smaller prey, while kingfishers plummet for small fish from the telephone wires on the north shoreline.

East Bay Regional Park District is replacing weeds with natives in phases. Friends of Five Creeks increasingly is helping control invasives in the restored areas.

North Basin, Schoolhouse Creek: Rubble-edged, with square corners, fed by a former Berkeley sewer pipe, the North Basin is far from natural. But migrating and wintering waterfowl rest and feed here -- scaups are the most common species. Terns and pelicans hunt the small fish that fisherfolk say still try to run up the pipe.

The pipe is Schoolhouse Creek. Berkeley's first school was built on its banks, on land donated by Domingo Peralta, the ranchero who had owned all of Berkeley. Berkeley also culverted almost all of this creek, and from the 1930s to 1950s used the pipe to carry sewage as well as creek to the Bay.

This is one of the few places where it is practical to re-establish the connection between creeks and Bay. Park plans call for bringing the creek back out of the pipe. Friends of Five Creeks used a grant from a private foundation for a preliminary study of possibilities; park plans call for considering it.

Friends of Five Creeks volunteers also are making the area north of the creek inviting to humans while still preserving habitat.

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The Bay Shore Then and Now

Our Bay is very young. Native Americans already lived here when it started to form, about 8000 years ago. At that time, the Ice Age had a lot of water locked up in glaciers, and the Pacific Ocean shore was much farther west. Today's Bay was a wide valley, with a huge river running out through what now is the Golden Gate.

As the glaciers melted, sea level rose. It slowly flooded the valley, forming the Bay. Creeks carried soil and eroding rock down from the hills to the shore. Currents carried sand and mud from the Sacramento River. Together, these formed the "flatlands" of Oakland and Berkeley.

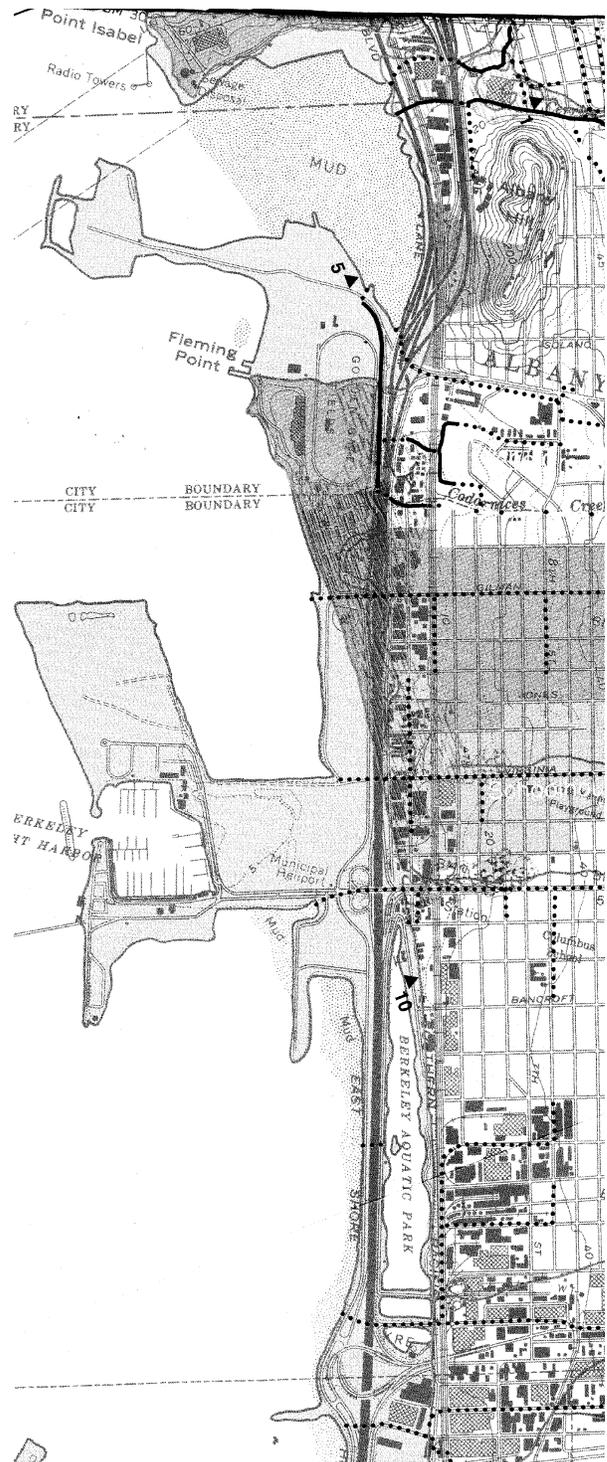
Some old hilltops were left as islands, or isolated hills sticking up in the flatlands. You will see some of these toward the end of today's ride.

The shore in Berkeley has very strong tidal currents, because it is just opposite the Golden Gate, where tides flow in and out. These currents carry away fine particles that form mud, but leave larger particles that form sand. Europeans destroyed the original sandy beaches – They used the sand for construction, and filled the shoreline with garbage. But you will see new sandy beaches on this ride, formed in "pockets" that slow the currents.

The map at the right shows the original shoreline (dark and shaded) and the shoreline today. The light areas are all fill – garbage, construction debris, and mud from dredging projects. Draw a line connecting the three peninsulas. (You can barely see the tip of the one at Emeryville at the bottom of the map.) That is how much of the Bay we were planning to fill. Our sparkling Bay would have been a narrow ship channel.

Conservationists finally stopped Bay filling in the 1980s. Now a new park and trail stretches along most of the shore of Emeryville, Berkeley, and Albany. You will visit this trail today.

Start: Point Emery actually one of the last pieces of fill. As you stand here, you can see how it was intended to continue out to the end of the Emeryville Marina, closing off a square that would then be filled in.



Modern and original shoreline, from Creek and Watershed Map of Oakland & Berkeley, by Janet M. Sowers, William Lettis & Assoc., & San Francisco Estuary Institute, published by Oakland Museum of California, www.museumca.org/creeks

After filling was stopped, new beaches formed on both sides of the point. These beaches are favorite feeding places of shorebirds. These are birds with long, thin bills that they use to probe the sand and mud for tiny clams, worms, shrimp, and other creatures.

The tide will be fairly high when we come, so we may not see many birds. The tide also will be rising. Try to remember how the beach looks; it will be smaller when you come back.

Tides are caused by the pull of the sun and moon on the earth. The highest tides come when both of them are on the same side of the earth, pulling in the same direction.

Fishing rocks: People like to fish from the rocks a little north of Point Emery. This is partly because a big pipe here carries tides and small water creatures into and out of the lagoons on the other side of the freeway. Fish (and birds) come to feed on these smaller animals.

Fishing is fun, but it is not safe to eat very much fish from the Bay. The main reason is that during the Gold Rush, a great deal of mercury was mined for use in purifying gold. Mercury from these mines still is carried into the Bay. In addition, the Bay is contaminated by PCBs, chemicals that had many uses before they were found to cause cancer about 30 years ago. The general advice is that adults should not eat more than two meals a month from Bay fish. Children, or pregnant or nursing mothers, should eat no more than one.

Aquatic Park: Aquatic Park is a man-made series of lagoons -- or shallow lakes that exchange water with the Bay. The Eastshore Highway, now the freeway, was built on fill out in the Bay, during the Great Depression of the 1930s. Many people were out of work at that time, and government put some of them to work building the park in the area between the highway and the railroad. (The railroad was built close to the original shore much earlier, in 1869). The lakes are used by boaters as well as by birds. Pipes under the freeway carry water between the Bay and lagoons.

Mouth of Strawberry Creek: Strawberry Creek is the reason there is a Berkeley. The little creek provided a year-round source of water, so people who founded the school that became UC Berkeley

chose it both for the school and for lots they could sell to pay for the school. At the creek's mouth was a rare piece of solid shore fairly near deep water. To the north was lagoon behind sandy beach, and to the south was mud and shallow water. So Gold Rush businessmen built a landing there, and a hotel, grain mill, and other businesses soon followed.

As the town grew, though, people used the creeks for sewers. As more land was covered by streets and roofs, rain could not soak into soil. Storms caused floods. Thus people put the smelly, flood-prone creeks they had ruined into pipes. Strawberry Creek is in pipes through most of Berkeley, though you can see beautiful bits of it on campus and in Strawberry Creek Park.

Mouth of Schoolhouse Creek: The pipe here was built in the 1930s to carry both the creek and sewage to the Bay. The land jutting into the Bay west of here wasn't filled until the 1950s. At that time, sewers were separated from creeks, so that this pipe again carries only creek water and water that washes off yards, roofs, and streets. That runoff water, as you can see, goes straight to the Bay. This is why it's important not to dump anything into the street or drains you see there, and why it's important not to use toxic chemicals in your yard. All that pollution goes straight to the Bay.

We hope to "daylight" this creek in the next few years, digging a new channel so it can be a creek again.

Salt marsh, Fleming Point. Albany Beach: Beyond Schoolhouse Creek we ride through land that was once a large salt marsh behind a beautiful sandy beach. The flat-topped hill with the race track on it used to have a rounded top. It was dynamited off in 1930s. The rubble was used to fill the marsh and Bay, to form the track and its parking lots. The rocky shoreline here is the only bit of the original shoreline. Everything else is fill.

Albany Beach and Bulb: The sandy beach here is very new. The peninsula here was built from dumped construction rubble, from the 1950s to the 1980s. The peninsula slowed currents enough so that they dropped their sand.

From here you can see Albany Hill, another old hilltop. There are Indian grinding rocks on the hill, and buried layers of shell from the Indian village.

Creek mouths along the Bay Trail, Richmond to Emeryville

Susan Schwartz, Friends of Five Creeks

Today's shoreline

Today, we can walk the Bay Trail from Emeryville to Point Richmond, enjoying the east edge of San Francisco Bay in a way that has not been possible for a century. From about about the 1870s to the 1970s, railroads, industry, and garbage dumps dominated the East Bay shoreline, while the Bay itself shrank toward becoming a lifeless ship channel.

Twenty years of effort by Save the Bay, Citizens for Eastshore State Park, and other environmental groups halted filling of the Bay and incorporated more than 9 miles of shoreline into a new Eastshore State Park. But this shoreline, much of it squared off and lined with rip-rap, would hardly be recognized by the Ohlone Indians, whose shell middens, evidence of the Bay's bounty, were found at Shellmound St. in Emeryville, the mouth of Strawberry Creek, Cerrito Creek at Albany Hill, Point Isabel, Brooks Island, and Stege.

In Berkeley, the pre-European shoreline generally ran close to the line of today's I-880 Freeway. Marshes at what is now Emeryville gave way in Berkeley to a crescent of beach, particularly north of the willow grove at the mouth of Strawberry Creek. This sandy crescent swept north to a low, grass-covered sandstone hill at what is now Fleming Point, the site of Golden Gate Fields Racetrack. Behind the beach, from the foot of what is now Virginia Street, a tidal slough meandered north through salt marsh, carrying waters of Schoolhouse, Codornices, and Marin Creeks to the cove sheltered by projecting Fleming Point and Pt. Isabel, with Albany Hill rising on its east edge. All three –Fleming Point, Albany Hill, and Pt. Isabel – were tops of hills older than today's Berkeley Hills, forced downward by the clash of North American and Pacific plates.

North of Albany Hill, Cerrito and Middle (Blackberry) creeks flowed into a marsh that ran inland almost to today's San Pablo Avenue. Marshes also lay east and north of Pt. Isabel.

The only remaining fragment of this shoreline is the sandstone bluff at Fleming Point. The salt marsh behind it has been filled, although it is echoed in miniature by a young marsh at the mouth of Codornices Creel. This marsh formed after construction of Buchanan Street about 1940 cut off a lagoon to its south.

The sandy beach south of Fleming Point was long ago carried away by construction and buried under garbage. But the strong tidal currents opposite the Golden Gate still carry away fine mud while bringing sand. New beaches have formed where projections break the current, like Albany Beach and nearby pocket coves, and west of Aquatic Park in Berkeley.

The projections are basically garbage-filled tidelands, as is most of the shoreline. Draw a line connecting the tips of the Emeryville and Berkeley Marinas, Albany Bulb, and today's Pt. Isabel (much larger than the original one). At least this much Bay was on its way to being filled with urban refuse. The technique was simple: Build a rock breakwater, fill it with garbage, cap it with clay. At the tip of the Albany Bulb, you can see the lagoon walled by the last breakwater, ready to be filled when dumping was finally halted.

The creek mouths

San Francisco Bay is an estuary, where mingling fresh and salt water create a distinctive and unusually productive ecosystem. Most of the Bay's fresh water comes from the Sacramento-San Joaquin Rivers, draining the huge Central Valley. The small, geologically youthful creeks of the East Bay, however, also play their part. Rising from springs in the earthquake-fractured Berkeley Hills, they carry debris from those geologically young, still-rising hills. This erosion, and the creeks' annual floods, essentially built the East Bay "flatlands" as rising sea levels filled the Bay after the last Ice Age. Where the creeks and their floodplains met the Bay, marshes and coves at the creek mouths served as resting places for birds

and nurseries for aquatic life. In some of the year-round creeks, such as Strawberry and Cerrito, runs of salmon and steelhead returned to spawn in fresh water.

Today, the feast carried in moving waters makes creek outflows particularly good spots for wildlife watching. The tidal sloughs and channels at the creek mouths harbored, and still harbor, small fish and juveniles and many species: Tule perch, Pacific herring, smelt, sculpins, sticklebacks, and croakers. Larger predators, like the introduced striped bass, hunt them there. Bat rays forage in the outflow channel. The rich fish harvest also draws birds: egrets (American and cattle), herons (blue and green), cormorants, and kingfishers. Dabbling ducks feast on snails and other bottom life.

These positive roles of creeks continue. However, as cities ringed the Bay, the creeks' contribution risked becoming negative. Creeks carry rain and other runoff to the Bay, and with it the toxic runoff of our urban lives: soap, silt, sewage, fertilizer, pesticides, herbicides, heavy metals, and petroleum products. Most tests seem to indicate that the most serious pollution problems in our creek water are excess pesticides, mostly from urban gardening and ant control, and heavy metals and hydrocarbons, mostly from automobiles. Thus the best things most residents can do for the Bay are (a) use as few chemicals outdoors as possible and (b) drive less.

Sewage leaks are another continuing problem, though they probably threaten humans more than they do aquatic life. The usual causes are aging urban infrastructure, our area's frequent earth movements, and property owners' failure to maintain the sewer laterals that connect their homes and other buildings with the public sewer mains.

Mouth of Baxter Creek: Baxter Creek's three forks, flowing from El Cerrito and Richmond, join underground in pipes and re-appear near the Bayview exit from I-580. From the small unmarked feeder to the Bay Trail at the end of 51st Street, north of Pt. Isabel, you can see the tidal channel, edging toxic fill that once housed, among other uses, a motor-oil-recycling site and a shooting range. It's a sad comedown. There was a shellmound near the old shoreline, well inland, and in the late 19th and early 20th Centuries, the creek was dammed first to raise bullfrogs and then as a resort. In the marshes of what is now Eastshore State Park, though, Baxter Creek comes back into its own. Joining more sloughs, the creek passes under the trail and winds out toward the Bay, gleaming silver and edged by pickleweed and cordgrass. (North of here, just beyond the restored marshes at the University of California's Richmond Field Station, Meeker Slough joins the Bay. It is not a creek mouth – the slough simply drains former marshland.)

Mouth of Cerrito Creek: South of Pt. Isabel and just north of Albany Hill, Cerrito Creek winds into the Albany tide flats. An interpretive sign on the Bay Trail marks the channel. Flourishing native vegetation along the Bay here was planted by CalTrans as mitigation for widening the noisy freeway next to the trail, which is fenced on the Bay side so that walkers and bicyclists will not disturb the shorebirds.

Like Baxter Creek, Cerrito Creek, separating Alameda and Contra Costa Counties, has a fascinating history. Grinding rocks of a Native American village can still be seen at the northeast foot of Albany Hill, near the willow grove where Middle Creek flows into Cerrito Creek. During Spanish and Mexican rule, Victor Castro, son of the Spanish land grantee, built his adobe on the creek at the present site of El Cerrito Plaza. He loaded grain for shipment to San Francisco at Pt. Isabel, named for his daughter. In the late days of California's mining boom, dynamite plants, driven out of San Francisco and Berkeley because of explosions, briefly took over north side of Albany Hill before being driven out again. To muffle the sound of explosions, and catch debris, they planted the eucalyptus trees now capping the hill.

Mouths of Marin, Village, and Codornices Creeks: Buchanan Street west of I-80 and the land on both sides is all fill. The original shoreline of Fleming Point ran almost due east from today's sandstone bluff. The hilltop was blasted off in the 1939 racetrack. The debris was used to fill the salt marsh to the east to make the track, and to fill the bay to create parking lots to the north and west. At the same time, the City

of Albany built Buchanan Street as a narrow peninsula joining those parking lots, thus walling off a lagoon between the street and the racetrack. Through the 1960s, dumping of household garbage and construction debris created the Albany Bulb peninsula and the broader Albany Plateau at its base.

At the same time, the lagoon, too, was mostly gradually filled, except for a small new salt marsh that formed along the route of the Codornices Creek outlet slough, still flowing north. Although aerial photos show that this marsh was still open water in the 1950s, it now has typical native salt marsh vegetation: native cordgrass in the deepest parts; succulent pickleweed and yellow-flowered jaumea at higher elevations; late-summer-flowering gumplant and low purple Limonium above that. No human intervention was needed for this “restoration.” Salt marsh plants, not surprisingly, are adapted to having seeds, roots, or stems that can float about and take root where they wash up. If Golden Gate Fields race track ever goes, Friends of Five Creeks hopes to restore more of the former salt marsh.

North of the new Bulb peninsula, tide flats remained and grew, providing rest and food for wintering and migrating shorebirds. The flats are fenced to protect these birds; two raised platforms on the north side of Buchanan let you watch them. At low tide, you can see the outlet pipes and channels of creeks that flow onto the flats.

The large pipe closest to the freeway and north of Buchanan brings runoff from the watershed of Marin Creek. This small seasonal creek is now entirely buried in pipe, but the curves of Marin Street show its former course. The low spot that now holds Marin School was a cow pond fed by the creek. The Marin Creek storm-drain pipe also carries runoff from Blackberry Creek, formerly the upper reaches of Middle Creek.

A bit farther west, four pipes running under Buchanan, marked by interpretive signs, connect the salt marsh to the tide flats. These empty Codornices Creek and Village Creeks empty into the Bay. Village Creek is the western remnant of Marin Creek, in University Village, UC Berkeley’s family housing. Here, the water was mostly channeled into straight ditches, with right-angled connections in pipes. Vegetation re-naturalized these seasonal waterways, and some have been re-graded with curving meanders. A marshy remnant remains aboveground west of the railroad tracks, in the Target parking lot. From there, Village Creek runs in a pipe to the narrow tidal channel between the freeway and racetrack.

Codornices Creek, farther south, flows year round. Domingo Peralta, son of the Spanish land grantee, built his home on its banks, near the present St. Mary’s College High School. But old maps show that the creek petered out in a wet grassland before filtering to the salt marsh and slough. A channel for drainage probably was ditched through in the 1870s, when what became today’s transcontinental railroad tracks were built close to the shoreline. The area was zoned for “noxious industries,” such as tanneries. A Union Carbide gas plant, paint manufacturing, and scrap metals were among the neighbors. In the 1920s, Berkeley built an incinerator on the north shore, planning to use the ash to fill the marsh. The incinerator never worked right, but the building became a slaughterhouse, still generating fill. (Today it is a historic landmark, part of a storage facility across the street from the Berkeley Transfer Station on Second.)

After the short-lived Post-World-War II boom, Berkeley’s once-thriving industries began to vanish. The creek waters became cleaner, and the creek itself – though a straightened ditch – was overgrown and shaded by volunteer trees and brush. Perhaps in the 1980s, adventurous steelhead ventured into this post-industrial habitat. Or perhaps someone dumped some rainbow trout in a shaded back yard upstream, where urban runoff has carved a deep, almost inaccessible channel where they could thrive. In any event, by the 1990s the creek had healthy populations of rainbow trout, some of them going to sea, growing to 18 inches or more, and returning to spawn as steelhead. (Both are *Onchorhynchus mykiss*. There is no genetic difference; a rainbow trout that goes to sea is a steelhead.)

These fish and the need for flood control have led to millions of dollars being spent restoring the creek – carving new meanders, planting natives, building a creekside trail. So far, the effort has extended from the

railroad tracks upstream to 8th Street; someday it may get as far as San Pablo Avenue. There are smaller projects and potential projects here and there elsewhere.

Schoolhouse Creek:

The large pipe at the west end of Gilman Street is simply a storm-drain pipe. The rotten-egg smell common in summers, is one sign that there are no creek waters to carry decomposing material into the Bay.

A little farther south, north of the service road that would be Virginia Street if it reached west of the freeway, a large pipe extends into the southeast corner of the cove formed by the North Basin Strip, Berkeley Meadow, and Cesar Chavez Park. This is the mouth of Schoolhouse Creek, a small seasonal creek named for the one-room Ocean View schoolhouse, Berkeley's first school, built on its banks on land donated by Domingo Peralta. Friends of Five Creeks commemorates the school and creek with a sign on the Bay Trail.

The area near the pipe's mouth is a good spot for birdwatching, including shorebirds, egrets, harriers and kites, even kingfishers. Fisherfolk say it's a good spot for stripers because smelt still try to run up the pipe. Currents have washed weathered glass out of the old landfill, creating a small point that tinkles musically when you walk there. Behind it is a miniature lagoon with the typical bands of salt-marsh vegetation.

Schoolhouse Creek rises from two branches in the hills north of Virginia Street. Most of it is in pipes, but there are a few stretches in back yards. You can still see its unusually large gully in dips in streets west of MLK Jr Way, south of Cedar Street. The massive culvert built for Santa Fe Railroad trains marks its course at Lincoln Street.

This creek originally emptied into the south tail of the long salt marsh and slough that also carried Codornices and Village/Marin Creeks. In the early 20th Century, however, Berkeley, however, built a pipe westward and used the creek waters to help carry sewage to the Bay. Originally this pipe extended well offshore. But by the end of World War II, however, garbage fill had reached south along the waterfront from Gilman Street to the pipe. Berkeley made plans to extend the pipe west, past the Marina. But about 1950, East Bay Municipal Utility District intercepted the sewage, leaving the oversized pipe to carry just clean creek water.

Someday, Friends of Five Creek hopes to "daylight" the creek here, creating a small salt marsh and a visible link between creeks and Bay. Consideration of this is in the plan for Eastshore State Park.

Strawberry Creek: The Bay Trail edges the freeway frontage road to avoid wildlife habitat in the restored grasslands and seasonal ponds of the Berkeley Meadow. Jackrabbits, ground squirrels, snakes, herons, egrets, ducks, geese, shorebirds, harriers, and kites are among the wild species that survived in this garbage landfill. Crossing University, we reach the cove where an ugly culvert, crossed by a sewer pipe, empties Strawberry Creek into the Bay.

The creek deserves better – its year-round water supply is a major reason why Berkeley exists today. A Bay Trail spur bridging the mouth, now being planned by the City of Berkeley, would hide the pipe and create viewpoints. Meanwhile, volunteers are working to control the perennial pepperweed that otherwise would choke mudflats and destroy shorebird habitat.

Aquatic Park and Potter Creek: The newest portion of the Bay Trail, from University to the Emeryville portion, lacks only about 100 feet north of Point Emery, a finger of late illegal fill. On the west, the mud flats of Brickyard Cove, named for the brick debris dumped here, give way to beach where small rocks make it worth looking for black oystercatchers, whose heavy bills can pry shellfish off rocks. On the east

is Aquatic Park. The three lagoons formed by construction of the Bayshore Highway were made an urban park by relief workers during the Great Depression. Approximately opposite the roof of the water-ski boat house, pipes carry tides into and out of the largest lagoon. Farther south, almost to Point Emery, a large pipe carries runoff from the watersheds of two almost vanished creeks: Potter Creek and larger Derby Creek, a bit of which remains on University land near upper Dwight Way. Next to this pipe, a smaller one exchanges water in "Radio Tower Lagoon," the southernmost of the three lagoons. The outflows are good spots for birds, hunting for creatures carried in the flow.

From Point Emery you can continue south to Powell Street in Emeryville to the protected wetlands of Emeryville Crescent at the mouth of Temescal Creek. By braving traffic, you can make a partial loop: Powell and Shellmound take you to the east edge of Aquatic Park. There a bike trail rims the large lagoon. At the north end of the park, cross back to the Bay Trail on the new pedestrian/bicycle bridge.



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Creek mouths along the Bay Trail in Berkeley, Albany, and south Richmond

Susan Schwartz, Friends of Five Creeks

Today's shoreline

Completion of the Bay Trail from Emeryville's Powell Street to Point Richmond lets us again enjoy the Bay shore – an opportunity thrown away in the late 19th Century. From about 1870 to 1970, railroads, industry, and garbage dumps dominated the East Bay shoreline of a Bay that was shrinking toward becoming a lifeless ship channel.

Through the efforts of Save the Bay, Citizens for Eastshore State Park, and many others, filling has been largely halted. More than 9 miles of shoreline are part of a new state park. Increasingly long segments of the Bay Trail, aimed at ringing the Bay are being built. But ours is a shoreline much different from the one that largely supported the Ohlone Indians, whose shell middens, evidence of the estuary's bounty, were found at Shellmound St. in Emeryville, the mouth of Strawberry Creek, the north side of Albany Hill, Pt. Isabel, Brooks Island, and Stege.

In Berkeley and Albany, the pre-European shoreline generally ran close to the line of today's I-880 Freeway. Marshes at what is now Emeryville gave way in Berkeley to a crescent of beach, particularly north of the willow swamp at the mouth of Strawberry Creek. This beach, the Berkeley Bight, swept north to an isolated sandstone hill at what is now Fleming Point, the site of Golden Gate Fields Racetrack. Behind the beach, from the foot of what is now Virginia Street, a tidal slough meandered north through salt marsh, carrying waters of Schoolhouse, Codornices, and Marin Creeks to the shallow cove formed by projecting Fleming Point and Pt. Isabel. East of this cove rose Albany Hill. All three are hilltops of an older range that dropped down as the clash of North American and Pacific plates formed the depression that is now the Bay. North of Albany Hill, Cerrito and Middle (Blackberry) creeks flowed into another marsh, this one running inland almost to today's San Pablo Avenue.

The only remnant of this original shoreline is the sandstone bluff at Fleming Point. All that remains of the salt marshes is a tiny fragment at the mouth of Codornices Creek, formed after construction of Buchanan Street about 1940 cut off a lagoon to its south. The sandy beaches created by strong tidal currents opposite the Golden Gate have partly re-created themselves in pocket coves, like Albany Beach, and west of Aquatic Park, between Ashby and

the Brickyard fill south of University Avenue, in Berkeley.

The peninsulas of the Emeryville and Berkeley Marinas, Albany Bulb, and most of today's Pt. Isabel are filled tidelands, as is most of the shore. Connect the west edges of these peninsulas in your mind – that is how much of the Bay was destined to be filled with urban refuse.

The creek mouths

San Francisco Bay is an estuary, where mingling fresh and salt water create a distinctive and unusually productive ecosystem. Most of the fresh water of course comes from the Sacramento-San Joaquin Rivers, draining the huge Central Valley. The small, geologically youthful creeks of the East Bay, however, also make their contributions. Rising from springs in the earthquake-fractured Berkeley Hills and carrying debris from those geologically young, still-rising hills, these creeks essentially built the "flatlands" as rising sea levels filled the Bay after the last Ice Age. Marshes and coves at the creek mouths were resting places for birds and nurseries for aquatic life. In some of the year-round creeks, such as Strawberry and Cerrito, runs of anadromous trout and salmon spawned in fresh water.

The tidal sloughs and channels at the creek mouths harbored, and still harbor, small fish and juveniles and many species: Tule perch, Pacific herring, smelt, sculpins, sticklebacks, and croakers. Larger fish, like the introduced striped bass, follow them to hunt. Bat rats forage in the outflow channels, particularly at low tide. The rich fish harvest also draws birds: egrets (American and cattle), herons (blue and green), cormorants, and kingfishers, while dabbling ducks feast on snails and other bottom life. Creek outflows tend to be particularly good birdwatching spots on the Bay shore.

These positive roles continue. However, as cities increasingly ring the Bay, the creeks' contribution risks becoming negative as they carry to the bay the toxic runoff of our urban lives: soap, silt, sewage, fertilizer, pesticides, herbicides, heavy metals, and petroleum products. Most tests seem to indicate that the most serious pollution problems in our creek water are excess pesticides, mostly from urban gardening and ant control, and heavy metals and hydrocarbons, mostly from automobiles. Thus the best things most residents can do for the Bay are (a) use as few chemicals outdoors as possible and (b) drive less. Sewage leaks are another continuing problem, though more for humans than for aquatic life. The usual causes are aging urban infrastructure, our area's frequent earth movements, and property owners' failure to maintain the sewer laterals that

connect their homes and other buildings with the public sewer mains.

Stops on the tour

Strawberry Creek: The Bay Trail edges the freeway frontage road to avoid wildlife habitat in the Meadow. Seasonal ponds created by the clay cap on the landfill here combine with coyote brush and invasive weeds to support a variety of animals amazing in a city: jackrabbits, ground squirrels, snakes, herons, egrets, ducks, harriers, and kites. Crossing University, we reach the cove where an ugly culvert empties Strawberry Creek into the Bay. The creek deserves better – its year-round water supply is a major reason why Berkeley exists today. Some improvements may come from a Bay Trail spur bridging the mouth, now being planned by the City of Berkeley, and from improvements as the Eastshore State Park is developed. Meanwhile, California Native Plant Society, Friends of Strawberry Creek, and other volunteers are working to control the perennial pepperweed that otherwise would choke the mudflats here, destroying the habitat the shorebirds need.

Schoolhouse Creek: At the southeast corner of the cove formed by the North Basin Strip, Berkeley Meadow, and Cesar Chavez Park, a large pipe marks the mouth of Schoolhouse Creek. It's a good spot for birds, including a kingfisher that plummets for fish from the telephone wires. Fisherfolk say it's a good spot for stripers because smelt still try to run up the pipe. At the urging of Friends of Five Creeks and Save the Bay, park plans include daylighting about 600 feet of the creek to form a small salt marsh; we have just received a grant for needed hydrology and soils investigations. Culverts bury most of the rest of this seasonal creek, rising from two branches in the hills north of Virginia Street.

South of the Golden Gate Fields stables, the Gilman Street storm drain empties into the Bay. Never a creek, its low summer flow often lead to rot and the rotten-egg smell of hydrogen sulfide, which might displease occupants of the hotel proposed nearby.

Albany Beach and Fleming Point: Golden Gate Fields racetrack is the last remaining gap in the Berkeley-Albany segment of the Bay Trail. Like expansion of the salt marsh and dune area, completion of the Bay Trail may be part of redevelopment of Golden Gate Fields. Magna, owners of the track, have proposed a massive addition of shopping, parking garage meeting space, and two hotels, west of the present race track, with buildings no higher than the present track. Groups such as the Sierra Club and Citizens for Eastshore

State Park, not surprisingly, want all or most of the land to be added to the Eastshore State Park. Any major change in waterfront land use must be approved by Albany voters.

Eddies and currents deflected by the Albany Bulb formed the young Albany beach and dunes. Parking lot runoff now flows to the Bay through seasonal channels through the dunes, a pollution problem that could be corrected by creating a wider greenbelt where runoff could soak into soil. Friends of Albany Beach, a group formed last fall, is aimed at keeping the beach clean and raising local awareness of this recreational and natural resource. The group also plans to participate in planning for dune restoration and for the continuation of the Bay Trail alongside the beach.

Mouths of Marin, Village, and Codornices Creeks: Buchanan Street west of I-80 and the land on both sides is all new. The original shoreline of Fleming Point ran almost due east from today's sandstone bluff. The hilltop was blasted off in the late 1930s to build the track, with the debris forming the present north track and west parking lot. Buchanan Street, built about 1940, formed a lagoon that was mostly gradually filled through the 1960s, at the same time that debris built the Albany Bulb and Plateau. The remaining Albany mudflats are important habitat for wintering and migrating shorebirds.

Pipes carry runoff from three creeks into the mudflats. The large pipe closest to the freeway carries runoff from the watershed of Marin Creek, now almost entirely culverted. The curves of Marin Street show the former course of this seasonal creek, which once formed a shallow pond at what is now Marin School. The Marin Creek storm-drain pipe also carries runoff from Blackberry Creek, formerly Middle Creek.

Codornices Creek and Village Creek (the western remnant of Marin Creek, partly restored through University Village) flow in culverts under the freeway to a narrow channel between the freeway and Golden Gate Fields, in about the location of the historic slough. They empty into the small salt marsh south of Buchanan Street, and from there to the Albany Mudflats via four pipes.

This salt marsh, though young – old aerial photos show no vegetation in the 1950s – has typical salt marsh vegetation: native cordgrass in the deepest parts; succulent pickleweed and yellow-flowered jaumea at higher elevations; late-summer-flowering gumplant above that. Such communities form because salt marsh plants, not surprisingly, are

adapted to having seeds, roots, or stems that can float about and take root where they wash up.

Friends of Five Creeks hopes to approximately double the size of this marsh, perhaps as part of redevelopment of Golden Gate Fields. In addition, Codornices Creek is scheduled to be restored from San Pablo Avenue west to the railroad tracks with a million-dollar state grant. Open to daylight but artificially straightened and partly concrete lined, its channel should become more natural and meandering, edged by native plants and a creekside trail.

Codornices may have had no salmon or steelhead historically – some old maps show it as emptying into a marshy grassland before reaching the slough. But now it has healthy populations of rainbow trout whose mostly likely origins are adventurous steelhead. These fish (both *Onchorhynchus mykiss*, genetically identical) are more given to exploring, than are salmon, which seem more strongly drawn to return to the fresh water where they hatched.

Mouth of Cerrito Creek: Cerrito Creek winds into the Albany Mudflats between Albany Hill and Pt. Isabel – look for the large sign opposite. This creek separating Alameda and Contra Costa Counties, has a fascinating history. Grinding rocks of an Ohlone Village can still be seen at the northeast foot of Albany Hill, where Middle Creek flows into Cerrito Creek at a remnant willow marsh. During Spanish and Mexican rule, Victor Castro, son of the Spanish land grantee, built his adobe on the creek at the present site of El Cerrito Plaza, and a boat landing on Pt. Isabel. In the late days of California's mining boom, dynamite plants, driven out of San Francisco and Berkeley because of explosions, briefly took over north side of Albany Hill before being driven out again. They planted the eucalyptus trees now on the hill to muffle the sound of their explosions.

Friends of Five Creeks is working to restore the creek adjacent to Pacific East Mall, west of I-880, and looks forward to another major restoration adjacent to El Cerrito Plaza in late summer 2003. We also are working to create trails close to the creek from the Ohlone Greenway to the new Eastshore State Park.

Aquatic Park and Potter Creek: The newest portion of the Bay Trail, from University to the Emeryville portion, lacks only about 100 feet north of Point Emery, a finger of late illegal fill. On the west, the mud flats of Brickyard Cove, named for the brick debris dumped here, give way to beach where small rocks make it worth looking for black oystercatchers, whose heavy bills can pry shellfish off rocks. On the east is Aquatic Park. The two north lagoons, formed by construction of the Bayshore Highway, were made an urban park by relief workers during the Great Depression. Approximately opposite the roof of the water-ski boat house, pipes carry tides into and out of the largest lagoon. Farther south, almost to Point Emery, a large pipe carries runoff from the watersheds of two almost vanished creeks: Potter Creek and larger Derby Creek, a bit of which remains on University land near upper Dwight Way. Next to this pipe, a smaller one exchanges water in "Radio Tower Lagoon," the southernmost of the three lagoons. The outflows are good spots for birds, hunting for creatures carried in the flow.

From Point Emery you can continue south to Powell Street in Emeryville. The trail stops at the protected wetlands of the Emeryville Crescent, where Temescal Creek empties into the Bay. By braving traffic, you can make a partial loop: Powell, Shellmound, and Bay Streets take you to the east edge of Aquatic Park. A bike route rims the lagoon. At the north end of the park, you can cross back to the Bay Trail on the new pedestrian/bicycle bridge.

Modern and original shoreline, from Creek and Watershed Map of Oakland & Berkeley, by Janet M. Sowers, William Lettis & Assoc., & San Francisco Estuary Institute, published by Oakland Museum of California, www.museumca.org/creeks

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History and Future of the Berkeley Waterfront

Walk led by Susan Schwartz, Friends of Five Creeks, f5creeks@aol.com, 510 848 9358

Geology

Why does Berkeley have a waterfront? The story can be taken back very far in geologic time, but a good place to begin is with the mostly sideways, but partly colliding friction of the North American and Pacific Plates – the cause of our area’s famous earthquakes. The ruptures resulting from this friction led to one longish block of crust tilting downward to the east. Its higher west portion formed what became the hills of San Francisco and Marin; its eastern portion formed a long valley. The sharp scarp on the block just east of this valley similarly tilted, forming the Berkeley Hills – their uplift began as recently as a million years ago and probably continues today. The rising mix of old sediments, volcanic outpourings, and scrapings from the clash of the great plates was deeply fractured and eroded rapidly as it rose. A huge river pouring out of today’s Central Valley – then a vast lake – crossed both ranges of hills and the valley between and reached the Pacific west of today’s Golden Gate.

As the last Ice Age waned, water from melting glaciers gradually raised sea level. Some 10,000 years ago – a blink in geologic time – the mouth of the river was drowned and the rising sea flooded the valley between the San Francisco and Berkeley Hills, forming today’s San Francisco Bay. The rising waters reached their current level only about 5000 years ago. A few hilltops on the down-tilted edge of the long block remained above water as El Cerrito del Sur (Fleming Point), Cerrito de San Antonio (Albany Hill), Point Isabel, Brooks Island, and Potrero San Pablo (the hills of Point Richmond).

Rain falling on the still-rising, fault-ridden Berkeley Hills flowed quickly to the Bay, carrying eroded materials that built today’s flatlands as their flood plains – older, deeper creek canyons, now choked with sediment, stretch well offshore beneath today’s Bay. These same sediments, carried by the tidal currents sweeping in and out of the Golden Gate, built the salt marshes and mud flats of the young Bay. The “pre-European” Bay shore thus was geologically quite young, and still changing.

Partly or largely because Native Americans burned them regularly, the creek’s flatland flood plains were grassy and covered with wildflowers in spring. The short creeks, fringed narrowly with trees and brush, blended rather hazily into the Bay at their mouths: Strawberry Creek and Schoolhouse Creeks broadened into willow marshes. Codornices Creek apparently spilled onto marshy grassland before flowing into a long north-south slough. This slough, which also drained Schoolhouse and Marin Creeks, wound from today’s Virginia Street north behind the sandstone hill later called Fleming Point (where Golden Gate Field Racetrack now stands), reaching the Bay a little south of today’s Buchanan Street, north of the race track. On the Bay side of this marsh, strong tidal currents just opposite the Golden Gate formed a strand of dunes and sandy beach, the Berkeley Bight, from just north of Strawberry Creek to Fleming Point.

North of Albany Hill, a fan of creeks, the largest of them Cerrito Creek, meandered toward the Bay in a large tidal marsh that began just west of today’s San Pablo Avenue and continued north behind rocky Point Isabel. The point itself was an island except at low tide. On the northeast side of Albany Hill, Middle Creek (the lower part of Blackberry Creek, coming down from today’s John Hinkel Park) found its way to Cerrito Creek through a willow marsh, or sausal.

The salt marsh and flats of today’s Emeryville Crescent didn’t exist – sediments built them well after freeway and bridge construction. Today’s Hoffman Salt Marsh north of Point Isabel was also open water. The shoreline itself was well east of today’s shore – at about the location of today’s I-80 Freeway.

Native Americans

Native Americans established permanent settlements on the Bay shore perhaps 5000 years ago, and were present in the area still earlier – thus they saw the Bay take on its present shape. As homes, they chose areas near creeks and marshes that supplied them with fresh water, shellfish, waterfowl, and boat access to the Bay, where they fished and hunted water birds from tule boats. At more than 400 places near the Bay, these Indians gradually accumulated mounds up to 30 feet high, containing shells, bones of large and small animals, ash, artifacts, and human remains. Prominent shellmounds grew up at what were probably year-round village locations: the mouth of Temescal Creek in Emeryville, the mouth of Strawberry Creek, the confluence of Middle and Cerrito Creeks on the northeast corner of Albany Hill, Point Isabel (then an island), Brooks Island, Stege, and Ellis Landing (also formerly an island).

These shellmounds were far from the Native Americans' only effects on the landscape. They burned to maintain the vegetation they needed -- grasslands where they gathered bulbs and wildflower seed; youthful shoots for basketry materials; oak woodlands for acorns; and clear lines of sight for defense against surprise attack by grizzly bears. Gathering wood for fires, pruning willows to encourage straight shoots for basketry, and similar practices also affected the surroundings. Hunting may have affected some animal populations; there is some evidence that with time, they ate more small animals, perhaps because they had reduced populations of the large ones.

Ranchos

European diseases and resettlement at missions decimated the Indian population and destroyed their culture. The Spanish, and after the missions were disbanded, the Mexican government parceled out the East Bay to government workers and ex-soldiers in large land grants. The Estudillos got San Leandro, the Peraltas Oakland and Berkeley, the Castros El Cerrito north. The few Indians who remained often worked as "hands" on these ranchos. The rather brief era of Spanish and Mexican domination also affected the landscape: With the missions, rancheros, and cattle came a wave of hardy non-native plants – wild mustard and grasses. The Indians' regular burning stopped. The hooves of cows, much heavier than even the largest native grazers, elk, trampled plants and compacted soil, especially along stream sides where cows (unlike elk and deer) are fond of loafing. On the waterfront, however, the rancheros had little effect beyond creating small landings – Victor Castro had one at Point Isabel, for example.

Gold Rush to cities

From 1849 on, locust-like hordes of wealth seekers poured into California. The East Bay became an area of farms and grazing supplying the mining boom, with small shops, breweries, and mills. The Mexican rancheros' short-lived dominance was doomed when new American government put the burden on them to prove that they had title to the land. Some newcomers paid for land, like butcher John Fleming, who bought the near-island El Cerrito del Sur (now Fleming Point) to fatten cattle for booming San Francisco. Others squatted, like sailor and trader James Jacobs, who in 1853 built a landing at the firm land at the foot of Strawberry Creek (today's Delaware Street). Domingo Peralta, who had owned all of Berkeley, died penniless in 1865. The Castros hung on longer – Victor Castro, whose elegant adobe edged Cerrito Creek at today's El Cerrito Plaza, operated a ferry for miners from his Point Isabel landing. But they, too, lost their holdings in a ruinous suit among siblings.

Grazing, dairying, haying, and wheat growing soon took over the flats between hills and Bay, where Native Americans had gathered bulbs and wildflower seed. Basic industries like flour and lumber milling sprang up around Jacobs Landing in the 1850s, soon after newly formed Alameda County improved the rancheros' (and probably Indians') trail that became San Pablo Avenue. The real boom in waterfront industry, however, came after the arrival of the Transcontinental Railroad in 1869.

The tracks ran on trestles or fill across the salt marshes on both sides of Pt. Isabel. They continued on dry land just east of the slough that drained Codornices Creek, and then ran close to the Bay along the South Berkeley waterfront. Cut off by the tracks, the shore was looked at in utilitarian terms, its marshes regarded as waste space to

be improved and its beaches as a source of construction sand. The state platted and auctioned off the submerged tidelands in the 1870s. Small-scale filling west into the Bay began almost immediately. Plants were soon canning, tanning, and making soap, paint, cigars, starch, flour, lumber, beer, and other products along the railroad tracks; sailing barges crowded piers. Sewage from the growing towns and manufacturing waste, especially from canneries, sometimes turned Bay water black and peeled paint from buildings.

Explosives were vital to hard-rock mining. Driven out of the San Francisco dunes, dynamite manufacturing moved to Fleming Point (today's Golden Gate Fields) in the 1870s. But the deadly explosions didn't stop, so the manufacturers were forced to move north; acid manufacturing took the place of dynamite on Fleming Point. The dynamite makers settled on the northwest side of grassy Albany Hill – they planted the eucalyptus trees you see today, to muffle the sound of explosions. But following a particularly large 1905 explosion and fire, residents of what is now Albany forced the explosive manufacturers to move again. Paint was made on the site for a while, but before World War I the old Nobel train station at Albany Hill was abandoned; the area became a hobo jungle. Explosives were also manufactured on Point Isabel and today's Richmond Field Station (the crumbling dock you see from the Bay Trail was built by one of the powder companies), lingering longest at Point Pinole.

The sandy beach south of Albany Hill remained a popular swimming and picnic spot into the 20th Century, but the sand of the Berkeley Bight was steadily mined out. In its place came refuse fill. In Berkeley, most of the land that is now Eastshore State Park was created beginning in the 1920s, when garbage collection became a city responsibility. Over the protests of conservationists, Berkeley began filling, working south from Codornices Creek. The new fill near Gilman became an airport. Building the shoreline highway (now I-880) in the late 1920s left a lagoon south of University Avenue. A public works project of the Great Depression of the 1930s turned this into Aquatic Park, envisioned as a highly urban park, with model-yacht racing in the smaller south lagoon.

Meanwhile, sewage had polluted the many small creeks that ran from hills to waterfront. Paving and building caused storm rains to flow more quickly to creeks; in heavy rains they flooded as never before. Thus many residents welcomed putting the creeks into pipes. The culverting accelerated in the Great Depression, as the country sought public-works projects for the out of work.

Adventures on landfill

The garbage that filled the former slough and salt marshes reached Virginia Street in the 1940s. Today's Meadow and Brickyard areas were filled from the late 1940s to the 1960s, working north and south from University Avenue, which lies atop the former Berkeley Wharf, built in 1875 and later extended for a short-lived San Francisco ferry service. A portion of this wharf is now the fishing pier at the foot of University Avenue, and the wharf's massive timbers remain under lower University. The corduroy-like bumps you feel when driving forcibly remind you that the beams do not sink with the rotting garbage. Today's Cesar Chavez Park, north of the marina, operated as a landfill into the 1980s.

Other communities also advanced their landfill peninsulas into the Bay. Clouds of smoke from dump fires became a normal site. Some fill was simply domestic garbage, while other areas were devoted to construction waste (e.g. the Albany Bulb) or characterized by nearby industries – thus “Battery Point,” north of the channel at Pt. Isabel, has battery casings under its clay cap, and the Brickyard gets its name from discarded bricks. Draw a line joining the ends of the Emeryville Marina, Berkeley Marina, Albany Bulb, and Pt. Isabel, and you can see the shrunken Bay that was the expected future.

Plans advanced for the Berkeley waterfront have been many and various. The Central (later Union and Southern) Pacific, by building the first transcontinental railroad, forced the later-arriving Santa Fe toward an inland route (now used by BART in our area). But Santa Fe turned the tables by secretly buying up the Berkeley tidelands. Its plans for a huge commercial port deadlock against another plan; one had piers running north-south, the other east-west.

In the 1940s an international airport was proposed for the Berkeley waterfront. In the 1950s, the dream was a virtual town, with homes, commerce, and recreation, doubling Berkeley's size. Another proposal was fill from Richmond to Oakland, including a Worlds Fair site. In Albany, where fill most of construction debris created the peninsula now called the Bulb from the 1950s on, plans for high rises, hotels, and restaurants fell apart when consultants pointed out that the fill and Bay mud would not support the buildings.

As these plans fizzled, the fill took on its own life. Wildlife and people found refuge in or moved into empty areas. Urban Ore, Berkeley's recycle-and-resale emporium, got its start on the landfill that is now Cesar Chavez Park. A few people moved into barges or old boats and declined to leave. In the 1970s, Berkeley made an idealistic attempt to let the homeless camp on what is now the east side of the park, but "Rainbow Village" lost its shine with murder and robbery. Out on today's Cesar Chavez park, an artistic City of Berkeley employee created stonehenge-like sculpture with huge pieces of concrete culvert. A more lasting effort was by the nonprofit Design Associated Works with Nature (DAWN), who pioneered in attempts to restore native vegetation in the 1970s. They grew native plants on the fill and, after an unsuccessful City of Berkeley planting attempt, took over plantings on the west ridge. The beautiful, wind-sculpted, almost maintenance-free thickets and glades they created are still there. Although Berkeley's final plans for the park left this as a token gesture to restoration, DAWN metamorphosed into Native Here Nursery, the California Native Plant Society's nursery in Tilden Park that supplies locally native material for restoration projects.

Creating the Eastshore State Park and Shoreline Trail

Conservationists had unsuccessfully protested the destruction of Berkeley's beach, filling the waterfront with garbage, and dumping sewage and industrial waste to the Bay via creeks and pipes. The tide began to turn in the 1950s: Communities began sending raw sewage to the EB MUD treatment facility rather than dumping it along their waterfronts. In the 1960s Berkeley matrons Sylvia McLaughlin, Catherine Kerr, and Esther Gulick were spurred to action by maps showing the Bay's future as little but a deep-water ship channel. They formed Save the Bay in 1961. The Bay Conservation and Development Commission (BCDC) was created in 1965 and charged with planning and protecting the future of the Bay. But filling continued into the 1980s, and remains possible (e.g. for the San Francisco Airport). There were plans for building on stilts in the Emeryville Crescent, for a major shopping center on the Berkeley waterfront.

In 1982, residents were galvanized by plans by Catellus (successor to the Santa Fe land holdings) for 4 million square feet of offices and stores on the waterfront. The proposal led to the founding of Citizens for the Eastshore State Park (CESP), a coalition that included Save the Bay, Golden Gate Audubon Society, and the Sierra Club. Their lobbying led to a 1986 resolution to create a state park. State and Regional Park bond money provided funds. A 1992 state measure gave responsibility for running the future park to the East Bay Regional Park District. Purchase of the land was finally completed in late 1998. In combination with existing parks such as Pt. Isabel and Cesar Chavez, park lands linked by the Bay Trail extend from Richmond to Oakland.

The Bay Trail itself was proposed by then-state Senator Bill Lockyer in 1987. He authored Senate Bill 100 (SB 100) authorizing the Association of Bay Area Governments (ABAG) to plan the trail. ABAG adopted a plan for the 210-mile trail in 1989; over half the trail now exists. In the Berkeley-Albany area, Golden Gate Fields as the last place where a right-of-way still must be worked out. Berkeley is scheduled to finally build its portion of the Bay Trail south from University. Since it is easy to walk through Golden Gate Fields parking lots, this will make it possible to walk or bicycle from Emeryville to the Richmond Marina. (After another missing link, the trail continues north through Miller-Knox Regional Shoreline.)

Park planning

Now ongoing is the complex task of planning and actually creating the park. The planners have announced a "preferred alternative" that is currently being subjected to comment and revision. Here are some of the questions and challenges:

- What facilities should be provided for boaters – a boathouse opposite the Radisson, dragon boat racing and small-boat sailing in the North Basin, boat ramps, better launching facilities for windsurfers at Pt. Isabel, a road out the Albany Bulb (for windsurf launching), a hostel for kayakers, a road to Brickyard Cove?
- Fisherfolk, many of them elderly, want to be close to their cars, but this means paving near the shore.
- BMX bicyclists have built jumps in the North Basin Strip; they want to keep them.
- Should there be fenced sports fields operated by a private nonprofit in the park on the Albany Plateau and/or North Basin Strip? If built, should these have night lighting?
- The end of Albany Bulb is an outdoor art studio and gallery; can this creative anarchy be maintained?
- The proposed plan maintains off-leash dog use at Pt. Isabel and the adjacent northern peninsula (Battery Point). Where else, if at all, should dogs be allowed off-leash? Should they be banned entirely from some areas?
- The freeway and railroad tracks make foot and bicycle access to the park difficult, and buses reach the park only on University. How can access be improved? Where should parking be provided, and how much?
- How many buildings should be built in the park? Possibilities listed in the plan include a hostel, café, restaurant, interpretive center, offices, and maintenance facilities. The future of the Sea Breeze Market is another question.
- How much of the waterfront, now rip-rapped, should become “urban promenade” with a paved adjacent trail? The current plan envisions this for the seaward side of the entire Brickyard Peninsula, North Basin Strip, and Pt. Isabel/Battery Point. How much should be naturalized by removing rip-rap (including one proposal to remove re-create the Berkeley Beach south of University)?
- The City of Berkeley has a current grant to connect the Bay Trail (now running inland along the Frontage Road) to the Marina area. Where should this connecting trail be built? Will it encroach on habitat in the Meadow?

Restoration possibilities

The Emeryville Crescent (shoreline north of the Bay Bridge) and Albany Mudflats (between the Albany Bulb and Point Isabel) are already protected wildlife areas. CESP, the Audubon Society, and Sierra Club are seeking more protection for bird-resting areas in the North Basin and Brickyard Cove, focusing on seasonal closures rather than excluding all boating.

On land, the “Meadow” and “North Basin Strip” north of University have seasonal ponds and support, among other creatures, chorus frogs, rabbits, ground squirrels, geese, ducks, shorebirds, egrets, herons, kingfishers, rails, falcons, harriers, and burrowing owls. The Albany Bulb and Plateau have less varied wildlife. Groups like CESP, Audubon Society, and Sierra Club are focusing on protecting habitat on the Meadow and Bulb. The challenge is not just keeping development out of park plans. These areas are vegetated almost entirely in non-native weeds, which are themselves changing the environment as they compete with one another – in the last five years, for example, large areas of the Meadow have become a fennel jungle, and poisonous leafy spurge (*Euphorbia esula*) has gone from a few scattered plants to covering wide swaths. Some of these weeds pose serious threats Bay-wide (e.g. perennial pepperweed). Other problems are that areas of soil remain seriously toxic, and because of water-pollution problems, seasonal ponds on top of landfills are not supposed to be allowed.

There are opportunities to restore fragments of the large marshes wiped out by fill. Friends of Five Creeks is working with Magna Corp., owners of Golden Gate Fields, to enlarge the small salt marsh at the mouth of Codornices Creek, just south of Buchanan Street and west of the freeway. Friends of Five Creeks is seeking daylighting of the mouth of Schoolhouse Creek and recreation of salt and/or willow marsh. So far, this daylighting is in the park plans. The pipe at the mouth of Strawberry Creek, emptying into a cove enclosed on three sides, is gradually forming a wetland, Park plans call for shaving off a corner of the Brickyard peninsula to increase circulation into this cove.

Other projects would create creekside greenways linking the Bay to inland areas. Richard Register’s Ecocity Builders has a small grant to plan such a greenway along Strawberry Creek. Friends of Five Creeks and Berkeley Path Wanderers envision an “urban trail” along Codornices Creek, using street rights of way, historic hill paths, and creekside paths and parks to link the Bay Trail to the top of the hills in Tilden. Probably the closest to reality is a plan to link the Bay Trail to the Ohlone Greenway (BART right of way) mostly via Cerrito Creek, on the Albany-El Cerrito border. Meetings to plan this trail, again financed by a grant from Coastal Conservancy, are due to start this summer.

History and Future of the Berkeley Waterfront

Susan Schwartz, Friends of Five Creeks

As the glaciers of the last Ice Age melted, some 8000 years ago, the rising Pacific gradually drowned a huge river that had poured through the Golden Gate toward the Farallon Islands. With Native Americans there to watch, valleys were drowned, becoming San Francisco, San Pablo, and Suisun Bays.

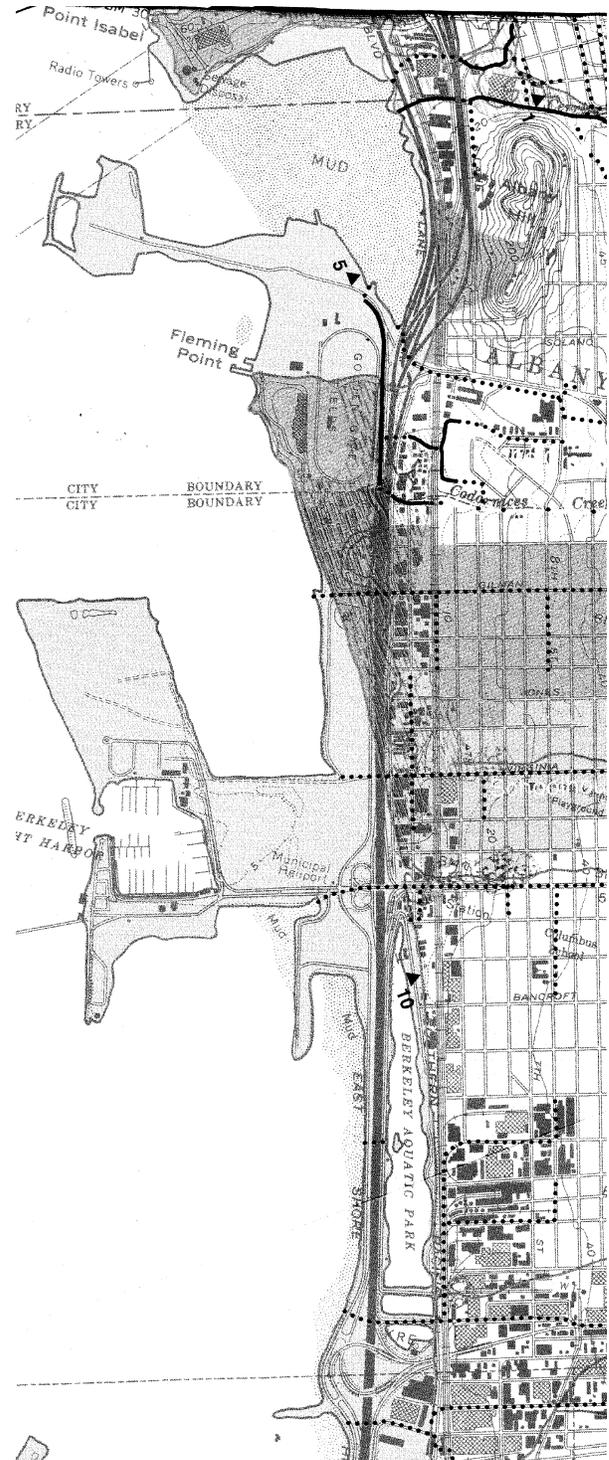
Peaks of a range of hills older and west of today's East Bay hills were left as islands – Albany Hill, Fleming Point, Pt. Isabel, Brooks Island, the Potrero Hills. From the still-rising hills of today, creeks carried soil and eroding rock to changing shoreline, while currents swept sand and mud from the Sacramento River along the shore. Together, these formed today's "flatlands" as wet, grassy meadows.

Opposite the Golden Gate, strong tidal currents swept away mud, leaving the heavier sand particles. A beach and low dunes thus formed a golden crescent along the shore from about today's Virginia Street to the sandstone bluff at Fleming Point. North of that, a shallow inlet lapped the west edge of Albany Hill.

Behind the sandy beach, Schoolhouse, Codornices, and Marin Creeks flowed into a tidal slough that wandered north behind the hill at Fleming Point. Creek mouths north and south of these – Strawberry and Cerrito Creeks – reached the Bay. At those two creek outlets, debris from thousands of years of Indian habitation formed large shell mounds.

Settlers dredged the sand, bulldozed the shellmounds, and filled the Bay westward with garbage, construction debris, and mud from dredging projects. The map at right shows the original shoreline (darkly shaded) and the shoreline today (light gray). Draw a line connecting the three peninsulas (you can barely see the tip of Emeryville's at bottom). That is how much of the Bay we planned to fill. Our sparkling Bay would have been a narrow ship channel.

Led by Save the Bay, conservationists finally stopped Bay filling in the 1980s. Led by Citizens for Eastshore State Park, we have a new park along most of the shore of Emeryville, Berkeley, and Albany. The new Bay Trail invites us to see nature reclaiming our waste.



Modern and original shoreline, from Creek and Watershed Map of Oakland & Berkeley, by Janet M. Sowers, William Lettis & Assoc., & San Francisco Estuary Institute, published by Oakland Museum of California, www.museumca.org/creeks

Mouth of Strawberry Creek: Strawberry Creek is the reason there is a Berkeley. The year-round water supply led founders of the school that became UC Berkeley to choose it for their campus -- and for lots they could sell for financing. At the creek's mouth (south of the present outlet pipe), a rare piece of solid shore fairly near deep water became a Gold Rush landing, quickly followed by a hotel, grain mill, and other businesses. Berkeley's first park, Willow Grove Park, was on the creek, and a dance pavilion once spanned the channel.

As sewage polluted the creek; roofs and streets increased runoff, flooding, and erosion; and land became costly, this asset became a liability. Below the UC campus, the creek was almost entirely enclosed in pipes by the end of the 1930s.

Piped Strawberry Creek now reaches the Bay from beneath University west of Sea Breeze Market. The shallow cove here is attractive to birds, but plagued by refuse borne on eddies, and by invasive plants, particularly perennial pepperweed. Friends of Five Creeks volunteers are controlling the invasives along the shoreline all the way to Shorebird Park, at the west tip. Natives are filling in nicely.

The Berkeley Meadow: University Avenue is built on fill around the Berkeley Pier, which stretched much farther into the Bay in the days of streetcars and ferries. The bumps you feel while driving it are the old pier timbers, which do not sink with the rotting fill.

Pockets of subsiding garbage also led to formation of winter ponds in the Berkeley Meadow, the broad peninsula connecting the mainland to the Marina. Weeds, neglect, surprising garden escapees, and a few natives – coyote brush, willows, elderberry, mugwort – turned this into an urban wildlife refuge.

The varied wildlife that gathered in this refuge led to its being “restored,” with new weed-free soil contoured into new ponds and gentle rises. Friends of Five Creeks volunteers help maintain this area.

Right: Strawberry Creek mouth at low tide.

Herons, egrets, and ducks feed in the ponds. Rabbits and ground squirrels are prey for snakes, harriers, and the ghostly kite. Burrowing owls use abandoned squirrel tunnels, and with kestrels hunt smaller prey, while kingfishers plummet for small fish from the telephone wires on the north shoreline.

North Basin, Schoolhouse Creek: Rubble-edged, with square corners, fed by a former Berkeley sewer pipe, the North Basin is far from natural. But migrating and wintering waterfowl rest and feed here – scaups are the most common species. Terns and pelicans hunt the small fish that fisherfolk say still try to run up the pipe. Egrets, herons, and many shorebirds frequent the mud flats when the tide is low.

The pipe is Schoolhouse Creek. Berkeley's first school was built on its banks, on land donated by Domingo Peralta, the ranchero who had owned all of Berkeley. Berkeley culverted almost all of this creek, and from the 1930s to 1950s used the pipe to carry sewage as well as creek to the Bay.

This is one of the few places where it is practical to re-establish the connection between creeks and Bay. Park plans call for bringing the creek back out of the pipe. Friends of Five Creeks used a grant from a private foundation for a preliminary study of possibilities; park plans call for considering it.

Friends of Five Creeks volunteers also are making the area north of the creek inviting to humans while still preserving habitat.

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