The Bay Area’s Solar Salt Industry
An Unintended Conservationist

The South Bay Salt Ponds Restoration Project, initiated in 2003, is the largest wetland restoration project west of the Rocky Mountains, working to restore 15,100 acres of managed industrial salt production ponds in the San Francisco Bay to a mix of tidal marsh and other wetland habitats. It is a project primarily dominated by biological and hydrological goals, but one that is taking place in a landscape that has been part of the Bay Area’s industrial history for more than 150 years. Over that time, the salt ponds have become an incredibly distinctive feature of the Bay Area landscape; whenever people drive over the South Bay bridges, or fly over on approach to the Bay Area’s major airports, they notice these huge pools of colored water, usually not knowing what they are, that instantly convey a unique sense of place. One writer described the salt production landscape in the 1950s: “This is a place of sky and water and little else—of sky hung in winter with sweeping cloud canopies that loop their misty fringes down over the tops of the far-off hills, of calm water laced by long low levees that wind sinuously into the distance until they disappear in the watery flatness.” In many ways, this description is still apt today, even as the salt industry’s imprint on the landscape is changing as the restoration project moves forward.

Conservation lands often have humble beginnings; they are not all grand and remote scenic wonders like Yosemite and Yellowstone, but more often they have been put to use in some way by humans, only to fail in, or later recover from, their earlier intended purpose. For example, the eastern national forests originated as cut-over timber lands that were all but abandoned by the industry in the 1920s; similarly, the national grasslands on the Great Plains started as abandoned Dust Bowl-era farms. Much of Redwood National Park was heavily logged before its protection, and Frank and Deborah Popper first suggested their
“Buffalo Commons” concept for protecting large swaths of the Great Plains from their demographic observations of decreasing populations in those states, as farms failed or consolidated and people moved away from this sometimes-harsh landscape.4

This article traces the history of the conversion of bay marshes and tidelands to the production of solar salt and now back to marsh again, forming a great circling arc of land use, from the 1850s to the present. The early owners of most of these lands were speculators, interested in modifying the natural landscape to be productive and profitable; wetlands were not valued for their own sake or for ecological values, but were considered wastelands until they could be “improved” for human utilization.5 Some landowners attempted to reclaim the marshes for agricultural use; others carved ponds out of the landscape by installing levees and dikes, seeking to produce crystallized salt from the natural evaporation of bay water. One influential landowner and entrepreneur, August Schilling, envisioned a heavily industrialized bay front on these lands, planning a new distribution terminal for the South Bay, moving goods between ships and rail lines, and busy factories lining artificially dredged sloughs. For a variety of reasons, Schilling’s industrial vision never developed, but under his control, Leslie Salt Company continued to reclaim and shape the land for the ever-expanding salt market, while considering possible future “highest and best uses” such as residential developments like Foster City and Redwood Shores. With the creation of the Don Edwards National Wildlife Refuge in 1972, the trajectory of marsh development began to curve back around, leading eventually to the current salt ponds restoration project, which suggests that the ultimate “highest and best use” of the bay marshlands may be, ironically, to rehabilitate them to a more natural form and function.

Despite being so prominent in many people’s daily visual experience of the south San Francisco Bay, the detailed history of the salt ponds and associated industry has not been previously documented. Matthew Morse Booker’s recent book, Down By the Bay: San Francisco’s History Between the Tides, provides a sketch of the salt industry in context with other tidal enterprises (oysters, cement, and chemical manufacturing in particular), but does not explore the early activity of Schilling’s land-holding company, Dumbarton Land and Improvement Company, that later became Leslie Salt. Nor does Booker delve into Schilling’s extensive industrial ambitions beyond salt production, which was in a sense a placeholder until grander schemes of development could be realized. Our research fills this critical gap, tracing the tidelands’ story as they were privatized in the late 1880s in order to be put to use—and yet the tidal marshes resisted conversion to agriculture, and various roadblocks kept preventing Schilling’s true ambitions from being realized. Eventually, a vision of the south bay entirely filled in for residential developments triggered an environmentalist response among the public, which led directly to the salt ponds’ inclusion, first in a National Wildlife Refuge, and ultimately targeted for ecological restoration themselves.

Historian William Cronon emphasizes the need to recognize the wildness in our own backyards, not to see wilderness as something far away that we only visit every now and then, but a quality of the natural world that we can live in conjunction with, that coexists even with our most intensely developed metropolises.6 The salt ponds project is just such an example of this: the marshes were originally drained and “reclaimed” under a law that played straight into the hands of land speculators, and then managed for most of a century with the intention of becoming valuable industrial property, yet their use for salt kept them open enough to
later become the perfect location for an ambitious ecological restoration program. Examining their history helps us to see not only the potential conservation value of lands previously used for industrial purposes, but also how we can live side by side with conservation lands—that their ecological or wildness values are not necessarily diminished by human presence or past.

Yet, as the restoration project moves forward, it is being designed to accommodate several differing goals: rewilding some ponds by breaching levees and allowing tidal flow to return, creating habitat for several endangered marsh species, but also continued management of additional ponds and associated levees to provide habitat for shorebirds and other wading species, and the very human-centered goals of improving flood protection while providing recreational spaces around the bay. The resulting restored landscape will be an eclectic mix of wild and managed space, yet the concept of “restoration” does not easily acknowledge the continuing role of human intervention, instead implying a return to a more natural state. Placing the restoration project in the context of this industrial history, we can more easily understand that the bay’s tidelands are threaded through a strong sense of human utility, reflecting our changing values over time through continued modifications of the landscape.

EARLY SALT DEVELOPMENT IN ALAMEDA COUNTY

The earliest known salt harvest in the Bay Area dates back to native Americans and later Spanish missionaries who duplicated their methods of scraping crystallized salt off rocks or from naturally occurring salt ponds along the bay margin. Some tribal groups produced their own salt by leaving twigs in these briny pools, on which the salt would crystallize and could be harvested; others collected and burned marsh plants to produce salty ashes that were then added to food. Mission San Jose, established by the Spanish in 1797, eventually produced enough salt to export moderate quantities of it to Europe. Marshlands were also useful as sources of shellfish, basket-making materials, and so forth.

However, none of these early salt harvests involved major manipulation of the landscape. The first construction of levees to create artificial evaporation ponds is attributed to John Johnson in 1853, who established a homestead at Mt. Eden (just north of present-day Highway 92). Apparently responding to what he saw as a demand for salt from the hide and leather tanning trade, Johnson “squatted” on a small tract of fourteen acres that showed signs of being particularly saline, and enclosed the area with levees. His first harvest measured twenty-five tons, and was shipped to San Francisco by schooner.

Gradually, the Mt. Eden area along the Alameda County coast, stretching from San Leandro Creek south to Alvarado (present-day Union City), developed into a scattering of small salt-producing operations, mostly run by Danish and German immigrant families. Levee-protected land holdings were most often small, comprising as little as twenty acres, and changed hands frequently. Initially, demand for salt was fairly low, mostly used for preserving both food and hides; bay salt was considered locally to be a crude product, inferior to imported salt, and did not demand a high price. Through the 1860s, several producers made efforts to improve the quality of the salt, and soon reliance on imports began to decline as demand for local salt increased.
Demand also shifted with the discovery in 1859 of the Comstock Lode in Nevada, as salt was a primary compound used in the process for treating silver ores. With this increased demand for salt, foreign imports became expensive compared to the cheap local product. In 1868, Bay Area salt companies were producing 17,000 tons annually; by the end of the century production was close to 100,000 tons, and California was supplying salt to much of the West, with particular connections to the mining and railroad industries, as well as fisheries in Alaska and Siberia. Most of the salt was still coming from small operators at this time; by 1900, only four companies were producing more than 10,000 tons per year.

The early salt production process was very similar to today’s, with bay water allowed to evaporate in concentrating ponds, formed by series of dikes and levees, and eventually pumped to smaller shallower crystallizing ponds, increasing salinity along the way. The Bay Area’s relatively sunny summers with almost no rain and near-constant wind created perfect conditions for this process. Levees were most often built along the edges of existing sloughs and creeks, so their shapes tend to trace the contours of the former marsh landscape. The ponds take on distinctive hues as various species of algae predominate in different salinity levels, producing bright greens, purples, and reds in the water. Once ready for harvest, a crystallizer pond would be drained to remove the remaining liquid (bittern), and the resulting salt was raked up and moved to dry ground where it could dry in large piles. Weathering through one winter rainy season hardened and whitened the salt, with rain washing away any remaining bittern, and the final product was sacked and transported by ship.

CREATING UTILITY BY RECLAIMING MARSHLANDS

Reclamation generally refers to the control and manipulation of water, most often in the West this means moving it from rivers onto formerly dry land for agricultural use. In the case of the bay margin, however, reclamation involved moving salt water off the land, draining the marshes, and then irrigating with fresh water in hopes of creating a more productive landscape. Marshes and swamps at this time in American history were generally considered to be a category of “waste lands,” along with deserts and other such uncultivable areas. In the latter half of the nineteenth century, the federal government passed a number of laws encouraging people to invest capital in these “waste” lands to make them productive and profitable.

One of the earliest of these laws was the Arkansas Act of 1850 (also known as the Swamp and Overflowed Lands Act), which granted swampy wetlands to the states, anticipating that the states would sell these lands to private individuals who could afford to reclaim them and make them productive, as well as provide some measure of flood control. California instituted its first system for selling these lands in 1855, limiting sales to a maximum of 320 acres at a dollar an acre. There were no restrictions on the land if it was bought with cash; if bought with credit, at least half of the land had to be reclaimed within five years, otherwise title would revert to the state. It also allowed for the creation of swampland reclamation districts on a county basis, ensuring local control of implementation; these districts were structured either to build the actual drainage works, or in some cases to repay private individuals for money expended in reclamation efforts.
This program did not produce many takers, even after state legislators raised the acreage limit to 640 acres; it appears that most people were not willing to attempt reclamation work on a small scale, due to the high capital inputs involved. Conversion of wetlands to profitable use apparently demanded a much larger magnitude of investment and ambition. After numerous attempts at improving the system, California passed an amendment in 1868 called the Green Act, named for sponsor Will Green from Colusa County. This law removed all acreage limitations from swampland purchases, allowing individuals to acquire enormous tracts of marshlands on credit. This change created the potential opportunity for industrial-scale development of wetland areas throughout the state. Within only two years of the bill’s passage, the state had transferred over 790,000 acres of swampland to fewer than two hundred persons, mostly land speculators. This led to complete conversion of the Central Valley from marshes and seasonal lakes to flat agricultural fields controlled primarily by many of the largest land barons in the state, as the land became eminently useful once drained.

In 1869, within the Bay Area, almost immediately after the Green Act was passed, L. E. Beard petitioned Alameda and Santa Clara Counties to establish Reclamation District 82, covering 17,000 acres of tidal lands in the East Bay, and Reclamation District 95, including 10,000 acres in the South Bay. These entities were authorized to repay money expended by landowners on the reclamation of marshes within the district boundary, paid out of the state Swamp Land Funds allocated to each county from the sale of marshlands. In his 1971 report to Leslie Salt Company on the history of bay reclamation, consulting engineer Claire Lopez reported that while large sums were expended on the construction of levees and dams within the two Reclamation Districts in their first few years, after 1873 “no further district work was recorded and the ventures appear to have failed.” It is not clear where these early constructions were exactly located, but it is likely that, without maintenance, they washed away. The tidelands were not going to give in that easily.

**A NEW SPECULATOR IN THE SOUTH BAY**

The major player in marshland reclamation in the Bay Area was the Dumbarton Land & Improvement Company (DL&IC), incorporated September 21, 1891. Its charter appears to combine the holdings of one or more land speculators, most likely all acquired under the Swamp and Overflowed Lands Act twenty years earlier, under the single company name. A letter from 1894, only two-and-a-half years after incorporation, described DL&IC as holding 19,000 acres in Alameda and Santa Clara Counties, reflecting seventeen miles of shore frontage within Reclamation Districts 82 and 95. Author William Ver Planck describes DL&IC as “a subsidiary of A. Schilling and Company,” a successful tea, coffee, and spice company based in San Francisco, co-founded in 1881 by August Schilling and George Volkman. While Schilling was not on DL&IC’s Board of Directors at the time of incorporation, he was clearly the main player behind the venture, as he signed almost all the company’s correspondence. Despite his involvement with the salt industry for over forty years, Schilling’s primary interest in marshlands was for their apparent development potential for a variety of other uses. Reclaiming tidal swamps for agriculture was the initial selling point, with establishment of high-value dairies as his first utilitarian goal for reshaping the marshes.
Even early on, though, Schilling had other uses in mind beyond agriculture. The 1894 letter also notes that Dumbarton Point, owned by DL&IC, was the “only point on the eastern shore of the Bay, south of Oakland, which is accessible to large vessels,” and the only point at which the bay could be easily bridged south of San Francisco, giving it increased commercial value. The South Pacific Coast Railroad, established in 1880 and already very profitable, offered an easy connection to commercial transportation over land. Schilling immediately envisioned a more industrialized future for this area of DL&IC’s holdings, imagining a new shipping terminal for the busy South Bay. Between this and the agricultural potential, all the pieces were in place for DL&IC’s vast marshland to become enormously profitable—once they could be reclaimed and developed. The cultural values of the time—utility and commercial profit—demanded that the landscape be manipulated to serve those ends.

While DL&IC began planning the future of its marshlands, the South Bay was thriving, mirroring Schilling’s ambitions. Alviso was a major shipping port on the bay, and San Jose was becoming increasingly important as a transportation hub and distribution point for produce grown in the Bay Area, Santa Cruz, and the Salinas Valley to the south. The Bayside Canning Company in Alviso was established in 1906 by Sai Yin Chew and his son, and became the third largest vegetable cannery in the world at its peak, behind Libby’s and Del Monte, employing exclusively Chinese and Chinese American workers. The vast expanses
of tidal marsh ringing the south bay provided ample opportunities for fishing and game hunting, both for market and recreation purposes.

In the midst of all this development, the tiny outpost of Drawbridge sprang up in the late 1870s, starting as a cabin for the bridge tender where the South Coast Pacific line crossed both Coyote and Mud Sloughs and the chunk of land between them, named Station Island. Gradually more buildings joined it, mostly duck hunters’ shelters; the first permanent residence was built in 1894. After 1897, Drawbridge became a scheduled stop on the rail line, and in 1902, the Sprung Hotel opened for business, catering mostly to fishermen and duck hunters. Most of the land was owned by DL&IC; individuals either purchased lots from the company directly, or simply “squatted” until the local counties recognized their possession as ownership. The town reached its heyday in the 1920s, with a maximum size of roughly ninety cabins (mostly constructed on stilts), and five passenger trains stopping daily.

Drawbridge was remote, hidden in the marshes, and located directly on the line between Alameda and Santa Clara Counties, contributing to its reputation as a haven for people interested in eluding the law. In this sense, it was quite remote and separate from the rapidly developing South Bay, off in another world. In another sense, however, Drawbridge represents the reality of the bay margin, rather than the industrial fantasy as articulated by Schilling—almost a harbinger of the wildlife refuge and restoration project that would eventually follow. Here, the land was valued primarily for the immediate rewards of hunting, hinting at the importance of these marshes for both wildlife habitat and recreational use in the late twentieth century.

THE MARSHES ARE PUT TO WORK

The first incarnation of Leslie Salt was called the C.E. Whitney Company, established sometime around 1892; Whitney did dredging work for Schilling on DL&IC-owned lands, and thought salt development could be encouraged in the West Bay. Through a series of name changes and corporate mergers, particularly involving the Stauffer Chemical Company, the partnership evolved by 1907 into the Leslie Salt Company, jointly controlled by Schilling, Whitney, and Stauffer. In the meantime, DL&IC focused on development possibilities. An August 1905 report evaluated the potential values for its holdings between Coyote Hills Creek to Alviso, covering 14,271 acres of marsh and tidal lands including Dumbarton Point. The report declared the land suitable for four usages: agriculture (specifically dairy and truck gardening); railroad terminal and shipping purposes; salt works; and resorts for hunting and fishing, specifically mentioning Drawbridge as a potential resort site.

While some attempts were made to convert the marshlands to agricultural uses, they all failed, and by 1908 were essentially abandoned. At the same time, the Leslie partnership began to actively pursue increased solar salt production at a more industrialized scale. Schilling was the primary driving force behind this; in 1907, he traveled to Europe to research and purchase machinery to process and refine salt on a much larger magnitude than the Bay Area had previously seen. In May of the same year, a DL&IC representative wrote to Mrs. E. O. Oliver in Mount Eden, describing Schilling’s ambition to establish “what will certainly be the most extensive chemical plant on the Pacific Coast and, eventually, will probably be second to none in the United States, at least.” He specified that they were currently reclaiming 2,000 acres for
saltmaking, and intended to reclaim an additional 10,000 acres. More and more levees began to cut off ponds from the Bay, substantially reducing the amount of marsh open to tidal flow.

At the same time as expanding their production capacity, Leslie Salt also began aggressively looking to buy out other salt companies in the Bay Area, aiming to industrialize the formerly small-scale businesses. Consolidation would result in greater efficiency, in the form of reduced maintenance costs on fewer salt works, lower freight rates on shipping salt in bulk, improved packaging methods, and so forth. The 1907 letter to Mrs. Oliver suggests that the two companies should combine their interests so as to save time and money (i.e., retrofitting Oliver’s existing salt works rather than building new ones): “I think your boys have better ability in the construction and operation than any one that I know of, and, together with our unexcelled marketing facilities, we should make a very strong combination.”

By 1924, the number of salt operators around the bay had dwindled from roughly thirty-five separate operators to only a handful. One of the few remaining salt companies that had not been brought into the Leslie fold was Arden Salt Company—established in 1919 by none other than Schilling, producing salt from the lands surrounding Dumbarton Point. Arden quickly expanded to become a major salt producer, and in 1929 acquired Alviso Salt Company, which owned all the land west of Alviso to Mayfield Slough. Between Arden’s holdings and those acquired by Leslie Salt, Schilling now exerted direct control over most of the margin of the entire southern bay, and the landscape had been reorganized from marshy sloughs and mudflats to a series of shallow ponds and levees.

SALT AS ONLY AN INTERIM USE

Yet despite all this intensification of salt production, Schilling apparently still considered salt production to be a temporary use of the land; Claire Lopez described it as “the most feasible and productive interim use and has protected and preserved these lands as a reserve for their properly planned, highest and best ultimate use.” In January 1925, Schilling commissioned yet another report on the Dumbarton land holdings in the South Bay, summarizing the company’s history in the area and considering its future development. A few years later, in 1929, the DL&IC was dissolved, as its land-holding function had long since ceased. According to the 1925 report, the land was now all owned directly by Schilling and Volkmann, rather than any of the other original DL&IC partners. And while actively promoting and investing in salt production, in part for its key role in chemical manufacturing, Schilling was still aiming for heavier industrial development of the South Bay, centered around his plans for a shipping and distribution terminal to be built at Dumbarton Point.

Schilling’s earliest proposals for the project date back to 1911, sparked in part by the construction of the Panama Canal; his elaborate design for the terminal warehouse and associated system for the distribution of good between ships and rail lines was later patented on December 5, 1916. In a package sent to Herbert Hoover at Stanford University in 1919 describing the proposed project, Schilling speculated that in a hundred years, the Dumbarton parcel “would be the most valuable piece of property for harbor industrial development in the world—for it is on the Pacific Ocean—the coming theater of the world. . .” He also suggested that Alviso Slough should be dredged, “locating industrial plants along the entire length of the channel” and making sites available for factories, with all the industrial
activity centered on his Pacific Terminal Warehouse, which the State Railroad Commission had estimated would earn over fifteen percent return even if it was “only fairly filled.” Nothing of the original marshlands would remain.

Schilling identified only two obstacles to the development of his dream project, the first being the San Bruno Shoal, a shallow section of the bay off Point San Bruno where mud deposits blocked shipping access to the South Bay. There are numerous pleas throughout the DL&IC’s archives from Schilling to the federal government to remove the shoal, but none of these achieved their goal. The other problem was the City of San Jose’s sewer outfall, located at the northeast corner of New Chicago Marsh, on the boundary of DL&IC-owned lands. As early as 1910, this landscape feature was noted as a problem for reclamation and development of DL&IC lands, but apparently the company’s efforts to encourage the City to move the sewer outfall were unsuccessful.

Had Schilling succeeded in his campaigns to develop Dumbarton Point and the Alviso Slough, there would likely be little or no open bayfront remaining to restore in the South Bay. However, his inability to move the shoal and sewer meant his dream of a transformed South Bay devoted to transportation and commerce did not come to pass. And salt, while considered interim, brought in enough profit to hold its place along the bay margin.

THE INDUSTRIAL DREAM SHIFTS TO RESIDENTIAL DEVELOPMENT

The trend toward consolidation of the salt industry culminated with the merger of Arden Salt with Leslie-California Salt in 1936, bringing the original interests of the DL&IC back together into one company again. Up to that time, Leslie-California had been run by St. John Whitney as president, continuing the Whitney family’s connection to the Leslie company name, but after the merger, the newly reformed Leslie Salt Company was dominated by the Schilling family. All former DL&IC holdings, including any remaining acres originally reclaimed for agriculture that had been abandoned and left idle or used primarily for duck hunting, were reclaimed and combined with the Alviso ponds to supply brine for increasing production at the company’s plant near Newark, west of Fremont.

After this final move of consolidation, Leslie Salt continued to expand its output through the 1940s and ‘50s, in concert with the postwar boom in the U.S. economy. Production in 1936 had been a little over 300,000 tons annually, with approximately 12,000 acres in production; within ten years, volume increased to 450,000 tons over 25,000 acres. Leslie now operated four crude salt plants, each with their associated network of concentrating and crystallizing ponds, harvesting equipment, and washer. The largest of their plants was Newark Number 2, the site of the present-day Cargill operation. Newark Number 1 was later bisected by the eastern approach of the Dumbarton Bridge (opened in 1982), originally built as Arden Salt Company’s Number 2 plant; the Baumberg plant was located southwest of Mt. Eden, on the former site of Oliver Salt Company. In 1940, Leslie acquired additional marshlands in the Redwood City area and began construction of a West Bay salt plant and shiploading terminal; the first shipment of salt was made from the new plant in 1951.

During this same period, the tiny hamlet of Drawbridge was in serious decline. The same municipal sewage that had produced such headaches for Schilling was seriously
polluting the tidal waters and sloughs surrounding Station Island, and increased levees put in place by Leslie Salt’s expansion were cutting the area off from the flushing action of the natural tides. More pollution meant fewer fish and shellfish, fewer ducks to hunt, and fewer tourists visiting the aging hotel. The levees also meant that boats could no longer get out to the open bay. In addition, groundwater pumping in the area was causing serious subsidence; Drawbridge was literally sinking into the swamp. To make matters worse, the San Jose Mercury News published occasional articles on Drawbridge, describing it as an abandoned ghost town; vandals followed the stories, breaking windows, stealing furniture, or shooting guns at the remaining buildings, even those with occupants still in residence. It was not clear whether this outpost in the few remaining tidal marshes had much of a future in such a rapidly developing world.

Despite this virtual monopoly over the local salt industry, Leslie Salt continued to consider further development of its land for other uses. In the late 1950s and early ’60s, the company and the Schilling estate sold parcels of land that were then used to create Foster City entirely out of landfill (ironically, the fill material was dredged from the San Bruno Shoal, which DL&IC had worked so long to have removed). At the time, Leslie Salt was the single largest owner of undeveloped bay edge land other than the military, controlling 47,000 acres. Soon after Foster City was completed, Leslie Salt made some more land deals, providing the property upon which the residential development Redwood Shores (and later Marine World) was built. August Schilling’s original vision of a heavily industrialized South Bay had failed to come to fruition, but it appears that Leslie Salt was still interested in eventually developing some of their salt holdings into a new “highest and best use”: now, instead of a distribution facility for international shipping, the tidelands appeared destined to be filled in to support the national suburban housing boom.

However, during the 1960s the political winds changed, and with them came an increased focus on protecting and restoring the bay, including a shift away from adding landfill for residential purposes. This in part was triggered by a U.S. Department of Commerce report published in the late 1950s, based on studies done by the Army Corps of Engineers, called the “2020 Plan,” which advocated extensive filling of the bay to provide more land for development; the bay would have been “reduced to mere rivers flowing from the Sacramento-San Joaquin Delta and from Alviso at the southern end of the bay to the Golden Gate through miles of man-made, urbanized flatlands.” Many citizens reacted to the vision articulated in this plan by organizing the Save the San Francisco Bay Association to advocate for greater protection of the bay, as well as increased public access to it.

Resulting directly from these efforts, the San Francisco Bay Conservation and Development Commission (BCDC) was established in 1965 by the McAteer-Petris Act, and made a permanent entity in 1969. The Act included rules prohibiting bay-fill projects for residential uses, like Foster City and Redwood Shores. Soon after, in 1972, the Don Edwards San Francisco Bay National Wildlife Refuge was established on roughly 20,000 acres of former Leslie-owned land, although Leslie retained the mineral rights to produce salt from many of the ponds. However, the writing was on the wall; it became increasingly clear that big bay-front real estate developments were not going to be a thing of the future. Leslie sold its interests to Cargill in 1978, only six years later, despite its annual salt production having
reached roughly a million tons. It appears that without a larger development goal on the horizon for its lands, the Schilling family was no longer interested in salt.

RESTORATION AS A NEW FORM OF UTILITY

Cargill continued production utilizing Leslie’s pond system at roughly the same production levels for the next two decades. Initially, the U.S. Fish and Wildlife Service acquired title to some of the ponds within the Wildlife Refuge, but not the salt production rights. This was followed in 2003 by the State of California’s purchase of the current-day project area lands
for ecological restoration. The salt production rights were obtained as part of the 2003 acquisition. The development of the bay’s marshlands toward a highest and best use, starting with reclamation for agriculture and salt production, has seemingly come full circle; now bay marshlands are increasingly valued for their ecological role in the life of the bay, as well as for recreation use and open space, and the lands once envisioned as the largest industrial development on the Pacific coast will now be rehabilitated toward a more natural form and function.

But identifying this “more natural” condition is a complicated issue. Most public portrayals of the restoration project suggest that it will return the bay’s salt marshes to some original state—even to the extent of superimposing maps of the current-day ponds on an 1880s-era map of historic slough channels, creating an impression (if not an intention) that the end result will look and function exactly like it did before the land was reclaimed for salt production. Even the primary restoration method, which relies on breaching selected levee walls to reintroduce tidal flow to the ponds, implies that all we need to do is to “liberate” this natural process, and then stand back and watch nature heal itself.

In reality, the salt ponds landscape is riddled with a legacy of uses and changes. It is overlaid with an elaborate network of levees, some of which will be breached for the project but not removed, as complete removal is prohibitively expensive. Channelization of many of the old sloughs may have altered their topography in permanent ways. A long history of groundwater pumping in the South Bay has caused subsidence of the floor of many salt ponds, leaving them too deep, once tidal flow is reintroduced, for salt marsh to develop. Questions also remain about whether there is sufficient sediment in the bay’s waters to rebuild the extent of salt marshes planned by the project; it is possible that in places, levees will be breached and the result will only be more open water. Predicted sea level rise associated with climate change represents additional challenges, as marsh grass can only flourish in particular depths of water; some of the restored tidal areas may end up drowned. Even where the project succeeds in producing healthy salt marsh ecosystems, these will not be exact replicas of the salt marshes that existed before salt extraction.

In addition, the restoration project has multiple goals, not all of which are compatible with recreating a “wild” ecosystem along the bay’s margin. The stated goals for the project include habitat formation and protection of biodiversity, but also flood control considerations and provision of recreation opportunities for the public, such as bike paths and boardwalks, to get people down to the bay’s edge. These human-centered goals do not necessarily lend themselves to a rewilded landscape and there are already debates about the placement of recreation trails and boardwalks and their effect on sensitive species. Similarly there are some concerns that adding more wetland habitats around the bay will increase the prevalence of mosquitoes; with worries about West Nile virus and other vector-borne diseases on the rise, mosquito abatement districts will likely still attempt to control insect populations with a variety of distinctly un-natural methods.

Even the ecological goal of increasing wetland habitats is not quite as wild as it might seem. There is a debate within the project’s design about how much of the land area should be developed into tidal salt marsh, which benefits local endangered species like the clapper rail and the salt marsh harvest mouse, versus continuing to manage some areas as shallow ponds (i.e., retaining the levees and not reintroducing tidal
action) to provide habitat for shorebirds and other waterfowl, including the threatened snowy plover. Hence, much of the project is explicitly not a “return to nature,” but will remain a highly managed and manipulated landscape, surrounded by intense urbanization and layered with a variety of human goals and values, many of which have nothing to do with ecological restoration or anything remotely wild. Rather than a rewilding, this restoration project is more of a regardening on a large scale, reintegrating natural tidal processes within a human-dominated urban landscape.

Yet the word “restoration” allows us to overlook many of these more complex nuances, by appealing to our nostalgia for some idyllic ecological past—even though such a re-creation will not actually be taking place. Because the focus is exclusively on the restoration of particular natural functions, the boundaries of the project area are only drawn around those acres where the land is now in complete public ownership and all industrial salt production has ceased. It ignores the additional salt ponds that remain under Cargill’s ownership and management (and which still have some ecological values as well), as well as the myriad other landscape types and uses around this portion of the bay, and makes no attempt to draw these other lands into an integrated stewardship of the bay margin as a whole.

Like “preservation,” the concept of ecological restoration masks continuing human involvement in the landscape, and the very human-centered goals and values that the newly revised landscape will serve. As geographer David Lowenthal describes, the idea of ecological restoration suggests a redemption of the salt ponds’ industrial past, yet is itself another form of human management and manipulation, which does not directly acknowledge the pivotal role of the salt harvest in keeping the landscape open for habitat rehabilitation, nor the continuing presence of people in and around the salt ponds, influencing and maintaining both their ecological and cultural values. While our values today are quite different than those of Schilling in the early 1900s, we continue to inscribe them onto the landscape.

CONCLUSION

In his 1920 letter to the Morton Salt Company, Schilling described DL&IC’s past policy as one of holding land in large areas, rather than selling, and using it temporarily for salt production, but ultimately intending it for industrial purposes. Letters and correspondence from the Leslie Salt Co.’s archives clearly show Schilling’s industrial ambitions for the South Bay in particular, aiming to establish a privately-run (as opposed to controlled by the state) port and distribution center, hoping to capitalize on increased shipping traffic in the Pacific. Despite its distinctiveness in shaping the bay area landscape since the 1850s, salt was intended as an interim use, generating profit from the land while awaiting even more profitable development. Even after World War II, when Leslie Salt greatly increased the scale of salt production from its lands around the bay, it appears to have been ultimately interested in more intensive land development, although its aims had shifted from shipping and distribution to residential developments. Once political opinion turned against any additional development of the bay margin, Leslie Salt soon left the business entirely.

The salt ponds represent over 150 years of industrial uses along the bay margin, but it has been a use that proved essential for keeping the lands relatively open and undeveloped, creating the possibility for ecological rehabilitation today. The salt industry has functioned
much like sustainable agriculture, re-using the same ponds and levees year after year to produce an annual harvest without depleting the bay’s resources, nor permanently altering the landscape. If Shilling’s vision had prevailed, most of these lands would have eventually been filled and paved over, but because salt provided some interim profit, the pond system was maintained while other development plans came and went. And now the lands’ history has come full circle, returning form and function to the salt marsh once considered worthless unless drained and “improved.” Yet the restoration plan does not represent a return to some wild state of nature—the landscape will remain very much a human creation, shaped to meet changing cultural needs and values. As the restoration project moves forward, it is important to retain some connection back to this history, to help us remember the salt industry’s role in unintentionally protecting the bay’s open character.

Furthermore, the history of the salt industry in the Bay Area reveals how ideas shape the landscape. We know the physical outline of the bay has changed over time, from looking at historical maps, tracing the impacts of the high sediment loads from the era of hydraulic mining, and following the development of the metropolitan areas. This history adds a layer of ideas that shaped the bay—ideas about wastelands needing human improvement, of an inevitable industrial future just waiting to arrive, then a reaction to the overreach of attempts to control nature and reshape it, and now a desire to have more personal interactions with the tidelands and their ecosystems. Following these changes from the 1850s to the present, we can follow these prevailing ideas, and see how history turns back on itself, to eventually value the marshlands themselves even more highly than Schilling’s most extravagant industrial dreams.

Environmental historian Nancy Langston, in her wonderful book on the Malheur National Wildlife Refuge in eastern Oregon, states clearly: “Any ecosystem is the product of its history, and that history includes cultural as well as social forces.”

However, too often environmental restoration and remediation treat landscape like a tabula rasa, “fixing” the past errors of human use, turning back the clock, and cutting off all connection to previous history as a cultural landscape. It also implies that the result of restoration is more natural, when in reality it continues to be shaped and molded by humans to meet their own cultural goals and values.

The South Bay Salt Ponds Restoration Project highlights not only the role of the salt industry in maintaining an open landscape so that it is now available for ecological renewal, but also the ways in which restoration is not a return to some primordial natural state, but a continuation of a series of human modifications of this re-gardened landscape.

NOTES
1. Many thanks to Stoel Rives LLP, for allowing our use of their case archives, located at Three Embarcadero Center, Suite 1120, San Francisco, CA, 94111. We are deeply grateful for having been granted access to these files as part of working on the South Bay Salt Ponds Restoration Project, which is managed jointly by the California Coastal Conservancy, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. We have the project management team’s permission to submit this modified version of an earlier Cultural Resources Assessment Strategy Memo, written on behalf of EDAW, Inc. in 2005, for publication as an article, as a way of bringing the information to a broader public audience.


5. For instance, see Philip Garone’s *The Fall and Rise of the Wetlands of California’s Great Central Valley* (Berkeley: University of California Press, 2011) for an excellent discussion of the changing values of wetlands.


11. Ver Planck, *Salt in California*, 107, the four were Union Pacific, Carmen Island, Oliver Salt, and American Salt Company.


15. Matthew Morse Booker, *Down by the Bay: San Francisco’s History Between the Tides* (Berkeley: University of California Press, 2013), 82, citing the California Legislature Joint Committee on Public and State Lands, “Report to the Joint Committee to Inquire into and Report Upon the Condition of Public and State Lands Lying Within the Limits of the State,” (1872).


18. Its stated purpose was “to acquire, hold and own lands in the state of California by purchase, lease, bond, or otherwise, and to cultivate, reclaim, fill, drain, ditch, and otherwise improve same.” The company’s charter also allowed it to operate railways for transportation of passengers and freight. Articles of Incorporation, Dumbarton Land & Improvement Company, September 21, 1891; Stoel Rives case archive, File SFB 4.2/1, San Francisco.

19. A 1920 letter describes DL&IC’s land as having been originally patented as swamp and overflowed land in 1870, although it does not describe who held that first patent; letter to Morton Salt Co., Chicago, January 3, 1920; Stoel Rives case archive, File SFB 4.2/20, San Francisco. And, in 1890, the year before DL&IC incorporated, the River, Harbor and Canal Dredging and Land Company of San Francisco proposed to dredge, widen, and straighten the Alviso slough to allow for more deep-water shipping there. A newspaper article described this company as “composed of some of the most prominent citizens of San Francisco. Furthermore—that they had absolute title to nearly 20,000 acres of marshland (about 12,000 acres being in Santa Clara County), controlling more than twenty miles of waterfront on the San Francisco Bay.” These holdings appear to be the same as DL&IC’s, hence the River, Harbor and Canal Dredging and Land Company was likely an earlier incarnation of the same landowners. Their proposal to dredge Alviso slough was approved by the San Jose Board of Trade, but the dredging equipment failed to function properly, and the project stalled out. The inventor of the dredging equipment, Albert Boschke, also turns up frequently in August Schilling’s subsequent plans for industrializing the South Bay. Clipping from the *Redwood City Times and Gazette*, January 11, 1890, Stoel Rives case archive, File SFB 4.1–1/4; Package of materials sent by A. Schilling to Herbert Hoover at Stanford University, September 26, 1919, Stoel Rives case archive, File SFB 4.13–1, San Francisco.

20. Letter from Dumbarton Land & Improvement Company to U.S. Senator Honorable J.P. Jones, February 19, 1894; Stoel Rives case archive, File SFB 4.2/2, San Francisco. At least one parcel, the area including Dumbarton Point, had been acquired from Alfred Davis, co-owner of the South Pacific Coast Railroad, which ran through DL&IC property on its way to Alviso, San Jose, and Santa Cruz. Davis’ partner in the SPCRR was Jim Fair, who made his fortune with the Comstock Lode discovery. Davis owned Dumbarton Point as of 1875, and likely was the original claimant under the Arkansas Act; it is unclear when or why he sold to Schilling and/or DL&IC. See Bruce MacGregor and Richard Truesdale, *South Pacific Coast: A Centennial* (Boulder, CO: Pruett Publishers, 1982), 48. Several documents in the Stoel Rives archive refer to DL&IC as owning land during the 1880s; it can only be presumed that these refer to holdings acquired prior to incorporation. Further research is needed to definitively trace these holdings back to their original owners.

21. Ver Planck, *Salt in California*, 109; their San Francisco plant was destroyed by fire after the 1906 earthquake, but was rebuilt and reopened in January 1907. The company was acquired by McCormick in 1947.

22. Schilling later became one of the Directors, along with Volkmann, on June 25, 1907.

23. The 1894 letter to Senator Jones describes reclaimed marshland in nearby San Pablo and Suisun Bays as providing “the very best pasturage,” and that “when protected from the overflow of tide waters, the land soon becomes, without much care or labor, meadow land yielding at all times luxuriant crops of green feed and

24. The southern part of San Francisco Bay is mostly very shallow, only a few feet deep, but a lone deep-water channel extends down to just past Dumbarton Point.


26. Oddly, neither of the slough crossings involved an actual drawbridge; both were equipped with swing bridges instead.


28. The name Leslie apparently came from an uncle in the Whitney family; Mitch Postel, “More Than a Grain: The History of the Salt Industry in San Mateo County,” San Mateo County Historical Association, 1977. Stauffer Chemical Co. had acquired two of the three independent salt works in the West Bay, the West Shore Salt Company and Redwood City Salt Company; salt is a key ingredient in many industrial-scale chemical operations, including production of bleach, chlorine, and plastics. Detail on the products of the bay’s chemical industry can be read in Booker, Draw by the Bay, 159–162. The exact relationship of Schilling, Whitney, and Stauffer Chemical seems to shift over the years, as correspondence in 1909 suggests that Whitney had trouble “carrying” his third interest and was bought out by Schilling. See letter from Stauffer Chemical Co. to Schilling & Co., Feb 19, 1909 (dictated by A. Schilling?); Stoel Rives case archive, File SFB 4.2/8, San Francisco. There is also reference to a Coast Investment Company, which seems to be another business co-owned by at least some of the DL&IC partners, which handled some of the financial dealings between the three companies. See “Stock Transactions, Land Acquisition, 1907–1909,” Stoel Rives case archive, File SFB 4.2-8, San Francisco.

29. Marsden Manson CE, “Report to the President and Board of Directors of the Dumbarton Land & Improvement Co.,” August 23, 1905; Stoel Rives case archive, File SFB 4.2/22, San Francisco. Note also included as an appendix in Lopez, Reclamation and Development.

30. Page 6 of Manson’s report notes “Drawbridge” station, with houses, houseboats, hotel, and artesian well, suitable for a resort. “Term leases are advised rather than sales.”

31. Lopez, Reclamation and Development, 9. In early 1908, Whitney wrote to Schilling stating that, “we now have something over 4,000 acres of land in Santa Clara County under lease, only 500 of which are rented.” File SFB 4.2-1/15, letter from Whitney to Schilling dated March, 12, 1908. Whitney wanted to find tenants to run cattle on the land for pasturage, as well as flooding 2,000 acres north of Dumbarton Point to get the evaporation process started for salt making. He worried that “we are getting started on new ventures with so many old ones still incomplete…”

32. Undated letter from 1907, no addressee, signed by R. W. Lohman for A. Schilling & Bruning, Bremen (Germany); Stoel Rives case archive, File SFB 4.2/9, San Francisco.

33. Unsigned letter to Mrs. E. O. Oliver, dated May 31, 1907; the representative was most likely Whitney. Stoel Rives case archive, File SFB 4.2/9, San Francisco.

34. For instance, today’s familiar cylinder-shaped container for salt was a Leslie innovation; Postel, “More Than a Grain,” 17.

35. Unsigned letter to Mrs. E. O. Oliver, dated May 31, 1907; Stoel Rives case archive, File SFB 4.2/9, San Francisco.

36. California Salt Company and Continental Salt and Chemical Company were both successful at buying out smaller operators; in 1924, they in turn merged with Leslie to form the Leslie-California Salt Company. Leslie-California then acquired Turk Island Salt Company in 1927. Oliver Salt Company had similarly been absorbing neighboring salt producers through the 1910s, but was itself merged with Leslie-California in 1931. Not only are the corporate relationships between salt companies confusing, but so too are the relationships between salt and several other bayside industries, namely oysters, harbor development, and cement-making companies, which mined oyster shells out of the bay to make cement. The archive contains an unsigned agreement, dated June 24, 1916, proposing to merge the Redwood City Harbor Company (Schilling and de Guigne were both on the Board of Directors, along with the company’s president George Merrill), Morgan Oyster Company, and Leslie Salt Company, and includes a map showing Morgan’s lands around Redwood City; but according to an article by Mitch Postel, Morgan sold to Pacific-Portland Cement in 1923; Stoel Rives case archive, File SFB 4.19/2, San Francisco; and Mitch Postel, “A Lost Resource: Shellfish in San Francisco Bay,” California History, March 1988. The Redwood City Harbor Company had built levees around all of their property by July 1920; the company was dissolved in July 1945 and all its assets transferred to Leslie Salt, which was the sole stockholder; Stoel Rives case archive, File SFB 4.23, San Francisco. For more on the complex relationships of these tidelands industries, see Booker, Draw by the Bay.

37. Note that the incorporation date for Arden is from Ver Planck; Claire Lopez describes Arden Salt Co. as originating in “the early 1900s” and operating on lands leased from DL&IC. A third version comes from Postel, who describes Schilling as converting his “marshland properties in the east bay from private game reserves to salt ponds,” citing a telephone interview with Schilling’s grandson, who claimed that “duck hunting was the
original attraction to the east bay marshlands that became the Arden Company.” Further research in archives might reveal more about the exact history of the company’s origins.

38. This parcel was purchased in 1924 by the Continental Salt and Chemical Co. from the Spring Valley Water Company. According to Ver Planck, the same backing interests owned both Continental and Alviso Salt, hence the property must have been transferred to Alviso ownership before Continental merged with Leslie. See Ver Planck, Salt in California, 11; also two historic maps at the Bancroft Library show ponds in place west of Alviso extending across to Mayfield Slough in the 1920s: a 1921 map shows lands under contract of sale from Spring Valley Water Co. to the Continental Salt & Chemical Co.; on the 1929 map, the same lands are owned by Alviso Salt Co. It is not clear from the historical records why Schilling chose to establish a separate company to operate these DL&IC-owned lands, rather than manage them under the Leslie corporate structure.

39. Oddly, on January 3, 1920, Schilling wrote to the Morton Salt Company stating that the DL&IC had “decided to dispose of our land interests about the bay of San Francisco,” inquiring whether Morton would like to acquire them. Morton, based in Chicago, responded five days later, saying that “our business lies chiefly east of the Rocky Mountains, and we would not, at this time, consider extending our interests to California.” There are no other indications of DL&IC attempting to sell off any of their holdings. Stoel Rives case archive, File SFB 4.2/20, San Francisco.

40. Lopez, Reclamation and Development, 6, emphasis added. It is interesting that a 1913 report commissioned by DL&IC on their holdings, written by consulting engineer Otto Von Geldern, still advocated agriculture, specifically high-grade dairies, as the most productive and profitable use of the land; he suggested that salt or oysters were secondary uses that would not pay as well as agriculture. “If the marsh is not cultivable, there is no need of levee building or of any other improvements, because no one will be attracted to it and no one will live there….” Von Geldern, “Practical utilization of marsh lands in San Francisco Bay,” Stoel Rives case archive, File SFB 4.2/4, San Francisco.

41. “Dumbarton Land: An outline containing what are believed to be the principal points of consideration in determining the true position of the large area of marsh land in relation to the future industrial development of the region surrounding the southern arm of the San Francisco Bay”; the report has no listed author; Stoel Rives case archive, File SFB 4.2/21, San Francisco.

42. Dumbarton Land & Improvement Company Decree of Dissolution, February 27, 1929; Stoel Rives case archive, File SFB 4.2/1, San Francisco. The directors were Rudolph Schilling [August’s son], A. Hewitt, and A. Schilling, and the actual date of dissolution for the company was January 22, 1929.

43. On page 2, the report describes the title chain as complicated; “Since the original acquisition, several other parcels of land have been purchased and several separate companies came into existence, for convenience. At the start, Schilling and Volkman, the Stauffer Chemical Co., and Mr. Whitney were the principal shareholders. Since then there have been many changes, with the result that all the land is now owned by Schilling and Volkman, with the exception of a few shares of Dumbarton stock belonging to Mr. Lewis. As all the land is general known as Dumbarton land, it is not necessary here to go into the details of ownership and the portions owned by each partner.”

44. Package of materials sent by A. Schilling to Herbert Hoover at Stanford University, September 26, 1919, Stoel Rives case archive, File SFB 4.13-1, San Francisco.

45. From his correspondence, Schilling’s plans for Dumbarton Point and the South Bay are clearly linked to the construction and opening of the Panama Canal from 1904–14; it was anticipated to greatly increase shipping traffic to the San Francisco Bay. In a 1909 letter to J. J. Hill, associated with the Great Northern Railroad, Schilling described the Bay as “good ship-shelter, spacious, midway of the Coast, 160 miles from the shortest line between Panama and the ports of Japan and China.” Package of materials sent by A. Schilling to Herbert Hoover at Stanford University, September 26, 1919, Stoel Rives case archive, File SFB 4.13-1, San Francisco.

46. For example, a letter dated January 14, 1911 to Representative E. A. Hayes in Washington, D.C.; Stoel Rives case archive, File SFB 4.2/18, San Francisco.

47. See Otto Von Geldern, consulting engineer, “Reclamation of the Coyote Creek Marsh,” report to Dumbarton Land & Improvement Company, March 1910; Stoel Rives case archive, File SFB 4.2-1/12, San Francisco. Increasing soil subsidence in this area may have also contributed to the difficulty of development, but there is no indication of this in Schilling’s correspondence.

48. Even before the formal merger, the companies were deeply entwined; on September 3, 1926, Arden Salt Company, run by Schilling, was made the depository for DL&IC; interestingly, on the same date, Arden was also made depository for the Newark Land and Quarry Company, which was later dissolved on the same day as DL&IC, January 22, 1929; Stoel Rives case archive, Files SFB 4.2-5 and 4.2-20, San Francisco.


50. Ver Planck, Salt in California, 43–44; Leslie owned as much as 47,000 acres of marshland, but some portions could not be used for salt production, including fringes of remnant marshes along the bay front, and some small isolated tracts.

51. Lopez, Reclamation and Development, 10; Postel, “More Than a Grain,” 18.

53. Despite Leslie’s dominance, there were still two much-smaller but still-operating salt companies in the Bay Area: American Salt Co., owned since the early 1860s by the Marsicano family and located north of Highway 92; and Oliver Brothers Salt Co., established by two younger members of the Oliver family after the old Oliver Salt Co. was sold to Leslie-California in 1931. Oliver Brothers built a small plant in 1917, just south of Highway 92 close to the ruins of the old plant, and began producing salt again. It is unclear when exactly American Salt went out of business; Oliver Brothers was still producing salt in 1977 but closed its doors soon after.

54. See Booker, *Down by the Bay*, Chapter 5, “From Real Estate to Refuge” for more detail on this chapter of the salt ponds’ history.


56. In 1963, of the 276 miles of shoreline around the bay, only 4 miles were actually open to the public. Mel Scott, *The Future of the San Francisco Bay* (Berkeley: University of California Institute of Governmental Studies, 1963), 68–70.

57. Leslie Salt was not supportive of the formation of either the BCDC or the Refuge; company President Coleman C. Johnson spoke out publicly against both, suggesting that establishment of the Refuge would force them out of business entirely. Booker, *Down by the Bay*, Chapter 5. Also interesting that outright ownership of the land, rather than only having control of mineral rights, is only needed if you plan on doing something with the land other than salt production.

58. The purchase was originally intended as mitigation for a proposed runway expansion at San Francisco International Airport; however, the expansion plan was eventually dropped, so the restoration is now stand-alone project.

59. “When the project is completed—which may take decades and cost millions—it is likely the Bay will more closely resemble its original state than it has at any time in the last century.” Glen Martin, “A Tall Order: The Art and Science of Wetland Restoration,” *Bay Nature* (October–December 2004), 18.

60. The 1860s and ’70s were a period of extensive hydraulic mining in the Sierras, hence the sediment loads in the bay during this time, when many of the earliest salt pond levees were built, were actually much higher than they are today.


