

## **Purpose of SBJV, mission [1A]**

“Let them be left, wildness and wet,” wrote poet Gerard Manley Hopkins more than a century ago. The San Francisco Bay Joint Venture might be seen as a response to his plea. It exists to protect, restore, and enhance the wetlands, and wetland-dependent birds and wildlife, of an extraordinary region.

One of 22 North American Habitat Joint Ventures formed under international agreement, this consortium has a unique territory. It is the smallest among all the JV domains, the most urbanized, and arguably the most valuable, acre for acre, to species of interest and concern. This is a place of concentrated richness, concentrated promise, and concentrated threat.

The partners that make up the Joint Venture have accomplished a lot of wetland conservation under their first *Implementation Plan*, adopted in 2001. This second *Implementation Plan* maps out the next leg of the journey, reflecting progress made and lessons learned. It also responds to new urgency as the list of stresses on wildlife grows. Alongside familiar challenges—the spread of exotic species, the loss of habitat to cities and conversion of habitat for agriculture, and direct disturbance by human beings—we must now respond to the manifest effects of climate change.

## **Purpose of the plan [1B]. Brief historical setting/context. Foundations of JVs. North American Waterfowl Management Plan (NAWMP) and other bird plans. “Why are we doing SFBJV?”**

The child of local groups determined to stem and reverse the loss of wetland habitats, the Joint Venture has two federal godparents: an international bird pact, and a national clean water law.

In the 1980s, the populations of migratory ducks, geese, and swans across North America showed a disturbing decline. In 1986, the U.S. and Canada signed on to the North American Waterfowl Management Plan, with the goal of restoring the flocks to the levels seen a decade earlier. (Mexico would join in 1994.) Though the causes of the losses were complex, different from species to species, and sometimes simply unknown, the parties made a reasonable assumption: that improving bird *habitats* would improve bird *numbers* over time. Thirty-four regions of breeding or wintering habitat, including San Francisco Bay, were flagged as “of major concern.” The plan called for the creation of public-private “migratory bird joint ventures” to take the lead in these regions. A Central Valley Joint Venture, including the Sacramento-San Joaquin Delta, was established

immediately; but in the Bay Area a different process took precedence.

In 1987, in amendments to the fifteen-year-old Clean Water Act, Congress created a National Estuary Program singling out certain wildlife-friendly bays and river-mouths for special attention. San Francisco Bay, together with its inland vestibule, the Sacramento-San Joaquin River Delta, was on the list. In each such area, a “management conference” was to prepare a plan to “restore and maintain the chemical, physical, and biological integrity of [its] estuary, including restoration and maintenance of water quality, a balanced indigenous population of shellfish, fish and wildlife, and recreational activities.” Our region’s conference was the San Francisco Estuary Project (later Partnership); its product would be titled the *Comprehensive Conservation and Management Plan*.

In 1993, the first *CCMP* was published. Of its many recommendations, one was especially dramatic: that vast tracts of former marshland around the margins of the Bay, diked off but not filled in or urbanized, be reconnected to the tide, with multiple benefits to habitat, and to human beings as well.

To make this notion more than a fantasy, two things were required: a detailed, nuts-and-bolts plan, and an implementing body. In 1995, the Bay Area Wetlands Ecosystem Goals Project, a task force of some one hundred scientists from many agencies and groups, began to map out the possibilities in detail, shoreline segment by shoreline segment.

For implementation, advocates picked up the tool offered in the North American Waterfowl Management Plan. In 1996, the San Francisco Bay Joint Venture was born. A Management Board convened, and members got busy putting together the machinery to carry out the Baylands goals. The State Coastal Conservancy initially funded a small--one-person!-- staff.

Three years later, the Baylands Ecosystem Goals Project scientists completed their effort and delivered a blueprint for action called *Baylands Ecosystem Habitat Goals*, laying out the types, amounts, and locations of wetlands to be protected, enhanced, or restored. These ideas flowed directly into the SF Bay Joint Venture’s *Implementation Plan* of 2001, entitled, *Restoring the Estuary*. When this document was accepted by the overarching North American Waterfowl Management Plan Committee, the SF Bay Joint Venture received federal recognition, joined the national family of habitat Joint Ventures, and began getting modest funding through the Fish and Wildlife Service.

No big bureaucracy, the SF Bay Joint Venture is rather an agile facilitator for its varied partners: environmental groups, resource and regulatory agencies, land managers, and businesses. It provides coordination and support for biological planning, habitat project

design, project implementation, and monitoring and evaluation. It makes connections and helps in the never-ending quest for grants. Government is by the participants. Twenty-five different organizations and agencies have a seat on the Management Board, and nearly a hundred in all take part in working committees.

*Expanding the reach: geography*

Despite its strong focus on San Francisco Bay, the Joint Venture's mission was never limited to those shores. From the beginning, it covered coastal areas in San Francisco and San Mateo County; after publication of the first *Implementation Plan*, coastal Marin and Sonoma were added. Though the wetlands opportunities in these regions are smaller, some are quite significant. Pescadero Marsh is San Mateo's largest. The Laguna de Santa Rosa in Sonoma County and Bolinas Lagoon and Tomales Bay in Marin County join San Francisco Bay on the list of Wetlands of International Importance under the Convention on Wetlands (Ramsar Convention). These are four of the ten Ramsar sites in the entire state of California.

*Expanding the reach: species*

The North American Waterfowl Management Plan directs the SF Bay Joint Venture's attention to four or five species in particular: the Northern Pintail, as an indicator species for the success of the dabbling ducks; the Canvasback, representing the diving ducks; and the Surf Scoter and Scaup (Greater and Lesser) as important sea ducks. For all these birds, the Bay Area is a winter retreat, not a breeding ground. The region's contribution is to provide food and refuge for the birds it supports and send them north in good condition for their breeding season.

Nothing prevents Joint Ventures from widening their scope beyond waterfowl, and the SFBJV has gone farther than most of its peers in doing so. From the beginning, it was a wetland habitat Joint Venture and resolved to take account of all bird as well as wetland-dependent species. It has also taken on organisms identified under the state and federal Endangered Species Acts. The San Francisco Bay Joint Venture area has the highest density of listed threatened and endangered species in the continental United States. These include such familiar characters as the salt marsh harvest mouse, the California red-legged frog, and the tiger salamander. Less publicized are such plants as the soft bird's-beak, a gray-fuzzed marsh inhabitant.

This broadened focus gives the San Francisco Bay Joint Venture some overlaps with other efforts. One of these is the *Riparian Bird Conservation Plan* of the California chapter of Partners in Flight (a federal land bird conservation initiative). A second is the

National Audubon Society's *Pacific Americas Shorebird Conservation Strategy*. A third is the *Southern Pacific Shorebird Conservation Plan*, authored by Point Blue Conservation Science. The San Francisco Bay Joint Venture, more regionally focused and hands-on than such peers, swaps information with them and applies the tools they have developed. Point Blue has been part of the Joint Venture from the start.

Coordination of another kind is needed between the SFBJV and its older inland counterpart, the Central Valley Joint Venture. Given the way the Bay blends into the Delta and the inland rivers, any boundary between the two is somewhat arbitrary. The jurisdictions have been adjusted several times, most recently in 2016. While a clear demarcation is necessary for some purposes, a certain fuzziness persists. The two Joint Ventures recognize the Suisun region as vital to both and have shared responsibilities in the area. In eastern Contra Costa and Alameda Counties, SF Bay Joint Venture partners are undertaking projects on either side of the mapped line. [*A map will be inserted here or in the appendix.*]

In this century, plans for San Francisco Bay and its environs have been refined, reflecting growing knowledge and new tools like geographical information systems (GIS). In the stream of studies, authors and lead agencies shift, but the SF Bay Joint Venture is always present. The *Subtidal Habitat Goals Report* of 2010 turned attention to the scientifically neglected world of underwater habitats, especially eelgrass beds and native oyster reefs. In 2011, PRBO (Point Reyes Bird Observatory, now known as Point Blue Conservation Science) and the Joint Venture published *The State of the Birds, San Francisco Bay*, a data summary tracking the fortunes of different species and calling attention especially to the decline of birds dependent on grassland and coastal scrub. The *Bay Area Aquatic Resource Inventory*, first published by the San Francisco Estuary Institute in 2013, filled in a missing piece on riparian habitats. That same year, the U.S. Fish and Wildlife Service offered its *Recovery Plan For Tidal Marsh Ecosystems of Central and Northern California*, focusing on five endangered plant and animal species.

*Baylands Ecosystem Habitat Goals*, the pioneering restoration blueprint for bay-fringing marshes, was updated in 2015 under a title reflecting new urgency about global warming and sea level rise: *The Baylands and Climate Change—What We Can Do*. Its key message: To hold their own against rising tides, new bayside marshes need to be established *soon*. The June 2016 vote on Regional Measure AA created a parcel tax to fund accelerated restoration work for 20 years.

The most recent guidance comes from the third edition of the *San Francisco Estuary Comprehensive Conservation and Management Plan*, adopted in 2016. SF Bay Joint Venture staff worked on the writing, and of 32 tasks laid out in the *CCMP*, the SF Bay

Joint Venture has an “ownership” role in approximately half.

The SF Bay Joint Venture has adopted the goals of each of these documents, and set up a system for tracking progress toward implementation. As the SF Bay Joint Venture’s expertise and experience in grew in bringing together the many players in the restoration community it developed criteria and guidelines for identifying acquisition and restoration projects that deserved regionwide support. This list of projects is weighed seriously by agencies and funders when scarce funds are being allocated. All these plans, goals and efforts will, in effect, be utilized in this revision of the *2001 Implementation Plan*.

That plan, much patched and altered, has served well. Now it is time for another synthesis, with all the threads, old and new, woven into a fabric good for another fifteen years.

**Strategic Habitat Conservation [1D]. Briefly explain each element and SHC as a feedback loop.**

In habitat restoration, as in anything else, we learn by doing—but only if we pay careful attention to results and profit from the lessons they contain. This common-sense insight has been systematized under the label, “Adaptive Management”. The SF Bay Joint Venture favors the terminology used by the Fish and Wildlife Service: the Strategic Habitat Conservation Cycle. This encompasses the entire round of biological planning, restoration design, habitat delivery, monitoring, evaluation, and planning again. In the last fifteen years this wheel has been seen turning in many locations. This Implementation Plan marks its first full revolution on a regional scale.

One subject of rapid learning has been the role of water-borne sediment in tidal marsh restoration. Because soils that formed underwater oxidize when exposed to the air, many once-and-future marshes lost several feet of elevation during their years as farmland or military installations. Restoring them requires not just water but also soil, which must be of the proper grain size. It adds to the challenge that Bay waters have become clearer recently, less prone to deposit sediment where it is wanted. The SF Bay Joint Venture has grown adept at finding partners with extra material on their hands. In partnership with the Bay Conservation and Development Commission and others, it helped develop a program called *SediMatch* that helps bring sediment from dredging projects (for example removing mud to keep shipping channels deep) to wetland restoration sites.

**Goals and objectives. [1E] More detail in Section 3 below. [Beth: This can wait.]**

**Item: Habitat goals**

**Item: Policy goal**

**Item: Communications goal**

**Achievement and accomplishments. [1F] A broad-brush description not a bulleted list. Narrative, no tables or charts. Could link to tracking database or bar graphs. [Beth: Can be written now. Draw on November 2016 report.]**

JH note: For consistency, I am still relying on stats from 2015, see [15yrSFBJVGoals\\_charts1.12.15\(003\)](#), which we will want to update throughout.

Revised acreage goals need to be inserted as available.

*Measuring progress: Acreage goals*

The goal of the Joint Venture is to bring back ecological function and help in the recovery or maintenance of species, beginning with migratory waterfowl. To measure progress along the way, there is a traditional proxy yardstick: habitat acreage.

Joint Ventures nationally are required by the U.S. Fish and Wildlife Service to report not only population trend accomplishments but also acreages reaching a desired state. The original *Baylands Ecosystem Habitat Goals* estimated acres needed to recover the endangered Ridgway's Rail; the 2001 SF Bay Joint Venture *Implementation Plan* stated its goals in acreage terms.

Tracking acres is complicated by the way that SF Bay Joint Venture boundaries have changed in the interim with the addition of North Coast areas and parts of eastern Alameda and Contra Costa Counties but deleting much of Suisun Marsh. Still, a record emerges. It shows great strides in tideland restoration, while work on other habitats somewhat lags.

In the early years, the emphasis was especially focused on protecting lands and waters so that habitat work could go forward. "Protection," at first, meant largely public acquisition, but in recent years the a new tool known as "easements" has become useful. A conservation easement leaves basic ownership in private hands but with legal constraints on development and management requirements identified in the easement agreement. Of 82,000 acres targeted for protection, over 52,000 acres, or 70%, had been protected by 2015. Almost half of this total came in the purchase of salt ponds in the South Bay and along the northern rim of San Pablo Bay: lands that food giant Cargill no longer needed as it streamlined its salt production process. Elsewhere, non-governmental organizations protected key properties, as did the taxpayer funded East Bay Regional

Park District.

The restoration of these newly acquired salt marshes and related habitats, including some salt ponds repurposed for the benefit of waterfowl and waterbirds, has reached more than a third of its target: some 13,000 acres of 37,000 have been transformed. In other cases, existing wetlands just need some help to function properly; this “enhancement” may involve removing exotic species or moving earth to unclog the channels that are the circulatory system of a healthy marsh. Progress here has been slower, with 5,000-plus acres treated of 35,000 targeted.

The 2001 *Implementation Plan* proposed ambitious targets for seasonal wetlands: low spots that hold fresh water in the season of rains and bird migrations (technically defined by the presence of certain soil types or special status species). The original goals have been reduced due to boundary changes and for other reasons and now stand at 12,000 new acres to be protected, 7,000 acres to be restored, and 11,000 acres to be enhanced. Progress is approaching the one quarter mark.

A third major wetlands category consists of riparian habitats, lakes, and ponds. Streams and their banks are critical for many birds as well as, obviously, for fish. More surprising is the role of the artificial stock ponds found on agricultural lands, which replace lost original habitats for listed species like the California red-legged frog and tiger salamander. As freshwater refuges in arid summers, they also serve birds. There are over a thousand of these ponds in Alameda County alone.

The 2001 plan foresaw protection, restoration or enhancement of some 27,000 acres of riparian areas and ponds. Reported progress in acreage terms has been minimal—only 154 acres. This surely understates what has been accomplished. The many small projects involved are hard to track, and acreage is often a less appropriate measure than length of stream and streambank treated.

Not mentioned in the 2001 *Implementation Plan* were the habitats on the floor of the Bay, described systematically for the first time in the *Subtidal Habitat Goals Report* of 2010. This study focused attention on two restricted but ecologically important substrates. One was native clam beds or reefs; the authors called for repopulating or increasing production on 8,000 acres. The second was eelgrass beds, important, for example, as substrates for herring roe and thus as a food source for scoters; the report called for protecting 3,700 acres and establishing the grass on another 8,000 acres. These numbers have now become Joint Venture targets.

*Examples*

Behind these raw numbers are distinctive places. Marsh restoration is bringing back expanses of cordgrass and pickleweed at Bair Island at Redwood City, the largest undeveloped island along the Bay, and at Hamilton Field in Novato, where sediment dredged out of Port of Oakland channels was piped and barged to the site to replace subsided soils. Around the South Bay, the first 2,200 acres of salt ponds have been reconfigured, some as nascent tidal marsh, and some as improved still water habitat, not so salty as before and dotted with refuge islands.

A notable marsh restoration in the coastal sub-region of the SF Bay Joint Venture territory is the Giacomini Marsh at the head of Tomales Bay in Marin County, where Lagunitas Creek feeds into one of the cleanest coastal estuaries. The National Park Service purchased the Giacomini dairy ranch in 2000 and, after years of planning, broke the last of the dikes in 2008. Habitat development has been rapid, as has species response.

A prime example of tidal marsh enhancement is found at Sonoma Creek alongside Highway 37 in Sonoma and Napa Counties. This is part of a wetland strip formed a century ago as a great pulse of sediment dislodged by hydraulic mining in the Sierra Nevada moved into the Bay. The new marsh accreted rapidly and did not develop the intricate channel network that is normal; lacking good circulation, this “centennial” marsh bred more mosquitoes than birds or fish. In the Sonoma Creek pilot project, simply adding a large new tidal breach appears to have triggered channel development—and caused the reappearance of the salt marsh harvest mouse and the Ridgway’s Rail.

A distinctive seasonal wetland is the Laguna de Santa Rosa, a stream feeding the Russian River that swells from creek to lake in normal winters; it is the seventh largest seasonal wetland complex on the continent and a Ramsar Convention site. Encroachment from adjacent cities has largely been halted; work to reverse a century of impairments is getting under way.

In eastern Contra Costa and Alameda Counties, the East Bay Regional Park District has been acquiring alkali seasonal wetlands, a rare type with uniquely adapted plant species.

Stream rehabilitation is notably advanced in Napa County. The Napa River Flood Control Project within and south of the City of Napa, along with restorations upstream, is softening hardened banks, allowing the river to meander, and improving conditions for steelhead and coho salmon, as well as waterfowl. Another key theater is Alameda Creek and its sprawling tributaries, where dozens of local projects aim to ease the path of spawning steelhead trout. Here a dam is removed or a fish ladder added; there a water intake is screened; in another place a culvert is redesigned or an eroding streambank

vegetated.

The SF Bay Joint Venture's work on stock ponds, especially numerous in the East Bay, is building on lessons learned by the Alameda Resource Conservation District. Species requirements vary. What favors the red-legged frog may or may not help the tiger salamander or the western pond turtle. Larger ponds may be modified to meet several sets of needs.

### *Population goals*

How much progress has this Joint Venture, together with its peers, been making toward the larger goal of population recovery for migratory waterfowl and other birds, animals, and plants of special concern?

Since the signing of the North American Waterfowl Management Plan, the worrisome decline in populations has been reversed for many species. It is difficult to tie the improvement to specific actions or regions—these birds, by definition, move around—but the SFBJV can point to favorable trends within its boundaries. Populations of Pintails and Canvasback are on the rise as the birds are using the restored sites. One class of birds, by contrast, is faring poorly: the sea ducks. Local counts of scaup and scoters have recently plunged. Scientists are trying to figure out causes, which seem likelier to lie in the limited winter habitats than in the very dispersed boreal forest breeding grounds. As for solutions, expansion of eelgrass beds--which harbor the herring roe on which the ducks preferentially feed--is thought to be one key.

Besides these wintering species, some listed threatened and endangered migratory birds—notably the Western Snowy Plover and the California Least Tern—do breed in the Bay Area. Terns nest on Alameda Island, on an open site once part of a runway for the Alameda Naval Air Station, now owned by the US Veterans Administration but managed by the Fish and Wildlife Service. Plovers nest on Marin County beaches and on salty expanses both small (the evaporative basins within salt marshes, known as pannes) and large (dried-up artificial salt ponds) in the South and North Bay.

It is easiest to track the performance of species that spend their whole lives here. One marshland species, the Ridgway's Rail (originally called the California Clapper Rail), has long been in decline. One stressor was the spread of the invasive smooth cordgrass (*Spartina alterniflora*) and its hybrids which turned varied edge habitats into featureless marsh plains. As a ten-year campaign to eliminate the exotics winds down, rail numbers appear to be rebounding. Another benchmark creature, the endangered salt marsh harvest mouse, seems to be gaining numbers in direct proportion to the habitat restored.

It has been an eventful seventeen years since the first *Implementation Plan* was published. There have been droughts and floods, triumphs and setbacks, ceremonial dike breakings, startling research results, and finally a successful regional election to fund restoration. All the while the slow powers of nature have been at work to generate new richness, wherever and whenever they are given the chance. Their human partners, in the next decade, must labor even harder, especially in the face of climate change and sea level rise, to keep those opportunities alive.

SUMMARY PARAGRAPH to be written when Implementation Plan is nearing completion: Where do we go from here, possible summary of key recommendations, how this Implementation Plan will be used.