North Delta

Conservation Opportunity Region Overview

Regional Setting

A diverse and historical part of California, the North Delta region is characterized by legacy towns and surrounding communities, each sharing common and blended foundational characteristics with its neighbors, but each also with its own unique and rich past. These legacy towns and surrounding communities include Freeport, Clarksburg, Hood, Courtland, Isleton, Walnut Grove, Ryde, and Locke. These communities support, and are in turn supported by, long-standing and diverse agriculture, including grapes, pears, and corn, and a number of high-value ecosystems supporting people and wildlife. Located in the northeast portion of the region, Stone Lakes National Wildlife Refuge[1] (NWR) is partially owned and managed by the U.S. Fish and Wildlife Service (USFWS) and comprises a 17,640-acre area in the North Delta within which the USFWS is authorized to acquire, protect, and manage land. Established as a NWR in 1992, the unique lakes and waterways of the Stone Lakes basin are entirely within the 100-year floodplain. Its strategic location buffers urban encroachment into the Delta and provides a habitat link with the neighboring Cosumnes River Preserve.[2] Extending from Clarksburg, Elk Slough, another feature of the North Delta, provides a combination of floodplain, riparian, and channel margin habitat for Delta wildlife. The Elk Slough riparian ecosystem remains as one of the most intact of its kind in the Delta. Together and connected with Sutter and Steamboat Sloughs to the south, Elk Slough connects back to the Sacramento River near Rio Vista, providing an alternative migratory route for salmonids headed to or from the Sacramento River. Due to the proximity of the Sacramento River and its tributaries, including the American River, there is inherent flood risk in varying measures to the North Delta region's lands, citizens, infrastructure, and environment.

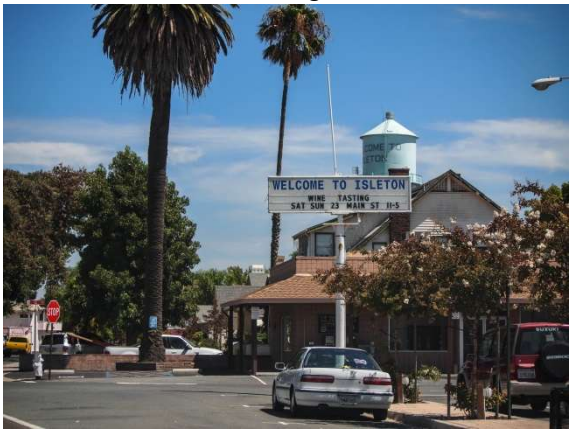

Figure 1: Isleton is one of North Delta's legacy towns
Photo: Birds Eye View

Planning History

In 2016, as partial implementation of the Delta Reform Act of 2009 and Chapter 5 of the Delta Plan, and improving upon the "Delta as evolving Place" concept contained in Water Code § 85054, the Delta Protection Commission published Community Action Plans for three main north Delta communities: Clarksburg, Walnut Grove and Courtland.[3,4,5] These plans lay out goals and actions with implementation steps based on the issues and ideas community members shared during interviews and community surveys. The main themes of the plans include transporation, communications, community amenities, public safety, housing and infrastructure, and all-age education opportunities. Although they do not include a specific focus on conservation, community members generally voiced an appreciation for the open spaces, fresh air, and scenic views the Delta provides; the recreational opportunities local residents and tourists can enjoy; and a desire to expand access to the river and other natural areas. Community members also valued the economic benefits of tourism related to local culture, nature, and agriculture, particularly the festivals and events in connection to the arrival and celebration of sandhill cranes (*Antigone canadensis*). However, balancing tourism with maintaining a living community and working agriculture, and with adequate law enforcement is also of critical importance.[6] Community members also voiced concerns over the resolution of big issues such as flood insurance, California *WaterFix*, and aquatic invasive species.

Planning and permitting for California *WaterFix* (also referred to as "Delta tunnels"), aimed at one of the co-equal goals of providing a more reliable water supply for California, is currently under way. California *WaterFix* proposes to renovate the state's aging water delivery system by building new water conveyance infrastructures in the Delta that its proponents believe reinstate more natural flow patterns in the Delta and continue to meet San Francisco Bay outflow requirements to protect against salt water intrusion.[7] The California State Parks Division of Boating and Waterways (DBW) aquatic invasive species programs and the Department of Water Resources Invasive Plant Management Plan have been engaged in the control of floating and submerged invasive aquatic vegetation in the Delta.[8,9] These ongoing efforts focus mainly on the annual control of aquatic invasive plants such as water hyacinth, water primrose, and Brazilian waterweed.[8] Other ongoing efforts are also focused on understanding how best to avoid blooms of cyanobacteria, such as *Microcystis*, in the Delta.[10]

Opportunities for Conservation

Conservation opportunities in the North Delta include adaptive wildlife-friendly agriculture and improvement or expansion of floodplain, tidal marsh, nontidal marsh, riparian, and channel margin habitat for Delta wildlife. Elk, Steamboat, and Sutter sloughs provide an alternative route for salmon passage through the Delta to the Sacramento River. As part of conservation efforts, rearing juvenile salmon may benefit from improved channel margins on these sloughs as a result of opportunities to avoid nonnative predators and access shaded cool water. Stone Lakes NWR also provides opporunitites for wetland and riparian conservation as a part of its management. Washington Lake could also offer terrestrial oak woodland habitat conservation opportunities for wildlife in the North Delta.

As part of the Bay Delta Conservation Plan, a Channel Margin Opportunities Assessment[11] was conducted to evaluate areas best suited for shoreline enhancement in the North Delta Sacramento River reach where floodplain or low riparian bench habitats could be established. In May 2017, West Sacramento broke ground on the Southport setback levee project aimed at improving nearly six miles of vulnerable levee along the west bank of the Sacramento River in Southport.[12] This multi-benefit project contributes toward California *EcoRestore*[13] floodplain and riparian habitat restoration goals, and it will provide additional flood protection for the North Delta's legacy communities. Finally, the McCormack-Williamson Tract (MWT) island in the northeast Delta offers critical conservation opportunities for tidal freshwater marsh and floodplain wildlife habitat.[14] More details on the MWT are outlined in the Central Delta Corridor Partnership conservation opportunity region overview.

Figure 2: Mature riparian vegetation along Elk Slough
Photo: Birds Eye View

Wildlife-friendly Agriculture

In the North Delta, as in the rest of the Delta, agriculture has been the main way of life, industry, and cultural linkage to the land for Delta residents for many generations. As a result of these strong cultural ties to the land, the local Delta community is concerned about the potential to lose their livelihood, cultural distinctiveness, and lifestyle if conservation displaces agriculture and its support industries. Therefore, it is important that conservation occur on public lands and other existing conservation lands first and include integrated management approaches that continue wildlife-friendly agriculture in a balanced and dymanic land-use mosaic across the landscape.[15] It is also critical that conservation efforts recognize that agricultural commodities and their related industries change, and must be permitted to change, over time. It is well known that certain crops such as corn, rice, and irrigated

pasture provide habitat for terrestrial and avian species, including the iconic sandhill cranes and migratory waterfowl.[16]

Along Elk Slough (Figure 4), there is a remnant mature riparian zone that provides aquatic, transition, and terrestrial habitat for Delta wildlife. Protecting and enhancing this riparian resource by expanding its width, where possible, and encouraging adjacent wildlife-friendly farming operations with field crops (such as rice, corn, or alfalfa) rather than permanent row crops (such as vineyards, tree crops), will help to provide high-quality habitat and connectivity for riparian zone wildlife to the larger Delta landscape. The conversion from wildlife-friendly crop types (e.g., annual row and field crops or pastures) to tree crops and vineyards remains a challenge for implementing wildlife-friendly agriculture in the north Delta. It may be possible to offer incentives for wildlife-friendly agriculture to prevent crop shifts with negative consequences for wildlife habitat value.

Integrated Flood Management

The new *EcoRestore* Southport setback levee project is aimed to provide multiple benefits including improved flood protection and riparian zone restoration as part of a setback levee design. To further expand habitat in the area and provide an alternative migratory route for salmon through Elk, Sutter, and Steamboat sloughs, levees on the west side of Elk Slough would need to be updated. A levee and habitat improvement plan developed by collaborating public landowners could simultaneously reduce flood risks and create strips of channel margin and riparian habitat along levees that incorporates natural features such as mid-channel islands providing refuge areas for native species.[9] Levee improvements and setbacks also set the stage for other important habitat enhancements, including reclaiming borrow sites as wetlands, stabilizing levee slopes by growing native perennial grasses, and providing erosion protection by establishing aquatic and waterside riparian habitat.[9]

Climate Change and Adaptation Opportunities for Long-term Sustainability

The North Delta will be affected by climate change in several ways. Flood dynamics will likely change over the coming decades, with more frequent and extreme storm and rainfall events and associated flood pulses coming through the region.[17,18] Flood management will be critical to protect the North Delta legacy communities, agricultural lands, and ecosystems. For the North Delta, increased winter river flows and more intense winter storms will significantly increase the hydraulic pressure on levees; and should levees collapse during a storm, it could lead to catastrophic flooding.[19] Winters will likely become wetter and warmer, with more extreme weather events earlier or later in the season, reduced snow packs in the Sierra Nevada, earlier snowmelt with most precipitation falling as winter rain, and increases in run-off quantity and velocity during storm events.[17,20,21]

Climate change induced sea level rise could affect tidal dynamics and salt water intrusion into the Sacramento River and Elk, Sutter, and Steamboat sloughs. Scenario planning[22] is a tool that could be used to help anticipate impacts of climate change on ecosystems, species, infrastructure, agricultural practices, recreation, and other land uses and integrate these into the long-term conservation planning picture.[23] It will help anticipate impacts on ecosystems and species and integrate these into the long-term conservation, agriculture, and infrastructure planning and management picture from the large landscape perspective.[23] A scenario planning approach integrated within, for example, a Structured Decision Making (SDM)[24] process will also integrate a decision model and long-term adaptive management and funding needs to anticipate how near-term conservation actions may evolve into the future. Planners and land managers can use these tools to look ahead in a strategic way and determine the best way to prioritize conservation actions based on the likelihood of long-term effectiveness, the potential for outcomes to evolve over time, and cost-effectiveness if implemented down the road. Regular reevaluation of scenarios over time will

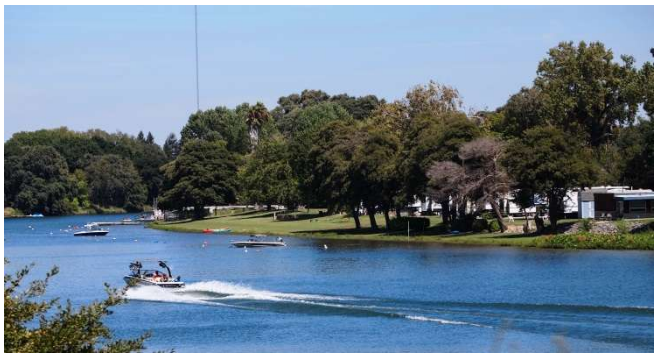

Figure 3: Recreation area along Sacramento River
Photo: Birds Eye View

help with examining how exactly projections play out and how management actions of conservation lands need to be adjusted over time.

Low-Impact Recreation

The North Delta provides ample opportunities for non-motorized boating and fishing within sloughs, bird watching near existing riparian areas, and visits to the Stone Lakes NWR for more wildlife viewing. The Nature Conservancy has been managing lands on Staten Island for both agriculture production and migratory waterfowl habitat for the last 12 years, with additional benefits to recreational hunting. Public landowners could work together and with agencies to provide valuable and sustainable habitat for migratory birds and other animals, while maintaining their primary goals of agricultural economic vitality and resource conservation. This management strategy becomes more and more invaluable as many private lands are converting from wildlife-friendly row crops to orchards and vineyards. As part of conservation projects, access to waterways could be established for wildlife observation, boating, and fishing. However, providing public access with restoration remains a general challenge in the Delta in order to minimize human disturbance to wildlife and other negative effects such as littering. In some cases, enhanced public use can result in trespassing, poaching, vandalism, and burglary and compromise the safe access for public viewing of wildlife. As a result, public access planning should include consideration of greater enforcement in designated public areas and more signage.[6]

Link to Delta Conservation Framework

The Delta Conservation Framework is a high-level conservation planning framework to 2050 with a landscape-scale focus across the entire Delta, Suisun Marsh, and Yolo Bypass. Implementation of its overarching goals and strategies is recommended in the context of regionally focused, multi-stakeholder partnerships that develop *Regional Conservation Strategies* (RCS) with finer scale regional objectives and implementation actions**.** Integrating a more formal multi-stakeholder partnership may lead to the development of a long-term North Delta RCS. This would afford landscape-scale integration of the north Delta with the larger Delta conservation, flood management, and wildlife-friendly agricultural context, tying regional efforts in with the Delta Conservation Framework's "big picture" goals and strategies**.** In particular, this applies to Goals C to E that focus on developing multi-benefit conservation solutions through integrative data analysis and scenario planning. Strategies and objectives within these goals suggest utilizing best available datasets to implement actions that help reestablish ecological function, assist species recovery, integrate conservation benefits with flood protection, wildlife-friendly farming operations, and recreation at the local and landscape scales. Also, a North Delta focused RCS would present a unique opportunity to address conservation-related permitting through a general regional permit (Goal F), and short- and long-term funding development via bond initiatives and other opportunities (Goal G).

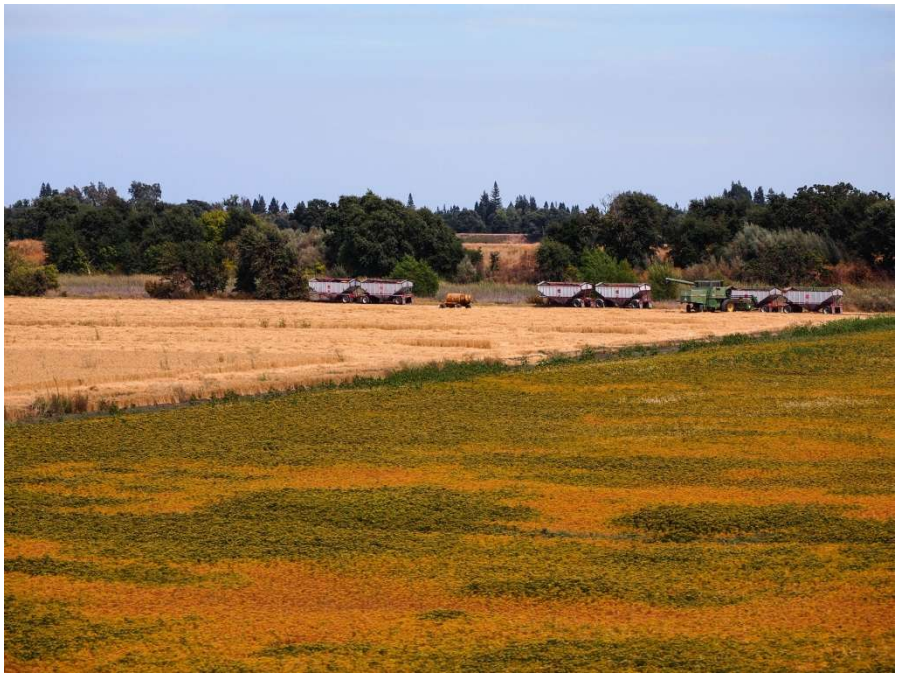

Figure 4: Farm operations along the Sacramento River
Photo: Birds Eye View

Entities/Partnerships Important for Implementation (Now and Ongoing)

Delta community members and stakeholders at the 2016 Delta Conservation Framework workshops commented that public lands should be the main focus of Delta conservation efforts. With this in mind, there might still be opportunities in the North Delta to accomplish multi-benefit projects with a conservation component in the context of flood management and riparian zone enhancement, as outlined above. As a priority, those lands must be clearly and comprehensively identified as a preliminary step. A North Delta partnership process that includes all stakeholders for win-win outcomes around flood protection, agricultural sustainability, and ecosystem enhancement could be a valuable asset in moving integrated North Delta planning forward. A North Delta partnership should be made up of stakeholders or representatives from all walks of North Delta life, including residents, businesses, and agricultural practitioners, in addition to local, state, and federal agencies; non-governmental organizations with a track record of expertise in the North Delta; reclamation districts; agricultural commissioners; farm bureaus; and the North Delta Water Agency. The cornerstones for successful conservation planning and implementation are: 1) establishing and maintaining trust among stakeholders, best achieved through continuous communication and evaluating goal-based progress; 2) an agreed-upon structure for roles and responsibilities to manage an implementation partnership; and 3) principles for stakeholder engagement based in inclusiveness, open and ongoing communication, and science-based decision support.

207 # Endnotes

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