

A Freshwater Ecosystem Budget for Birds and the Pacific Flyway

Sacramento River Basin

September 2020

Nearly five million ducks, two million geese and a half a million shorebirds rely on California's Sacramento River Basin, making this an internationally important area for migratory birds and a key stopover site along the Pacific Flyway. The Sacramento River Basin's world-renowned mosaic of natural resources, including farms, wildlife refuges, managed wetlands and rivers, work together in concert to support and feed waterfowl, shorebirds, raptors and many other species.



THE PACIFIC FLYWAY ECOSYSTEM

As the attached map shows, birds and other species using the Pacific Flyway are reliant upon varied land uses that include ricelands and managed wetlands (both privately managed wetlands and public refuges and state wildlife areas) to meet their habitat needs. Much of the habitat value of these lands (food, safe resting areas and for some species nesting areas) is reliant upon surface water deliveries. Given the development of the Sacramento Valley over the last 200 years, much of that water must now be delivered to these areas through a complex and interconnected water infrastructure system.



JOINT VENTURE HABITAT TARGETS

The Central Valley Joint Venture, as part of its recently revised implementation plan, developed habitat objectives that provide a starting point to think about the water needs for each of the major land uses that make up the Flyway in the Central Valley. The following are the acreage targets and associated water needs to maximize Pacific Flyway habitat in the Sacramento Valley.

- For private wetlands and the public National Wildlife Refuges and state Wildlife Areas (which include seasonal and semi-permanent wetlands) the target is 90,139 acres. The water needed to maximize the habitat values of these acreages is 493,678 acre-feet for wetlands. These remaining wetlands make up the backbone of Pacific Flyway habitat in the Central Valley.
- Ricelands provide the bulk of the food for the Pacific Flyway in the Sacramento Valley and are an important complement to the remaining wetlands. The habitat objective for winter-flooded rice is 340,670 acres, which requires 851,675 acre-feet of water to maximize these habitat values during the fall and winter months. To grow the rice during the spring and summer for this same 340,670 acres requires approximately 1,703,350 acre-feet of water (5 acre-feet/acre).



To provide some context on the water needed to support Pacific Flyway migratory bird populations in the Central Valley, the total water needed to maximize the optimal habitat is 3,048,703 acre-feet of water and includes the water needed to grow rice in the spring and summer.

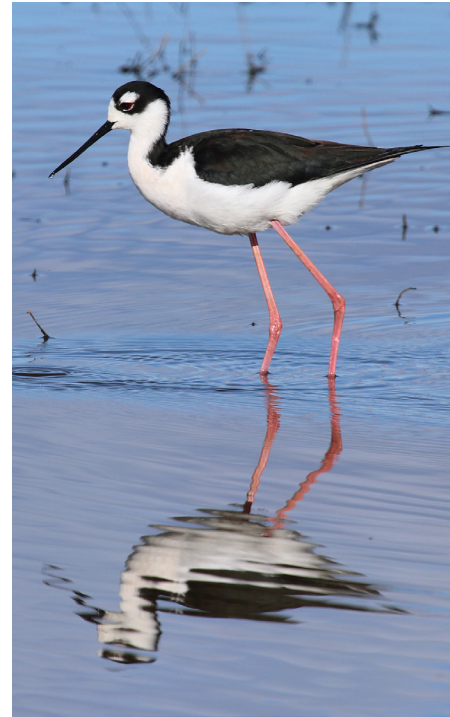


WATER SUPPLIES TO SUPPORT THE PACIFIC FLYWAY

In the Sacramento River Basin, Pacific Flyway lands are predominantly dependent upon surface water deliveries. Water districts serve multiple benefits in the Sacramento River Basin and provide water almost year-round to agricultural lands, privately managed wetlands and the public refuges and wildlife areas.

- For ricelands, spring and summer deliveries are dependent upon water rights and contracts for surface water, with groundwater used in a few select areas. In the fall and winter months, those same lands are reliant upon riparian rights (where available) and on other fall and winter water rights.

- Privately managed wetlands are also reliant upon surface water rights, with some intermittent groundwater pumping to serve their habitat values.
- The National Wildlife Refuges have contracts with the Bureau of Reclamation and the water is almost all delivered by water districts. Level II supplies are linked to the allocation received by the Sacramento River Settlement Contractors. The additional water supplies needed on refuge lands, also known as Level IV supplies, are purchased through transfers on an annual basis or permanently through a water rights transaction. For a detailed description of Level IV supplies in the Sacramento River Basin, see [Central Valley Refuge Needs](#). There also are limited opportunities to use groundwater as a supply for some of these lands.
- Looking to the future, the passage of Proposition 1 and subsequent award of funding to the proposed Sites Reservoir project for public benefits provides the opportunity to dedicate water supplies from the project to refuge and wildlife area lands in the region.



WORKING GROUP

In 2014-15 a working group of refuge managers, conservation organizations, California Rice, and water suppliers convened to work through the dry year dynamics and to work together, with state and federal agencies, to optimize water supplies for the Pacific Flyway. As we have learned, every water year is different. Advance planning is essential for a freshwater budget for the Pacific Flyway, recognizing that each year, particularly the drier years, have unique challenges that can only be addressed through better understanding of the hydrology and the tradeoffs that are inevitable. Establishing a consistent and concerted Pacific Flyway working group poised to understand and work through these issues is important as part of the effort to plan for dry years.

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Wetland Areas and Rice Fields in the Sacramento Valley of California

