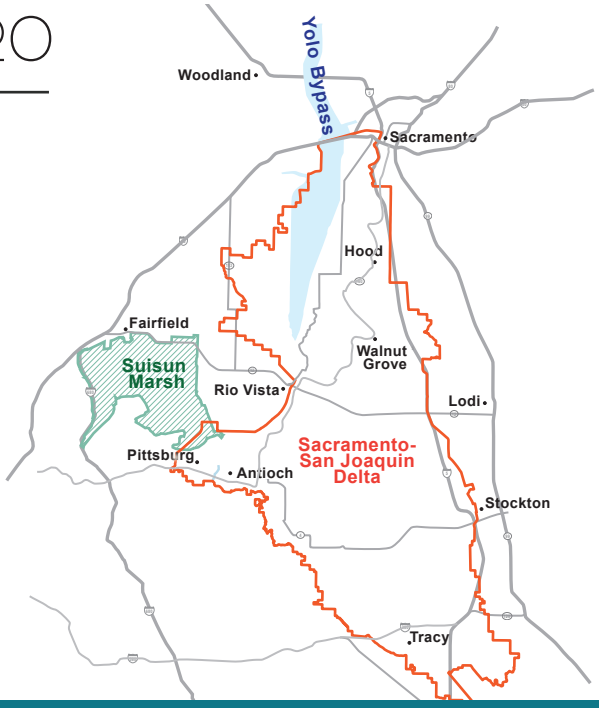
CALIFORNIA ECORESTORE HIGHLIGHTS 2015 to 2020



California EcoRestore was established in 2015 to advance **30,000 acres** of critical habitat restoration and enhancement in the Delta, Suisun Marsh, and Yolo Bypass region.

The Sacramento-San Joaquin Delta is a crucial water and ecological resource for California. The Delta provides drinking water for nearly **27 million** Californians, as well as water to millions of acres of farmland. The Delta is the largest estuary on the West Coast, historically providing habitat to thousands of native fish and wildlife species.

Over the last 150 years, the Delta has lost **98 percent** of the native habitats that support these species. Scientists attribute the steep decline of the Delta ecosystem and fish to drought and human activity, including the development of levees supporting agricultural operations and water conveyance. Absent efforts to protect native species, we can expect many more species to go extinct over the next century.

HABITAT RESTORATION VALUES

California EcoRestore supports multi-benefit habitat restoration projects that provide more than just benefits to fish and wildlife, including:

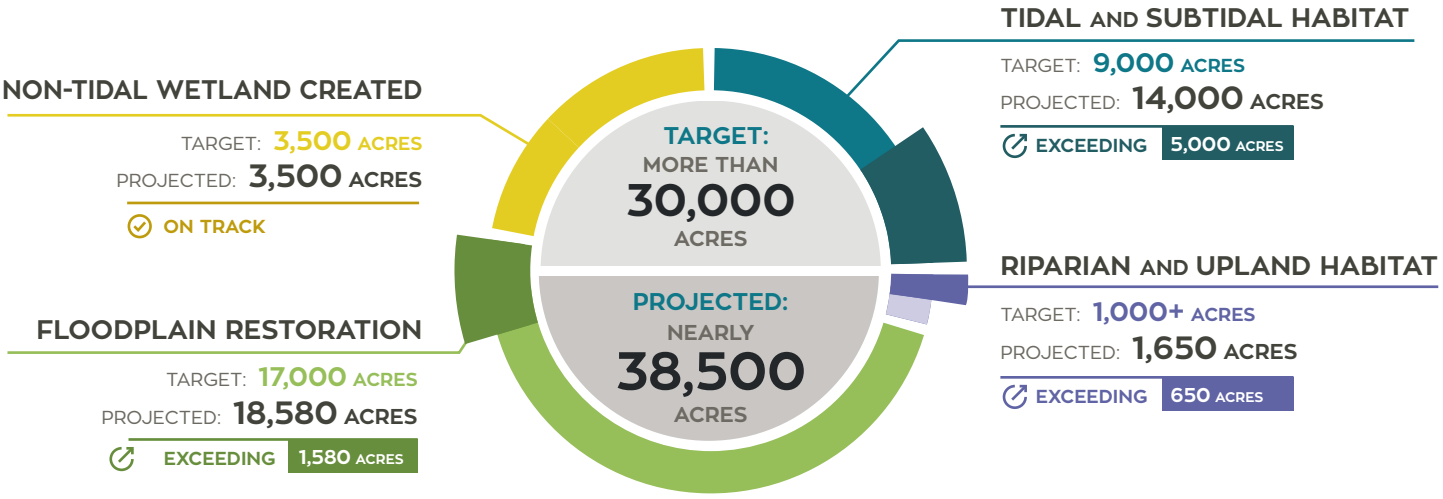
- Public access & recreation
- Open space & waterways
- Bolstering local economy & jobs
- Climate change resiliency & sealevel rise buffer
- Flood protection & groundwater recharge
- Ecotourism & bird watching
- Hunting & fishing

As California EcoRestore celebrates its first five years, the initiative is on track to exceed initial targets.

ACCELERATING HABITAT RESTORATION

California EcoRestore is a state-sponsored portfolio of projects that satisfy ecological goals and outcomes in the Delta, Suisun Marsh and Yolo Bypass areas, including on-the-ground habitat restoration projects. California EcoRestore and its partners pursue complex multi-benefit restoration projects to deliver results. Driven by the best available science, over the last five years, these efforts have advanced through various stages of planning, permitting, and construction.

CALIFORNIA ECORESTORE ON TRACK TO ACHIEVE AND EXCEED HABITAT RESTORATION TARGETS



Note: Projected acres includes both acres in planning and completed. Projected acres are subject to change.

To achieve its goal of accelerating Delta habitat restoration, California EcoRestore has pursued new models of project delivery, addressing long-standing implementation barriers, and building new partnerships.

Partners gather to celebrate the Fremont Weir Adult Fish Passage Modification project groundbreaking in May 2018.

California EcoRestore embraces partners that share a vested interest in the Delta's health and vitality, which includes supporting public safety and the local economy. Key partnerships include:

- State and federal water project contractors
- State, federal and local government agencies and special districts
- Local reclamation districts
- Non-governmental organizations and non-profits
- Private sector and landowners

The following are highlights from California EcoRestore's first five years.

On-the-Ground Progress

MULTI-BENEFIT FLOOD AND ECOSYSTEM ENHANCEMENTS

Multi-benefit restoration projects achieve many objectives within one project, on one site. These efforts support healthy ecosystem function while efficiently protecting public safety and providing other benefits such as recreation. Through close collaboration with scientists, landowners and other partners, California Department of Water Resources (DWR) is working to design levees that protect communities from floods while providing ecosystem benefits for endangered fish. California EcoRestore projects are guided by a vision for long-term environmental sustainability while supporting the local economy amid a changing climate.

MCCORMACK-WILLIAMSON TRACT TIDAL HABITAT AND FLOODPLAIN RESTORATION PROJECT

- DWR partnered with The Nature Conservancy and Reclamation District 2110 to restore 1,500-acres of floodplain and tidal wetland habitat near the confluence of the Mokelumne and Consumes Rivers. The project will contribute to flood risk reduction with levee improvements and add capacity for high water flows.
- **Status:** Construction to protect existing infrastructure and strengthen levees was completed in 2019, while planning and permitting continue for the habitat restoration effort.

LOOKOUT SLOUGH TIDAL HABITAT AND FLOOD IMPROVEMENT PROJECT

- DWR partnered with Ecosystem Investment Partners to restore 3,000-acres of tidal habitat in the Cache Slough Complex while expanding the capacity of the Yolo Bypass floodplain by creating a new setback levee
- **Status:** Draft Environmental Impact Report released in December 2019, with construction planned for 2021 (pending permitting and approvals).

LOWER ELKHORN BASIN LEVEE SETBACK PROJECT

- DWR partnered with state, federal and local agencies and flood control districts to increase the capacity of the Yolo Bypass and Sacramento Bypass, and improve public safety while enhancing habitat benefits by constructing a 7-mile setback levee.
- **Status:** All permits and approvals are obtained with construction beginning in summer 2020.

McCormack-Williamson Tract pre-construction in 2017.

On-the-Ground Progress

FISH PASSAGE IMPROVEMENTS

California EcoRestore is protecting the migration of fish, such as salmon and sturgeon, by creating permanent infrastructure that improves passage from rivers to the ocean and back. This incredible journey from sea to spawning grounds is often obstructed by human-created barriers to the river system. Fish can be diverted from the main river channel and end up stranded in a flood zone or in an agricultural ditch. Many of these fish passage improvements were required by federal mandates and are necessary for continued operation of the State Water Project (SWP) and the Central Valley Project (CVP).

FREMONT WEIR ADULT FISH PASSAGE

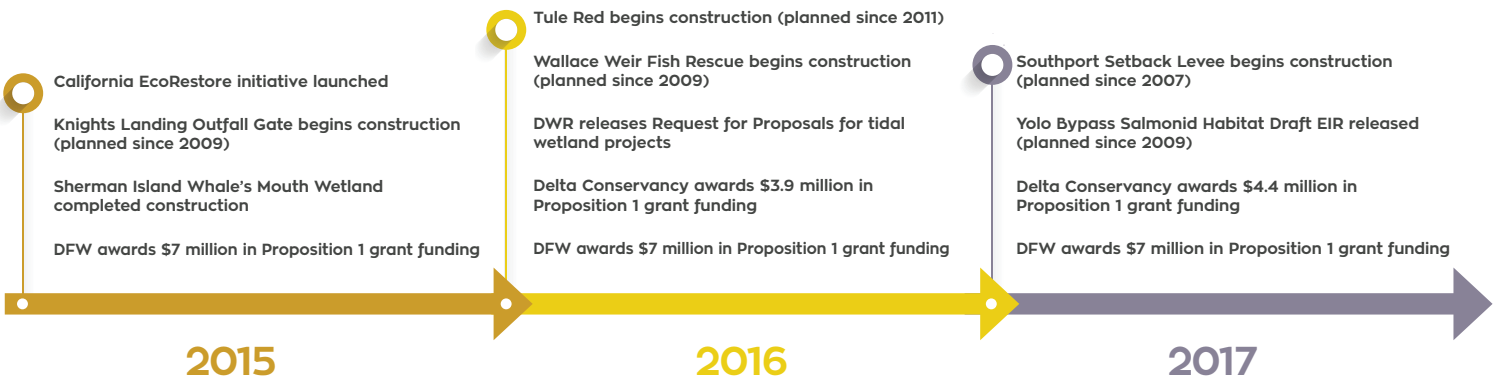
- DWR and U.S. Bureau of Reclamation (Reclamation) partnered to replace an insufficient fish ladder at Fremont Weir with a wider and deeper system facilitating fish passage from the Yolo Bypass to the Sacramento River.
- **Status:** Construction completed in 2018, with modifications completed in 2019. DWR operates the facility in coordination with the U.S. Army Corps of Engineers and the California Department of Fish and Wildlife (DFW).

WALLACE WEIR FISH RESCUE FACILITY

- DWR and Reclamation partnered with Reclamation District 108 and Knaggs Ranch LLC to replace the seasonal earthen dam near the Colusa Basin Drain with a permanent operable structure, including a fish rescue facility to return stranded fish to the Sacramento River.
- **Status**: Construction was completed in 2018. DFW operates the fish rescue facility.

Wallace Weir Fish Rescue Facility construction in 2016.

ECORESTORE MAJOR ACCOMPLISHMENTS



TIDAL WETLAND RESTORATION

California EcoRestore is creating a series of tidal wetlands across the Delta to produce food for fish including salmon and Delta smelt. These fish eat tiny organisms known as zooplankton that feed from decaying vegetation floating in the water. As the daily tides slosh water through the wetland and other waterways, fish can access the zooplankton and improve their chance of survival. Within the wetland, the tall vegetation and turbidity protects smaller fish from predators. In some cases, wetland restoration can include recreational amenities and protect adjacent residential and commercial lands from sea level rise. Many tidal wetland restoration efforts are required by federal mandates and are necessary for continued operations of the SWP and the CVP and are supported by the State Water Project Contractors.

DUTCH SLOUGH TIDAL HABITAT RESTORATION PROJECT

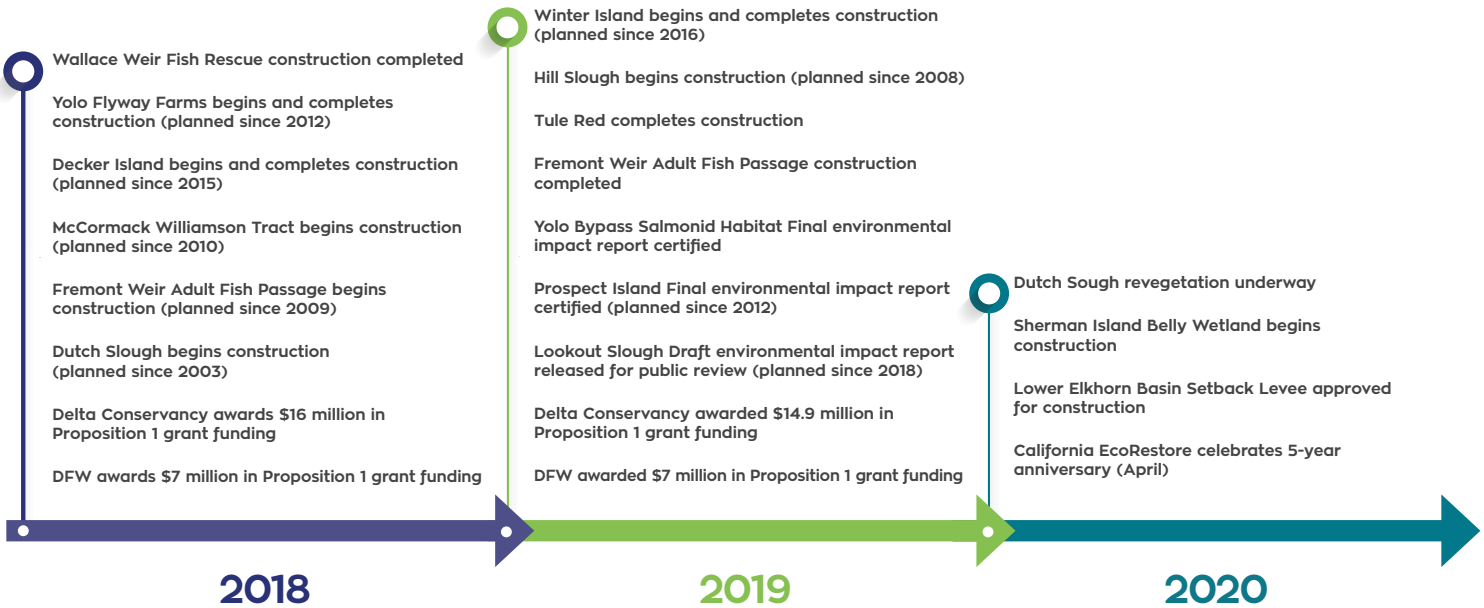
- DWR, with funding and support from local, state and federal agencies, partnered with Reclamation District 2137 to restore 1,200-acres along the San Joaquin River near Big Break.
- **Status**: Construction launched in 2018 to re-slope the interior channels. Revegetation planting efforts are underway in 2020. A levee breach planned for 2021 will complete the project. The site will serve as a living laboratory for future scientific studies.

WINTER ISLAND TIDAL HABITAT RESTORATION PROJECT

- DWR through the Fish Restoration Program partnered with DFW to restore nearly 600-acres near the confluence of the Sacramento and San Joaquin Rivers.
- **Status:** Construction completed in 2019. DWR and DFW monitor and maintain the site to meet restoration goals.

Tule Red Tidal Habitat Restoration project breaches the exterior levee in 2019.

ECORESTORE MAJOR ACCOMPLISHMENTS



On-the-Ground Progress

LOCAL PROJECT SUPPORT FOR DELTA ECOSYSTEM RESTORATION

California EcoRestore and its partners support local governments and organizations as they collaboratively improve Delta ecosystem and watershed health. Funded largely through Proposition 1, a 2014 voter-approved bond measure, these grants have helped local agencies, residents and other stakeholders restore floodplains and riparian habitat while recovering threatened fish and wildlife. These projects target both public and private lands with willing landowners, working under a shared goal to restore ecological function with measurable outcomes.

SACRAMENTO-SAN JOAQUIN DELTA CONSERVANCY'S ECOSYSTEM RESTORATION AND WATER QUALITY GRANT PROGRAM

- **Goal:** Support multi-benefit ecosystem, watershed protection and restoration projects to further Delta priorities.
- **Funded:** $39.3 million for 29 grants, benefiting more than 8,065 acres of habitat in the Delta since 2015.

DEPARTMENT OF FISH AND WILDLIFE'S DELTA WATER QUALITY AND ECOSYSTEM RESTORATION GRANT PROGRAM

- **Goal:** Improve habitats in the Delta, improve water quality, plan for multi-benefit restoration through regional partnerships, or conduct scientific studies to support implementation of the Delta Science Plan.
- **Funded:** $32.4 million for Delta water quality and ecosystem restoration projects since 2015.

Winter Island Tidal Habitat Restoration project pre-construction in 2018.

CARBON CAPTURE FOR SUBSIDENCE REVERSAL

California EcoRestore is engaged in pilot projects to help address subsidence in the Delta which continues at an accelerated rate of about one to one-and-a-half inches per year. The Delta's peat soils are highly-organic and carbon-rich. Certain land management practices remove water from these peat soils which releases harmful carbon dioxide. Deliberate flooding of certain Delta islands keeps carbon dioxide underground and supports Delta levees by reversing subsidence caused by evaporating peat soil. Carbon can be trapped underwater by growing and maintaining tules as part of a managed wetland or by cultivating rice. Efforts like these could represent an economically viable alternative to farming other crops in the most subsided areas of the Delta.

DELTA CARBON PROGRAM

- The Delta Conservancy has partnered with DWR, DFW and other agencies alongside public and private landowners to launch pilot projects that can verify greenhouse gas emission reduction credits and generate revenue by trading credits on the voluntary carbon market.
- **Status:** This partnership developed a California Wetland Protocol for the voluntary market which was adopted by the American Carbon Registry in 2017. DWR is working on plans to create managed wetlands on two DWR-stewarded Delta properties, Sherman and Twitchell islands, as a proof of concept to scale this Delta Carbon Program.

Going Forward

As California EcoRestore projects achieve and exceed habitat restoration targets, the work to address Delta legacy issues is just beginning. There are many efforts across sectors and agencies focused on supporting a healthy Delta ecosystem and returning native fish and wildlife to the region. California EcoRestore is committed to creating habitat and food resources and clearing pathways for migrating fish while building on small-scale success going forward. While no single effort will return the lost habitat or native fish to the Delta, focusing efforts in critical areas and working through coordinated partnerships can contribute to lasting benefits.

LONG-TERM OPERATIONS AND MAINTENANCE

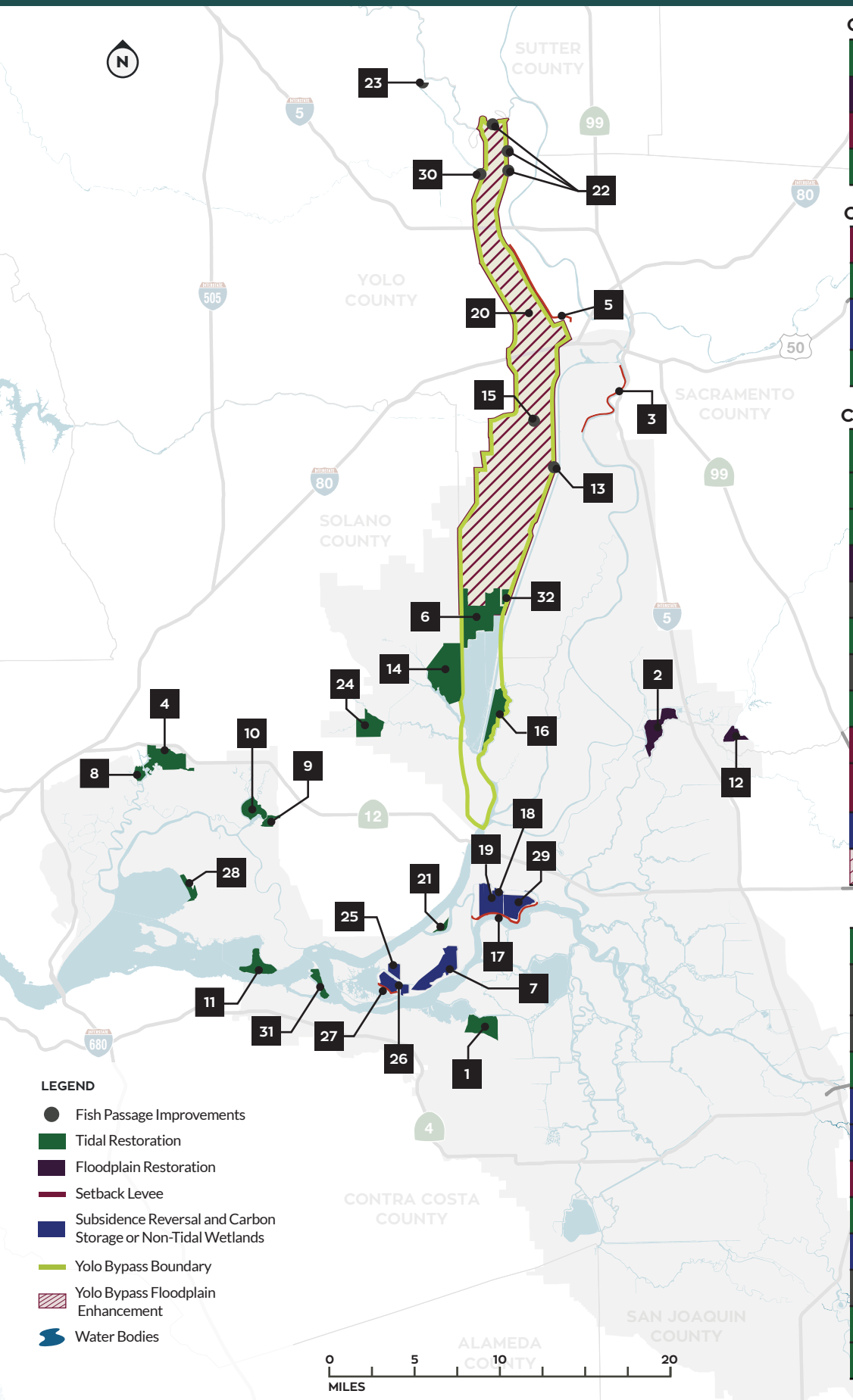
Habitat restoration projects are never complete. Ensuring sites function and continue to meet project goals and objectives requires active operations and maintenance following construction. California EcoRestore advocates that projects plan long-term operations and maintenance and factor in related expenses up front to ensure sites are preserved. Furthermore, biological monitoring on sites like the Dutch Slough Tidal Habitat Restoration offer meaningful opportunities to draw lessons for projects in development.

BUILDING STRONG PARTNERSHIPS

Creating sustainable large-scale and multi-benefit habitat that works with local land uses takes unprecedented coordination across agencies and stakeholder groups. Partnerships, especially public-private partnerships, have increased opportunities for habitat restoration within California EcoRestore's first five years. As work continues, EcoRestore will pursue partnerships and innovative methods to deliver projects and ecosystem benefits.

Water over topping the Fremont Wier and flowing into the Yolo Bypass in 2017.

CALIFORNIA ECORESTORE PROJECTS



CURRENTLY UNDER CONSTRUCTION

1	Dutch Slough
2	McCormack Williamson Tract
3	Southport Levee Improvement
4	Hill Slough

CONSTRUCTION PLANNED FOR 2020

5	Lower Elkhorn Basin Levee
6	Lower Yolo Ranch
7	Sherman Island: Whale's Belly Wetland
8	Wings Landing

CONSTRUCTION PLANNED FOR 2021+

9	Arnold Slough
10	Bradmoor Island
11	Chipps Island
12	Grizzly Slough
13	Lisbon Weir
14	Lookout Slough
15	Lower Putah Creek Realignment
16	Prospect Island
17	Twitchell Island: Levee
18	Twitchell Island: Mitigation and Enhancement
19	Twitchell Island: West End
20	Yolo Bypass Salmonid Habitat

CONSTRUCTION COMPLETED

21	Decker Island
22	Fremont Weir Adult Fish Passage Modification
23	Knights Landing Outfall Gate
24	Lindsey Slough
25	Sherman Island: Mayberry Farms
26	Sherman Island: Whale's Mouth
27	Sherman Island: Mayberry Slough
28	Tule Red
29	Twitchell Island: East End
30	Wallace Weir Fish Rescue Facility
31	Winter Island
32	Yolo Flyway Farms