

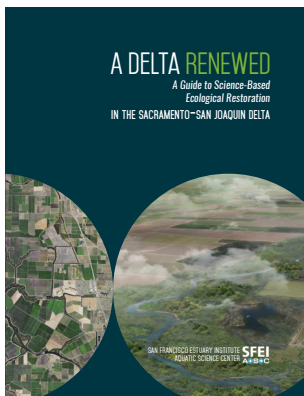
A DELTA RENEWED

Success is possible.

Proven examples exist.

The *Delta Renewed* report provides science guidance for greater Delta restoration success throughout the region.

Despite the many technical, policy and political challenges to achieving large-scale Delta restoration, there is good cause for hope. Where process-based restoration and actions that integrate wildlife support with agriculture have been undertaken, outcomes have been extremely positive. Restoration and management actions in the Cosumnes River and Yolo Bypass areas cover a relatively small portion of the overall Delta landscape, and they represent a small fraction of the historical extent of flooding. Both areas successfully support critical ecological functions desired in the Delta. Both create habitat and productive food webs for native wildlife. These examples show that the Delta can be renewed into a place that supports both people, agriculture and native wildlife sustainably, if we choose to make the investment.



The *Delta Renewed* report and additional information are available here: www.sfei.org/projects/delta-landscapes.



Artist's rendering of an integrated future for the Delta.

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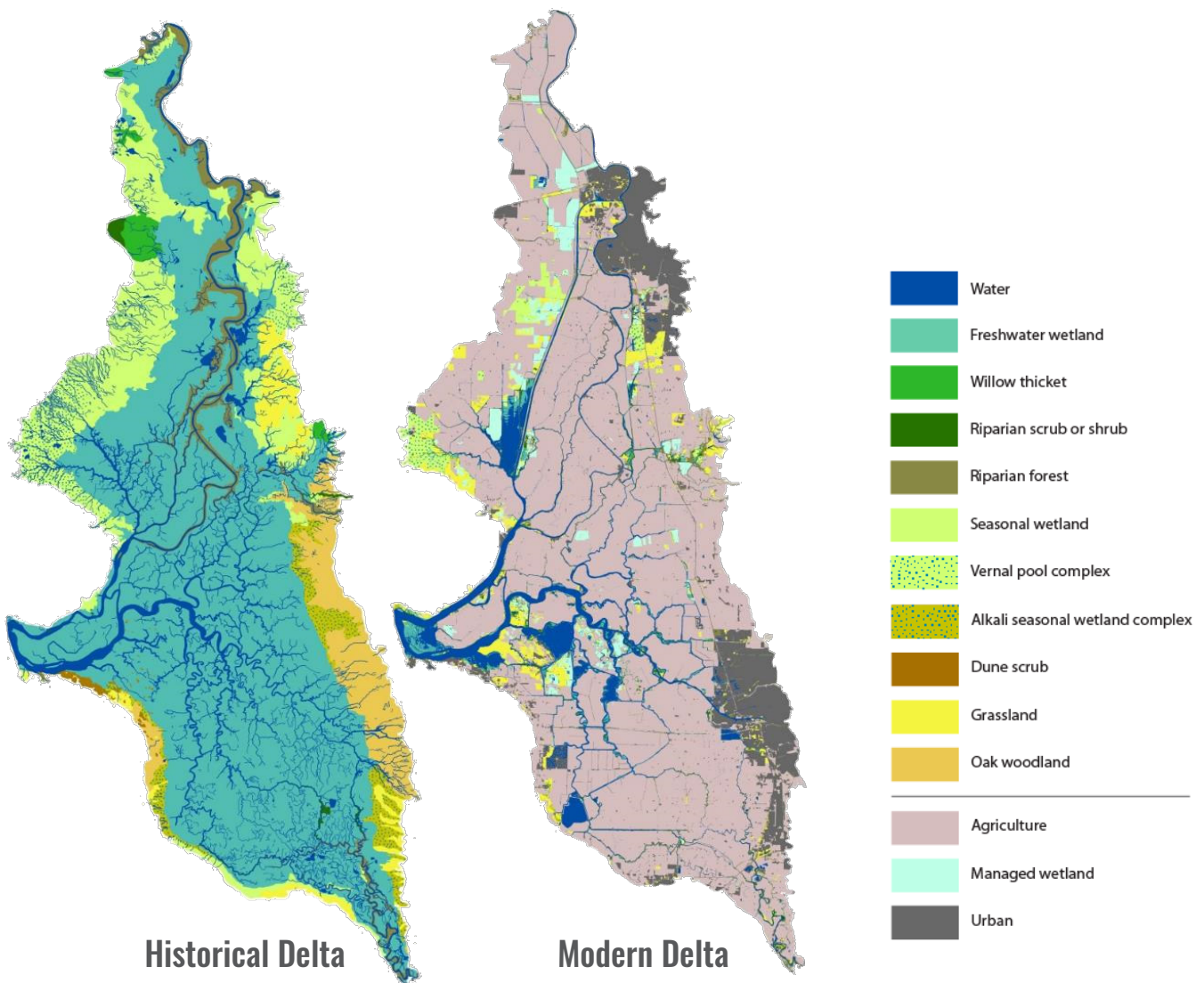
THE PROBLEM: A scientific consensus on why the Delta's ecosystem has declined

Restoring the Sacramento-San Joaquin Delta's aquatic ecosystem is a major California water policy challenge. Native fish populations have declined for decades. This has limited water exports from the Delta. There is strong scientific consensus that a range of stressors are depleting fish populations. Yet, there is great tension between the options available to policymakers on the needed actions to improve the Delta's ecosystem health.

Almost all environmental scientists and stakeholders agree that five factors contribute to the Delta's ecosystem decline. These are habitat alteration, altering water flows, pollution discharges, invasive species and fisheries management.

For most of these scientists, habitat and flow alteration are the most important factors. A strong majority of scientists prioritize habitat and flow management actions to restore more natural processes within and upstream of the Delta.

SOURCE: *SCIENTIST AND STAKEHOLDER VIEWS ON THE DELTA ECOSYSTEM*, PPIC 2013 (SUMMARY, P.2)



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THE SOLUTION: Ideas from *A Delta Renewed*

A DELTA RENEWED – A Guide to Science-Based Ecological Restoration in the Sacramento-San Joaquin Delta offers a new, holistic approach to address the Delta's ecological crisis. It will be the first report of its kind to visually display the potential to restore a broad range of Delta ecosystems.

The report:

- **Is based on extensive scientific research** into how the Delta used to function, how it has changed, and how it is likely to evolve.
- **Offers guidance to create an ecologically healthy working landscape** that supports native wildlife, while retaining its agricultural character and delivering critical water-supply functions.
- **Is intended as a resource** for Delta land and water managers, planners, local governments, and other decision makers.

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RECOMMENDATIONS: The report's key recommendations are

Restore or emulate natural processes. Process-based restoration means restoring or emulating physical processes, including natural flows, beneficial flooding, and sediment transport. This can create and maintain habitats, activate food webs, and support dynamic landscapes. This approach is designed to create habitats that are better suited to native species and are more resilient to future change.

Restore large landscapes to achieve success. Large-scale restoration strategies that re-establish flows and floods to Delta rivers and wetlands are more likely to recover native wildlife support, foodweb, and compromised biodiversity functions. Without large areas over which physical and biological processes can occur, achieving viable population sizes and diverse, sustainable landscapes is unlikely. Metrics are provided to help plan and evaluate wildlife support at the landscape scale.

Think long-term; restoration takes time. The Delta has been dramatically altered over the past 200 years. Re-establishing critical physical processes, restoring large areas of habitat, and coordinating multiple restoration projects into a coherent landscape will take time, likely decades. Current regulatory, permitting, and funding systems are not designed for such long time scales. Adaptive management, monitoring, and frequent evaluation will help adjust trajectories as the landscape evolves and future events unfold.

Design actions to support multiple species and ecological functions. Actions designed to benefit a broad suite of native species can be the most efficient way to regain desired ecological functions. Targeted actions for rare and endangered species may also be needed to conserve overall biodiversity. These should be undertaken in the broader context of benefits to native wildlife. Coordinated actions, and consideration of multiple functional groups, can help ensure greater benefits. For example, projects designed for fish could be adjusted to increase benefits for waterfowl and marsh wildlife as well.

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CURRENT AND FUTURE STATE ACTIONS:

Results from this report are already being incorporated into State planning efforts, including the California Department of Fish and Wildlife's *Delta Conservation Framework*, to support restoration of critical habitats for threatened and endangered species.

Other State agencies, including the Delta Stewardship Council, will use this information to develop metrics and performance measures to track the effectiveness of habitat restoration over the long term and inform both *Delta Plan* implementation successes and those of the *Estuary Blueprint*.

"This report supports implementation of the Delta Reform Act co-equal goal of restoring the Delta ecosystem. Implementation will require the broad community of the Delta working together collaboratively. This report provides a common understanding for the citizens of the Delta, resource managers, and decision makers, about the ecosystem changes needed for improved ecological health.

Such enhancement and restoration will require engagement with affected communities and stakeholders to be realized. Any actions suggested in the report are meant to be implemented voluntarily. This report provides the historical and landscape perspective that is a critically important foundation to our ability to successfully improve the ecological integrity of the Delta."

ADAPTED FROM: Delta Agencies (*A Delta Renewed*, p. viii) signed by

Carl Wilcox, Policy Advisor to the Director for the Delta, CA Dept. of Fish and Wildlife

Campbell Ingram, Executive Officer, Delta Conservancy

Jessica Pearson, Executive Officer, Delta Stewardship Council

FACTS and FIGURES

- **98% of the historical marsh area in the Delta is gone.**
- **Open water habitats are now nearly twice as extensive as they were.**
- **The Delta has changed from a landscape of channels embedded in marshes to small marsh patches within large channels.**
- **There has been a 91% loss of wide (>500 m) riparian forests.**
- **The Delta has lost its "capillary system"**—the smaller channels adjacent to marshes that facilitated the exchange of energy, materials, and biota between land and water.
- **The extent of inundated floodplains has decreased dramatically over time.** Where these floodplain habitats have been reestablished (Yolo Bypass and Cosumnes River) good things are happening for wildlife (like juvenile salmon).

FOR MORE, SEE 2014 REPORT: [A DELTA TRANSFORMED](#)

The Delta Renewed report and additional information are available at the project website: www.sfei.org/projects/delta-landscapes