ACTION 12 Restore watershed connections to the Estuary to improve habitat, flood protection, and water quality

Plan and implement multi-benefit projects that connect watersheds to the Estuary and enhance habitats, natural processes, and ecosystem services. Integrated projects should be able to provide more than one benefit. Potential benefits may include: tidal, intertidal, and open water habitat restoration; flood management; water quality improvement; fish passage and food supply; wave energy reduction; groundwater recharge; sediment delivery; and recreational opportunities.

TASK 12-1 Develop and disseminate data, information, and tools to assist with site selection and design of multi-benefit projects.

BY 2016 Disseminate data and tools through a website.

TASK 12-2 Advance a multi-benefit project in the Yolo Bypass by establishing a common vision for improvements supported by local, state, and federal agencies.

BY 2017 Initiate construction of multiple fish passage improvement projects within the Yolo Bypass.

TASK 12-3 Use the tools developed in Task 12-1, as well as findings from other research and projects (including the Yolo Bypass project) to identify and select sites for multi-benefit projects. In partnership with property owners and public entities, assess existing conditions in the context of historic and projected conditions (including sea level rise) to develop appropriate project scopes and conceptual restoration designs for selected sites.

BY 2019 Develop project scopes and conceptual restoration designs for four sites.

TASK 12-4 Secure funding in conjunction with partners to complete designs and construction documents. Obtain necessary permits and approvals for selected sites.

BY 2021 Initiate implementation phase of two projects.

BACKGROUND

The Estuary's connections to local creeks and floodplains are integral to its health. Historically, creek mouths were the Estuary's natural deltas, while floodplains provided spreading and groundwater percolation zones for rivers, sloughs and channels. Drainage and runoff once delivered sediment and organic matter (carbon and plant material) to these creek mouths and floodplains, and made them places of high ecological diversity and complexity. Today, as they did historically, creek mouths play a disproportionately important role in sustaining the Estuary's tidal marshland, and in providing transition zones for wildlife moving up and downstream. Floodplains such as the Yolo Bypass, meanwhile, continue to absorb storm flows, filter and improve water quality, and provide habitat, food, and nursery grounds for fish and birds.

Over time, humans have built levees, berms, culverts, drains, and roads in these critical transition zones between creeks, rivers, floodplains, and the Estuary. Though originally intended for flood protection or transportation, these and other hard structures now disrupt the natural hydrologic exchange and sediment delivery regimes that nourish complex habitat mosaics for native wildlife. In urbanized watersheds, it is not uncommon to find creeks connecting to the Estuary through open or closed culverts, or for road and railroad infrastructure to infringe on local waterways.

This CCMP action supports the development of multi-benefit projects that redesign the rich zone where freshwater flows from the watershed meet ocean tides (the "tidal-fluvial interface") or spread onto floodplains. It also builds on Flood Control 2.0 and the project's visions for Lower Novato Creek and Lower Walnut Creek. Such projects can help supply sediment from the watershed to habitats along marsh fronts, historic tributary deltas, and beaches, while simultaneously improving flood conveyance, and re-establishing more resilient shorelines. Similar efforts in upper Estuary floodplains can also diversify habitats, improve water quality and flood conveyance, and recharge groundwater.

OWNERS

CA Department of Water Resources (Task 12-2)
SF Estuary Institute (Task 12-1)
SF Estuary Partnership (Tasks 12-3, 12-4)

COLLABORATING PARTNERS

Bay Area Ecosystems Climate Change Consortium, Bay Area Flood Protection Agencies Association, Delta Stewardship Council, NOAA Fisheries, SF Bay Conservation and Development Commission, SF Bay Joint Venture, SF Bay National Estuarine Research Reserve, SF Bay Regional Water Quality Control Board, various local municipalities and special districts

NEXUS

Actions 18, 24, 25
Goals 1, 2
Objectives a, b, c, d, e, f