

## **The Little Egbert Multi-Benefit Project; Restoring Tidal Habitat and Building Resilience in the Northern Bay-Delta, California - Jeremy Thomas**

The Little Egbert Multi-Benefit Project (LEMBP) is a large-scale estuarine habitat restoration, flood management, and climate adaptation project in the northern California Sacramento-San Joaquin Delta. Historically, the project site was composed of seasonal and tidal marsh, emergent wetland, and riparian forest habitat. It was reclaimed for agricultural production, and currently is cultivated for row crops and alfalfa. It is below sea-level and protected by a restricted-height levee that is designed to overtop during high water events to reduce pressure on upstream levees. Sea-level rise and climate change are expected to reduce the effectiveness of these aging levees. The LEMBP would restore approximately 3,000 acres of habitat, while allowing increased flood conveyance at the southern end of the Yolo Bypass and providing enhanced outdoor recreation, education, and open space opportunities. This presentation will provide an overview of the project, describe preliminary design approaches highlighting the use of natural and nature-based features to restore habitats and adapt to projected increases in sea-level and flood flows, and describe opportunities and challenges for project implementation in the context of the overall ecosystem, flood, and water management strategies being advanced by the State of California.

## **Understanding the Economics and Scale of Opportunity: Restoring California's Marine and Coastal Habitats - Bryan DeAngelis**

California has over 5,000km of coastline, but represents only a fraction of investments into sub and intertidal coastal and marine restoration. Significant losses of critical coastal and marine habitats such as kelp, eelgrass and native oysters have occurred over the centuries due to human activities and the impacts of a changing climate. To understand the scale of the restoration opportunity, the level of investment required and the potential return on those investments we estimated the potential restorable acreage of kelp forests, native oysters and eelgrass beds in California using best available science and expert input. We then used input-output analysis to estimate the economic contribution of restoring up to a combined total of 32,000 potentially restorable acres of these habitats along California's coastline by 2050. This included scenario analyses comparing the economic contributions of restoring 100 percent of the potential acres, 50 percent of potential acres restored, and continuing the current rate of restoration efforts (i.e., "business-as-usual"). California can achieve 50 percent of the restoration goal by investing \$117M every year through 2050 in marine restoration, and 100 percent of the goal by investing \$232M. Such investments would benefit the California economy by supporting \$1.97 in economic activity for every \$1 invested to restore these habitats. The ripple effects of such spending would also support 1,300–2,600 total jobs every year. Such an investment in rebuilding resilience into marine habitats will help California mitigate the impacts of a changing climate, improve biodiversity, and generate jobs and revenue for coastal communities.

## **Evaluating dunes as nature-based solutions with the California Dune Science Network - Jenna Wisniewski**

Increased winter wave action and storm events in recent years have amplified concerns for sandy beach ecosystems and coastal communities. California's dune systems have high potential to act as a natural buffer to coastal flooding and climate change impacts, increasing coastal resilience and protecting infrastructure. The California Dune Science Network was established to build expertise in coastal dune restoration efforts statewide by collectively learning from experimental approaches, evaluating science-based indicators of coastal resilience, and synthesizing lessons learned and best management practices. In 2023, the Network received a California Climate Action Seed Grant to evaluate the functionality of dunes as nature-based solutions (NbS) to climate change impacts. The grant is in partnership with 17 collaborators and end-users.

This presentation will provide details on the Network's current activities and results including :1) the development of the first comprehensive state-wide dune inventory detailing the extent of current dunes and historical presence; 2) observations conducted at 26 pilot sites (11 in disadvantaged communities) to advance understanding of adaptive management approaches including dune engineering, restoration, and monitoring methodology; and 3) the development of indicators and frameworks for assessing site suitability, as well as coastal dune vulnerability and resilience. The project outcomes are intended to inform other Nbs dune projects and state guidance for dune monitoring, implementation, and adaptive management.

### **Little Egbert Multi-Benefit Project - Kiernan Kelty**

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