Testing a Novel Adaptation Strategy in a California Salt Marsh. Evyan Borgnis*[1], Kirk Gilligan[2], Victoria Touchstone[2], Andy Yuen[2], Christine Whitcraft[3], Richard A. Ambrose[4], Karen Thorne[5], Glenn McDonald[4], Jason Keller[6], and Mayda Winter[7]. [1]State Coastal Conservancy, 1330 Broadway, 13th Floor, Oakland, California 94612. [2]United States Fish and Wildlife Service, San Diego National Wildlife Refuge Complex P.O. Box 2358, Chula Vista, CA 91912. [3]California State University Long Beach, 1250 Bellflower Blvd, Long Beach, CA 90840. [4]University of California Los Angeles, Los Angeles, CA 90095. [5]USGS Western Ecological Research Center, San Francisco Bay Estuary Field Station, 505 Azuar Drive, Vallejo, CA 94592. [6]Chapman University, 1 University Dr, Orange, CA 92866. [7]Southwest Wetlands Interpretive Association, 708 Seacoast Dr # A, Imperial Beach, CA 91932. [1]evyan.borgnis@scc.ca.gov.

Coastal wetlands around the world are threatened by sea-level rise (SLR). While current research demonstrates that many, but not all, wetlands in California are keeping pace with SLR via sediment accretion, this resiliency is expected to only resist SLR projections for 2030 and likely 2050. To ensure wetland resilience for 2100 and beyond, wetland management must incorporate a range of tools at various scales. The Seal Beach National Wildlife Refuge (Refuge) encompasses 911 acres of remnant saltwater marsh in the Anaheim Bay estuary and is a perfect location to test a new SLR adaptation strategy, sediment augmentation, where a thin-layer of sediment is placed on a marsh plain to raise elevations. The Refuge is currently experiencing elevated rates of SLR (~3Xs higher than other California wetlands; 6.23 mm/yr) due to subsidence and with Orange County's imminent plans to dredge the adjacent harbor; this is the perfect opportunity to test sediment augmentation. This project placed 8-10 inches of clean, dredge material on approximately 8-acres of low-elevation (*Spartina*-dominated) marsh. Sediment was transported by floating pipe and placed on the marsh plain using a rainbow sprayer. One year of pre-construction monitoring, started in April 2015, and five years of post-construction monitoring will determine the effectiveness of sediment augmentation at the Refuge. The monitoring program will assess augmentation effects on elevation and sediment dynamics, creek morphology, carbon sequestration including greenhouse gas flux, invertebrates, emergent and submerged vegetation, and avian communities. The results of this project will be shared via trainings hosted by the USFWS for potential utilization throughout California's salt marsh systems.