

# SALINAS RIVER SB PROJECT

## Restoration Process

The dunes at Salinas River State Beach, and the lands they protect, are one of the sections of the Monterey Bay coastline most vulnerable to sea level rise. The Salinas River State Beach Dune Restoration Project will help to reduce this vulnerability by eradicating non-native ice plant and replanting with species native to the dune ecosystem.

Large patches of ice plant are being sprayed with an herbicide, while small patches are being removed by hand. The dead ice plant is then left in place to act as mulch. Once the ice plant has decomposed, native species are planted within it.



*A member of the restoration crew hand pulls ice plant at SRSB. (photo by S. Stoner-Duncan)*

## Restoration Research and Monitoring

As part of this project, the following dune restoration methods are being investigated:

- Planting density and species diversity
- Complete removal of ice plant compared to leaving dead ice plant in place as mulch
- Strategic placement of driftwood to help trap sand and build dunes

This brochure was created as part of the Salinas River State Beach Dune Restoration Project. This project is a collaboration between the Central Coast Wetlands Group at Moss Landing Marine Laboratories, Coastal Conservation and Research, and California State Parks.

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# DUNE RESTORATION *for a* CHANGING CLIMATE



Salinas River State Beach  
Dune Restoration Project



## BENEFITS OF DUNES

### Dunes Protect Us from Storms

Wind and waves form sand into dunes behind many Monterey Bay beaches. Dunes dissipate wave run-up and reduce erosion. As natural barriers, dunes protect low-lying coastal communities from storm surge and large waves, reducing flooding to farmlands and homes.



The dune system at Salinas River SB protects agriculture from coastal flooding. (photo © 2002-2017 Kenneth & Gabrielle Adelman)

### Dunes Support Life

Healthy dunes are home to a vibrant community of plants and animals, all adapted to this unique environment. However, because of human-caused alterations to dune ecosystems, some of these species are now threatened or endangered.



The Western Snowy Plover is an endangered shorebird that uses the dune ecosystem for nesting habitat. (Illustration by Erica Fielder)

## RISING SEAS

### Climate Change

Burning fossil fuels like coal, oil, and natural gas to heat homes, generate electricity, or power cars, releases carbon dioxide into the atmosphere. In turn, the carbon dioxide acts like a blanket, trapping heat in our atmosphere. This excess heat disrupts our climate, resulting in melting polar ice, rising seas, and more severe storms. With higher tides and increasing storm intensity from climate change, we need the protection of healthy dunes more than ever.

### Sea Level Rise and Ice Plant

Beginning in the early 20th century, ice plant (*Carpobrotus edulis*), an invasive succulent imported from South Africa, was widely planted to stabilize shifting sands. But ice plant doesn't just stabilize sand dunes—it damages them. Spreading rapidly, ice plant forms a thick mat, locking sand into place. When storm waves hit, dunes can't shift. Instead they erode, and eventually collapse. Unless we restore the dunes back to a natural and adaptive state, this erosion process will increase with sea level rise.



Foredune collapse underneath a mat of ice plant after a large winter storm in 2017. (Photo by S. Stoner-Duncan)

## DUNE RESTORATION

### Native Plants

By removing ice plant and restoring the dunes with plants native to the dune ecosystem, we can restore essential dune processes and help improve both the native habitat and the resiliency of the dunes to climate change impacts. In contrast to ice plant, native dune plants grow deep, anchoring roots that help resist erosion while still allowing sand to shift with wind and waves. Native plants also provide important habitat for dune animals.



Native dune plants such as Beach Primrose, (*Camissoniopsis cheiranthifolia*) and Beach Pea (*Lathyrus littoralis*) are planted on the dunes. (Illustration by Erica Fielder)

### A Natural Adaptation Strategy

Dune restoration is one example of how we can use natural infrastructure to adapt to sea level rise. As climate change brings more extreme weather, healthy dunes can provide defense against rising seas and stronger storms. Restoring our dunes to their natural condition also promises a more resilient future for the lands they protect.