



## What is the South End Living Shoreline Project?

- A **shoreline enhancement and restoration** project to improve the resilience and function of Bolinas Lagoon's transitional marsh habitat
- An opportunity to demonstrate the latest science in nature-based restoration techniques to **help the shoreline adapt** to sea-level rise while preserving ecosystem benefits
- A model for using **natural construction materials** (native plants, woody debris) to create transitional marsh habitat (see image 1) critical for protecting wildlife, and strengthening coastal resilience
- **Part of a larger vision** for a healthy lagoon ecosystem (Recommendation 6b in the *2008 Bolinas Lagoon Ecosystem Restoration Project: Recommendations for Restoration and Management*; i.e. Locally Preferred Plan)
- A project **led by Greater Farallones Association** in partnership with Greater Farallones National Marine Sanctuary, Marin County Parks, Audubon Canyon Ranch, and the communities of Stinson Beach and Seadrift.

## Why are Marshes Important?

Marsh habitats flood and drain with tides and fresh water inputs. These intertidal transition zones are essential for healthy ecosystems, coastlines, and communities, and provide many benefits including:

- Refuge, food, nesting, and nursery sites for fish and wildlife
- Reduced shoreline erosion by decreasing wave action and trapping sediment
- Protection against flooding from storm surge and sea-level rise
- Improved water quality by filtering runoff pollution
- Carbon capture and storage
- Recreation, education, and wildlife viewing



Marbled Godwin at Bolinas Lagoon.



Image 1: Gradually sloping healthy marsh habitat along the western shoreline of Dipsea Road.

## Current and Future Threats

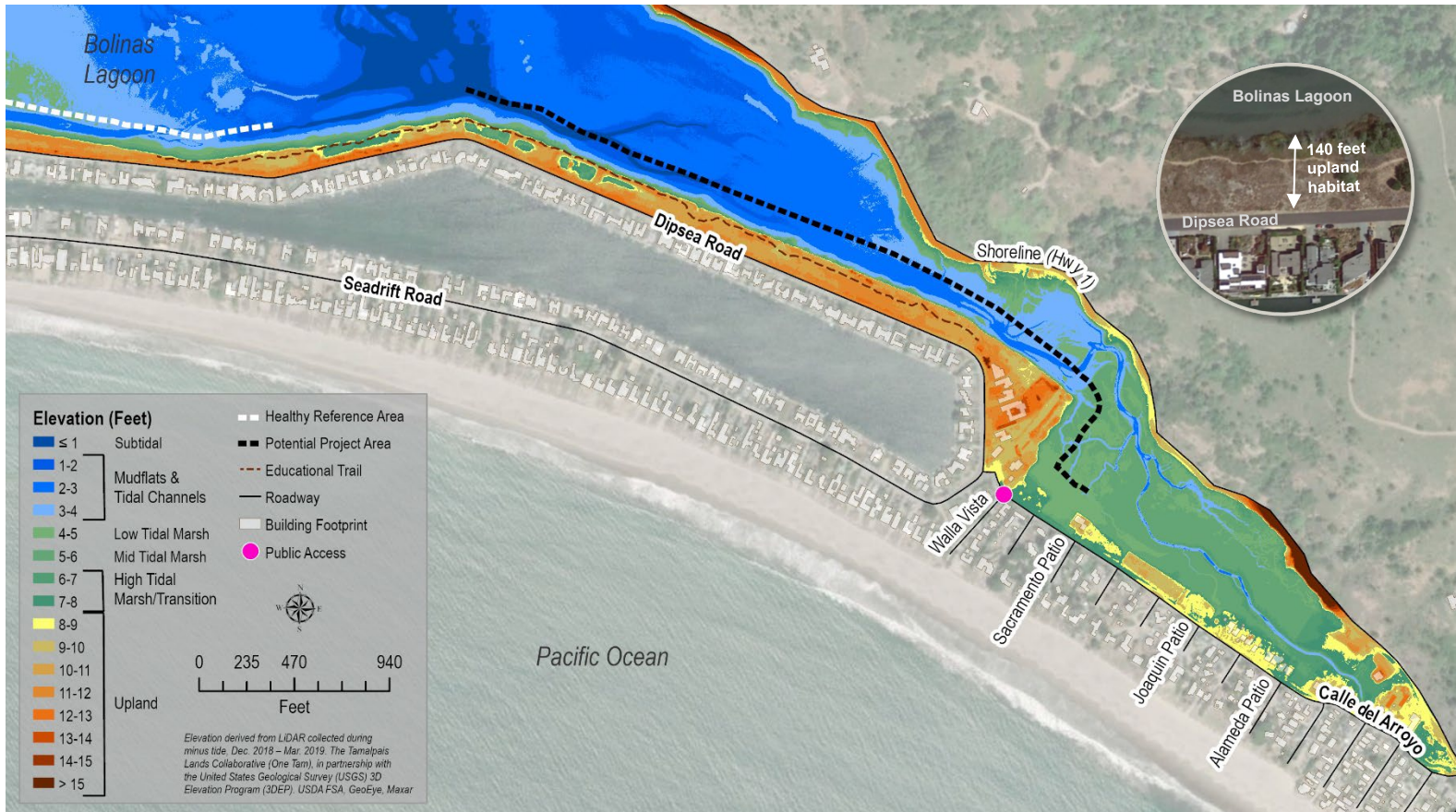
Historical impacts to the lagoon have degraded wetland and marsh habitat, resulting in an unnaturally steep shoreline and loss of transitional habitat (see image 2). Climate change is exacerbating erosion and habitat loss through sea-level rise and increased precipitation and storm events. Enhancing the existing shoreline and restoring transitional marsh is critical for the long-term health and resilience of Bolinas Lagoon and its wildlife.



Image 2: Steep eroding shoreline along the eastern span of Dipsea Road.

## Why the South End?

Most of Bolinas Lagoon's perimeter is hardened by development, which limits the width of shoreline habitat and restricts its ability to shift upslope as water levels rise. The south end is one of the remaining locations with a long continuous stretch of upland space to accommodate transitional habitat (see map on page 2). This project, in combination with efforts along Stinson Beach and the lagoon's north end, is part of a holistic ecosystem approach to support a healthy, resilient Bolinas Lagoon.



We want to hear what YOU think is most important about this special place. Share your thoughts with us!

Contact Dr. Wendy Kordesch, Geological Oceanographer at [wendy.kordesch@noaa.gov](mailto:wendy.kordesch@noaa.gov)

To support this project or for more information about other restoration work at Bolinas Lagoon visit: [www.farallones.org/bolinas](http://www.farallones.org/bolinas)

## Project Map

Colors in the map above depict the elevation of different habitat types, from subtidal (dark blue) to upland (orange). Along the lagoon's southern shoreline, extensive upland habitat (see inset) provides ample space to restore transitional marsh (green) habitat. The project area will encompass the shoreline along the eastern span of Dipsea Road and northern section of Calle del Arroyo Road. Project managers will study the adjacent "healthy reference area" where gradual habitat transition (and color gradient) exists, to develop a community-supported project that reduces erosion, restores native habitat, minimizes impacts from storms and sea-level rise, and integrates the function of the surrounding natural areas.

## What's Next?

