



**Project Title: San Francisco Bay Wetland Restoration Increases Resilience of Coastal Resources and Communities**

**Headline Title (2-5 words): San Francisco Bay Wetland Restoration**

**Brief Summary (Abstract):**

NOAA's Community-based Restoration Program has funded large-scale wetland restoration projects throughout the San Francisco Bay to re-open diked areas to tidal flow and increase the habitat mosaic for fish, and other species. These projects increase the resilience of these species, and the resilience of urban and agricultural communities by providing natural buffers for shorelines and adjacent land users. The restored wetlands also sequester and store carbon, helping to mitigate greenhouse gases. These multi-partner projects are also designed and sited to ensure they are robust to sea level rise.

**Project Location:** San Francisco Bay, CA

**Partners:** NOAA, State, local partners

**Background:**

**Project Goals:**

Restore function of coastal wetlands to increase the resilience and adaptation of coastal species and adjacent urban and agricultural communities.

Increase carbon sequestration and storage to help mitigate greenhouse gas levels and climate change.

**Strategy Goals Implemented:** goal 1

**Climate Impacts Addressed:**

Sea level rise, coastal inundation (including changes in storms, precipitation etc), increasing sea and air temperatures

**Status of Project Implementation (Timeline, Milestones, Next Steps):**

Multiple projects underway; others in planning stages.

**Project Outcomes:**

Restored coastal wetlands and wetland services that will increase the resilience of coastal species and the surrounding human communities, industries (agriculture).

Increased carbon sequestration and storage to reduce greenhouse gas levels and climate change.



NATIONAL *fish, wildlife & plants*  
CLIMATE ADAPTATION STRATEGY

Funding Sources: NOAA and others

Contact Info: Roger Griffis

Photos/Attachments:

Photo/Figure Credits (do we have permission to print):

Suggested Photo Caption:



NATIONAL *fish, wildlife & plants*  
CLIMATE ADAPTATION STRATEGY

**Example Submission**

Project Title: “Assessing the vulnerability of species and ecosystems to projected future climate change in the Pacific Northwest”

Headline Title (2-5 words): Pacific Northwest Vulnerability Assessment

Brief Summary (Abstract): A collaborative project to assess the vulnerability of species and ecosystems to future climate change impacts in the Pacific Northwest.

Project Location: Washington, Idaho

Partners: This project is a collaboration among researchers, managers, and planners at the [University of Washington](#), [U.S. Geological Survey](#), [The Nature Conservancy](#), the [National Parks Service](#), the [U.S. Forest Service](#), the [Washington Department of Fish and Wildlife](#), the [University of Idaho](#), the [National Wildlife Federation](#), the [Oregon Department of Fish and Wildlife](#), and [Idaho Fish and Game](#).

Background: In the Pacific Northwest temperatures have increased by about 0.8 °C and models project warming of 1.8°C by the 2040s and 3.0°C by the 2080s . Precipitation is also projected to change, with general increases projected for the Pacific Northwest, and with a more intense seasonal precipitation cycle - autumns and winters may in fact become wetter and summers may become drier. Further, regional climate models indicate that extreme precipitation in western WA will increase and the snowpack in the Cascades will decrease. Although the trend in direction of change is broadly recognized, there is uncertainty associated with what actual extent of changes may occur through time and in local areas.

Project Goals: The goals of this project are to incorporate climate change information into management planning and implementation efforts by providing: (1) downscaled regional climate models (~1km), (2) simulated shifts in vegetation, (3) an extensive database of documented species vulnerabilities, (4) models of species range shifts for selected species, (5) summaries of the extent of uncertainty in the climate, vegetation, and species changes, and lastly (6) a collaboration of resource managers working to incorporated climate change information into management planning and implementation efforts.

Strategy Goals Implemented: Goal 2, Strategy 2.2, Action 2.2.1 Use vulnerability assessments to design and implement management actions at species to ecosystem scales.

Goal 2, Strategy 2.1, Action 2.1.3 Identify species and habitats particularly vulnerable to transition under climate change

Climate Impacts Addressed: Impacts on species and habitats

Status of Project Implementation: Project is ongoing. Currently, over 570 species are in the database and nearly 200 are complete.



NATIONAL *fish, wildlife & plants*  
CLIMATE ADAPTATION STRATEGY

Project Outcomes: The Pacific Northwest vulnerability assessment includes two distinct components; first, a database that highlights and details the sensitivity of species and habitat in the study region. The estimated sensitivity of individual species will be based on the ability of the species to disperse and whether dispersal barriers exist, dependency on disturbance regimes (e.g. fire or flood), physiology (e.g., temperature, salinity), dependency on climatically-sensitive habitat requirements (e.g., alpine areas, shallow wetlands), whether the species is a generalist or specialist, and whether the species existence is tied to other specific species. The second component of the assessment involves modeling the potential effects of climate change on species and habitats. This includes: 1) downscaling the climate change projections, 2) simulating potential changes in vegetation, and 3) modeling potential effects on the distribution of 12 focal wildlife species using a hierarchical approach.

Funding Sources: USFWS, TNC, University of Washington, National Park Service, National Wildlife Federation, USGS

Photos/Attachments: [www.climatevulnerability.org](http://www.climatevulnerability.org)

Photo/Figure Credits (do we have permission to print):

Suggested Photo Caption: