ABSTRACT
Preparing for Sea-Level Rise Along the San Francisco Bay Area's Outer Coast

Current scientific literature and statistical trends suggest that coastal storms with the damaging combination of large waves and higher water levels will be more frequent in the future, resulting in greater risk of coastal inundation, flooding, erosion and cliff failures along the coast of California. To prepare adequate and timely adaptation and response strategies for these impacts, land and resource managers along the San Francisco Bay Area's coast (in the four counties: Sonoma, Marin, San Francisco and San Mateo) need to understand how these future changes will affect the landscape, ecological systems and human infrastructure.

A new partnership of nine organizations, the Bay Area Ecosystems Climate Change Consortium, recently formed to assess climate change impacts and strengthen collaborative science-based adaptive management among resource management agencies, decision makers and other key stakeholders in the San Francisco Bay Area region. Building on their state-of-the art approach to determine the impact of severe winter storms in Southern California (Barnard et al., 2009), U.S. Geological Survey (PI Barnard) will apply this process based modeling suite, which will utilize a high resolution (2 m horizontal resolution) digital elevation model (DEM), to assess coastal vulnerability to sea level rise and climate change along the San Francisco Bay Area outer coastline (Pt. San Pedro to Pt. Reyes). PRBO Conservation Science (Co-PI Ballard) will integrate and synthesize the predicted coastal impacts with the results from similar efforts for the inner bay shoreline of SF Bay affecting many of the same land and resource managers. PRBO will develop a web-based decision support tool providing information to the managers as defined by a stakeholder participation process, which will be managed by NOAA's Gulf of the Farallones National Marine Sanctuary (Project Manager Higgason). As a result of this project, these local, state and federal land and resource managers along the coast of the San Francisco Bay Area will have the information they need to develop adaptation and response strategies for anticipated coastal inundation, flooding, erosion and cliff failures resulting from climate change.

Barnard, P.L., O'Reilly, B., van Ormondt, M., Elias, E., Ruggiero, P., Erikson, L.H., Hapke, C., Collins, B.D., Guza, R.T., Adams, P.N. and Thomas, J.T., 2009. The framework of a coastal hazards model: a tool for predicting the impact of severe storms. U.S. Geological Survey Open-File Report 2009-1073, 21 pp., http://pubs.usgs.gov/of/2009/1073/