

**California State Agencies Collaborative Research Project**  
**National Research Council (NRC) Sea Level Rise Study**

**Agencies Involved & Roles:**

Three states—California, Oregon, and Washington—and the federal government are participating in the study. In California, the State Water Resources Control Board, California Energy Commission, Ocean Protection Council, and Caltrans are providing financial support. The Department of Water Resources is providing in-kind services by managing the project and the contracts. The Washington Department of Ecology and the Oregon Water Enhancement Board are providing financial support, as are the US Geological Survey, National Oceanic and Atmospheric Administration, and US Army Corps of Engineers.

**Funding:**

As shown below, total funding made available for the study is \$579,999.99. The federal agencies have provided their financial contributions directly to the National Research Council through other pre-existing contracts between the agencies and the National Research Council. All of the state agency funding was moved via contracts to the Department of Water Resources; the Department of Water Resources executed a master contract with NRC on April 29, 2010, for performance of the study.

Contributor	California (\$)	Other States (\$)	Federal (\$)
State Water Resources Control Board	95,000		
California Energy Commission	95,000		
Ocean Protection Council	100,000		
Caltrans	95,000		
Washington Department of Ecology		70,000	
Oregon Water Enhancement Board		49,999.99	
US Geological Survey			25,000
National Oceanic and Atmospheric Administration			25,000
US Army Corps of Engineers			25,000
Totals	385,000	119,999.99	75,000

**Background Information:**

Executive Order S-13-08 called for preparation of an National Research Council study to estimate future sea level rise in California, to assist in state climate change adaptation planning. Building on partnerships first developed under the West Coast Governors' Global Warming Initiative, the states of Oregon and Washington subsequently joined in the study, whose geographic scope was expanded to cover all three states.

**Project Description:**

The scope of work in for the study is:

1. Evaluate each of the major contributors to global sea level rise (e.g., ocean thermal expansion, melting of glaciers and ice sheets); combine the contributions to provide values or a range of values of global sea level rise for the years 2030, 2050, and 2100; and evaluate the uncertainties associated with these values for each timeframe.
2. Characterize and, where possible, provide specific values for the regional and local contributions to sea level rise (e.g., atmospheric changes influencing ocean winds, El Nino-Southern Oscillation effects on ocean surface height, coastal upwelling and currents, storminess, coastal land motion caused by tectonics, sediment loading, or aquifer withdrawal) for the years 2030, 2050 and 2100. Different types of coastal settings will be examined, taking into account factors such as landform (e.g., estuaries, wetlands, beaches, lagoons, cliffs), geologic substrate (e.g., unconsolidated sediments, bedrock), and rates of geologic deformation. For inputs that can be quantified, the study will also provide related uncertainties. The study will also summarize what is known about:
  - a. climate-induced increases in storm frequency and magnitude and related changes to regional and local sea level rise estimations (e.g., more frequent and severe storm surges);
  - b. the efficacy of coastal habitats and coastal restoration (e.g., watershed restoration) in increasing the resilience of communities and ecosystems along the West Coast.

### **Research Coordination:**

The scope of work for the National Research Council study was jointly developed among the participating agencies as part of the process to seek funding for the study. The Department of Water Resources has formed a steering committee for the National Research Council study composed of representative from the participating agencies; the steering committee will provide the forum for interagency coordination. The benefit of the collaboration to the participating agencies is the ability to spread study costs among multiple partners, reducing each individual agency's costs, and also the avoidance of any duplication of effort had individual agencies separately funded their own sea level rise research.

Of note, Executive Order S-13-08 also directed California state agencies to consider, for planning purpose, a range of sea level rise scenarios in the interim until the National Research Council study was completed. The Coastal and Ocean Climate Action Team formed a subcommittee to develop interim sea level rise projections and guidance; the California agency members of the National Research Council study steering committee participated in that subcommittee. The interim projections and guidance are presently out for public review.

**Benefits to the State:**

The National Research Council study will provide best-available science on expected amounts of sea level rise along the California coast, allowing California state agencies that build and maintain coastal infrastructure or enforce permitting programs to use the information in their programs. The information will facilitate coordinated response to adaptation planning across all agencies of state government, by providing authoritative guidance common to all agencies. The study will likewise be useful for California local agencies carrying out their own land use and infrastructure planning programs.