



SEA GRANT PROGRAM UNIVERSITY OF SOUTHERN CALIFORNIA

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RESEARCH AND OUTREACH FOR THE URBAN OCEAN

The Sea Grant Program at the University of Southern California has funded research and public education about Southern California coastal resources for over 30 years. Sea Grant transfers research results to government agencies and provides information about coastal resources and recreation. Research and outreach projects cover a broad range of coastal issues, with emphasis on the "Urban Ocean," USC Sea Grant's thematic focus.

To manage the ever-increasing demands on coastal resources, authorities need accurate scientific information on which sound decisions can be based. Sea Grant supports projects addressing the issues and opportunities of the coastal Southern California metropolitan region. Work on managing marine protected areas and refuges, protecting water quality, improving port and marine transportation operations, ensuring shoreline stability and preventing coastal hazards, and promoting the sustainable development of coastal areas are important for the Los Angeles area. Results can be applied to other cities facing similar coastal resource issues.

Urban Ocean Research Results

Storm drain runoff from urban areas is a major source of pollution in the coastal waters of Southern California, yet it is the least well understood of pollutant sources in the coastal zone. Sea Grant has sponsored several projects on the effects of runoff on water quality and ecosystems. In a collaborative study with the City and County of Los Angeles, scientists mapped for the first time the movement of the stormwater plume into Santa Monica Bay, showing that the layer of fresh water delivered to the surface waters is turbid, nutrient-rich, and toxic.

In Orange County, Sea Grant evaluated the scientific studies undertaken during and after a two-month **closure of Huntington Beach** in summer 1999 due to excessive levels of indicator bacteria. The beach closure resulted in one of largest known losses to recreational activities and revenue because of its vast spatial distribution and occurrence during the summer months. The County has spent millions in efforts to control and investigate the persisting problem. In 2002 Sea Grant conducted a second assessment of major research efforts.

Viruses in coastal waters are the subject of ongoing USC Sea Grant studies to develop new methods to reliably test for the presence of pathogens harmful to human health. An epidemiological study of Santa Monica Bay found high incidences of illnesses in swimmers and surfers who swim in areas where virus levels are high. USC scientists have

found that common public health methods for monitoring bacteria do not reliably indicate the health threat from viruses. New methods for identifying pathogens will allow public health agencies to provide timely warnings to beachgoers about potential health hazards.

DDT and PCBs from the White's Point Outfall effluent were examined in a study on effluents from the large ocean outfall on the Palos Verdes Shelf. These contaminants in the water column were found in concentrations more than 100-fold higher than the limits set by the State Water Resources Control Board. The EPA, through the Superfund program, will attempt to cap the most contaminated sediments in the Bay.

Sea Grant Outreach

Sea Grant assists regional agencies and the public with management of coastal resources. For example, **non-indigenous species** are a growing problem for coastal waters. Sea Grant addresses invasive species issues through research and outreach about the non-indigenous seaweed *Caluierpa taxifolia*.

A Sea Grant project to educate architects, city planners and developers about **on-site storm water retention**, helps incorporate new methods into building designs and community development plans. USC Schools of Architecture and Engineering are helping to develop references and professional workshops to give architects and designers training in stormwater retention design.

Sea Grant's new project on marine transportation and ports and harbors will foster research to help port managers in California and throughout the nation improve their operations, minimize invasive species, increase security and enhance environmental quality. The Ports of Long Beach and Los Angeles are the largest in the nation.

The "Island Explorers" marine education program focuses on underserved and minority students in the Los Angeles area, bringing lesson plans, classroom support and workshops to teachers, students and parents. Goals are to enhance science literacy, enrich students in science education and encourage science careers.

For more information: <http://www.usc.edu/go/seagrant>

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