DIRECTOR'S STATEMENT

The Coastal Water Research Project was organized in 1969 to make scientific studies of the problems of pollution in the coastal waters of California, especially those associated with the discharge of municipal wastes. Each year the Project's capabilities increase as our staff learns more about making the statistically valid and precise measurements on which scientific advance depends. As our general knowledge of the chemical, biological, and physical conditions in the ocean develops, and our backlog of statistics on the inputs of various materials increases, we are able to ask increasingly penetrating questions. Slowly the complex ecological picture is unfolding, and we begin to under-stand the ways in which the many species of animals relate to each other and adjust to minute changes in the environment.

Confidence in the validity of our findings continues to grow, and we are increasingly sought out by persons and organizations concerned with the discharge of wastes into coastal waters. Often we are able to furnish useful data on short notice or recommend specific sampling and measurement techniques.

Our goal is to become expert on the subject of ocean pollution by making and reporting careful measurements of the quantities and movements of pollutants and of their effects. The special value of this project comes from the fact that we look "beyond the ends of the pipes" at the regional ecological situation and try to determine the effects of all factors that influence marine life so that any changes can be seen in the true perspective of natural biological variability and other acts of man. Such scope encourages our scientists to initiate studies that at first may not seem to be directly related to the effects of wastewater discharge but which ultimately contribute to a better understanding of marine processes.

As the research proceeds, we make our findings available promptly via reports such as this one and by technical memoranda or papers in the scientific literature. Our objective is to provide facts to concerned people—environmentalists, law-givers, politicians, and the general public—so that they will have a basis in science for their opinions. We hope that facts supported by measurements will replace unfounded views on the subject of what happens when wastes are discharged into the ocean.

This report describes the main points of our progress during the fiscal year ending 30 June 1975. We discuss our research, including extensive work at sea and in the laboratories; we enumerate our findings—which are summarized in the following section as a list of partial answers to key questions; and we list the persons involved and the funds spent.

The staff has been following a carefully thought-out research plan devised with the advice and assistance of our consulting board. This plan called for a detailed look at the causes of some fish diseases, the effects of chromium on marine animals, the survival of microbes and viruses in the ocean, the changes in the benthic biota around outfalls, and the dispersal, deposition, and desorption of particulate material. All of these studies are still under-way, and the material herein can be regarded as a progress report. In addition, a number of other investigations have been made, each of which adds to our knowledge of the effects of wastewater and how to measure them.

We reaffirm our belief that man must not pollute the ocean. However, the ocean is not naturally pure, nor is its chemistry the same in all places all the time. It is not easy to decide what materials are pollutants because nearly every-thing called a pollutant is already present in the ocean in huge quantities. At low levels, many "pollutants" are essential to the well-being of marine animals, although at higher concentrations, the same materials may be toxic. Somewhere between the two extremes, there is a zone of concentrations that are beneficial, or at least

harmless: We are trying to identify the upper level of this zone (the threshold of toxicity) for a few substances and a few organisms.

In the coming year, an updated research plan will be made. Much of the present work will continue, but some items will be replaced by new research of greater urgency. We will continue to do our best to serve the cause of environmental understanding.

WILLARD BASCOM
Project Director