Director's Introduction
A Year of Transition

The past year has been one of change for SCCWRP. The second-year edition of our Five-Year Research Plan established an ambitious set of goals. These goals dictated a reevaluation of SCCWRP facilities and instrumentation, and it was determined that some improvements and changes were in order.

What started out as a fairly modest task evolved into a complete rebuilding of the Trace Organics Laboratory, including all new lab benches, hoods, and extraction facilities. As a result of these improvements, the Toxicology Laboratory was expanded and moved into the former Trace Organics Lab location, thus, improving our ability to conduct bioassays and toxicological analyses.

The addition of new instrumentation, including a Kratos MS25RFA gas chromatograph/mass spectrometer, provided us with the capability to measure contaminants to an even greater degree of accuracy. This instrument was funded in part by a grant from the Los Angeles County Department of Beaches and Harbors and measures picogram quantities of contaminants in samples, which greatly facilitates the identification of unknown organic compounds.

It has been said that progress has a price and SCCWRP has realized this through the reduction of analytical output due to lab construction, moving, and installation and testing of the new instruments. Fortunately, this cutback was temporary, and we have finished construction and are back on-line.

Our research programs have progressed well in certain areas and the highlights should be noted. For instance, we have completed a preliminary study of the quality and quantity of dredged materials dumped offshore and, though the data provide a weak estimate of emissions, they do offer some indication of the volume of inputs. Additionally, we conducted a comparison of information about marine discharges from the 11 smaller municipal wastewater treatment plants, 14 power plants, and three petroleum refineries that discharge into the Southern California Bight. This type of survey has not been done since 1973 and our research plan calls for another Bight-wide assessment in 1990-1991. Along with the annual evaluation of mass emissions and contaminant concentrations by the six largest southern California municipal wastewater dischargers, these compilations provide some interesting insight about the composition and volume of inputs to the Bight.

It should be pointed out here that although the Oceanography Department did not singularly author any articles for this annual report edition, they have been diligently at work producing data for other investigators in the hopes of more clearly defining how physical processes in the ocean affect and distribute contaminants throughout the ecosystem. Dr. Hendricks has designed and produced an advanced electronic package to replace our previous current meters. As well, the Geochemistry Department has finished its remodeling tasks as discussed above and will be producing new information

about the fates of toxic compounds in the marine environment. A joint effort by these investigators was funded in 1988 by the State Water Resources Control Board. This research, which will actually be conducted in 1989, will revise and test sedimentation models, and verify the model predictions with geochemical measurements.

Determining the effects of contaminants on our coastal waters is the primary goal of SCCWRP and a number of studies were continued or completed in 1988 that provide a broader perspective toward that goal. A progress report on the recovery of Santa Monica Bay after termination of the Hyperion sevenmile sludge outfall discusses the movement of the sludge field and the changes in benthic infauna assemblages in the Bay. Also, a study was completed which obtained additional information about the extent of chemical contaminantion and biological effects by polynuclear aromatic hydrocarbons. (This particular report was an addendum to the original State Water Resources Board-sponsored study in 1987.) The influence of the type of sediment on the toxicity of certain contaminants is important as it provides information about the ability of the ecosystem to adjust to unusual levels.

One of the issues of greatest concern is the levels of contaminants found in stormwater runoff. In response, SCCWRP conducted a study to obtain estimates of stormwater runoff toxicity on marine life, to compare the water toxicity of different rivers during a single rainstorm, and to monitor a single river during multiple rainstorms. Hopefully, this will provide better comparative information between storm channel output and wastewater discharge.

Another item of concern is the toxicity of wastewater; thus, in a 1988 study, SCCWRP collected samples from the seven major wastewater treatment plants and documented changes in wastewater toxicity from each site and calculated "no observable effect concentrations" (NOEC). This is the highest concentration of effluent used in a test where no toxicity is produced. Evaluations regarding the impacts of wastewater on marine life are based on the presence of certain species known to inhabit specific areas, the brittlestar *Amphiodia urtica* among them. The presence or absence of this brittlestar is used as a criterion for issuing waste discharge permits, however, little is known about its basic life history. To test *A. urtica's* effectiveness as an experimental organism, SCCWRP initiated a preliminary laboratory study which is documented herein.

The Communications section of this report lists the publications and contributions for 1988, as well as presentations made by staff, and seminars hosted by SCCWRP during the year.

Immediately following this introduction is the personnel section, the financial statements for fiscal year 1988-89, a discussion of the progress we are making on outside contracts, and a report on our activities at sea. As we look ahead to our twentieth anniversary, it is with a sense of pride in the things we have achieved this year. On behalf of the Commission and staff of the Southern California Coastal Water Research Project Authority, I hope you find the contents of this report informative.

Sincerely,

Jack W. Anderson

Jack W. Anderson, Ph.D.
Director