

**SOUTHERN CALIFORNIA EDUCATIONAL INITIATIVE
PROGRAM YEAR 13
QUARTERLY REPORT 3**

for the period

January 1, 2002 – March 31, 2002



*A Cooperative Program
between the
University of California
and the
Minerals Management Service*

April 29, 2002

**SOUTHERN CALIFORNIA EDUCATIONAL INITIATIVE
PROGRAM YEAR 13
QUARTERLY REPORT 3**

for the period

January 1, 2002 – March 31, 2002

A Cooperative Program
between the
University of California
and the
Minerals Management Service

Russell J. Schmitt
Program Manager

Coastal Research Center
Marine Science Institute
University of California
Santa Barbara, California 93106

April 29, 2002

Program Manager's Report

for the period January 1, 2002 – March 31, 2002

This constitutes the quarterly report for the third quarter of Program Year 13 of the Southern California Educational Initiative, a cooperative research agreement between the Minerals Management Service, the state of California and the University of California.

As of this quarter, 3 projects currently are being conducted under the aegis of the Southern California Educational Initiative.

Actions Pending MMS Approval:

- We are waiting for MMS comments on the Draft Final Report for *Mitigating the Impact of Offshore Oil Development*, Woolley and Lima, PIs.

Major programmatic progress and actions during the quarter are summarized below for the period of January 1 – March 31, 2002.

- The Draft Final Report for project *A Design for a Time Series Study of a NIMBY Response*, Smith PI has been submitted to MMS for review;
- The Final Report for project *Ecological Effects of Chronic Exposure to Produced Water: A Field Test* and *Environmental Effects of Produced Water: A BACIP Field Assessment*, Osenberg, Holbrook, Schmitt and Carr, PIs, will be submitted to MMS next quarter in hard copy and PDF formats;
- The Final Report for project *Effects of Produced Water on Demographic Rates and Environmental Recovery Following Cessation of a Produced Water Discharge*, Schmitt and Osenberg, PIs, will be submitted to MMS next quarter in hard copy and PDF formats;
- The Final Report for project *Effects of Biologically Degraded Oil on Marine Invertebrate and Vertebrate Embryos and Larvae, 2001-048*, Cherr, Griffin and Higashi, PIs was submitted to MMS in hard copy and PDF formats.

Detecting Ecological Impacts: Effects of Taxonomic Aggregation in the Before-After/Control-Impact Paired Series Design

Principal Investigators: **Sally Holbrook**, Department of Ecology, Evolution and Marine Biology, University of California, Santa Barbara, CA 93106, **Mark H. Carr**, Department of Biology, University of California, Santa Cruz, CA 95064, **Craig W. Osenberg**, Department of Zoology, University of Florida, Gainesville, FL 32611-8525.

Major Accomplishments, January 1, 2002 – March 31, 2002

- We continue to contribute to the application of BACIPS methodology in other contexts. BACIPS and its role in the assessment of Marine Protected Areas and artificial reefs (such as the Rigs-to-Reefs issues) were highlighted by Carr and Osenberg in several public presentations and invited talks. Their insights benefited from MMS-sponsored research on the BACIPS design.
- We did not make any progress on data analyses.
- We did not make any progress in archiving samples at the LA County Museum.

Future plans:

- Osenberg will conduct data analyses using the Gaviota, Carpinteria, San Onofre data sets as time permits. Following analyses, Osenberg and Carr will initiate the preparation of the final report. As indicated in the 2001 Annual Report, the project has not yet been finished due to unforeseen delays in the taxonomic identifications. Carr and Holbrook will continue in their efforts to have all samples archived at the Los Angeles County Museum.

Estimated Percentage of Budget Expended:

All funds were expended previously. Due to delays in the species-level identifications, all analyses have had to be done following the end date of the project.

Effects of an Oil Spill on Multispecies Interactions that Structure Intertidal Communities

Principal Investigator: Peter Raimondi, Department of Biology, University of California, Santa Cruz, California 95460.

Major Accomplishments, January 1, 2002 - March 31, 2002

Future Plans: We plan to complete our final report in the upcoming months.

Personnel:

Samantha Forde is funded as a graduate student research assistant
Christy Roe is funded as a laboratory technician

Estimated Percentage of Budget Expended:

Project Year 1	100%
Project Year 2	98%

Early Development of Fouling Communities on Offshore Oil Platforms

Principal Investigators: H. Mark Page, Jenifer Dugan, and Jason Bram, Marine Science Institute, University of California, Santa Barbara, California 93106

Major Accomplishments, January 1, 2002 – March 31, 2002

Progress to Date

During the reporting period, we continued to analyze data on the species composition, biomass and percent cover of invertebrates that colonized ceramic tiles (15x15 cm) exposed for various time intervals (2, 4, 6, 12, 24 months) at depths of 6, 12, and 18 m at Platform Houchin. We also continued analysis of data on the percent cover and biomass of invertebrates that colonized experimentally scraped 20 cm x 20 cm quadrats on conductor pipes and plastic mesh tuffys at depths of 6, 12, and 18 m at Platform Houchin from April 1999 to April 2001.

Percent cover of selected taxa on the tiles varied significantly over time, among depths, among dates of initial exposure of the surface, and between the two years of the study, with the greatest temporal effects evident at the 6 m depth. The successional sequence in the appearance and cover of taxa over time was strongly influenced by depth and year. For example, in year one, compound tunicates and encrusting bryozoans had the greatest cover in both the 2 month and 4 month exposure time at all depths, while in year two, compound tunicates were the sole dominant taxon at the 2 month interval at the 6 m and 12 m depths, and were co-dominant with encrusting bryozoans at the 18 m depth. At the 4 month interval, barnacles were dominant at the 6 m depth. The longer exposure times showed these differences between depths and years as well. For example, in year one at the 12 month exposure time, barnacles were dominant at the 6 m depth, encrusting bryozoans, barnacles, and sponges were dominant at the 12 m depth, and encrusting bryozoans were dominant at the 18 m depth. In year two for the 12 month exposure period, barnacles and sponges were both dominant at the 6 m and 12 m depths, while barnacles, sponges, and encrusting bryozoans were dominant at the 18 m depth.

Preliminary analyses of barnacle size distributions on the experimental surfaces indicates that growth rate was significantly more rapid at shallower depths. In addition, growth rate was significantly more rapid in year one compared with year two at all depths. Barnacles were significantly more abundant in year two than year one at all depths and for all exposure times.

Biomass on both the experimental surfaces and the surface of the platform itself increased significantly over time at all depths, and varied among depths. Biomass was significantly greater at the 6 m depth than at the two deeper depths. Additionally, there was a greater rate of biomass accumulation in year two at all depths. Biomass on these surfaces also varied with the time of year.

A master's thesis and a manuscript on these results are in preparation.

Upcoming work

Early successional species may have direct or indirect effects on the recruitment, growth, and survival of later successional species. To investigate possible competitive interactions between taxa, we will initiate a field experiment at Platform Houchin. Community development will be compared

among treatments in which the three most prevalent taxa found early in the successional sequence (barnacles, tunicates, encrusting bryozoans) are removed from randomly selected ceramic tiles at depths of 6, 12, and 18 m. Community development on treatment tiles will also be compared to control tiles that are not manipulated. We will compare percent cover and biomass of the taxa present among treatment and control tiles.

Data analysis from the vacuum samples of scraped plots and the tiles will continue. Hypotheses concerning factors influencing community development will be examined using additional statistical analyses. The introduction and discussion sections will be written for the master's thesis and manuscript.

Problems Encountered:

The initiation of the removal experiment mentioned above has been delayed due to Ecomar's current cleaning operation at Platform Houchin. The experiment will begin as soon as the cleaning operation is completed.

MMS Action Required: Approval of no-cost extension through March 31, 2003

Estimated Percentage of Budget Expended:

Project Year 1	100%
Project Year 2	100%
Project Year 3	1%xx