

Environmental Studies Program: Ongoing Study

Study Area(s): Southern California, Central California, Northern California

Administered By: Pacific OCS Region

Title: Synthesis of Pacific Platform Research (NSL #PC-15-03)

BOEM Information Need(s) to be Addressed: After three decades of ESP-funded scientific research about the ecology and assemblages of platforms off California, BOEM needs to have the resulting reports and related literature material summarized and synthesized into a single professionally published reference that examines the influence of platform assemblages on the marine ecology of the Pacific coastal region and the implications of the artificial reef effect for renewable energy installations in any region. Given historic investment in interdisciplinary biological and oceanographic research of platforms, reefs, and shorelines in the region, a synthesis of completed and ongoing studies and peer-reviewed papers regarding the influence of Pacific platforms on regional marine ecology would be of value to inform BOEM decision makers and for NEPA analysis of the potential impacts of decommissioning oil and gas facilities and for NEPA analysis of the potential artificial reef effect for renewable energy project installations.

Total BOEM Cost: \$400,000

Period of Performance: FY 2015–2019

Conducting Organization(s): University of California, Santa Barbara

Principal Investigator(s): [Dr. Milton Love](#)

BOEM Contact(s): [Mark Eckenrode](#)

Description:

Background: Since 1985, federal agencies have invested nearly \$30 million to conduct research on fishes and mega-invertebrates that live around the platforms and on natural reefs off central and southern California. This present effort proposes a synthesis of research from the past and ongoing studies and journal literature in the Pacific Region that have focused on ecology of the platforms within the larger context of the Pacific coastal region. A brief survey of the peer-reviewed literature has found over 25 major relevant articles, and there are at least an equal number of agency reports. The federal studies include but are not limited to:

- Fisheries Species and Oil/Gas Platforms Offshore California
- Assessing the Fate of Juvenile Rockfish
- Santa Maria Shelf Oceanographic Circulation
- Inner-shelf Surface Currents and Characteristic Flow Patterns in Santa Barbara Channel
- Site-Fidelity and Transplantation Studies of Platform Fish

- The Ecological Role of Oil/Gas Production Platforms and Natural Outcrops on Fishes in Southern and Central California
- Effect of Offshore Oil Platform Structures on the Distribution Patterns of Commercially Important Benthic Crustaceans
- Survey of Invertebrate and Algal Communities on Oil/Gas Platforms in Southern California
- Ecological Performance of OCS Platforms as Fish Habitat off California
- Reproductive Ecology and Body Burden of Platform Resident Fish
- Habitat Value of Shell Mounds to Ecologically and Commercially Important Benthic Species
- Trophic Links: Comparisons Among Platforms and Natural Reefs
- Role of Food Subsidies and Habitat Structure in Influencing Benthic Communities of Shell Mounds at Platform Sites

The 2012 BOEM-funded studies, *Biological Productivity of Offshore Oil and Gas Structures in the Pacific OCS* and *Analysis of Fish Populations at Platforms off Summerland, California*, will be completed with journal submittals, well within time to be included in this present effort. The goal is to publish a hardcopy and e-journal release, special issue of a scientific journal regarding the influence of Pacific offshore platforms on regional ecology and the implications for renewable energy based on information obtained through these studies and published papers. Potential chapters could include but are not limited to:

- Origin and Fate of Pacific Offshore Platforms
- Platform Assemblages
- Inter- and Intra-relationships of Oceanographic Circulation and Larval Dispersion to/from Pacific Platforms
- Distribution Patterns of Important Benthic Crustaceans
- Site-Fidelity and Movement of Platform Fish
- Productivity of Pacific Platforms
- *De facto* Marine Preserves and the Artificial Reef Effect
- Influence of Pacific Platforms on Pacific Coast Marine Ecology
- Implications for Renewable Energy Installations.

Objectives:

- Increase scientific understanding of the inter- and intra-relationships of assemblages at offshore petroleum platforms and the Pacific coastal ecosystem
- Determine the extent of influence of platform assemblages on Pacific coast populations of fish and invertebrates

Methods: Methods include forming a small oversight principal investigator (PI) team to inventory available reports and papers and determine their relevancy to the objectives. Next would be to acquire a professional editor specializing in scientific publication and journal-specific formatting and to establish a review board of Chapter leads from a broad range of West Coast universities and agencies. The leads would digest, reanalyze data, if needed, and as directed by the PI, summarize, and reach overarching

conclusions and findings to meet the objectives. The PI team would work with a publisher, such as the *Bulletin of Marine Science* or a similar journal, to publish a stand-alone journal issue and e-journal release.

Current Status: The BOEM-UCSB cooperative agreement was awarded August 20, 2015. A draft outline of the table of contents of the special journal issue has been completed. Authors of the separate papers have been contacted and have agreed to the assignments. The Bulletin of Marine Science has agreed to publish a journal issue dedicated to this synthesis study. In addition, the Contractor submitted a web-based annotated bibliography of all research related to organisms and organism assemblages living around platforms worldwide in May 2017. A no-cost extension (to April 2019) was granted to the PI to help offset issues with the journal's review process. BOEM is currently reviewing manuscripts for approval prior to submittal to the journal.

Final Report Due: April 19, 2019

Publications Completed: UCSB completed a web-based annotated bibliography of all research related to organisms or organism assemblages living around platforms worldwide. As new papers and reports become available we will put them in this database:

An Annotated Bibliography of Research Conducted Worldwide on Organisms and Organism Communities Associated with Oil and Gas Platforms.

<http://platformresearch.msi.ucsb.edu/>

Affiliated WWW Sites:

<https://marinecadastre.gov/espis/#/search/study/100091>

<http://platformresearch.msi.ucsb.edu/>

Revised Date: July 13, 2018