Seeking Masters-level Graduate Student Starting Fall 2013 for
Marine Conservation Modeling Project

**Marine spatial planning** is an ecosystem-based approach to analyzing current and anticipated uses of the ocean. The goal of marine spatial planning is to determine areas most suitable for the various uses in order to reduce their conflicts among one another, and more broadly to preserve the flow of ecosystem services important for meeting economic and environmental objectives and sustainable management of coastal marine systems.

This research project is focused on marine spatial planning of offshore aquaculture, a rapidly emerging ocean activity in the U.S. and around the world. The project goal is to determine the best designs and spatial plans – i.e., types, sizes, configurations and locations – for offshore aquaculture farms in the Southern California Bight in relation to the existing and anticipated ocean uses there, e.g., by fisheries, oil platforms, shipping lanes and conservation areas. The project will entail 1) developing spatially-explicit biological and economic models of the dynamics of marine species (wild fish, etc.) and different ocean uses (aquaculture, etc.), and 2) and integrating these models with an ecosystem service tradeoff analysis for predicting how aquaculture farms may conflict with other ocean uses and determining how these conflicts can be reduced by strategic design and spatial planning of the farms.

Example of a related study: [http://www.pnas.org/content/early/2012/02/27/1114215109](http://www.pnas.org/content/early/2012/02/27/1114215109)

**Figure:** Word cloud of the text in the proposal that is supporting this research project.
Additional marine spatial planning, fisheries, and marine ecology and conservation research project opportunities for the student may also arise, including opportunities to conduct marine inter-tidal and sub-tidal field ecology and laboratory research.

The successful student will be advised in all aspects of his/her research and education by Professor Crow White in the Biological Sciences Department and Center for Coastal Marine Sciences at California Polytechnic State University (Cal Poly) in San Luis Obispo. The student will also be mentored by Professor Dean Wendt at Cal Poly, and by researchers in the Bren School of Environmental Science and Management and the Marine Science Institute (MSI) at the University of California, Santa Barbara, and at the National Center for Ecological Analysis and Synthesis (NCEAS) in Santa Barbara.

The mission of the Center for Coastal Marine Sciences at Cal Poly is to foster hands-on learning, discovery and outreach by our students, faculty, and staff in order to promote sustainability, facilitate interdisciplinary studies of coastal marine systems, and address pressing issues facing our ocean health and marine resources. See www.marine.calpoly.edu

This is a perfect graduate degree project for an inquisitive student and aspiring scientist who is interested in environmental conservation and sustainable management, and who wishes to add cutting-edge quantitative methods to her/his toolbox of skills.

Qualifications:
- B.S. or B.A. in Biology, Mathematics, Statistics, Computer Science or related field.
- Strong writing and communication skills.
- Experience with, or interest in learning, computer programming (e.g., Matlab, R, Python) and spatial analysis programs (e.g., GIS, SeaSketch)

How to Apply:
- Send Professor White a brief email expressing why you are interested in obtaining a graduate degree in Marine Science and why you consider yourself a good candidate for the advertised position. Indicate your recent GRE scores (or anticipated testing date) and attach to the email your resume/CV and a writing sample (e.g., term paper).
  - http://www.marine.calpoly.edu/community/faculty/crow-white.php
- Review the Graduate School Application and Admissions guidelines for the Department of Biological Sciences at Cal Poly:
  - http://bio.calpoly.edu/content/grad-degrees
  - http://www.calpoly.edu/~rgp/gradinformation.html
- The deadline for applications for Fall 2013 admission is February 1, 2013