Arnhold Environmental Undergraduate Fellow

Reducing fisheries bycatch in the eastern tropical Pacific Ocean

Summer 2026

Project Background

In 2021, the University of California Santa Barbara (UCSB) and Conservation International (CI) launched the Arnhold UC Santa Barbara-Conservation International Climate Solutions Collaborative to unify their demonstrated expertise and networks to conduct cutting-edge applied research to yield tangible, progressive solutions, and propel the careers of emerging environmental professionals. This partnership includes several applied collaborative research projects aimed at pushing the boundaries on resilient ocean and land conservation. The Collaborative has also created the Arnhold Environmental Fellows program - a powerful opportunity for undergraduate and graduate students to engage in collaborative research projects and receive mentorship from experts in the fields of environmental and ecological science.

Bycatch - the unintentional capture of non-target species in fisheries - poses major ecological and economic challenges, particularly in the Eastern Tropical Pacific (ETP) tuna fisheries. These fisheries, which target species like yellowfin and skipjack tuna, often also catch vulnerable species such as sharks, sea turtles, and marine mammals. Climate change is expected to amplify these shifts, making adaptive, dynamic strategies more critical. Dynamic ocean management (DOM) offers a promising alternative by integrating environmental data into management decisions in near real time.

Most existing DOM approaches only model a single bycatch species at a time, often failing to capture the complex trade-offs between avoiding bycatch and accessing target fish stocks. One possible solution is joint dynamic species distribution models (JDSDMs). Unlike traditional models, JDSDMs simultaneously analyze multiple species, accounting for environmental drivers, co-occurrence patterns, and species interactions. This allows for more accurate predictions of where bycatch and target species overlap, both in near real-time and under future climate scenarios. By integrating JDSDMs into dynamic ocean management frameworks, fisheries managers can make more informed, flexible decisions—reducing bycatch risk while maintaining profitable fishing opportunities in a changing ocean.

emLab is seeking one undergraduate student for a paid, part time, hourly summer position. The student will work with two graduate students from the Bren School of Environmental Science & Management to support the research project in a variety of ways, including compiling data, coding, literature review, and other relevant tasks.

Responsibilities
During this opportunity, the student will work on applied research projects and activities may include:

- Collecting and preparing dynamic and static data layers for use in models
- Compiling and processing climate model data for use in models
- Supporting coding for preparing species data obtained from telemetry data
- Conducting literature review on the specific fishery, dynamic ocean management, and joint species distribution models and exploring relevant near real-time tools

Desired Skill and Experience

- Prior independent research experience
- Knowledge of and experience with R, GitHub, ArcGIS, and data science best practices
- Coursework and/or experience with marine science
- Literature review experience

Fellow Selection Criteria
Students will be selected as Arnhold Environmental Fellows based on the following criteria:

- Excellence in environmental and ecological science and research
- Interest, skills, and experience related to the project responsibilities described above
- Registered UCSB undergraduate student in good academic standing

All Fellows may be expected to participate in weekly professional development events throughout the summer, a 5-minute flash talk presentation about your project, and other program-related events.

How to Apply
Apply for this position via Handshake with either the: a) job number – 11033552; b) job title – Arnhold Environmental Undergraduate Fellow: Reducing fisheries bycatch in the eastern tropical Pacific Ocean; or c) employer – Marine Science Institute. In your application package, please include the following:

1. Your resume
2. A short cover letter (no longer than one page) that includes information on (a) your schedule/availability for the summer, and (b) any relevant work or volunteer experience that relates to the desired skills and experience outlined above.

The Arnhold Environmental Undergraduate Fellow will be paid $20/hr and will ideally work from mid-June until mid-September. The successful candidates will be expected to commit 10-15hrs/week. For questions, please contact: Jennifer Bone (jebone@ucsb.edu).

Application Deadline: May 22nd