JIMAR ANNUAL REPORT FOR FY 2010

P.I./SPONSOR NAME: Kevin Weng

NOAA OFFICE (Of the primary technical contract): NMFS PIFSC

PROJECT PROPOSAL TITLE: Impacts of Fishing on Vulnerable Non-target Species at Seamounts

FUNDING AGENCY: NOAA

NOAA GOAL (Check those that apply):

☒ To protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management

☐ To understand climate variability and change to enhance society’s ability to plan and respond

☐ To serve society’s needs for weather and water information

☐ To support the nation’s commerce with information for safe, efficient, and environmentally sound transportation.

☐ Mission Support

PURPOSE OF THE PROJECT (One paragraph): Seamounts have extraordinary levels of endemism and exert a powerful aggregating effect on species, attracting fishes, cetaceans, seabirds and turtles. Only a few of the world’s 100,000 seamounts have been explored, leaving us with a minimal understanding of the biology of seamount organisms. Despite this, seamounts experience intensive fisheries, and interviews of commercial fishermen in Hawaii reveal frequent catches of benthic-pelagic sharks. As a result the Western Pacific Fishery Management Council and NOAA are responsible for the management of species that are potentially endemic, highly vulnerable to fishing, and so poorly understood that they cannot be assessed and for which no definitions of essential fish habitat (EFH) exist. While seamounts have been hypothesized as stepping-stones, we do not know if seamount sharks are isolated populations or if they move between seamounts and landmasses. Deep set longline fishing will be conducted at Cross Seamount to characterize the elasmobranch community. Detailed studies will be conducted for the three highest trophic level benthic-pelagic elasmobranchs, the Cooke shark (Echinorhinus cookei) the sixgill shark (Hexanchus griseus) and the sleeper shark (Somniosus pacificus). A combination of acoustic, satellite and accelerometry technologies will be used to characterize their behavior, habitat use and connectivity with other seamounts and islands. The resulting data will allow definitions of EFH and determination of appropriate management units. The proposal includes a low risk–high reward component, using established methods on new species; as well as a high risk–high reward component, that aims to develop a novel method to study these deep water animals.
PROGRESS DURING FY 2010 (One-two paragraphs, including a comparison of the actual accomplishments to the objectives established for the period, and the reasons for the slippage if established objectives were not met):

The individual objectives of the project are listed and progress described:

*Characterization of benthic-pelagic elasmobranchs:* We have conducted two cruises to Cross Seamount. Due to limited time we have not been able to conduct more than a few sets of near the bottom to target demersal/benthic-pelagic sharks. We have conducted a series of mid-water sets that captured teleost fishes, but not elasmobranchs.

*Determination of fine-scale habitat use:* During 2010 the acoustic monitoring array was placed on the summit of Cross Seamount. Due to limited time on the cruise we were not able to capture and tag sharks. We will return and tag sharks on a future cruise to the seamount.

*Determination of connectivity and long-range movements:* VR2 listening arrays on the Main Hawaii Islands and North West Hawaiian Islands continue to be maintained by University of Hawaii researchers, such that inter-island movements might be detected. Satellite tagging has not yet occurred but the equipment has been ordered.

*Studying foraging behavior to reduce by-catch:* The Daily Diary accelerometer was to have been housed for use in deep water by the developers at Swansea University, UK. They have experienced some delays in this project, and I am in touch with them about assisting them in this development via pressure testing of their tag. In addition, I have been in touch with the developer of the Little Leonardo tag in Japan, and plan to conduct testing of their device near Oahu later this year.

PLANS FOR THE NEXT FISCAL YEAR (One paragraph):

Tagging of sharks using acoustic, satellite and accelerometry tags. Development and testing is planned with both accelerometry developers. Retrieval and download of the VR2 acoustic monitoring array at cross seamount.


None.

OTHER PAPERS, TECHNICAL REPORTS, ETC.:

None.

GRADUATES (Names of students graduating with MS or PhD degrees during FY 2010; Titles of their Thesis or Dissertation):

None.
AWARDS (List awards given to JIMAR employees or to the project itself during the period):

None.

PUBLICATION COUNT (Total count of publications for the reporting period and categorized by NOAA lead author and Institute (or subgrantee) lead author and whether it was peer-reviewed or non peer-reviewed (not including presentations):

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PERSONNEL (on Subcontracts):
For projects that awarded subcontracts in the fiscal year, please provide the number of supported postdocs and students from each subgrantee.

N/A

IMAGES AND CAPTIONS (We will also be including images for the annual report. Please send two of your best high-resolution, color images (photo, graphic, schematic) as a JPEG or TIFF (300 dpi) with a caption for each image. If you do not have an electronic version of the image, a hardcopy version may be dropped off at the JIMAR office located in the Marine Sciences Building, Room 312):

- Caption 1:
- Caption 2:

ACRONYMS: Please provide the complete descriptions for any acronyms used in any areas of the report. For example: UH (University of Hawaii)