JIMAR – PFRP ANNUAL REPORT FOR FY 2007

P.I./Sponsor Name: Jeffrey C. Drazen

Project Proposal Title: Assessment of the impacts of mesoscale oceanographic features on the forage base for oceanic predators

Funding Agency: NOAA

NOAA Goal (Check those that apply):

X☐ To protect, restore, and manage the use of coastal and ocean resources through ecosystem-base 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

1. Purpose of the Project (one paragraph)

This projects goal is to investigate the nature and degree of the response of the micronektonic community, an important tuna forage base, to mesoscale oceanographic features using trawl surveys in conjunction with acoustic surveys. Two features of interest are Cross seamount which aggregates yellowfin and bigeye tuna in Hawaiian waters and eddy features from American Samoa which affect albacore catch. The main objectives of this project are:

1. To assess the impact of each mesoscale feature on the biomass and abundance of the micronekton.
2. To assess the impact of Cross seamount on micronekton community composition.
3. To characterize the micronekton composition in American Samoa.
4. To assess whether each mesoscale feature affects the vertical migration patterns of the micronekton.
5. To compare both acoustic and trawl estimates of biomass in each region to provide acoustic "groundtruthing."

2. Progress during FY 2007 (One-two paragraphs, including a comparison of the actual accomplishments to the objectives established for the period, and the reasons for slippage if established objectives were not met):

The first year of this proposal sought to collect samples and complete laboratory sorting. Severe deficiencies in the NOAA corps ability to perform trawling operations from the Oscar Elton Sette severely hampered our abilities to perform the proposed work. A letter

of complaint was sent to PIFSC and to PFRP explaining this situation. Nevertheless we made significant progress towards our objectives. In 2005, 34 trawl samples were collected from Keahole Pt, Finch Seamount, and Cross seamount. In 2006, 12 trawls were conducted off of American Samoa but all of them were outside of eddy features. In 2007, we returned to Cross seamount and conducted another 12 successful tows before the winch system failed. Acoustic measurements accompanied all of these trawls. Additional acoustic surveys were done and will be reported by R. Domokos. All of the samples from 2005 have been sorted, counted, and weighed to provide estimates of abundance, biomass, and community composition as they relate to seamounts. Samples from 2007 are 50% processed.

3. Plans for the next fiscal year (one paragraph):

The second year of this project will see the completion of laboratory processing of the trawl samples and data analysis. We plan to estimate micronekton biomass, abundance over and around Cross seamount to assess this features impact. Community composition will also be examined for potential differences between seamount and open ocean sites. The samples from American Samoa will be used to describe basic community composition in this area. Acoustic methods will be used to determine the impact of each mesoscale feature on micronekton vertical distribution. Once estimates of biomass and abundance are available for each trawl they will be compared to acoustic estimates that were collected concurrently. Two manuscripts will be prepared for submission to journals, one on the impacts of Cross seamount, and the other comparing the acoustic and trawl methods.

4. List of papers published in refereed journals during FY 2007.
none

5. Other papers, technical reports, meeting presentations, etc.

Effect of seamounts on mesopelagic micronekton community structure around Hawaii.
Lisa De Forest and Jeffrey Drazen
2006 PFRP PI meeting. Honolulu, HI

Bigeye tuna and its forage base at Cross seamount.
Reka Domokos, Lisa De Forest, Mathieu Doray, Jeffrey Drazen**,** and Jeff Polovina
58th Tuna Conference. Lake Arrowhead, CA

6. Graduates (Names of students graduating with MS or PhD degrees during FY 2006. Provide titles of their thesis or dissertation):
none

7. Awards (List awards given to JIMAR employees or to the project itself during the period): none

8. Publication Count (Total count of publications for the reporting period and previous periods categorized by NOAA lead author and Institute (or subgrantee) lead author and whether it was peer-reviewed or non peer-reviewed (not including presentations):

	JI Lead Author			NOAA Lead Author			Other Lead Author		
	FY04	FY05	FY06	FY04	FY05	FY06	FY04	FY05	FY06
Peer-reviewed									
Non-peer reviewed									

9. Students and Post-docs (Number of students and post-docs that were associated with NOAA funded research. Please indicate if they received any NOAA funding. For institutes that award subcontracts, please include information from your subgrantees):

Lisa DeForest, MS student, University of Hawaii, Department of Oceanography – funded on GA by the project

10. Personnel:
    (i) Number of employees by job title and terminal degree that received more than 50% support from NOAA, including visiting scientists (this information is not required from subgrantees):

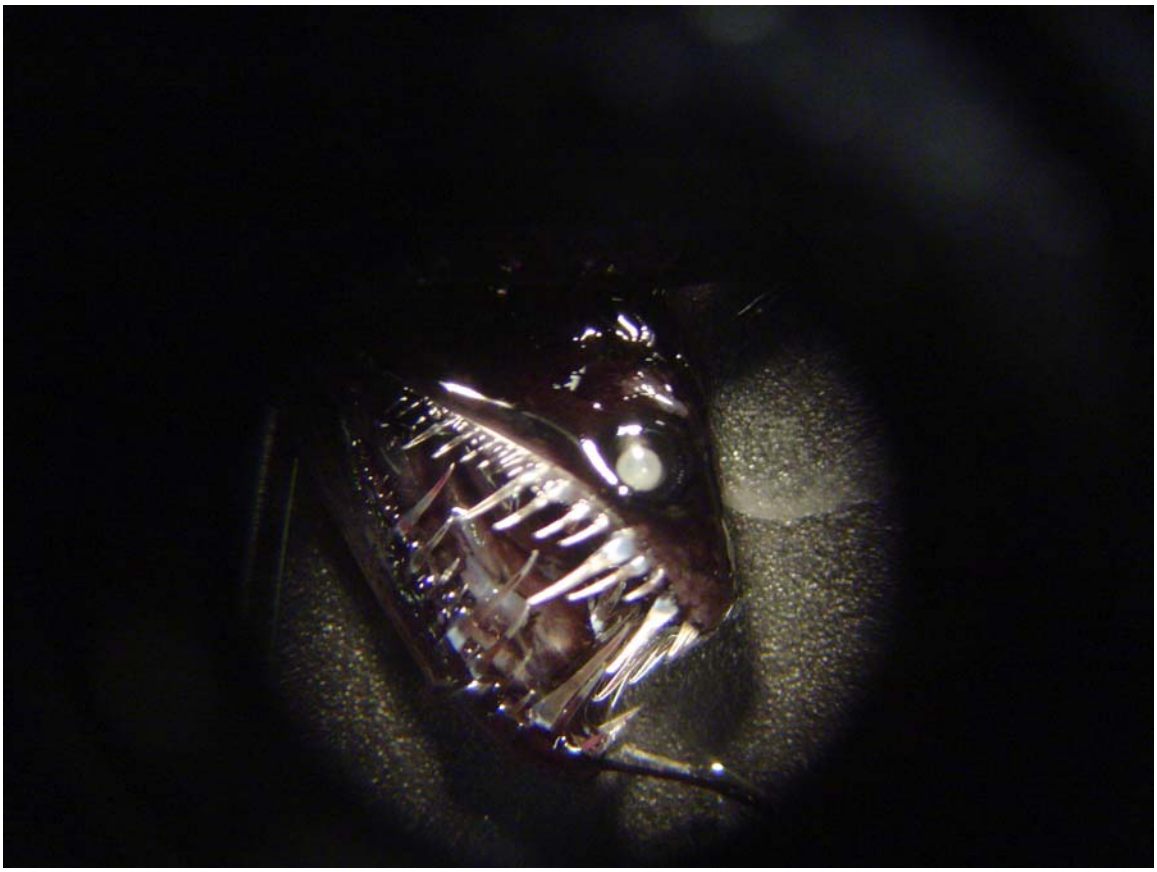
    (ii) Number of employees/students that received 100% of their funding from an OAR laboratory and/or are located within that laboratory.

    (iii) Number of employees/students that were hired by NOAA during the past year:

11. Images and Captions. (JIMAR will be including images in the annual report. Please send two of your best high-resolution, color images (photo, graphic, schematic) as a JPEG of TIFF with a caption for each image. Hardcopies of images can be dropped off at the JIMAR office if no electronic versions are available.

● Caption 1. Micronektonic squid sorted from a trawl over Cross seamount. (drazen07:23 April 2007 002.jpg)

● Caption 2. The diversity of micronekton, shrimp, squid, and fishes, captured in a Cobb trawl near Cross Seamount, Hawaii (drazen07_TR 15.jpg)



● Caption 3. Things that go bump in the night! Closeup of the head of a black dragonfish from a trawl near Cross Seamount, Hawaii (drazen07_TR 15-Idiacanthidae.jpg)