

JIMAR – PFRP ANNUAL REPORT FOR FY 2005

P.I./Sponsor Name: David C. Duffy

Project Proposal Title: Diet Dynamics and Trophic Relations of Laysan and Black-footed Albatrosses

Funding Agency: NOAA

NOAA Goal (Check those that apply):

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)

Laysan and Black-footed albatrosses experienced drastic declines in their breeding populations at their most important colonies but have recently stabilized. Pelagic longline fishing has been implicated as a possible contributor to the declines. It is also possible that food availability regulates reproduction. Because of their scavenging nature, the diet of these albatrosses may to some extent be dependant on drift-net and pelagic longline fisheries as sources of food. We are investigating the relationship between two North Pacific albatrosses and these two types of fisheries by analyzing the digestive tract contents and stable isotopes of albatrosses salvaged recently from the Hawaii longline fishery and breeding colonies of the Northwest Hawaiian Islands. We will compare our results to similar data collected from albatrosses salvaged from the squid and large-mesh drift net fishery a little over 10 years ago. Understanding the relationship between these seabirds and fisheries is essential to the conservation and management of both the albatrosses and fisheries.

2. Progress during FY 2005 (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):

Salvage Efforts

Total Black-footed Albatrosses salvaged include 24 from the Pacific Islands Region longline observer program, 5 from the Hawaii longline bycatch reduction experiments, 9 from the Southwest Region longline observer program and 1 from French Frigate Shoals

and 1 from Kure. Total Laysan Albatrosses salvaged include 21 from the Pacific Islands Region longline observer program, 49 from the Hawaii longline bycatch reduction experiments, 3 from the Southwest Region longline observer program, 20 from Kure and 6 from Midway. Fewer albatrosses were salvaged than expected potentially because of changes in fishing effort and mitigation requirements. Never-the-less, several overall objects have been met.

Preliminary Results

We found that all but 1 of the Black-footed Albatrosses and all of the Laysan Albatrosses were breeding age adults, the exception being a pre-breeding adult exhibiting breeding plumage. From our stable isotope analysis of breeding age adults only, we found no significant decline in trophic position for either of the albatross species interacting with the fisheries since the demise of drift-gill-netting. Black-footed albatrosses had significantly higher trophic positions than Laysan albatrosses, but Black-footed albatrosses associated with swordfish fishing had significantly higher trophic positions than those associated with tuna fishing. Differences in trophic position between Black-footed and Laysan albatrosses may potentially be driven by habitat preferences that render the Black-footed albatrosses more likely to interact with swordfish fishing, assuming swordfish fishing provides higher trophic level food sources. Despite any potential effect on the diet of fishery interacting individuals, the trophic positions of Laysan albatrosses salvaged from the North Western Hawaiian Islands were significantly lower than longline associating albatrosses suggesting there is no population level effect.

Analysis of the digestive tract contents of longline associated albatrosses is nearly complete. All of the gut contents have been identified, enumerated and weighed. Bait comprised a large proportion of the diet, though the majority of the food items identified were mesopelagic squid. We are still in the process of analyzing the prey tables to determine the overall importance of each prey type, and finding suitable materials for prey isotopic analysis.

3. Plans for the next fiscal year (one paragraph):
4. List of papers published in refereed journals during FY 2005.
5. Other papers, technical reports, meeting presentations, etc.

Bisson, J. and D. Duffy. Diet dynamics of Laysan and Black-footed albatrosses in relation to pelagic fisheries. Paper presented at the thirty-second annual meeting of the Pacific Seabird Group. 19-22 January 2005. Portland Oregon

Bisson, J. The "Offal" truth about albatross diets. Paper presented at the Testers Symposium. Honolulu, Hawaii.

Upcoming

Bisson, J. and D. Duffy. Do North Pacific albatrosses prefer longlines? Paper to be presented at the Cooper Ornithological Society. Arcata, California.

- 6. Graduates (Names of students graduating with MS or PhD degrees during FY 2005. Provide titles of their thesis or dissertation):

- 7. Awards (List awards given to JIMAR employees or to the project itself during the period):
- 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):

	JL Lead Author			NOAA Lead Author			Other Lead Author		
	FY03	FY04	FY05	FY03	FY04	FY05	FY03	FY04	FY05
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):

- 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 or 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:

- Caption 2: