

**FISHERIES DISASTER RELIEF PROGRAM (FDRP)
ANNUAL REPORT FOR FY 2007**

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FDRP Project Title and Project No.: **What do sea turtles see and how can this be used to prevent their interactions with fishing gear. Project No 655946.**

1. Purpose of the Project (one paragraph)

This project aims to improve the productivity, management and sustainability of the Hawaiian fisheries by helping to mitigate takes and mortality of sea turtles. It will provide fundamental scientific knowledge about the sea turtles' dominant visual sense, how this affects the visibility of fishing gear to sea turtles and the animals' response to the gear. Our results will permit a view of the world as sea turtles see it, crucial information to be used by designers and users of fishing gear and other man-made objects harmful to sea turtles.

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):

Objective 1: The field experimentation on loggerhead, green and leatherback hatchling sea turtles were successfully completed in late June 2007. This research has revealed very surprising findings, suggesting fundamental differences in the behaviour to light between leatherback sea turtles and green and loggerhead turtles. Also the threshold of vision to dim light of different wavelengths was successfully established in all three species.

Objective 2: A thorough investigation of the green and leatherback sea turtle eye design and optics has been completed and one manuscript published and another submitted.

Objective 3: Detailed physiological experiments on green and loggerhead sea turtles will be undertaken during the remaining time of the project.

3. Plans for project completion:

The results gained under Objective 1 will be analysed and a manuscript prepared for publication by the end of this project (30th September 2007). This work will also be presented at an international conference on Vision Research in July 2007. To meet objective 3 I aim to undertake the required experiments by the proposed project completion, however the success of these experiments is dependent on adequate access to specimen.

4. List of papers published in refereed journals during FY 2007.

LM Mäthger, L. Litherland & **KA Fritsches**. 2007. An anatomical study of visual capabilities of the green turtle, *Chelonia mydas*. *Copeia* 1, p 169-179.

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

KA Fritsches. 2006. Game Fish Vision. *Blue Water*. 58, 73-77.

Swimmer, Y and R Brill, eds. 2006. Sea Turtle and Pelagic Fish Sensory Biology: Developing Techniques to Reduce Sea Turtle Bycatch in Longline Fisheries. NOAA-TM-NMFS-PIFSC-7. December 2006. 106 p. – Contribution page 1-7.