

JIMAR – PFRP ANNUAL REPORT FOR FY 2006

P.I./Sponsor Name: John SIBERT, Laurent DAGORN and Kim HOLLAND

Project Proposal Title: **Development of Business Card Tags: Inter-Individual Data Transfer**

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)

The Business Card Tag (BCT) is aimed at increasing knowledge regarding schooling cohesion and inter-species association. The overall objective of the project is to assess the feasibility of a two-way receiver tag (called 'business card' tag), through:

- (1) The development of a two-way 'receiver tag' prototype. The receiver tag prototype should be able to identify and store acoustic signals sent by other acoustic tags. The receiver tag should be small enough to be mounted on/in tunas or similar sized animals
- (2) Tests of these prototype tags. The prototype tags will be tested on captive fish (controlled situation) and in situ.

2. Progress during FY 2006 (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):

As stated in the project time table, the 1st year of the project (July 1, 2006 – June 30, 2007) was devoted to the development (by Vemco, Canada, www.vemco.com) of a first receiver tag prototype.

The BCT is a tag-sized VR2 (Vemco acoustic receiver) which can be implanted in or attached to a fish. The BCT also behaves as a normal VEMCO transmitter and can be detected by other Vemco receivers. The miniature receiver will be able to detect other tagged fish in its presence and thus provide increased knowledge on schooling behaviour or inter-species interaction. Other objects such as FADs could be equipped with a conventional VEMCO pinger and the BCT would detect and store these data thereby revealing the length of time spent near that object.

Presently, prototype BCTs have been built and tested in Shad Bay, NS, Canada. They are 22mm in diameter by 130mm long. They transmit at 158dB with a 60 second average inter-transmission delay. The BCT can have a battery life up to 1 year, when using a receiver duty cycle of ~20%.

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

The plans for the second year of the project (July 1, 2007 – June 30, 2008) concern testing these new tags. Five of these prototype tags will be shipped by Vemco during summer 2007 to be field tested this summer and fall at the Hawaiian Institute of Marine Biology (HIMB). After the first test results, Vemco will send the 10 remaining prototype tags for further testing, or can also modify the specifications of these 10 tags according to first test results. Testing concern:

- Range testing of receiver tags implanted in dead fish equipped with acoustic beacons, to determine range detection, depth effects, and efficiency of the tag/beacon coupling
- Use captive sharks (or any other large-size species) in tanks and lagoons at HIMB to evaluate fish-to-fish data transfer in "good" conditions
- Test “receiver tags” on wild tunas around Hawaiian FADs or wild sharks (or any appropriate animals). Receiver tags will be placed in fish captured around Oahu, Hawaii. The objective is to observe if the receiver tags can detect other tagged fish, and signals sent by FADs or other key locations equipped with beacons. However, in this prototype stage, tags must be recovered to download stored data.

4. List of papers published in refereed journals during FY 2006.

No paper during this first year.

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

There was an informal briefing at the 2007 Tuna Conference: The business card tag concept.

6. Graduates (Names of students graduating with MS or PhD degrees during FY 2006. 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):

	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):

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):

0

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

0

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

0

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:

12. For multi-year projects, provide budget for the next year on a separate page. Contact Dodie Lau to confirm whether or not your project is to receive continuation funds (e.g., year 2, year 3), and for budget preparation assistance, lau@hawaii.edu