

**The Dolphin Communication Project's Interim Summary Report
for
The 3rd International Dolphins, Whales and Eco-Research Support
Grant Fund Application for the year of 2003**

Project Title:

**Communication among Atlantic Spotted Dolphins around Bimini, The
Bahamas**

Field Season: 22 June – 22 August 2003

Report Submission: 30 November 2003

Kathleen M. Dudzinski, Ph.D. Scientist-In-Residence, Mystic Aquarium & Institute for
Exploration; Director, Dolphin Communication
Project, Adjunct Faculty, Department of Psychology,
University of Southern Mississippi

Contact Address: Mystic Aquarium & Institute for Exploration
55 Coogan Blvd., Mystic, CT 06355 USA

E-mail: kdudzinski@mysticaquarium.org

Kathy DeStefano Research & Field Intern, Dolphin Communication Project
Kelly Melillo Research & Field Intern, Dolphin Communication Project

Progress report of the study/research and future schedule

LIVING/WORKING ON BIMINI

Arrival on **22 June 2003**. Departure on **22 August 2003**.

The duration of our field season this summer included 6 trips in June, 18 trips in July and 9 trips in August (Table 1). We gathered data on video whenever dolphins were encountered at sea. We worked on dolphin identifications from video when scheduling allowed or when sea conditions pre-empted boat trips.

We were glad to visit the "Villa" on several occasions to speak with Dolphinswim passengers about the dolphins, our research and their interests and concerns. We look forward to spending time and speaking with the groups again next summer.

We confirmed 24 individual dolphins from five of the seven hours of videotapes that were recorded (Table 2). The remaining two tapes will be processed this winter and spring for dolphin identification confirmations. All tapes will continue to be analyzed for behaviors during the winter and spring at the Dolphin Communication Project's (DCP) office at Mystic Aquarium & Institute for Exploration. Dolphin ID numbers with respective age categories and sex determination(s) are from the DCP database.

PURPOSE OF 2003 DATA COLLECTION:

Each season represents a continuation of DCP's research on communication among Atlantic spotted dolphins around Bimini, The Bahamas. Dolphins are long-lived social mammals: to best understand their social structure, the affect of kinship on interactions, and use of signals to communicate requires long-term studies. The data gathered this summer add to the archived information already stored with DCP.

The 3rd year of DCP's Bimini Dolphin Project (2003) continued with data collection using Top Dog underwater housing and digital 8 Sony camera. Data were gathered to continue our longitudinal study of individual dolphin photo-identification as well as to begin collecting signal exchange and communication details from among dolphins groups. Data analyses currently focus on individual identification and behaviors exchanged in general. We also examine how signals might be related to individual dolphins and different age classes and both sexes. Preliminarily, we documented many pectoral fin rubs and touches which will expand our dataset with respect to how dolphins use their pectoral fins to exchange information.

PRELIMINARY RESULTS

Data were collected on videotape while swimming among dolphins. Where and when each group was sighted and recorded was documented for each video sequence. A list of updated dolphin IDs are available on request. Early details of the data gathered this summer are presented below. At least 24 individual dolphins were identified this summer from the videotapes: 4 Class 2 (calves) males, 3 female calves, 2 Class 3 (juvenile) males, 2 female juveniles, 2 calves of unidentified sex, 2 Class 4 (sub-adult) females, 2 Class 5 (adult) male, 3 adult females, and 4 adults of unidentified sex. We observed between four and six new calves this year.

Table 1. Summary of research effort, June - August 2003, studying dolphin communication at Bimini, The Bahamas.

# Boat trips:	33 trips total (from 22 June – 19 August)
# minutes on effort:	139 hours, 36 minutes (8376 min)
# minutes of video:	~310 min (recorded on 8 video tapes) – 27.02% return on effort
# sightings:	82
# water entries:	50

Table 2. ID numbers of the dolphins identified from DCP videotapes. C2 is calf, C3 is juvenile, C4 is sub-adult, and C5 is adult.

C2 M	C2 F	C3 M	C3 F	C3 UID	C4 F	C5 M	C5 F	C5 UID
22	14	9	36	25	12	17	15	1
64	16	10	41	38	35	75	29	13
69	63						56	40
76								43

ANALYSES CONTINUING – FINAL REPORT TO ICERC/CASIO IN MID-2004

During the coming fall (2003) and winter (2004) months, with the help of other DCP interns and volunteers, these data will be analyzed: categorizing behaviors recorded on tape and digitizing sounds for further computer analysis. Updates will be sent to the I.C.E.R.C. Japan Office and to Casio Japan in mid-2004 with our final report for this grant.

Expected outputs from the point of the human - dolphin/whale relations

The more we learn about dolphin social behavior and communication, the better will we understand how our (i.e., human) behavior might affect or alter that of dolphins. Our program from Bimini, The Bahamas continues to gather data on spotted dolphin behavior and signal exchange while also coordinating activities with eco-tour activities. By working with a dive operator in Bimini and having consistent exposure to members of the general public interested in dolphins, we are better equipped to understand what the public truly understands about dolphins, in truth. We share the results and work with members of ICERC Japan as well as with students and adults who visit our research office at the Mystic Aquarium & Institute for Exploration in Mystic, Connecticut.

Feedback from the Research while Processing the Data

Results from our 2003 field season are related to two specific research questions as outlined below.

Katherine DeStefano, Research Intern, Northeastern University

Katherine's project is for her senior honors thesis at Northeastern University, and is focusing on the nature of Atlantic spotted dolphin play behavior and its occurrence in the wild. The following questions will be addressed in her thesis: how often play behavior occurs, based on our observations; if and how environmental factors, such as time of day, weather and water quality, influence the instance of dolphin play behaviors; if play behavior correlates with the age, sex, or relationship among dolphins in a particular group; if the presence of a particular individual dolphin influences the probability of play behavior occurring. In addition, a comprehensive definition of dolphin play and the behaviors involved is being developed to assist with future research on this topic.

Kelly Melillo, Research Intern, Connecticut College

At Connecticut College, Kelly has been completing an independent study based on some of the observations from this season studying Atlantic spotted dolphins around Bimini, The Bahamas. Her query focuses on the interactions, including mating, between the two species of dolphins found in the waters of Bimini, the bottlenose and Atlantic spotted dolphins. More specifically, Kelly's paper is a review of interspecific interactions, mating and hybridization and its application to such witnessed mating between bottlenose (*Tursiops truncatus*) and Atlantic spotted (*Stenella frontalis*) dolphins. It includes an overview of how species are defined and an analysis of known hybridization, both in wild and captive settings.

Introduction to DCP Programs

Please see the Dolphin Communication Project (DCP) web site (www.dolphincommunicationproject.org) for more details on the specifics of our programs. In May 2003, DCP joined Mystic Aquarium & Institute for Exploration (MAIFE) to better facilitate our education programs and extension of our research results to an increased variety of education and public dissemination venues. Examples of some of our programs include research into dolphin communication (behavior and acoustics) at three field locations – Bimini, The Bahamas, Mikura Island, Japan, and Roatan, Honduras. We have both a dolphin adoption and naming-a-dolphin programs for which proceeds go directly to supporting our field research. DCP has merged our

internship programs with those of MAIFE. We can now offer more spaces for interns during all three semesters (spring, fall and summer) while developing a field program for new interns. DCP continues to develop and offer educational workshops in the USA and Japan and has made available research results and content for the development of educational programs on dolphins for local and national school systems as well as after-school activities.

Message to the supporters, ICERC members

The study of dolphin-to-dolphin communication will shed light on what behavior is acceptable in dolphin society. Dolphins are social mammals and must, like other social mammals, learn which signals are appropriate given specific situations. If we, as observers, can get a clearer understanding of what signals dolphins use, and when, then we can better direct our behavior when interacting with and observing dolphins.

It is important to realize that the ocean is not our home, but our playground. It is, however, home to dolphins, whales, and numerous other marine organisms. We are guests and should act accordingly and with caution. Even though equipped with a huge smile, dolphins and whales are wild animals and should be treated with respect. If our future with dolphins is to include real interspecies communication, then respecting dolphins enough to “listen” to them would be the first step.

Acknowledgments

We thank Bimini Undersea and DolphinSwim for the generous use of their boats and facilities for data collection and processing. Lamour Rolle helped us find a place to live and in numerous other areas to make us feel welcomed and comfortable. The residents of Bimini were generous of their time and kindness. Passengers from Bimini Undersea and DolphinSwim shared their interest and enthusiasm with us. The Dolphin Communication Project thanks ICERC and Casio Japan’s 3rd International Dolphins, Whales and Eco-Research Fund for their financial support of our 2003 field season research. We thank the individuals who supported our research by purchasing dolphin adoption and naming packets through DCP.