

Communication among Atlantic Spotted Dolphins around Bimini, Bahamas Summary Report – 7 June – 3 October 2004

Kathleen M. Dudzinski, Ph.D. Director of Development, 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 Associate, Dolphin Communication Project
Kelly Melillo	Research Associate, Dolphin Communication Project
Darcie Blanding	Research Intern, Dolphin Communication Project
Justin Gregg	Research Intern, Dolphin Communication Project

1) LIVING/WORKING ON BIMINI

Arrival on **7 June 2004**. Departure on **3 October 2004**

While on Bimini, we continued our collaboration with Bill and Nowdla Keefe's Bimini Undersea and were lucky enough to accompany many of their excursions. Thank you.

The duration of our field season this summer included a total of 40 trips; 8 trips in June, 13 trips in July, 17 trips in August, 1 trip in September and 1 trip in October (Table 1). It should be noted that we were unable to have additional trips during the month of September due to an usually busy hurricane season. We gathered data on video whenever dolphins were encountered at sea. This resulted in approximately 7 hours of video. We worked on dolphin identifications from this video when scheduling allowed or when sea conditions pre-empted boat trips.

We were glad to participate in "dolphin briefings" with each new group of passengers. This allowed the group to become familiar with not only the Bimini Undersea staff, but also with DCP researchers. During this time, passengers were also very clearly advised of the behavior expected of them while in the water with dolphins (i.e. no touching, chasing or feeding). At a later point during their visit, passengers were also invited to sit down with DCP researchers for an informal research presentation. This allowed us to share, in greater detail, specifics of DCP's research and well as answer their questions. Throughout the boat trips, we were also on hand to answer any and all of passengers' questions to the best of our ability. We look forward to spending time and speaking with the groups again, both on and off the boat, next summer.

This summer, we were also able to share our work with students at two of the three schools on Bimini (Holy Name Catholic School and Gateway School). We enjoyed our time here very much and hope our visits to the schools will become a yearly occurrence, and that Bimini All Ages School will be added during the 2005 season. Our thanks to the staff and students at the schools for their enthusiasm and attention.

We were also able to communicate remotely with Mystic Aquarium & Institute for Exploration via a live phone link several times a week. This enabled us to share our research and introduce Bimini to guests of the aquarium.

From the video mentioned above, we confirmed 30 individual dolphins (Table 2). We were also able to add 3 animals to our photo-identification catalog (#s 77, 78 and 79). All tapes will continue to be analyzed for behaviors at Kathleen's MA&IFE office/lab. Dolphin

ID numbers with respective age categories and sex determination(s) are from the DCP database.

2) PURPOSE OF 2004 DATA COLLECTION:

Each season represents a continuation of DCP's research on communication among Atlantic spotted dolphins around Bimini, 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 information already possessed by DCP (Dudzinski).

4th year continuation of a DCP project: continued data collection using the first Mobile Video Acoustic array (MVA1), Top Dog and still cameras. Data were gathered to continue our longitudinal study of photo-identification as well as signal exchange and communication among dolphins. We will focus on individual identification and behaviors exchanged in general as well as examine how signals are related to individuals. We have many records of pectoral fin rubs and touches which will expand our dataset with respect to how dolphins use their pectoral fins to exchange information.

3) PRELIMINARY RESULTS

Data are collected on videotape while swimming among dolphins. When possible, still photographs are also taken for photo-ID purposes. Where and when each group was sighted and recorded are documented for each video sequence. If you would like a list of updated IDs, this can be provided upon request. Early details of the data gathered this summer are presented below. At least 30 individual dolphins were identified this summer from the videotapes: 4 C2 males, 3 C2 females, 2 C2 of unidentified sex, 3 C3 males, 5 C3 females, 1 C4 male, 1 C4 females, 2 C4 of unidentified sex, 1 C5 male, 4 C5 females, and 7 C5 of unidentified sex. We observed 2 new calves whose mothers (#29, #48) are presently in the DCP catalog as well as several other calves whose mothers were not recognized.

Table 1. Summary of research effort, June - October 2004, studying dolphin behavior and communication off Bimini, Bahamas.

# Boat trips:	40 trips total (from 7 June – 3 October)
# minutes on effort:	178 hours, 13 minutes (10693 minutes)
# minutes of video:	~390 minutes (recorded on 10 video tapes) – 24.7 % return on effort
# sightings:	81
# water entries:	54

Table 2. ID numbers of the dolphins identified from DCP videotapes.

C2 M	C2 F	C2unID	C3 M	C3 F	C4 F	C4unID	C5 M	C5 F	C5unID
69	9	64	4	10	48	8	17	21	1
76	14	79	22	25		23	11	29	5
77	38		24	35				39	7
78				36				56	40
				41				75	57
									71

4) UPDATES WILL BE SENT ...

Questions on this summary report: Please let us know if you have any concerns or questions about the information in this report. Our mailing addresses are above. Thanks. There may also be publications that result from this data collection. Upon request, these can be forwarded to your attention.

4) DOLPHIN ENCOUNTERS, NASSAU

DCP researchers were also able to visit Dolphin Encounters, located on Blue Lagoon Island in Nassau. The purpose of this trip was to gather preliminary data (acoustic and video) of the bottlenose dolphins at this facility. This will go towards the development of a collaborative study with other scientists at Mystic Aquarium & Institute for Exploration. Our thanks to the trainers and staff at Dolphin Encounters for being so welcoming and accommodating.

5) SUMMER 2005

Assuming it is acceptable to Bimini Undersea, we will return to Bimini in June 2005 for about 3 months. We will continue DCP's studies of dolphin communication, patterns of echolocation use, and changes in these and other behaviors with development of dolphins. We hope to continue and expand education workshops for students on the island as well as ecotour passengers. We also hope to gather additional data at Dolphin Encounters. More details can be sent as they are developed.

6) ACKNOWLEDGMENTS

Bill and Nowdla Keefe and Bimini Undersea family for the generous use of their boats and facilities for data collection and processing.

Lorenzo Saunders for leasing us a wonderful apartment and helping us along the way.

Lamour Rolle for continuing to make us feel welcomed and comfortable and for assisting us in our visits to local schools.

The residents of Bimini for their generosity and kindness.

Passengers from Bimini Undersea for their interest and enthusiasm.

The Dolphin Communication Project thanks Sea Research Foundation for their financial support of our 2004 field season research.