

**Behavior & Communication among Atlantic Spotted and Bottlenose Dolphins around
Bimini, Bahamas
Summary Report – 7 May – 15 September 2006**

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1) LIVING/WORKING ON BIMINI

Arrival on **07 May 2006**. Departure on **15 September 2006**.

While on Bimini, we continued our collaboration with Bimini Undersea (BU) and accompanied BU staff on 55 of their dolphin swim excursions.

The duration of our field season this summer included:

- 11 boat trips in May
- 14 boat trips in June
- 14 boat trips in July
- 11 boat trips in August
- 5 boat trips in September (Table 1).

We gathered data on dolphin movement patterns, sighting location, species, and group size whenever dolphins were encountered at sea. When underwater observations were possible, we collected video using the MVA or Top Dawg camera units. We confirmed individual dolphin identifications from video data when sea conditions pre-empted boat trips and when scheduling allowed.

We were glad to meet with Bimini Undersea passengers more formally once a week in addition to on-board conversations 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 were also able to visit with students in Grade 10 at Bimini All Ages School and hope that our visits to local classrooms will continue annually.

We confirmed the identification of 30 individual Atlantic spotted dolphins and 15 bottlenose dolphins from 12 of the 17 videotapes that were recorded (Table 2). The remaining five videotapes will be processed during winter months. All video data and still photographs will be analyzed for associations, behavioral interactions, and for data related to both Melillo and Blanding's specific research projects during the coming winter and spring seasons. Dolphin ID numbers with respective age categories and sex determination(s) are from the DCP database (Table 2).

2) PURPOSE OF 2006 DATA COLLECTION:

Each season represents a continuation of DCP's research on communication among Atlantic spotted and bottlenose 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 information already possessed by DCP. Additionally, data collected from 2004 through 2007 will be used by Melillo and Blanding for the completion of requirements for their Master's course of study as graduate students at Alaska Pacific University and the University of Rhode Island, respectively.

This season marked the 6th year of the Bimini Dolphin Project for DCP: continued data collection was conducted using both the Mobile Video/Acoustic (MVA) Array and Top Dog camera housings. Data were gathered to continue our longitudinal study of photo-identification, as well as signal exchange and communication among dolphins. We 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. We also have records of calf associations, which is the focus of Darcie Blanding's Master's work and interactions between the Atlantic spotted and bottlenose dolphins, which is the focus of Kelly Melillo's Master's work. We expanded our photo-identification efforts to more formally include individual bottlenose dolphins. This will allow us to better assess population numbers, site fidelity, etc. of this species.

3) PRELIMINARY RESULTS

Data were collected on videotape while swimming among dolphins following a non-invasive protocol (Table 1). Where and when each group was sighted and recorded was documented for each video sequence. Preliminary details of the data gathered this summer are presented below. At least 30 individual dolphins were identified this summer from the videotapes (Table 2). We also observed several new calves this year, as well as several 1-2 year old calves with no reliable markings for recognition. Thus, these young animals are not included in the DCP ID catalog for 2006.

Table 1. Summary of research effort, May – September 2006, studying dolphin behavior and communication at Bimini, Bahamas.

# Boat trips:	55 trips total (from 7 May – 15 September)
# minutes on effort:	233 hours, 23 minutes (14003 minutes)
# sightings:	107
# water entries:	53

Table 2. Identification (ID) numbers of the dolphins observed repeatedly around Bimini. IDs confirmed from DCP videotapes. M = male. F = female. UID = unidentified sex.

Calf M	Calf F	Juvenile M	Juvenile F	Sub-adult M	Sub-adult F	Adult M	Adult F	Adult UID
81	84	64	09	22	04	11	29	31
		69	10	24	12	17	48	43
			14		25		56	
			38		35		57	
			76		36		70	
			80		41		72	
			85				82	

4) FUTURE UPDATES

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.

During the coming fall and winter months, Melillo and Blanding will be analyzing these data for their respective Master's theses and related work. Once completed, these works will be sent to the Fisheries Department.

5) WINTER AND SUMMER 2007

Assuming it is acceptable to The Bahamas Government and to Bimini Undersea, we will return to Bimini during January 2007 as a first, exploratory winter field season and then again in May 2007 for about 3-4 months. We will continue DCP's studies of association and site fidelity, communication, patterns of echolocation use, and changes in these and other behaviors with development in dolphins. We hope to continue development of education workshops for students on the island, as well as for ecotour passengers.

6) ACKNOWLEDGMENTS

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Bimini Undersea for the generous use of their boats and facilities for data collection and processing.

Ashley Saunders for renting his apartment to us and helping us in every way possible to make us feel welcome and comfortable.

The residents of Bimini for their generosity and kindness during our stay on Bimini.

Passengers from Bimini Undersea for their interest and enthusiasm with our studies of dolphin behavior and communication.

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Our research was sanctioned by a scientific permit from The Bahamian Ministry of Agriculture, Department of Fisheries for the year 2006 to the Dolphin Communication Project to observe and record dolphin behavior and sounds from around Bimini Islands, The Bahamas.