

Behavior of a lone female bottlenose dolphin (*Tursiops truncatus*) with humans off the coast of Belize

Kathleen M. Dudzinski^{1,2}, Toni G. Frohoff², Nicole L. Crane²

¹*Marine Mammal Research Program, Texas A & M University at Galveston, 4700 Avenue U, Galveston, TX 77551, USA*

²*Oceanic Society Expeditions, Fort Mason Center, Building E, San Francisco, CA, 94123, USA*

Summary

For at least eight years, a lone female bottlenose dolphin (*Tursiops truncatus*), named 'Pita', has frequented the waters surrounding Northern Two Cay, Lighthouse Reef Atoll, in Belize. She has actively sought human contact for the past four to five years. This study investigated the history of her interactions with humans and documented her behavior nearby humans. There are some concerns for the well-being of both the dolphin and the people with whom she interacts. Specific concerns include an increase in the number of people seeking interaction with this dolphin, and a need for official guidelines or regulations governing these encounters. We have analyzed both underwater and surface video recordings and conducted interviews with people who have interacted with this dolphin. Pita exhibited sexual behavior towards objects, such as anchor lines, and occasionally towards swimmers. She sometimes touched swimmers or postured near swimmers. Pita has directed aggression towards people, especially those attempting to leave the water. Several people have been injured when Pita blocked them or hit them with her rostrum as they attempted to leave the water. Many human visitors remain naive, and somewhat over-zealous, and continue with attempts to ride her, touch her body in sensitive areas (including the genitals and blowhole), and generally appear to excite her into potentially aggressive and harmful behavior. Pita is unusual in that the majority of lone dolphins that interact with humans world-wide have been male.

Introduction

The occurrence of dolphins that interact with humans has been documented world-wide (Lockyer, 1990). These dolphins are rarely observed in the company of other dolphins. They seem to solicit human contact, often approached people and

sometimes even initiated physical contact. Coastal bottlenose dolphins (*Tursiops truncatus*) represent most accounts of lone dolphins interacting with people (Lockyer, 1990).

Off the coast of Belize, Central America, a female bottlenose dolphin has interacted with fisherman and human swimmers consistently over the last four to five years. Local fishermen estimate that this female dolphin (named Pita) has been in the area for at least eight years, but has only interacted regularly with humans within the past five years. For the last two to three years, human visits with Pita have increased. She is listed as a tourist attraction at several travel offices in Belize and the United States. Some boat and site operators take tourists to 'swim with a friendly dolphin'. This has created a certain amount of competition for access to this dolphin. Accompanying the increased demand for an 'experience' with a free-ranging dolphin is a lack of public education about dolphins and swimming with (or simply interacting with) a wild animal. Although Pita's interactions with people vary, she has exhibited aggressive behavior. This past autumn (1994), a situation presented itself when Pita attacked a snorkeler. The exact mechanics and details of this attack, combined with preliminary results of recent research efforts focusing on Pita and her interactions with swimmers, suggest that regulations and guidelines for these interactions, if implemented in the near future, could help to avoid a situation similar to the recent case in Brazil where a male bottlenose killed a human swimmer (de Oliveira Santos, 1995).

This study documented the history and behavior of this dolphin and evaluated interactions between human swimmers and the dolphin with respect to the well-being of both human participants and the dolphin. We suggest an education program to accompany these continued interactions, as well as possible solutions to avoiding the aggressive nature of some encounters.

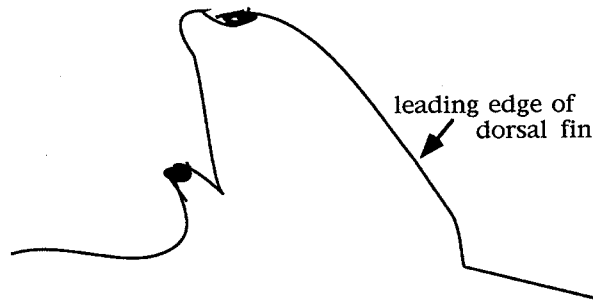


Figure 1. Distinguishing characteristics of Pita's dorsal fin (sketch drawn from photograph and not to scale).

Methods

Study animal

An adult female bottlenose dolphin has been observed in the waters around Lighthouse Reef Atoll, Belize. While this dolphin appears to be healthy, she is heavily scarred. Some of her scars may be from shark attacks (Corkeron *et al.*, 1987a,b). Most notably, the trailing edge of her dorsal fin has a deep gash (Fig. 1). Some scratches form an 'X' pattern on her melon, anterior to the blowhole.

Pita is solitary when interacting with humans and spends much of her time near people and their boats. However, she occasionally has been observed in the company of other bottlenose dolphins.

Study site

Pita has been sighted in the waters surrounding Northern Two Cay, Lighthouse Reef Atoll, Belize, Central America (Fig. 2). Often found in shallow lagoons near Northern Two Cay, Pita can be approached within this area, as well as near the dock at Lighthouse Reef Resort (on the northern side of the island) to interact with people.

Lighthouse Reef is one of four atolls found in the Caribbean, three of which occur in Belizean waters. It lies approximately 83 km east of Belize City and is lined along its rim with several cays: Half Moon Cay (a Frigate and Booby bird sanctuary) is to the south, while Northern Two and Sandbore Cays are to the north of the atoll. Northern Two Cay is surrounded by fringing coral reefs dropping steeply to deep water in the north and east. Sandy areas and lagoons are between the fringing reef and the shoreline, with occasional patchy reefs and seagrass beds (*Thalassia* sp. and *Syringodium* sp.). The area most frequented by Pita during her interactions with people is adjacent to the Lighthouse Reef Resort pier and the south side of Sandbore Cay. This area is particularly shallow (1.0–2.5 m), is predominantly a soft bottom of mud, sand and seagrass beds with patchy coral mounds.

Table 1. Dates and total time of observations conducted on the activities and behavior of Pita, the sociable Belizean bottlenose dolphin, and swimmers associated with this dolphin

Observer	Date	Observation time (minutes)
Dudzinski	27 Mar 1992	25
Crane	21 Oct 1991	60
Crane	5 Oct 1992	60
Crane	6 Oct 1992	30
Crane	8 Oct 1992	90
Crane	9 Oct 1992	15
Crane	10 Oct 1992	45
Frohoff	24 Apr 1993	30 (from video)
Frohoff	30 Jul 1993	75 (from video)
Crane	13 Apr 1994	30

Total time observed by authors: 460 minutes.

Data collection

This dolphin was observed from both the surface and under water, with detailed video recordings of encounters (Table 1). A JVC VHS, Sony Hi-8 and/or a regular 8 mm video camera were used to record approximately 30 minutes of in-water and 360 minutes of surface observations. Analysis of personal observations and the videotapes were conducted off-site in the United States at a later date. Interviews with swimmers were conducted immediately following their swims with Pita. Local fishermen and inhabitants of Northern Two Cay and Sandbore were interviewed to formulate a picture of Pita's history in the area.

Observations of this dolphin were made opportunistically. Searches for Pita were conducted from an eight meter twin-engine motor boat. Upon sighting the dolphin, an investigator and two to four other swimmers entered the water to observe and swim with Pita.

Results

Human/dolphin interactions

Reportedly, Pita was first sighted about eight years ago by local fishermen (R. August, pers. commun.). She was probably a juvenile and was observed with a group of bottlenose dolphins. Pita was first seen in what has been described as 'a fight with a shark at the surface in deep waters around Lighthouse Reef'. Following the first, Pita appeared emaciated and had open wounds and scars. According to the fishermen, Pita did not initially approach boats or swimmers. She appeared hungry and thin to the fishermen, who began to feed her by throwing conch and fish to her from their boats. Even though she began to accompany the boats, Pita did not

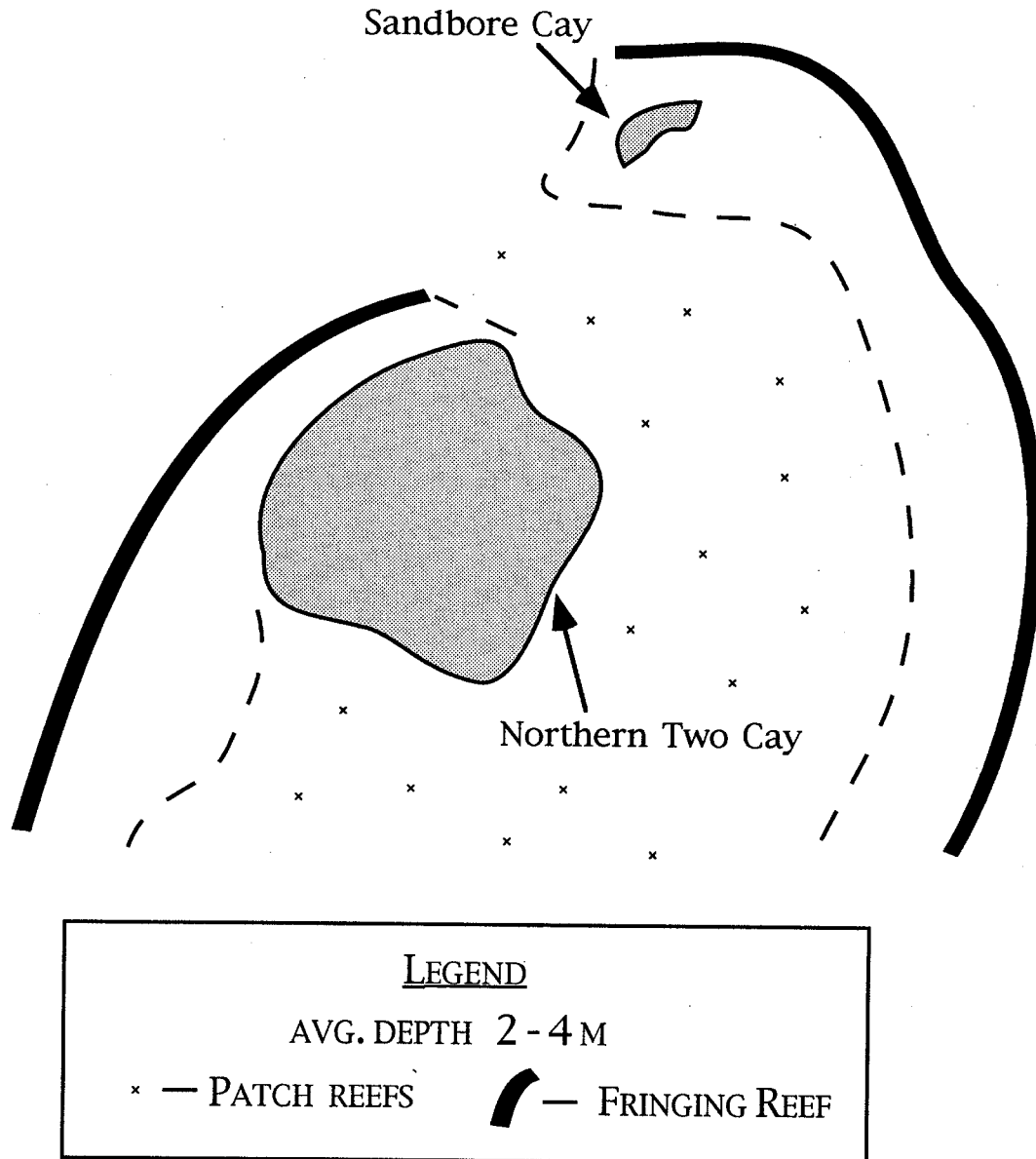


Figure 2. The areas at which Pita has been sighted: the water surrounding Northern Two Cay, Lighthouse Reef Atoll, Belize, Central America (chart not to scale).

immediately eat the fish thrown to her. Eventually, this dolphin approached closer to boats, riding the bow wakes and consuming the by-catch thrown to her. How many years this habituation process took was not clear from the various interviews. According to local fishermen, Pita is no longer fed by people or fishermen. They reported that she no longer accepts fish from them and Lighthouse Reef Resort actively discourages feeding Pita.

As tourism on the Cay increased, Pita began to regularly approach divers and snorkelers. When she first swam near humans, she would not allow anyone to touch her. However, beginning approximately five years ago, Pita was observed to initiate and solicit touch from people. As this 'friendly

dolphin's' popularity grew, groups of up to 30 swimmers at a time would enter the water to interact with her. Currently, Pita interacts almost daily with divers and snorkelers. Sightings of Pita were reported throughout the year and do not appear to vary seasonally. While general guidelines for human/dolphin interactions have been established by Oceanic Society Expeditions (OSE) and made available to Lighthouse Reef Resort, the interactions between Pita and human swimmers (many from the resort and from visiting dive boats) are not regularly supervised or managed. Several boat operators now advertise specifically for 'swim-with-the-wild-dolphin' trips. There is a fair amount of competition for Pita on certain days; the authors

have seen up to four boats at one time vying for her attention. As Pita has been observed exhibiting aggressive behavior, this growing attention is a concern. Belize Fisheries representatives are investigating this potentially hazardous problem. Guidelines are currently in review.

Behavioral characteristics

Pita exhibited a variety of behavioral responses to human activities. Pita frequently responded to underwater human vocalizations made by approaching and nearby people. One swimmer observed that the dolphin seemed to respond to her vocalizations with a high pitched 'buzzing' sound while positioning her body parallel or perpendicular to the swimmer. On several occasions, she responded to digital wrist-watch alarms by becoming passive or resting on the sea floor. Pita often emitted clicks and whistles during her encounters with humans and occasionally mimicked the body postures of swimmers. Most notably, Pita spy-hopped directly in front of a swimmer who had stopped and raised himself vertically out of the water so that his head was above the surface, facing Pita. She also regularly displayed a sequence of body postures beginning with a stiff, hunched back, leading to circular swimming motion with her head out of the water, and ending in a stationary spy-hop. Other postures that Pita displayed include swimming synchronously with people and hanging horizontally or vertically in the water.

Behaviors most frequently observed were investigative and exploratory in context. In particular, she often oriented her head to the video camera and to wrist-watch alarms. Of interest was an incident in which Pita investigated a man's feet with her rostrum, occasionally nudging them, for almost two minutes. This man was one of two swimmers not wearing swim-fins, and he was standing in water one meter deep.

Pita was observed to direct problematic behaviors towards swimmers, including, but not limited to, pushing and bumping against swimmers' bodies with her rostrum and body. Pita was repeatedly observed to position herself between the boat and swimmers (or dock and swimmers) when the swimmers were trying to exit the water. She has been witnessed to push swimmers forcefully away from the boat with her rostrum. On one occasion, one of the authors (NC) placed a bright yellow video camera on the sea floor while swimming near Pita. When NC attempted to retrieve her camera, Pita firmly and repeatedly bumped against NC's side, pushing her away from the camera. When NC finally reached the camera, Pita gently placed her mouth over the out-stretched hand and moved it away from the camera. Pita charged NC in a direct line when the camera was finally in NC's grasp; the

dolphin altered her swimming path just before a collision.

Pita was observed to exhibit a number of other tactile behaviors. She slapped her flukes against the water surface near swimmers and occasionally leapt over them. At times, Pita rubbed her genitals against swimmers. The dolphin often was preoccupied with the boat anchorline and with the propellers. She often nudged and rubbed her genitals and other body parts against boats, travelling back and forth between the propellers and the anchorline. Pita has acquired new scars that appear to be propeller marks, and the authors heard of one account when this dolphin situated herself directly under a spinning propeller. Pita continues to rub against boats and propellers when they are in the area.

Pita was observed feeding in the lagoon near the Lighthouse Reef Resort Pier. She was seen chasing schools of small fish, possibly silversides (family Atherinidae) and the larger needlefish (*Tylosurus* sp.) in the lagoon near the pier. Pita also was observed feeding on solitary reef fish (unidentified species), in and around the nearby patch reefs of Lighthouse Reef Atoll.

Human behavior

Several human behaviors directed toward Pita may be problematic (Norris, 1967; Samuels & Spradlin, 1994). Swimmers chased Pita, grabbing at her pectoral and dorsal fins, and touched sensitive areas including her genitals, face, and blowhole. People attempted to ride Pita (Winning, pers. commun.). Pita often became increasingly more active and occasionally aggressive during these encounters.

Although many interactions between Pita and people have been without incident, several human behaviors appeared to evoke strong responses from Pita. For example, she repeatedly swam away from one male swimmer who assertively pursued her. On the other hand, one local man who swims with Pita on a regular schedule was observed to play very roughly with her and he claims that she behaves aggressively towards him if he does not interact in such a manner. This man attracted Pita's attention and elicited her approach by slapping his hand on the water's surface. He held on to her dorsal fin or flukes, she swam-off dragging him along-side. When he let go or fell-off, she often returned to 'give him another ride'. Pita at times responded excitedly when snorkelers attempted to exit the water. Behaviors included Pita physically intercepting the swimmer, pushing the swimmer away from the exit point, and on several occasions acting aggressively towards the swimmer.

While many human behaviors have elicited aggressive acts by Pita, some actions seem to have the opposite affect. Gentle rubs and slow swimming

by people seem to have led to a relaxed or calm state in the dolphin.

Discussion

There are many similarities between Pita and other solitary dolphins that interact with humans. Physically assertive behaviors such as pushing, bumping (Norris, 1967; Webb, 1978; Bloom, 1991), butting (Lockyer & Morris, 1986; Morris & Lockyer, 1988), mouthing, and charging humans (Webb, 1978) were also observed in lone dolphins. Rubbing of the genitals against swimmers was seen in other instances, primarily in male dolphins (Webb, 1978; Bloom, 1991; St. John, 1991). Pita's attempts to manipulate colorful objects coincide with observations made by Morris & Lockyer (1988); who noted a preference for yellow and orange objects in another interactive wild dolphin.

There are some concerns regarding Pita's safety and the safety of humans who interact with her. This is due, in part, to a lack of supervision and management of her interactions with people. These concerns have recently been magnified in light of the snorkeler injured in autumn 1995 by Pita, and the death of the male swimmer by a bottlenose dolphin in Brazil. There are considerations regarding Pita's exhibition of assertive and agonistic behavior, as well as the behavior of people who swim with her. These concerns could be addressed with supervision and management of humans. With appropriate human management, problematic behaviors are more than likely to be reduced. On-site education programs addressing proper human behavior around dolphins, as well as details about dolphins and their behavior, are helping to limit injuries to human swimmers (Bilgre, pers. commun; Santos, pers. commun.). Legislation enacted and enforced to protect Pita from disturbance, like that in place for other dolphins (e.g. Alpers, 1963; Dobbs, 1981), might reduce the risk and ensure the safety of Pita and people alike. Regulations and guidelines are currently being reviewed and discussed by Belize Fisheries to manage this situation in hopes of avoiding further serious injury to people and the dolphin.

As with other lone dolphins, explanations for Pita's solitary condition are not apparent. Research on Pita will continue to obtain answers to some of the many questions regarding her and other wild dolphins that choose to interact with humans.

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