

Did Participating in Interaction Programs Affect Bottlenose Dolphin Behavior Before & After the Program?



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Introduction

Assessing the impact of dolphin-human interaction programs (DIP) on the behavior of dolphins is critical to dolphin care and welfare.

- Studies with limited sample sizes have shown minimal or neutral effects of DIP programs on dolphin behavior (Brando et al., 2019; Brensing et al., 2005; Trone et al., 2005).
- In training sessions, dolphins show willingness to participate, which potentially indicates positive overall health and welfare (Clegg et al., 2019).

The goal of the present study was to investigate dolphin response before and after participating in a DIP with a larger sample size.

We hypothesized that:

- H1:** There will be no change in behavior before versus after a DIP.
- H2:** Anticipatory behavior will occur before DIPs.



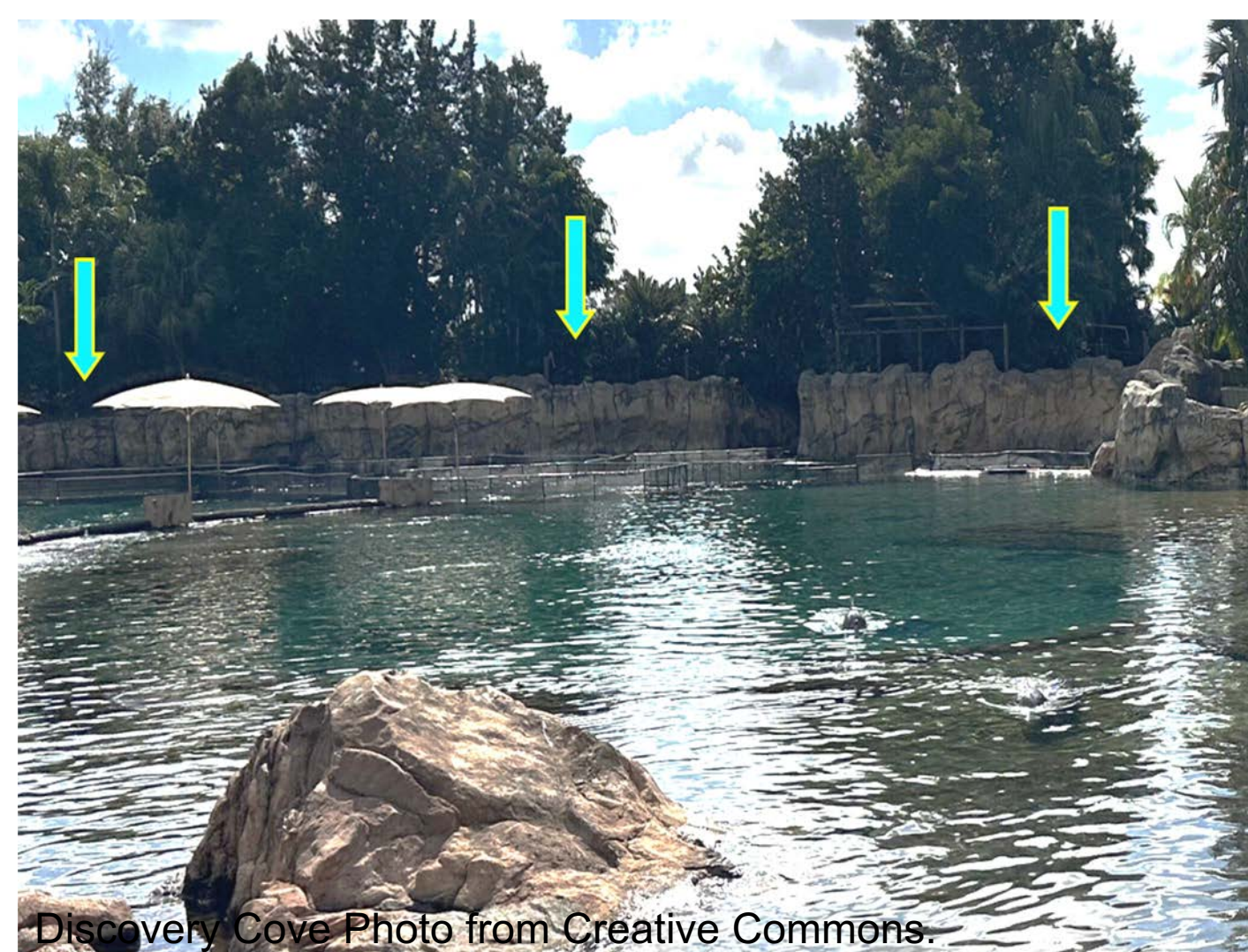
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Discovery Cove Lagoons

Figure 1
Lagoon Layout



Figure 2
Data Collection Locations



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Methods

Subjects

- 19 animals from Discovery Cove in Orlando, FL.
 - 18 Atlantic bottlenose dolphins (*Tursiops truncatus*)
 - 1 hybrid bottlenose/long-beaked common dolphin (*Delphinus capensis*)
 - 4 Males; 15 Females, 5-50 y. o.
- Resided in one of three lagoons with distinct social groupings, equally sampled (Figures 1 & 2).
- Most animals participated in no more than two back-to-back DIPs.

Materials & Measures

- Collected video data with Sony Handycam, GoPro 7, & GoPro 8.
- DIP session sample: $N = 155$.
- Behaviors & definitions see Table 1.

Procedure

- DIP sessions recorded in summers 2022-2023 (Jun-Aug) from a top-down vantage, viewing all lagoons (Figure 2).
 - Pre, during, and post DIP sessions between 07:00 & 17:00
 - Pre-session began 5 min before
 - Post-session ended 5 min after
 - 30-minute sessions, 3 d/wk for 10 weeks

Table 1. Operational definitions of behaviors observed

Behavior	Operational definition
Solo swim	Dolphin swims by itself
Pair swim	Dolphin swims within one body length of another & follows for 3s +
Group swim	Two or more dolphins within a body length of each other swimming in same direction for 3s +
Affiliative social	Dolphin initiating or receiving contact (CNT) or engaging in social interactions that could be interpreted as positive or cooperative
Agonistic social	Dolphin initiating or receiving CNT or engaging in social interactions that could be interpreted as negative, harm-inducing, or displacement
Socio-sexual social	Dolphin initiating or receiving CNT or engaging in social interactions that involve genitalia or body postures exhibiting ventral side
Stationary	Dolphin remains immobile in water column
Orient	Dolphin gazes at stimuli within environment, indicated by head cock or body posture
Anticipatory behavior	Dolphin approaches trainer/guest entering areas on beach, includes head up, orient, vocal, following trainer, and other attention seeking behavior

Discussion

Findings support our hypotheses:

- Dolphins displayed similar types of behavior before and after DIPs, with solo swims most frequent.
- Social interactions between dolphins occurred as pair swims or socio-sexual interactions; minimal agonistic interactions were observed.
- No time-of-day effects occurred, but anticipatory behavior was exhibited by most dolphins immediately before or after DIPs.
- This study supports findings of previous studies that suggested DIPs had neutral effects on dolphin behavior (Brando et al., 2019).

Limitations

- Study was conducted at peak tourist season.
- Limited DIP sessions per dolphin.

Future Research

- Evaluate individual dolphin responses to program participation.
- Investigate more sensitive measures of welfare.
- Increase sample with additional facilities using a *Many-Animals* study design.

These results indicate that current practices do not appear to have a negative impact on dolphin welfare, as dolphins show anticipatory behaviors and continue to exhibit a willingness to participate (Clegg et al., 2019).

References

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