

*Study of Bottlenose Dolphin Occurrence in St. Andrew Bay, Florida and Coastal Waters Near
the Naval Surface Warfare Center, Panama City Division Testing Range*

MOA-2015-029/9087

Fall 2016 Survey Status Report

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Introduction

The goal of the fall 2016 component of this project was to conduct photographic-identification (photo-id) surveys to determine seasonal (fall) abundance, habitat use, and distribution patterns of bottlenose dolphins in St. Andrew Bay and adjacent coastal waters surrounding the Naval Surface Warfare Center, Panama City Division (NSWC PCD). In addition, we aimed to collect opportunistic remote biopsy samples from bay, sound, and estuarine (BSE) and coastal (CST) dolphins. For the BSE, the goal was to target previously not sampled, distinctive and/or cataloged animals to build upon the 49 samples collected in these waters during 2015. Along the CST, our goal was to increase the sample size for dolphins thought to be members of the Northern Coastal Stock in which only two samples were collected during 2015.

Methods

The study area, transect lines, and survey design were identical to those presented in the 2015 Final Report (Figure 1).

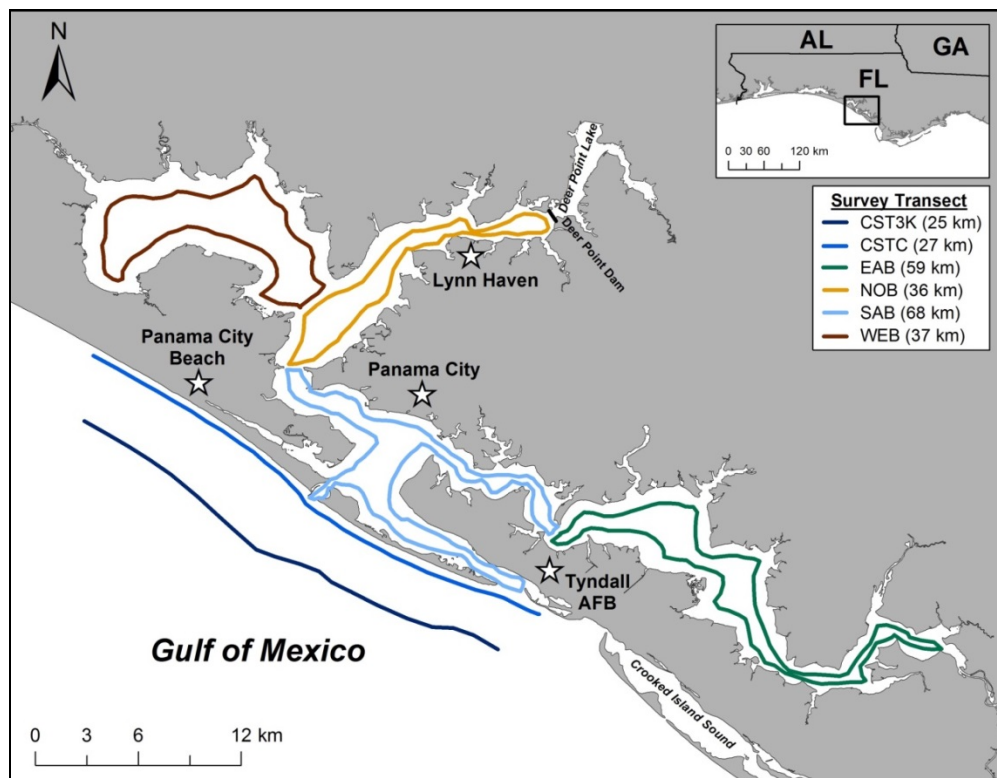


Figure 1. St. Andrew Bay photo-id study area with survey transects. The St. Andrew Bay study area includes the bay, sound, and estuarine (BSE) [St. Andrew Bay (SAB), North Bay (NOB), West Bay (WEB), and East Bay (EAB)] and coastal (CST) [coastal 0.5 km (CSTC) and coastal 3 km (CST3K)] waters.

Results

The fall 2016 field work comprised 13 field days (13 - 25 October), 85.01 field hours, and 1498.66 km surveyed (Figure 2). All three secondary sessions, in both BSE and CST waters, were completed in the first 8 field days. A total of 128 sightings were recorded wherein 551 bottlenose dolphins, 69 calves, and no neonates were observed (Figure 3). In addition, four Atlantic spotted dolphins (*Stenella frontalis*) were sighted; age class was determined based upon two-tone to slightly speckled color phase (Perrin et al. 1976; Herzing 1997). The group of spotted dolphins was the farthest southeast and offshore sighting location in Figure 3 and they were subsequently resighted, less than 60 minutes later, northwest of their initial location while conducting surveys approximately 10 - 12 km offshore of the St. Andrew Bay coastline. A total of 17 remote biopsy samples were collected; BSE (N = 5) and CST (N = 12) (Figure 4). Of the CST samples, 11 were collected from bottlenose dolphins and one was collected from a spotted dolphin. All sampled animals were not previously biopsied, had distinctive dorsal fins, and if not currently, will be new animals in the St. Andrew Bay photo-id catalog.

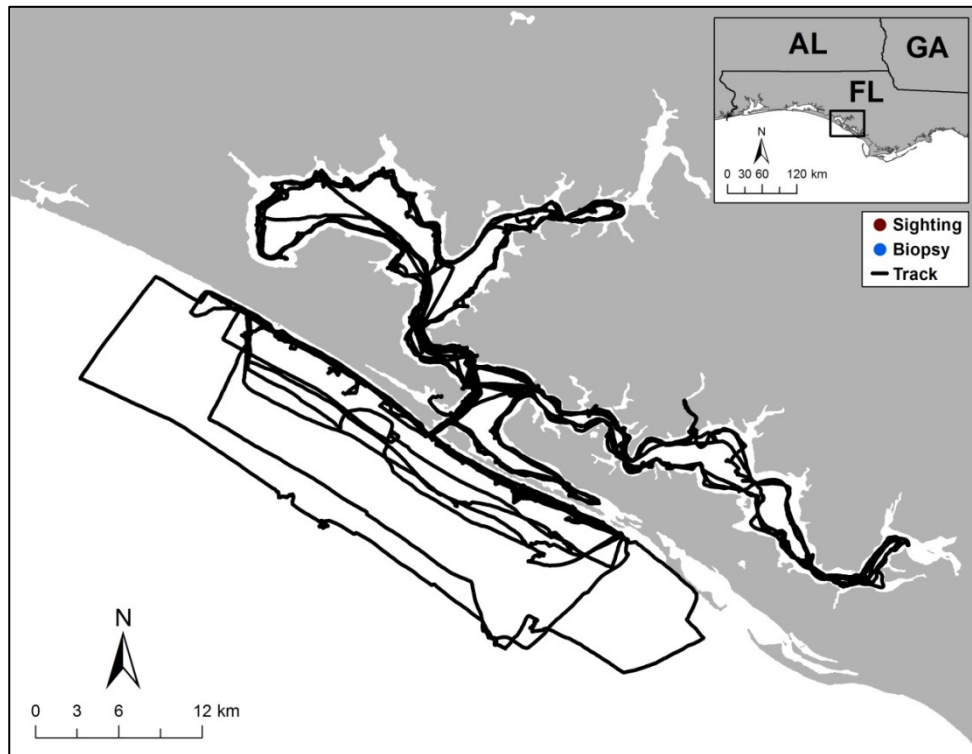


Figure 2. Fall 2016 survey track lines.

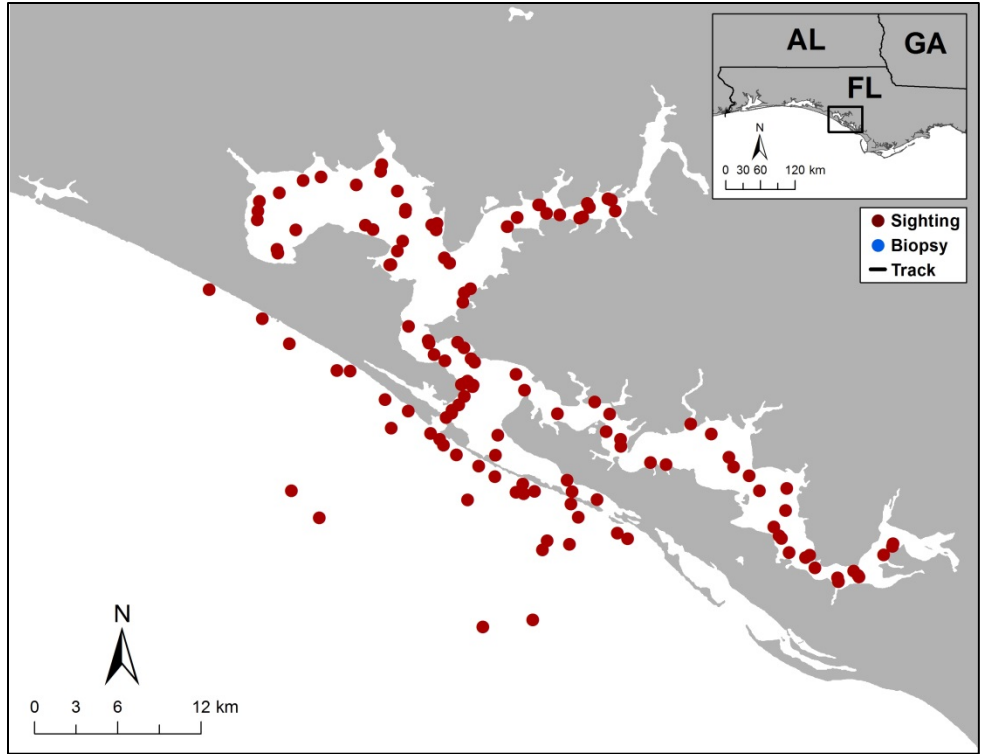


Figure 3. Fall 2016 sighting locations.

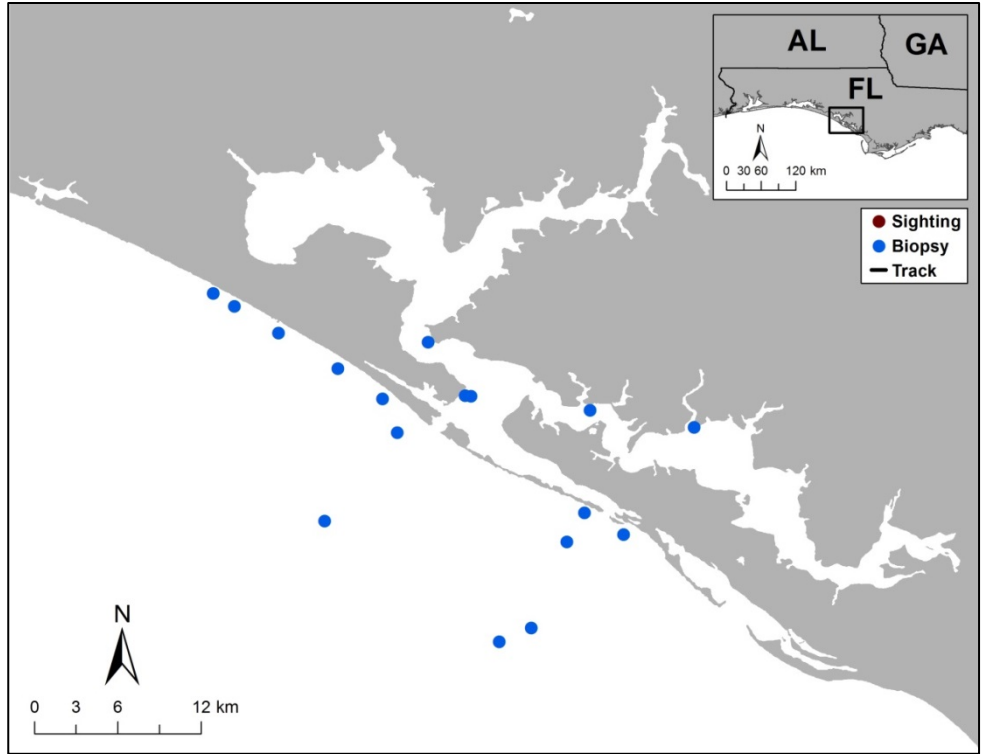


Figure 4. Fall 2016 remote biopsy sample locations.

Discussion

The fall 2016 SAB field work was the fourth season for the SAB NSW PCD project (July 2015, October 2015, April 2016, and October 2016). Conditions were relatively similar to October 2015 with three to four days of low wind (< 10 mph) followed by two to three days of higher wind (15 - 20 mph). Wind direction was generally out of the north, with northeast being the direction that created the least favorable survey conditions. Northeast winds at 20 mph prevented surveying much of the study area in good conditions (\leq BSS 3). There was typically a lull in the wind during mid-day.

A similar number of sightings across the study area with a higher number of sightings in coastal waters were observed during both fall 2015 and 2016 versus summer 2015. There were several sightings with animals patrolling behind fishing boats, and swim-with tour operators actively targeting dolphin groups, which was consistent with observations during October 2015. Such sightings occurred principally around the entrance to SAB and the Gulf-side of Shell Island. A large red tide and concomitant multi-species fish kill was observed in Shell Island Sound and surrounding waters during the October 2015 survey effort. During the October 2016 field work, a smaller, single-species fish kill was observed in Callaway Bayou (EAB). Based upon news reports, the fish species impacted was identified as a “Menhaden species” which could have been referred to as Gulf menhaden (*Brevoortia patronus*) or another member of the family Clupidae, the scaled sardine (*Harengula jaguana*) which has many of the same physical characteristics as Gulf menhaden. The cause of this mortality was identified as a fish dump in which fishermen were likely unloading their nets in Callaway Bayou. Aside from the fish kill, there appeared to be a high diversity and abundance of marine biota in the BSE and CST waters; also similar to observations from October 2015. A huge school of glass minnows [anchovies (*Anchoa spp.*)], being preyed upon by Spanish mackerel (*Scomberomorus maculatus*), bonito (*Sarda sarda*), unknown shark species, terns, gulls, and dolphins was observed just inside of SAB. Pink drymonema or pink meanies (*Drymonema larsoni*) and several other jellyfish species were observed throughout the study area with higher prevalence in coastal waters. Interestingly, the pink drymonema is a new species of jellyfish, recently discovered in the Gulf of Mexico (Bayha and Dawson 2010). Along the coast, large schools of tarpon (*Megalops atlanticus*), ballyhoo (*Hemiramphus brasiliensis*), and scaled sardines (possibly Gulf menhaden) were also observed.

For the most part, the majority of distinctive dolphins sighted in BSE waters during October 2016 were known from 2015. Interestingly, there appeared to be a group of animals only sighted in October 2015 and 2016. April 2016 photo analysis, followed by October 2016, is currently underway which will provide a better understanding of year round and/or seasonal residence. The larger numbers of dolphins along the coast will likely be a mix of previously sighted and new individuals further emphasizing the need for catalog comparisons to other study areas, specifically starting with the St. Joseph Bay catalog, to better understand movement patterns of coastal dolphins.

Opportunistic remote biopsy coastal surveys were conducted in the offshore waters (up to approximately 12 km from shoreline). These surveys required optimal weather conditions but provided valuable insight into developing future survey designs to better assess small cetacean diversity, density, and distribution. In the offshore waters, there were fewer sightings than immediately along the coast. However, bottlenose dolphins and Atlantic spotted dolphins were observed and remote biopsy samples were obtained from an individual in each of these sightings. Dolphins in the offshore waters were generally approachable with varying degrees of interest in the survey vessel from single bow ride approaches to staying on the bow for multiple surfacings lasting over 20 minutes. The sighting of four Atlantic spotted dolphins is now the second sighting of this species during the 2015 - 2016 survey effort. The subadults observed in October 2016 were smaller with two-tone to a slightly speckled color phase compared to the two individuals sighted during April 2016 that appeared larger and had a more speckled to mottled color phase.

The October 2016 survey effort went extremely well with few logistical problems, aside from slight delays in getting to the field site as a result of Hurricane Matthew. The four survey sessions across two years will provide a robust dataset for several manuscripts on topics including abundance, contaminant levels, distribution, habitat use, human interactions, and site fidelity. Based on the current project timeline, photo analysis will be completed by mid-2017 followed by drafts of manuscripts to co-authors by the end of 2017.

References

- Bayha, K. M., and M. N. Dawson. 2010. New family of allomorphic jellyfishes, Drymonematidae (Scyphozoa, Discomedusae), emphasizes evolution in the functional morphology and trophic ecology of gelatinous zooplankton. *Biological Bulletin* 219: 249-267.
- Herzing, D. L. 1997. The life history of free-ranging Atlantic spotted dolphins (*Stenella frontalis*): age classes, color phases, and female reproduction. *Marine Mammal Science* 13: 576-595.
- Perrin, W., F., J. M. Coe, and J. R. Zweifel. 1976. Growth and reproduction of the spotted porpoise, *Stenella attenuata*, in the offshore eastern tropical Pacific. *Fishery Bulletin* 74: 229-269.