



Sighting patterns of bottlenosedolphins (*Tursiops truncatus*) in Cape May, New Jersey



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Abstract

Large numbers of bottlenose dolphins (*Tursiops truncatus*) annually occur off of Cape May, NJ, during the months of May through September. Previous research in more northern areas of New Jersey suggests that these animals do show at least some seasonal site fidelity. We conducted 15 surveys aboard the Cape May Whale Watcher from May 2013 through August 2013 in order to determine dolphin sighting patterns in the undocumented Cape May area.

During 15 surveys, dolphin groups were sighted 41 times. A total of 1,997 photos were taken, and 235 individuals were individually identified. Of those identified, 31 were re-sighted a second time, and 204 were seen only once. This low re-sight level indicates a larger population than what was identified in this preliminary study. Several individuals were initially sighted traveling together in the same group, and subsequently re-sighted together at a later date. This provides preliminary insight into a social structure that may exist. Presence of the barnacle *Xenobalanus gloicipitis* on dorsal fins and bottlenose dolphin group size remained consistent, while presence of neonates and young of the year varied considerably throughout the study. This study provides baseline information on a previously undocumented seasonal population of bottlenose dolphins.

Introduction

The resort town of Cape May, New Jersey is well-known for its seasonal coastal bottlenose dolphin population, making it the ideal location for a photo-identification study. The objective of this study was not only to photo-identify as many individuals as possible, but to determine the abundance, distribution, sighting patterns, and group characteristics of the bottlenose dolphins that seasonally inhabit these waters.

Methods

- Boat-based photo-identification surveys were conducted aboard the Cape May Whale Watcher in Cape May, New Jersey during the months of May through September in 2013 (Figure 1).

- Photographs were taken of each animal and were later downloaded and entered into the computer assisted fin-matching software program, Finscan (University of Texas, A&M, 1999). Individuals were either matched with a previously identified individual or assigned a new individual identification.

Results

- 41 separate sightings took place during 15 surveys; dolphins were seen on 100% of these surveys. One sighting occurred outside of the standard survey area (indicated with a star in Figure 1). Average group size = 20 individuals (range 3 to 65).

- There is an approximately one mile section of shoreline where dolphin sightings did not occur during any of the 15 surveys.

- The average dolphin group size remained relatively consistent throughout the summer months. However, as sea surface temperature increased, the percentage of young of the year increased while the percentage of neonates decreased. The average group percentage of animals exhibiting *Xenobalanus globicipitis* was highest in June, and consistent throughout July and August (Figure 2).

- Approximately 1,997 photographs were taken and 266 were entered into Finscan. Of the 235 individuals identified, 204 were sighted only once. The remaining 31 individuals were each re-sighted only once. Re-sights occurred on 10 out of 15 surveys (Figure 3).

- Dorsal fin ID #'s 158, 159, and 160 were sighted together on July 26, 2013, and were subsequently sighted together a second time on August 20, 2013 (Figure 4).



Figure 1. Primary study area of Cape May, NJ.

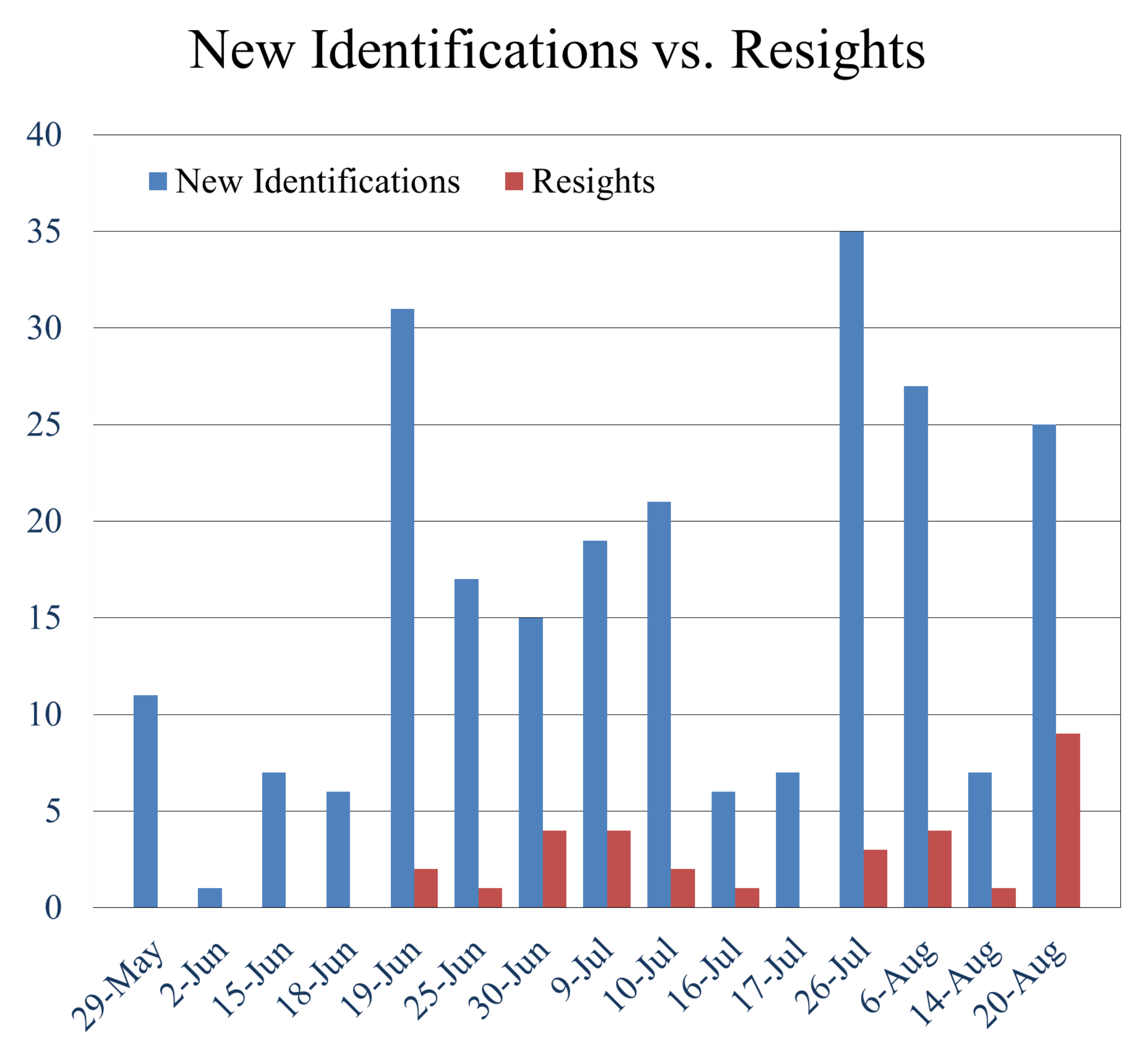


Figure 3. The number of new individuals identified during each survey, versus the number of individuals resighted.

	June	July	August
Average Sea Surface Temperature	20° C	22.78° C	23.33° C
Average Group Size	22.5	24	24
Percentage of Groups with Neonates	20%	28.5%	0%
Percentage of Groups with Young of the Year	40%	78.5%	87.5%
Average Percentage of Groups with Xeno	12%	7.5%	8.75%

Figure 2. Environmental data and dolphin group characteristics

July 26, 2013

158



159



160



August 20, 2013

158



159



160



Figure 4. Three individuals that were sighted together on July 26, 2013, and re-sighted together on August 20, 2013.

Conclusions

- There are considerable numbers of bottlenose dolphins present off of Cape May, NJ during the summer months of June, July, and August.
- Only 13% of the identified individuals were re-sighted in 2013. When comparing the number of new identifications to the number of re-sights, the Cape May population appears to be much larger than what was identified in this first year study. Future surveys are required for accurate estimates on population size.
- The lack of dolphin sightings along a one mile stretch of shoreline requires further research. It is possible this is related to the Captain's route preference rather than dolphin habitat preference.
- There appears to be a positive relationship between group size, the presence of young of the year, and sea surface temperature.
- Several individuals were sighted together on more than one survey. Like many other localized bottlenose dolphin populations along the US East Coast, a social and/or familial relationship likely exists.

Acknowledgements

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