

Analysis of Bottlenose Dolphin Social Structure in St. Augustine, Florida

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Introduction

Bottlenose Dolphins (*Tursiops truncatus*) are found throughout the world's oceans with complex social structures consisting of sub-adults, male pairs, female bands, and nursery groups. In 2011, a dolphin database was created in order to store and organize all local dolphin observations and associated study parameters. Every dolphin sighting in the 2011-present database was analyzed to determine the dolphin social structures present in St. Augustine. Bottlenose dolphin sightings ranged from 1-24 individuals. Nursery groups, defined by a Mom-calf pair and at least one additional dolphin, vary in size seasonally, increasing in size in the wintertime. This research was conducted under a letter of authorization issued by the National Oceanic and Atmospheric Administration.

Methods

A dorsal fin photo recapture study was conducted along a 16 mile transect, running 8 miles North and South of the St. Augustine Inlet from 2011-2019. For each dolphin sighting, the photographs, behavioral data, and water quality measurements were input into a database. The database was then used to analyze the social structure of the local Bottlenose Dolphin population.

Results

Most Common Sightings Ranged from 1-12 Dolphins

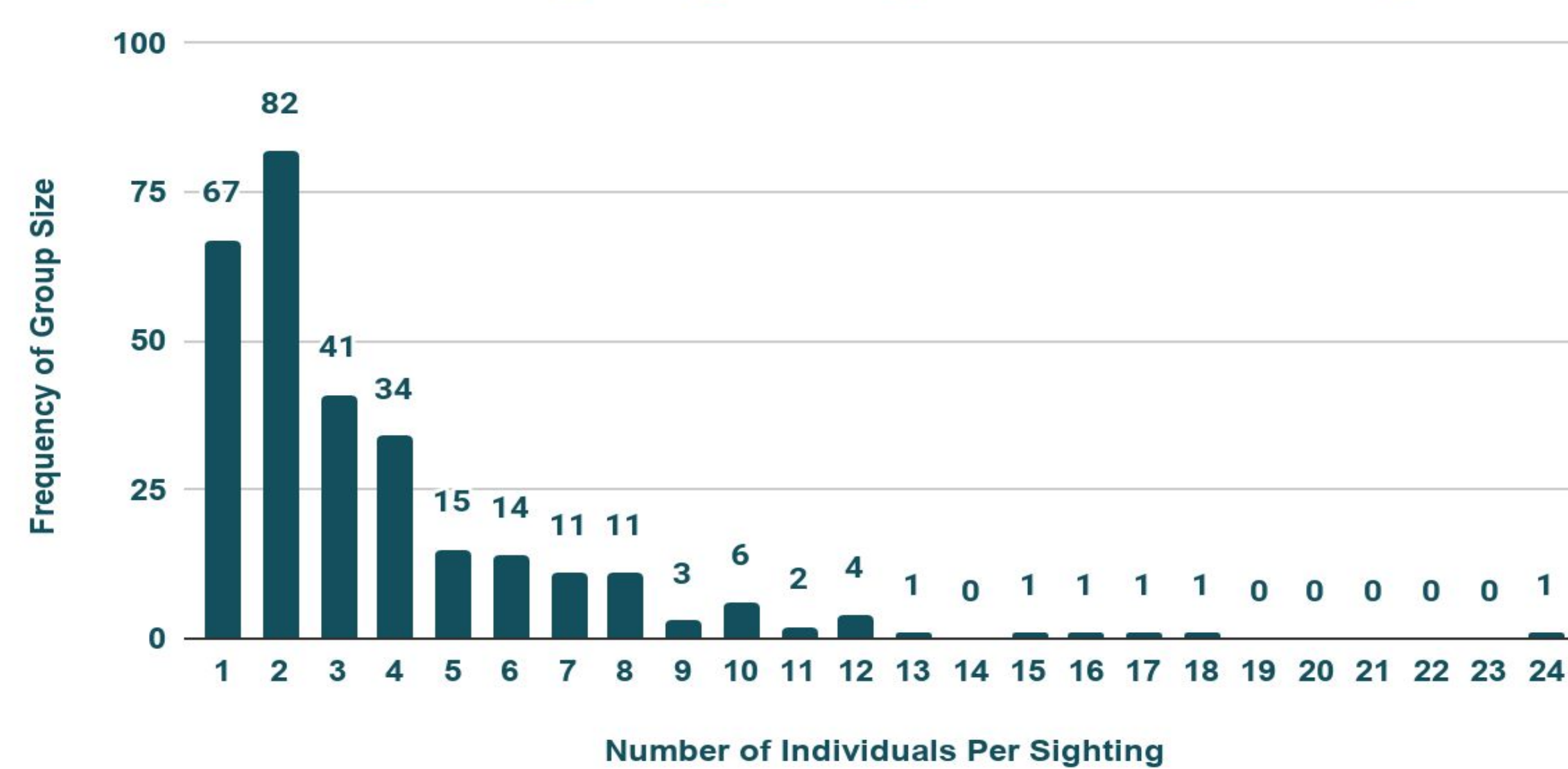


Figure 1: The most frequent sighting size was 2 dolphins which was recorded 82 times out of 296 sightings. The average group size was therefore 3.63.

Nursery Groups Can Be Seen In Every Season

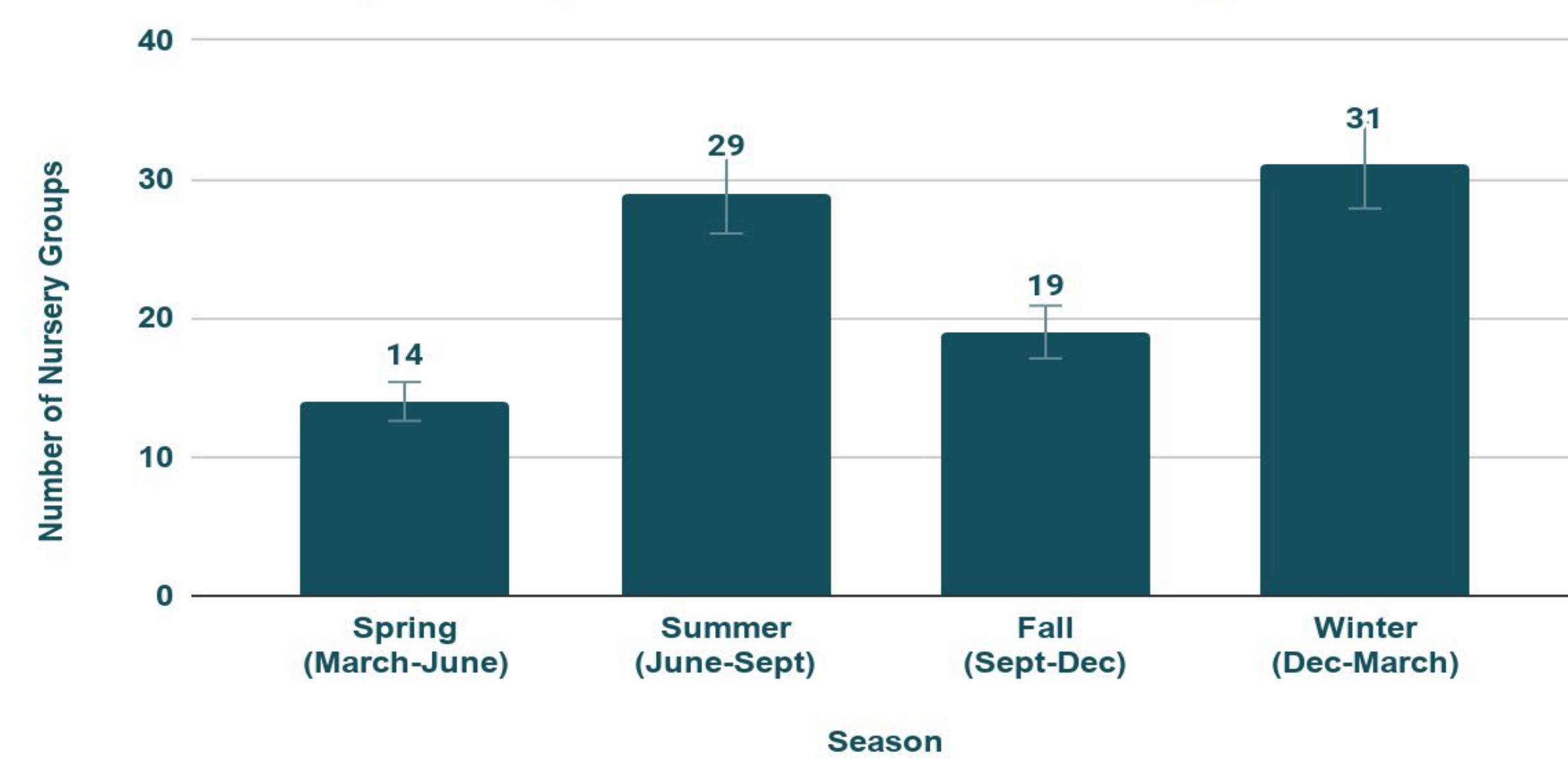


Figure 2: Nursery groups consist of a mom-calf pair and at least one additional dolphin. There was a total of 93 nursery group sightings observed and recorded.

Over the Past Ten Years Multiple Calves Were Born Into the Local Population

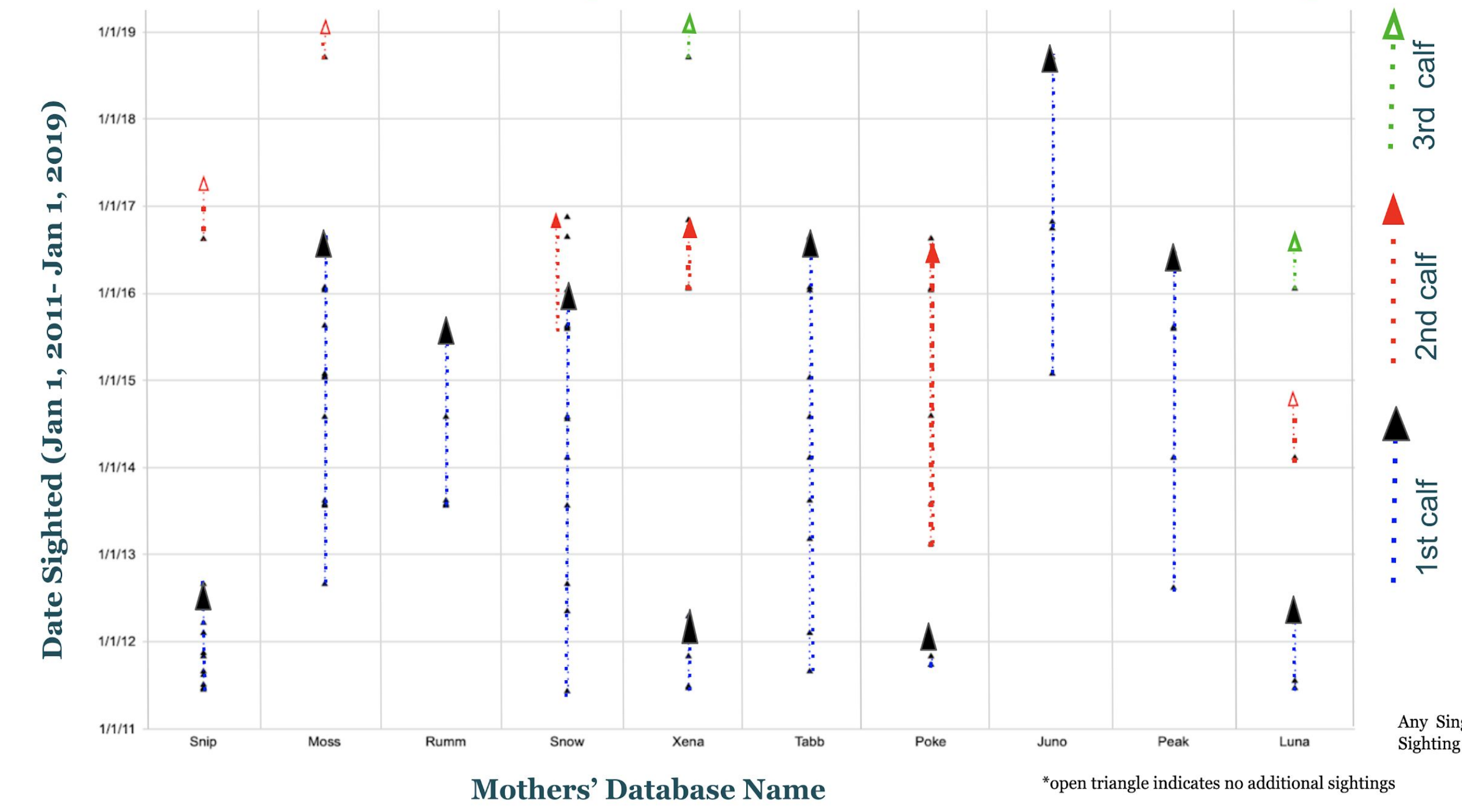


Figure 3: During the 10 year study, at least two dolphins gave birth to three calves. Calves were observed staying with their moms for upwards of 5 years. One of Snow's calves stayed even when another calf was born.

Poke Has the Greatest Number of Friends

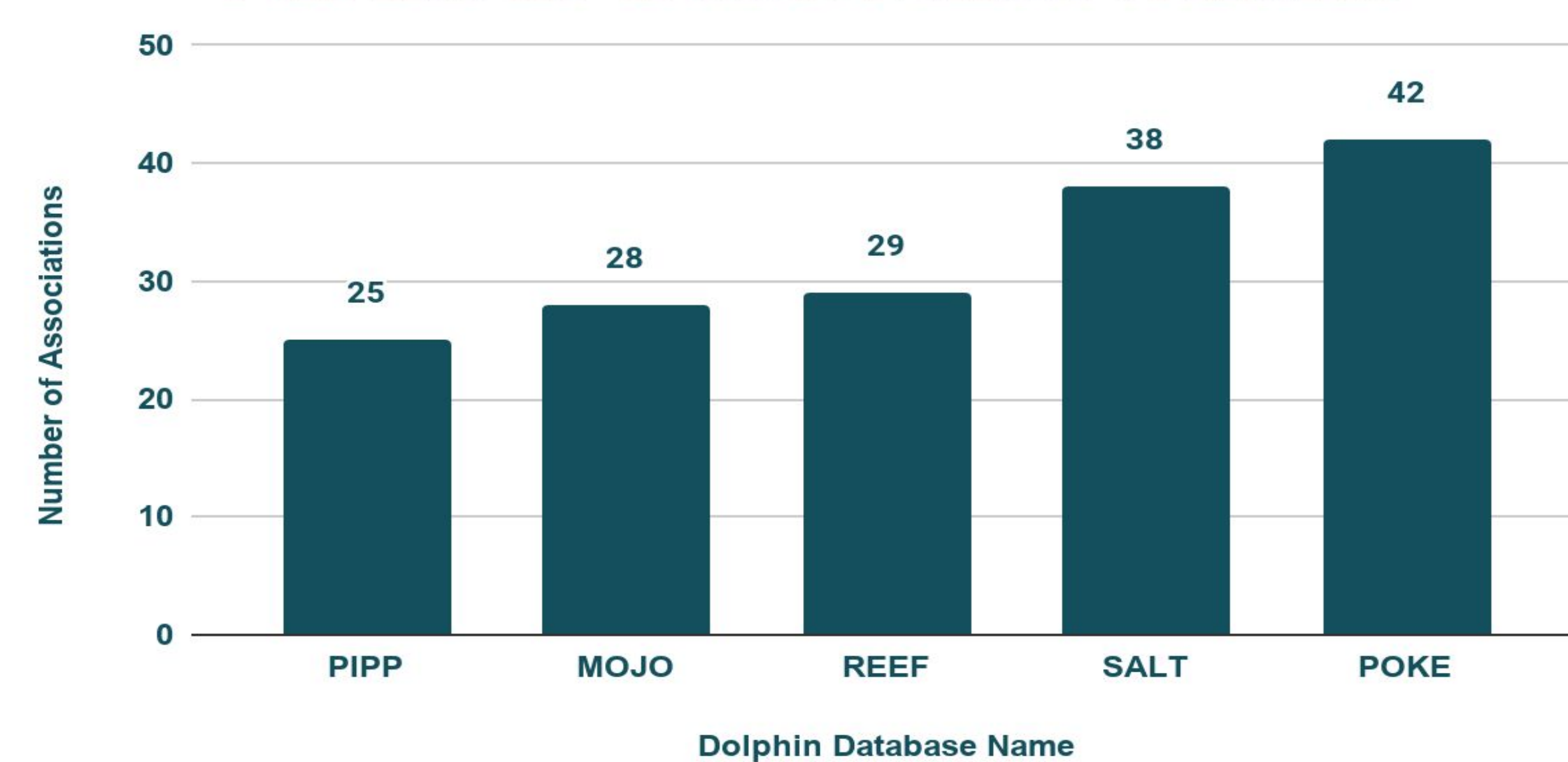


Figure 4: The 5 dolphins that have been seen with the greatest number of identified individuals were Poke, Salt, Reef, Mojo, and Pipp. Poke has been observed and recorded with 42 different identified individual dolphins.

8 Dolphins Had A Group Size Preference

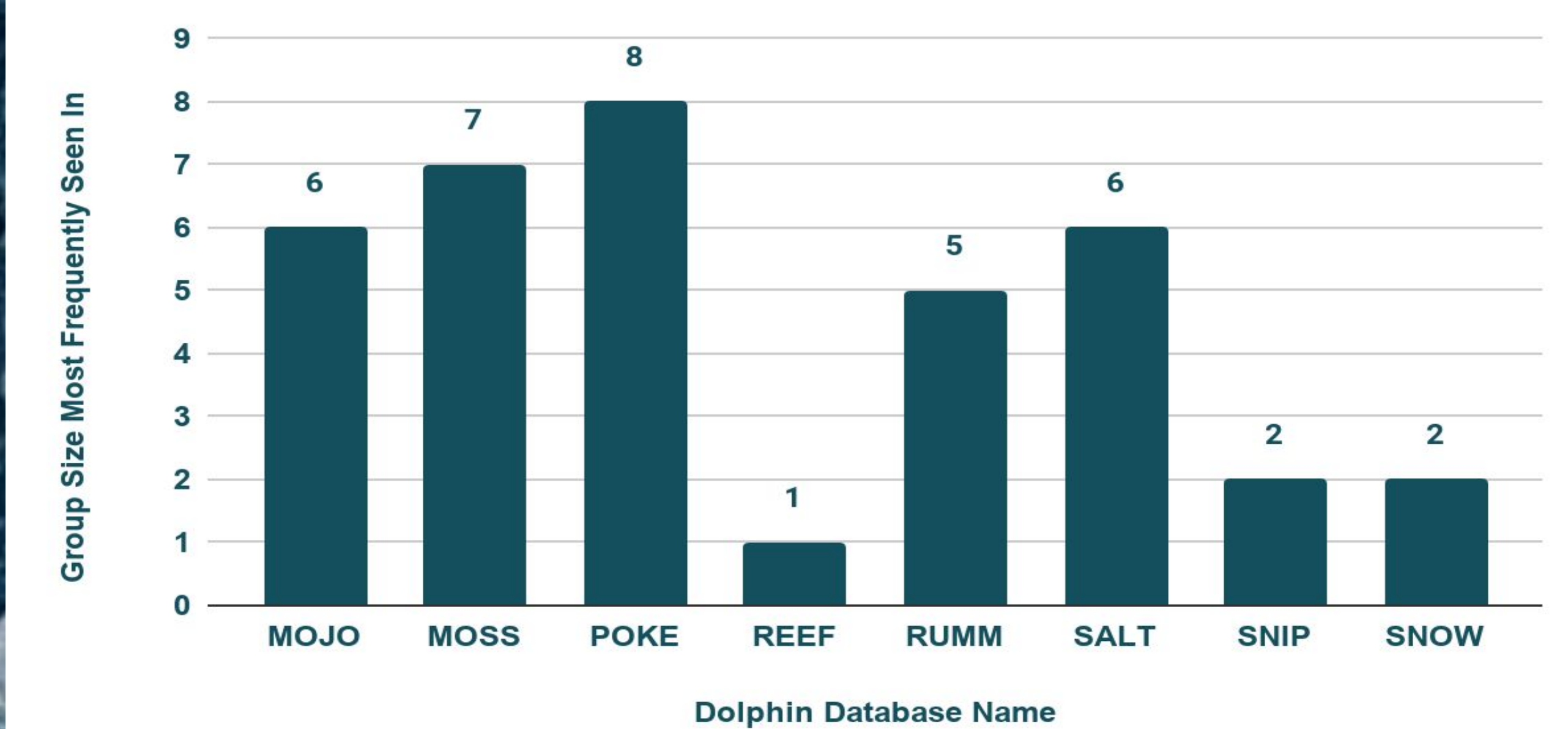


Figure 5: Poke is mostly seen in a group size of 8 and Reef is most frequently seen by themselves.

Conclusions

The Bottlenose Dolphin population in St. Augustine, Florida is composed of 132 named individuals and many more unnamed. During the photo recapture study those dolphins were observed in an average group size of 3.63 dolphins, which is similar to group sizes seen in dolphin populations around the world. The local Bottlenose Dolphin population contains individuals like POKE who have many observed associations with other individuals. POKE is an interesting individual because she has had 2 calves and is most frequently observed in a group size of 8 dolphins. MOSS, SNIP, SNOW, and RUMM are also mothers who also have a most frequently observed group size. These groups are nursery groups, which were found to be most frequently observed in the summer (June-Sept) and Winter (Dec-March). It is critical to know when calves are present in the area in order to better protect them.

Acknowledgements

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