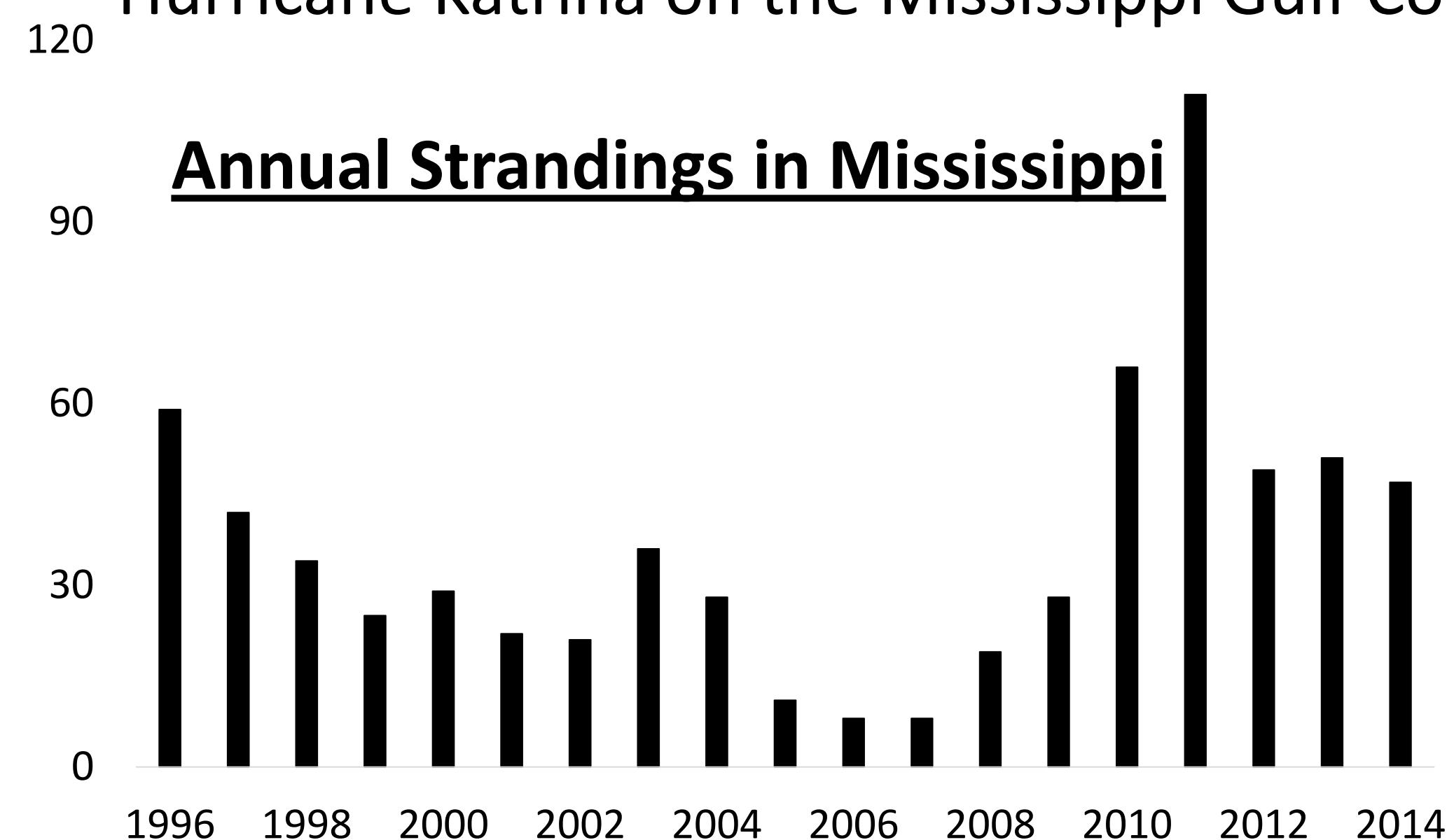


Introduction

- Since 1984 the Institute for Marine Mammal Studies (IMMS) has responded to marine mammal strandings in Mississippi.
- The Mississippi Sound dolphin population is estimated to be the largest bay, sound, or estuary stock in the GOM at 1,401 individuals.
- Stranded dolphins can be used to examine mortality and life history factors of a population.
- Over 1/3 of all stranded dolphins have received a complete necropsy since 2009.

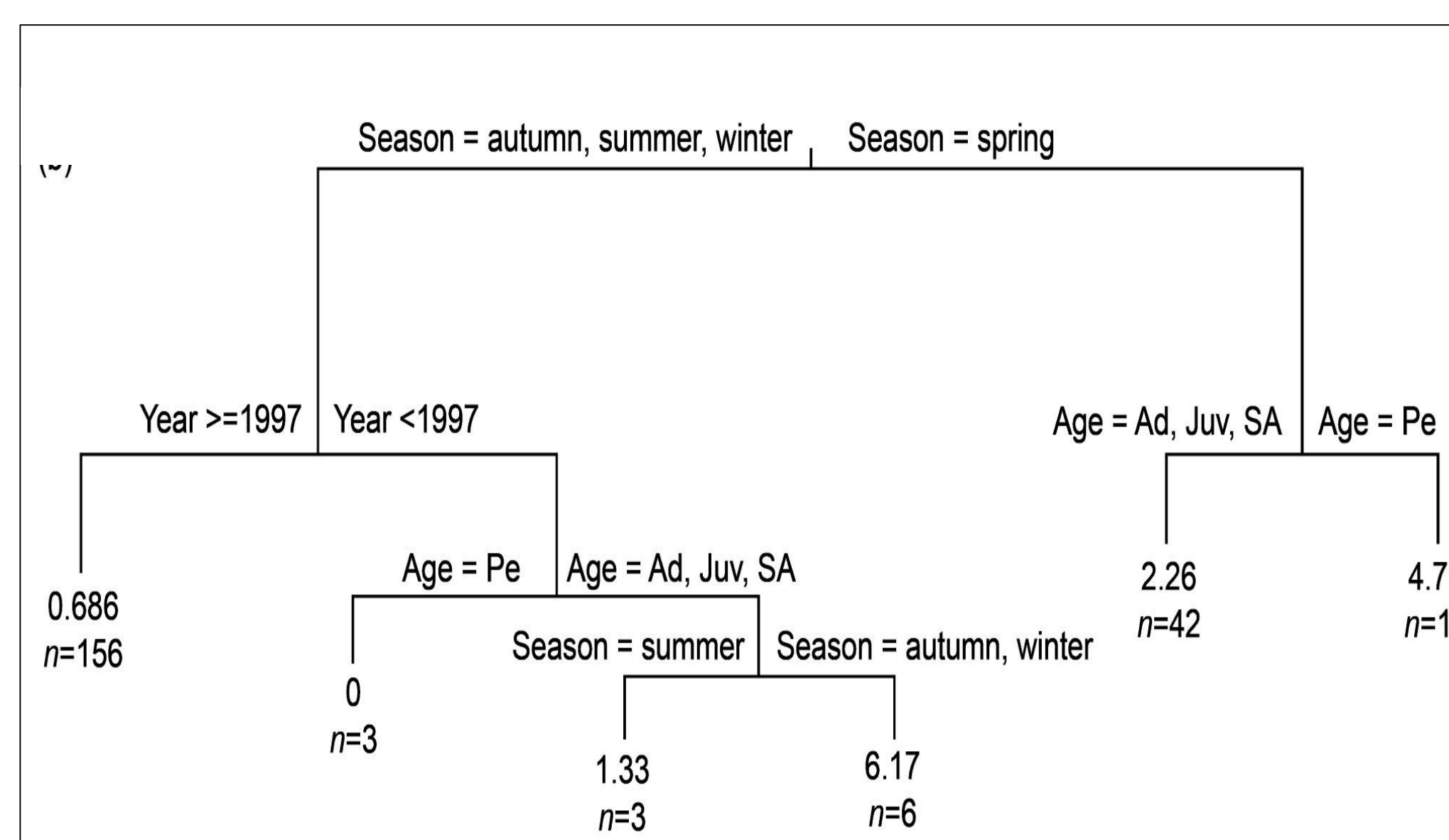
1996-2014

- There were 694 dolphin strandings in Mississippi from 1996-2014, of which 4 were live dolphins.
- The highest number of reported strandings occurred on Harrison County mainland beaches (37%) and on the barrier islands (31%)
- Strandings occur year round.
- The number of stranded perinates peaks in the spring indicating this is the main calving period.
- The average number of dolphins stranding is 37 per year in Mississippi. 6 of 20 years have exceeded this number. The lows of 8 in 2006 and 2007 may be attributable to effects of Hurricane Katrina on the Mississippi Gulf Coast.



Research

Pitchford et al. used stranding data from 1996 – 2009 to represent historical conditions of dolphin strandings by season, size, and location from Mississippi waters. Studies like this can be used to examine departures from historic strandings.

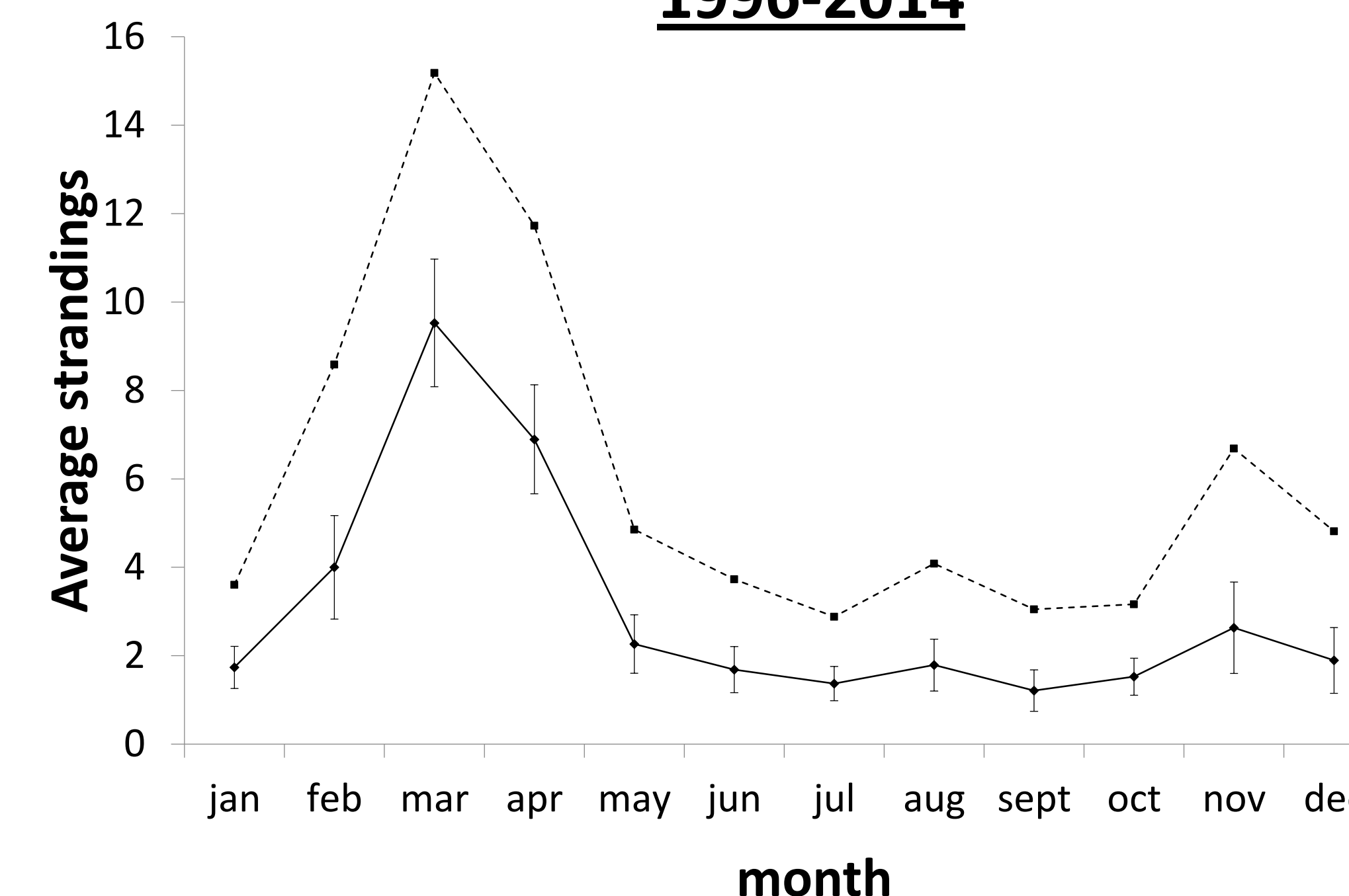


The figure above shows a regression tree constructed from bottlenose dolphin strandings in the Mississippi Sound from 1996 – 2009 showing a tree with five divisions (CVE = 0.91; SE = 0.18). The distribution of stranding counts is modelled as a function of year, season, and age class. Seasons include winter, spring, summer, and fall. Age classes include adult (Ad), sub-adult (SA) juvenile (Juv) and perinate (Pe). The length of each branch corresponds directly to the amount of variation explained by the corresponding factor. The mean number of strandings falling within each bin and the sample size used to derive these estimates is shown below each terminal leaf.

Pitchford et al., 2013. An analysis of historical bottlenose dolphin (*Tursiops truncatus*) strandings in Mississippi Sound, USA using classification and regression trees. *Journal of Cetacean Research and Management*. 13: 201-209.



Average number and upper 95% confidence interval of dolphin strandings per month from 1996-2014



Mississippi dolphin strandings show a spring peak from February to April. The smaller secondary peak in November is driven by the 18 dolphins that stranded in that month in 1996. Both adult and perinate strandings peak in spring.

Conclusions

Dolphin strandings can provide estimates of mortality in a population, but connections between stranding trends and population trends in the Mississippi Sound are unknown.

- Basic demographic rates are unknown for the Mississippi Sound, such as age at first reproduction and the intercalving period.
- No data that we are aware of has examined if dolphin population vital rates are density dependent.