

Statistical Assessment of Cetacean Stranding Events in Cape Cod area

R. Zellar¹, A. Pulkkinen¹, K. Moore², D. Reeb³, E. Karakoylu¹,
O. Uritskaya⁴

¹ NASA Goddard Space Flight Center

² International Fund of Animal Welfare

³ Bureau of Ocean Energy Management

⁴ Catholic University of America



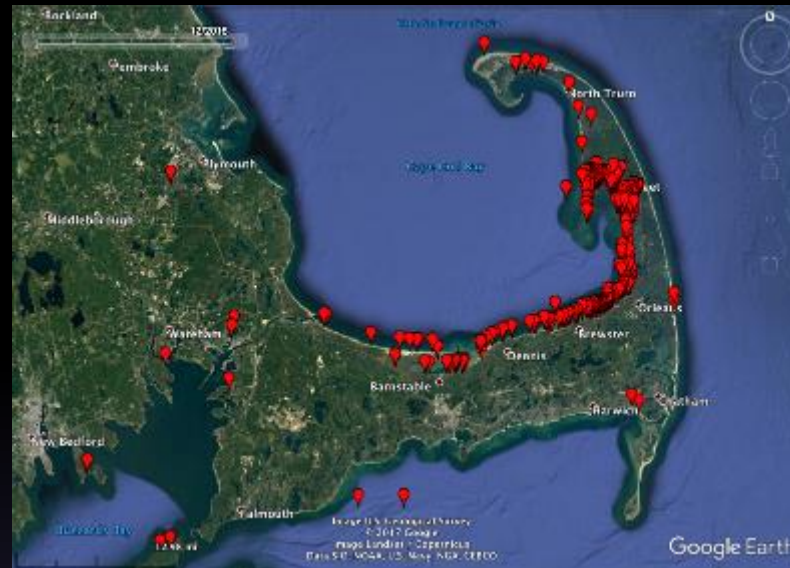
The International Fund for Animal Welfare (IFAW) provided summary records of their responses to Mass Stranded (MS) cetaceans in Cape Cod, Massachusetts.

(Mass Stranding: 2+ animals in proximity, during one tidal cycle, not mother/calf pair)

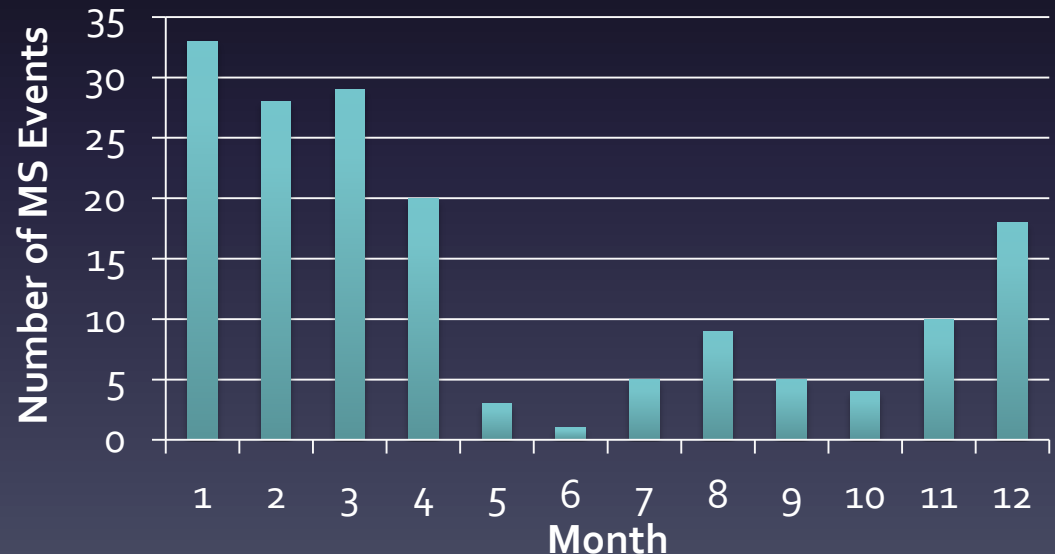
IFAW MS Event Data Summary for Cape Cod

Years:	1999 - 2014
# Events:	165
# Animals:	924
Mean # Anim / Event:	5.6
Mean # Events /Yr:	10.4
Mean # Animals /Yr:	58
Species:	
<i>Delphinus delphis</i>	57.1%
<i>Lagenorhynchus ac.</i>	32.9
<i>Globicephala melas</i>	8.3
<i>Grampus griseus</i>	1.2
<i>S. coeruleoalba</i>	0.2
<i>Tursiops truncatus</i>	0.2

Locations of MS Animals

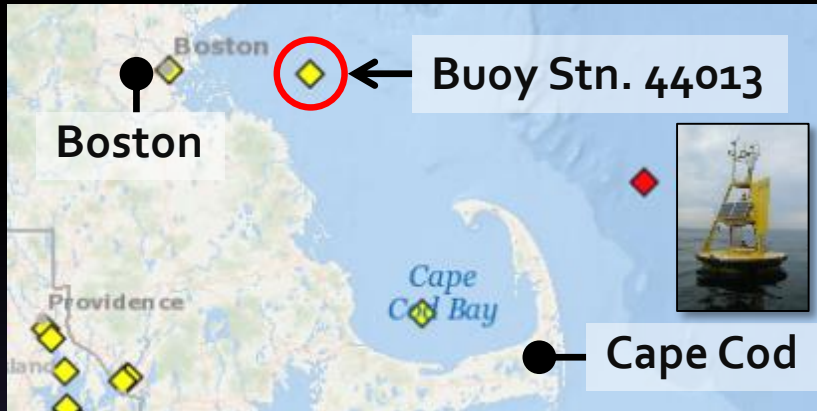


Aggregated MS Events By Month

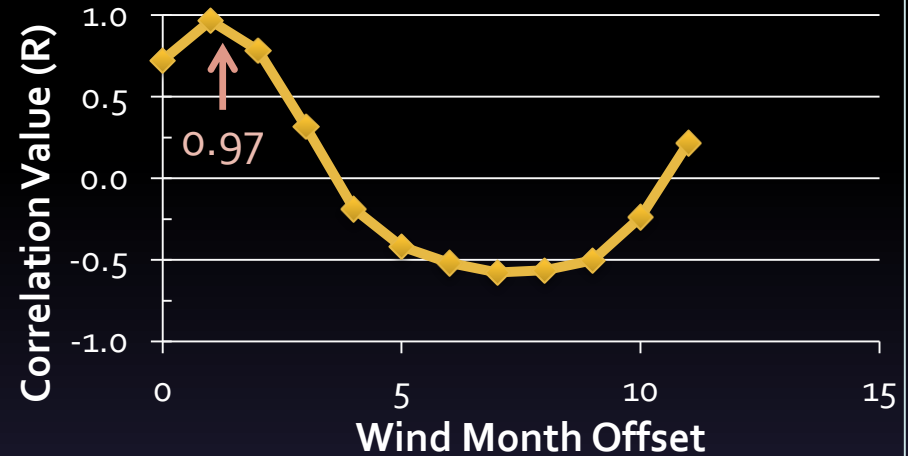


Avg Monthly Wind Correlates to MS Events

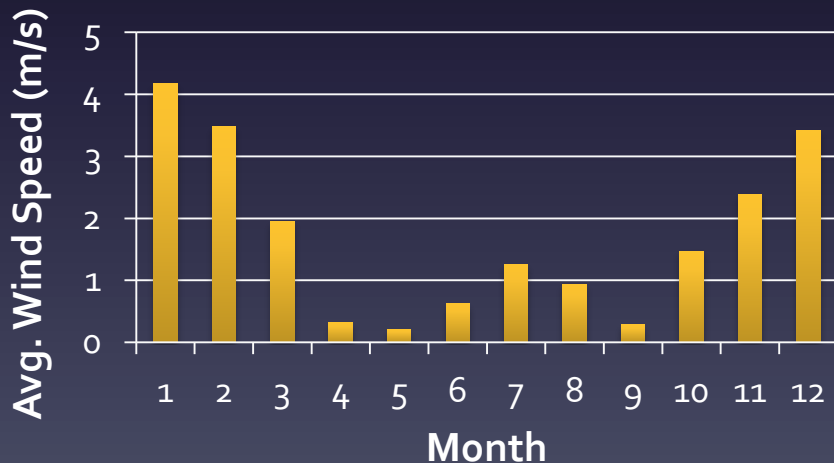
Wind Data from Buoy Station 44013



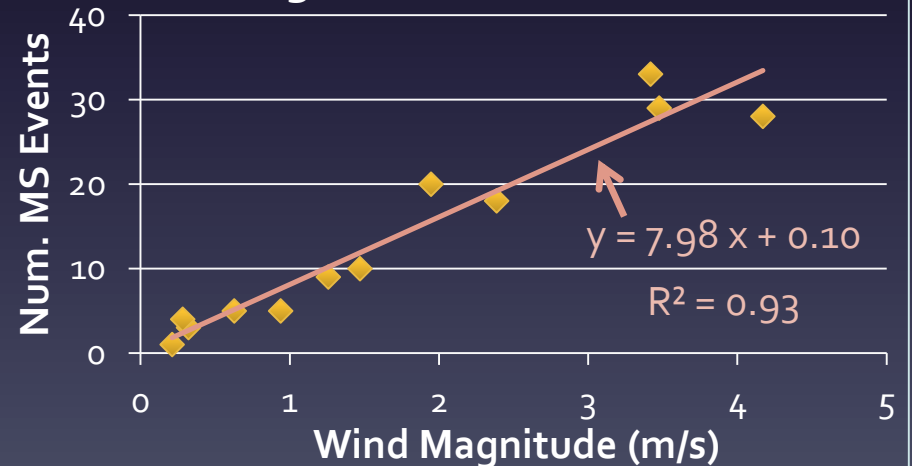
Time-Shifted Correlation



Avg Monthly Wind: Stn 44013



Linear Regression w/ One-Month Shift



Summary

- Avg. monthly aggregated wind correlates strongly with aggregated MS events.
 - Other parameters were investigated for correlation, but none were as strongly correlated.
- Cannot conclude that wind is a factor in MS events based on this data alone.
 - Correlation is not causation.
 - We cannot say that the wind is causing mass strandings.
- Additional data, concepts and alternate approaches are welcome.