

The view from above: Combining images from vessel and aerial surveys to identify individual Cuvier's beaked whales (*Ziphius cavirostris*)



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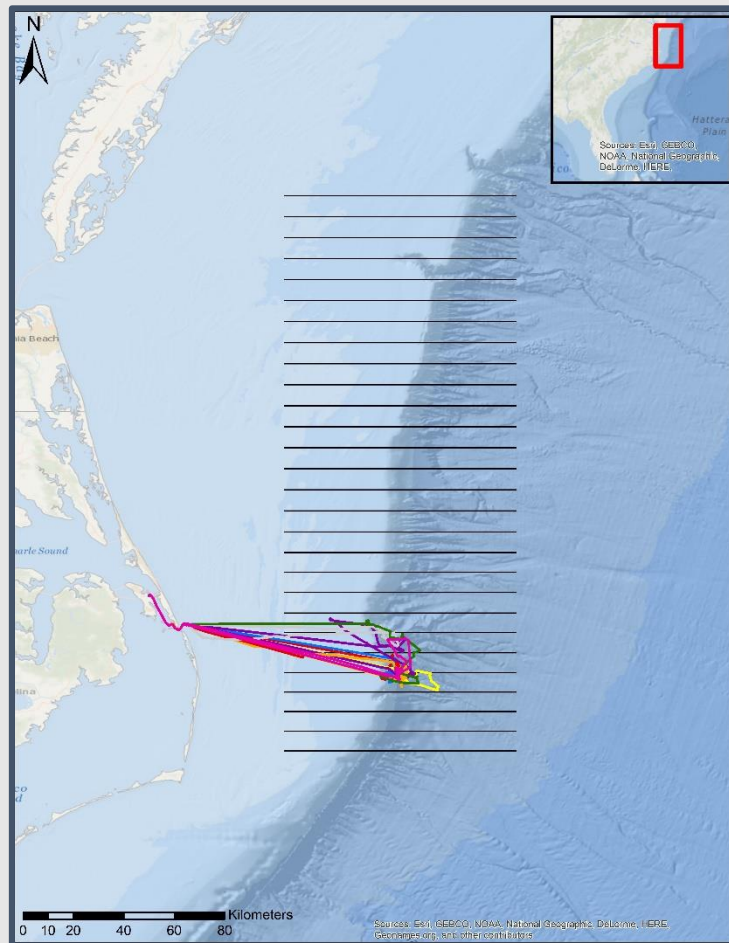
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Field Effort 2011-2017

Aerial- line transect surveys

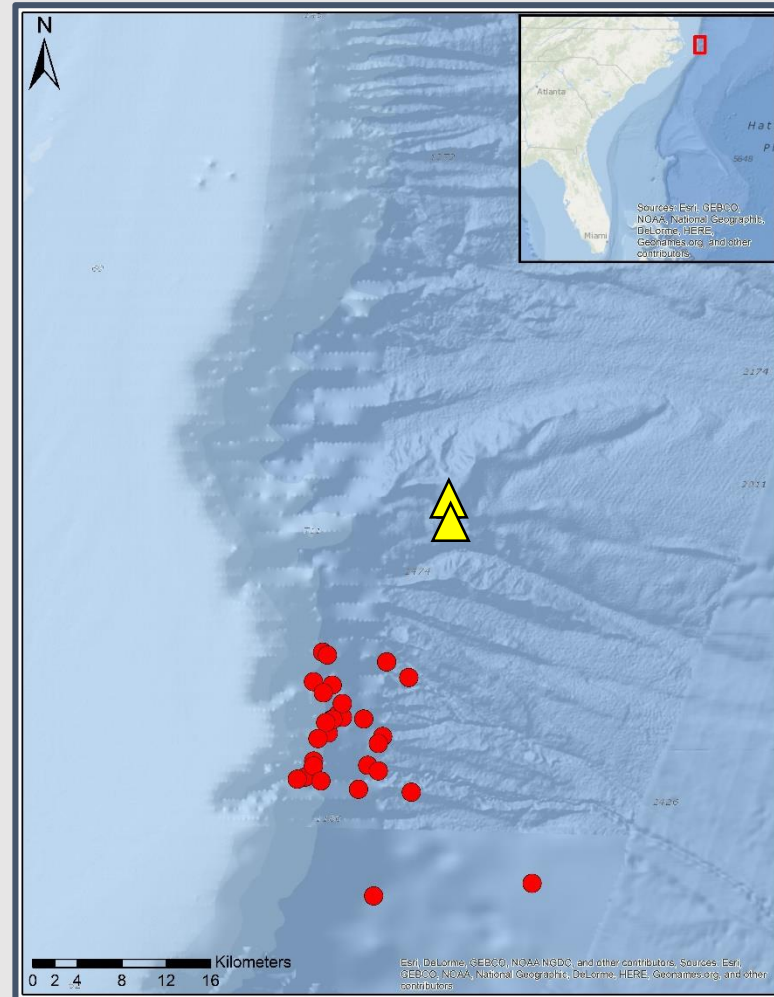
Vessel- tagging/photo-id/biopsy surveys



Vessel based catalog

106 animals

14 resights to date (13%)



Aerial based catalog

48 animals

1 resight to date (2%)



Comparing vessel and aerial based catalogs



Advantages

Dorsal fin features

Disadvantages

Left/Right side ambiguity



Advantages

More complete body coverage

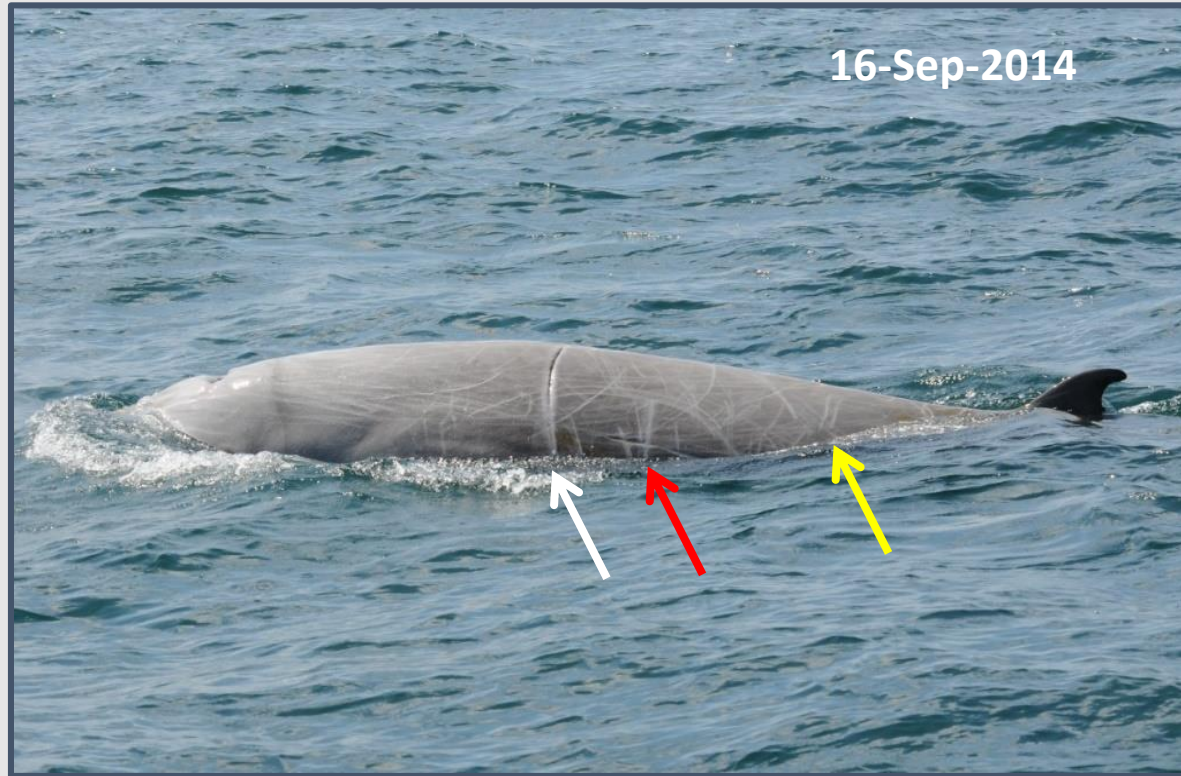
Disadvantages

Few dorsal fin features

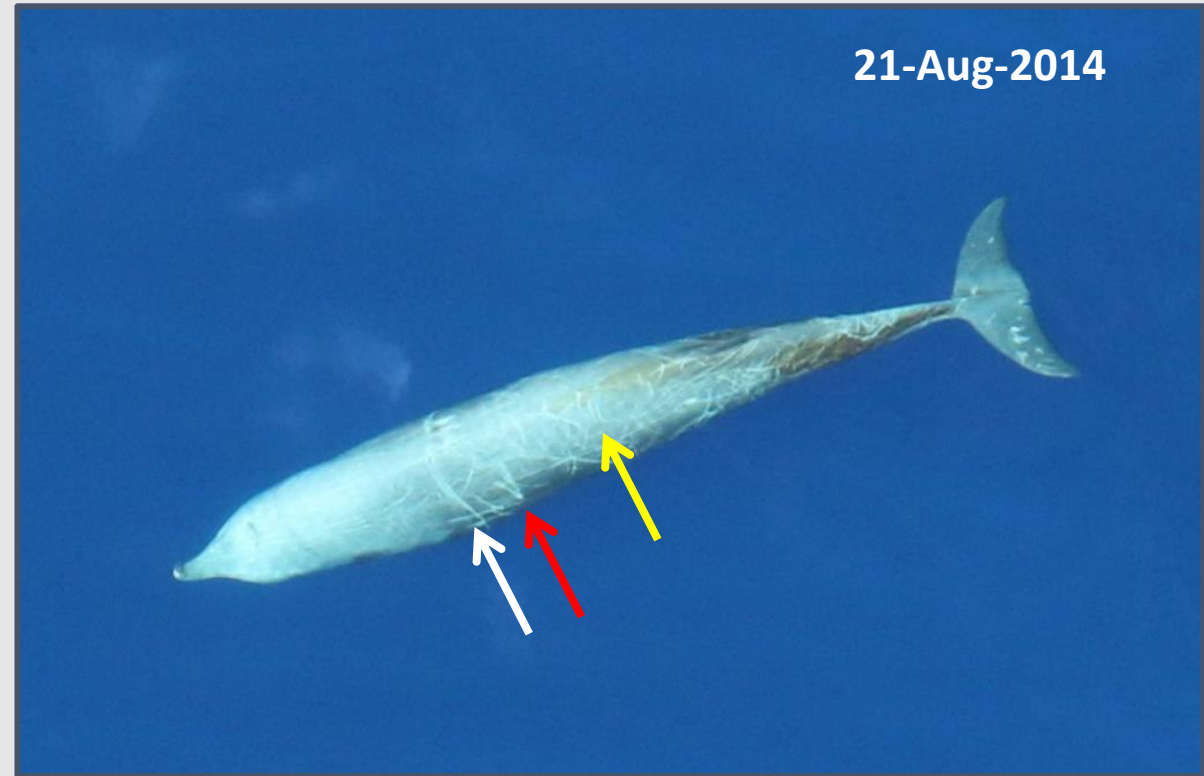
Vessel-Aerial photo-id

Three additional matches

Vessel



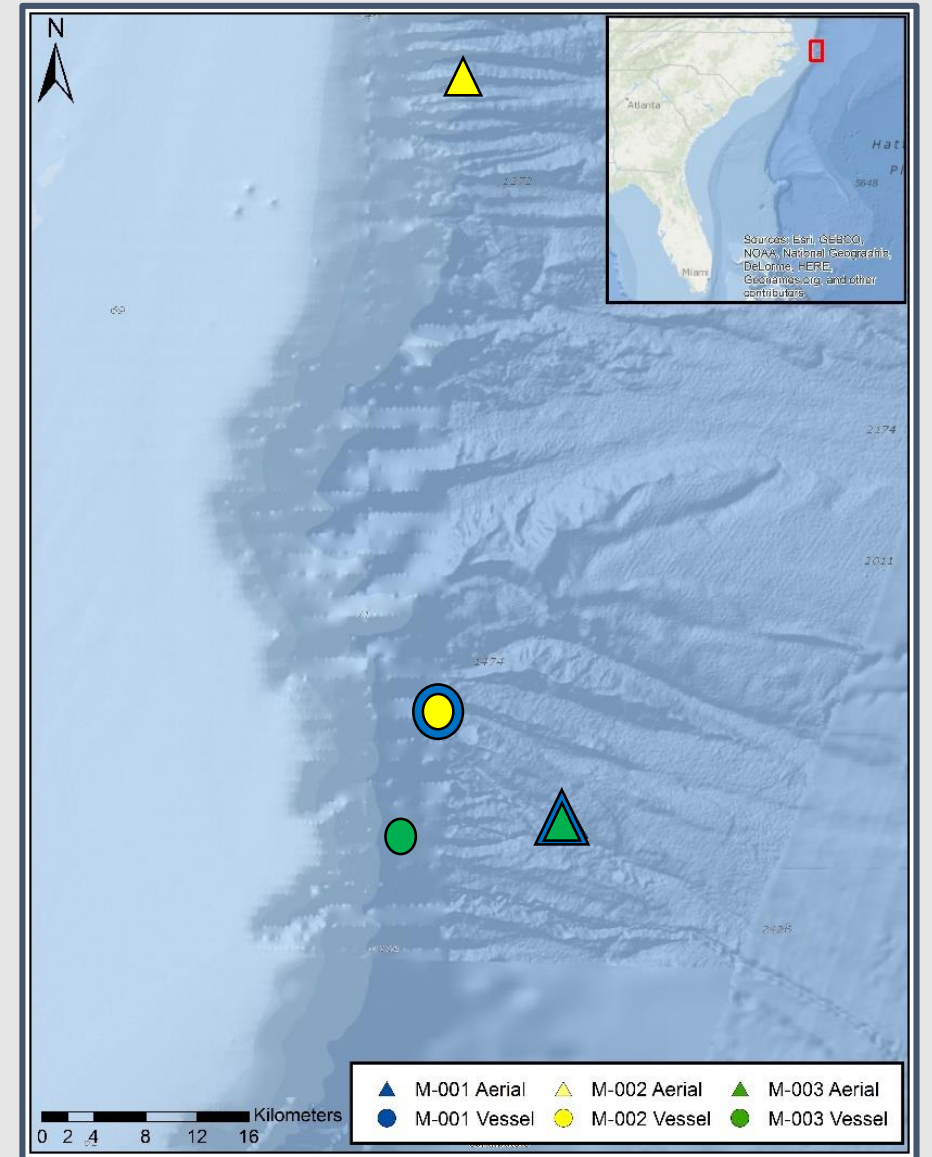
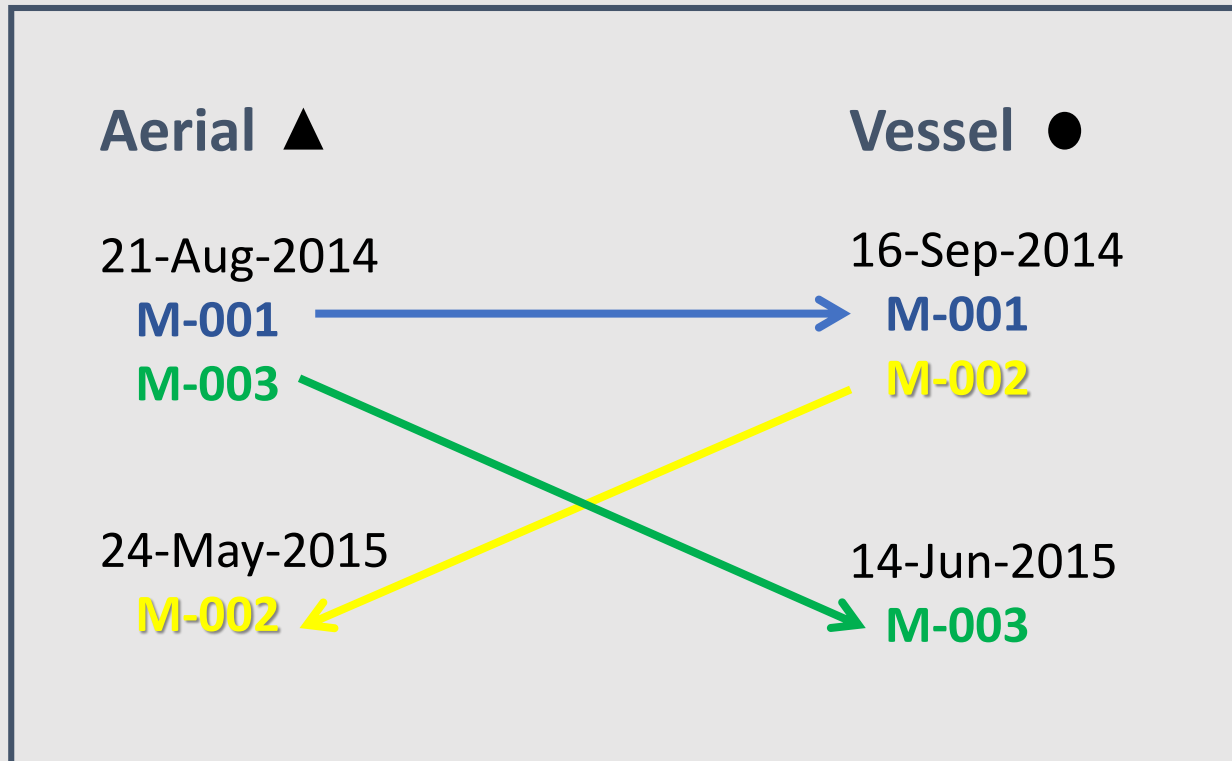
Aerial



Vessel-Aerial photo-id

Interesting insights into social structure

Increased distance between resights



Conclusions

Residency of beaked whales over multiple years

Photo-id within and across research platforms



Acknowledgments

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