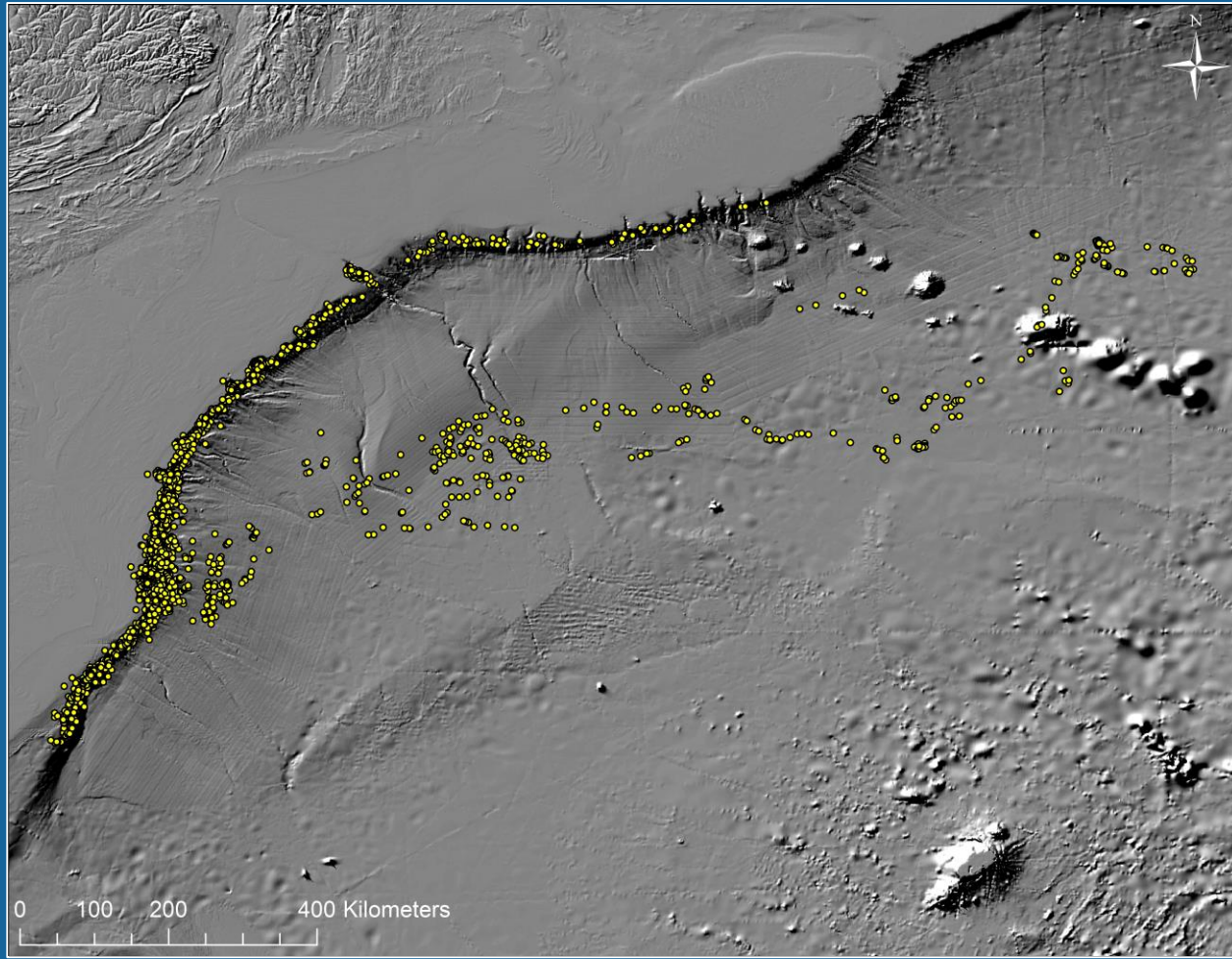
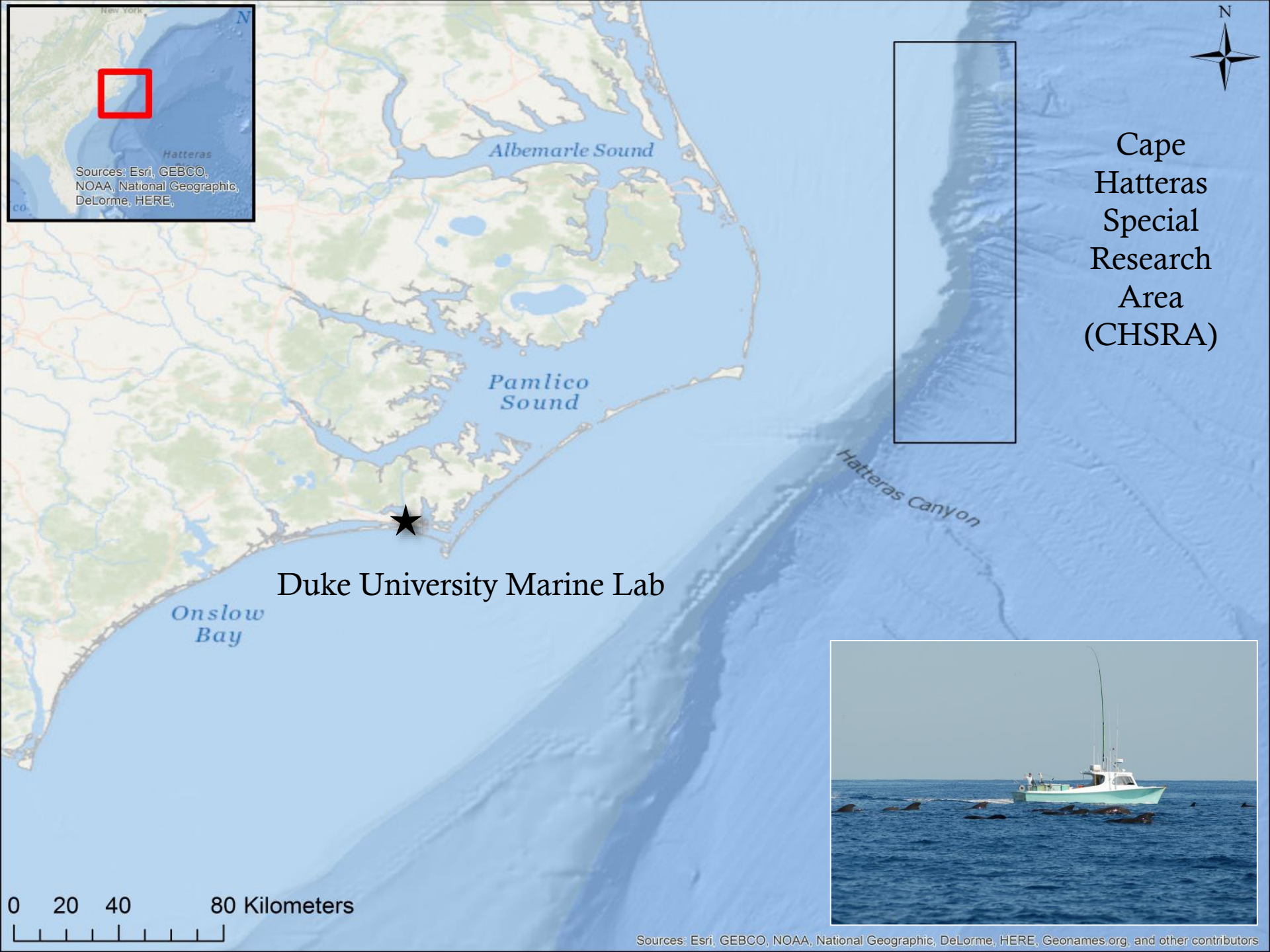


# Should I Stay or Should I Go: Movement and Residency Patterns of Satellite-tagged Pilot Whales Offshore of Cape Hatteras, NC



Heather J. Foley, Danielle M. Waples, Zachary T. Swaim,  
Robin W. Baird, Daniel L. Webster, Joel T. Bell & Andy J. Read



Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE,



Cape Hatteras Special Research Area (CHSRA)



Duke University Marine Lab

Onslow Bay

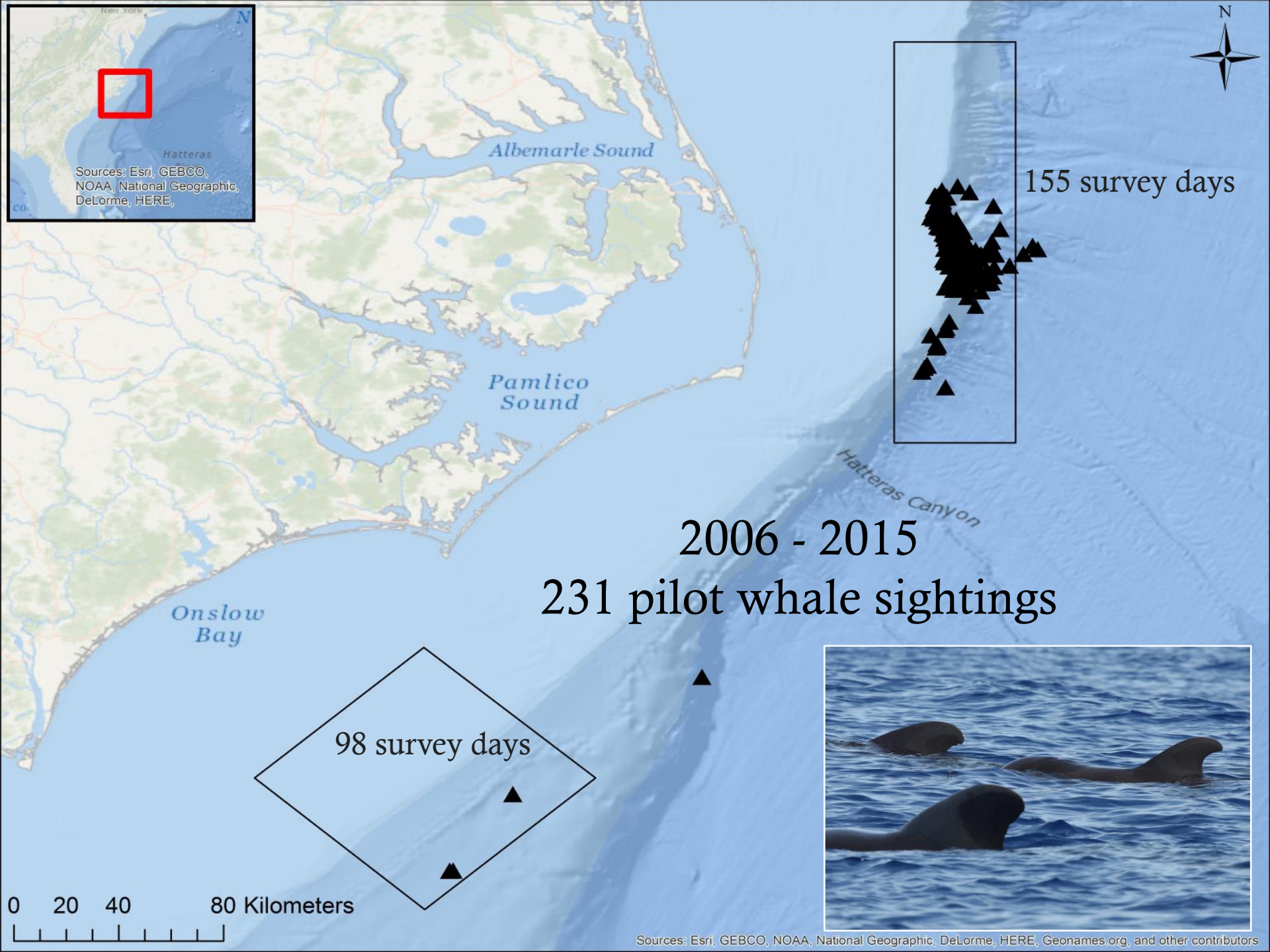
Albemarle Sound

Pamlico Sound

Hatteras Canyon



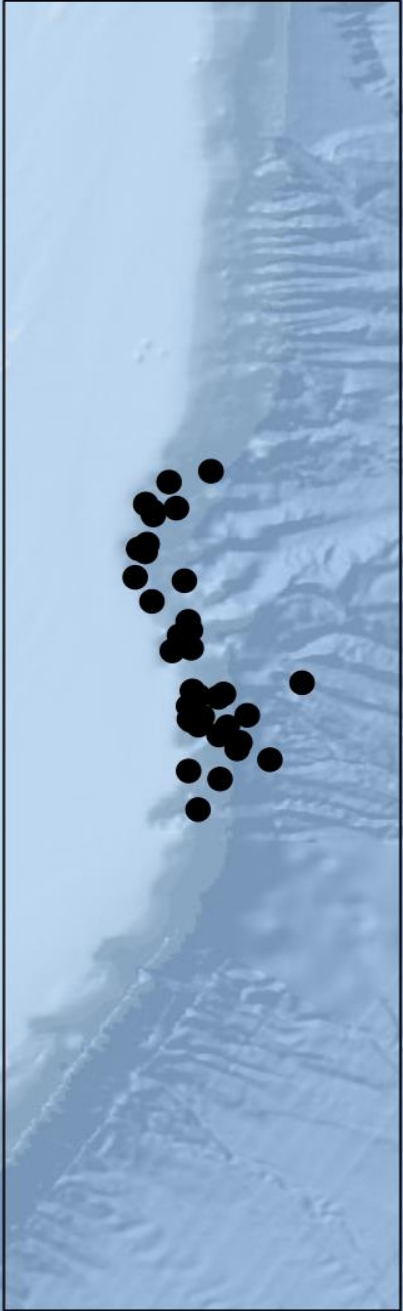
Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors



Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE,



Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors



# Cape Hatteras Residency

Ongoing photo-id work

60 pilot whale matches

16% of 367 in catalog

Intra- and Inter-annual

Intra- and Inter-seasonal

Re-sighted up to five times



September 4, 2006

## Longest Match

8 years, 8 months

September 2006 –  
May 2015



May 16, 2015



0 10 20 40 Kilometers



May 31, 2007



May 16, 2015



May 12, 2012

**Gm 8-022**

**3 years - all in May**

**8 year span**

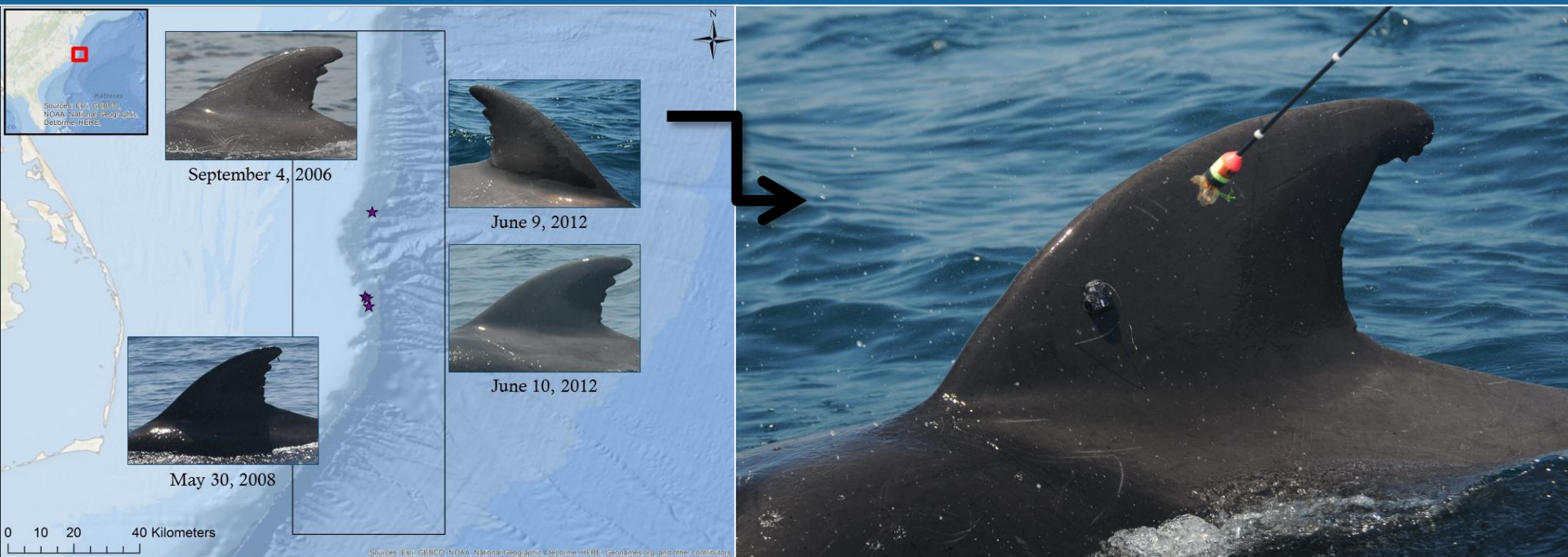
**<3 km apart**



0 10 20 40 Kilometers

# OBJECTIVE

Obtain medium-term movement and diving patterns of short-finned pilot whales to complement the existing information on long-term residency patterns from photo-id and short-term DTag dive records

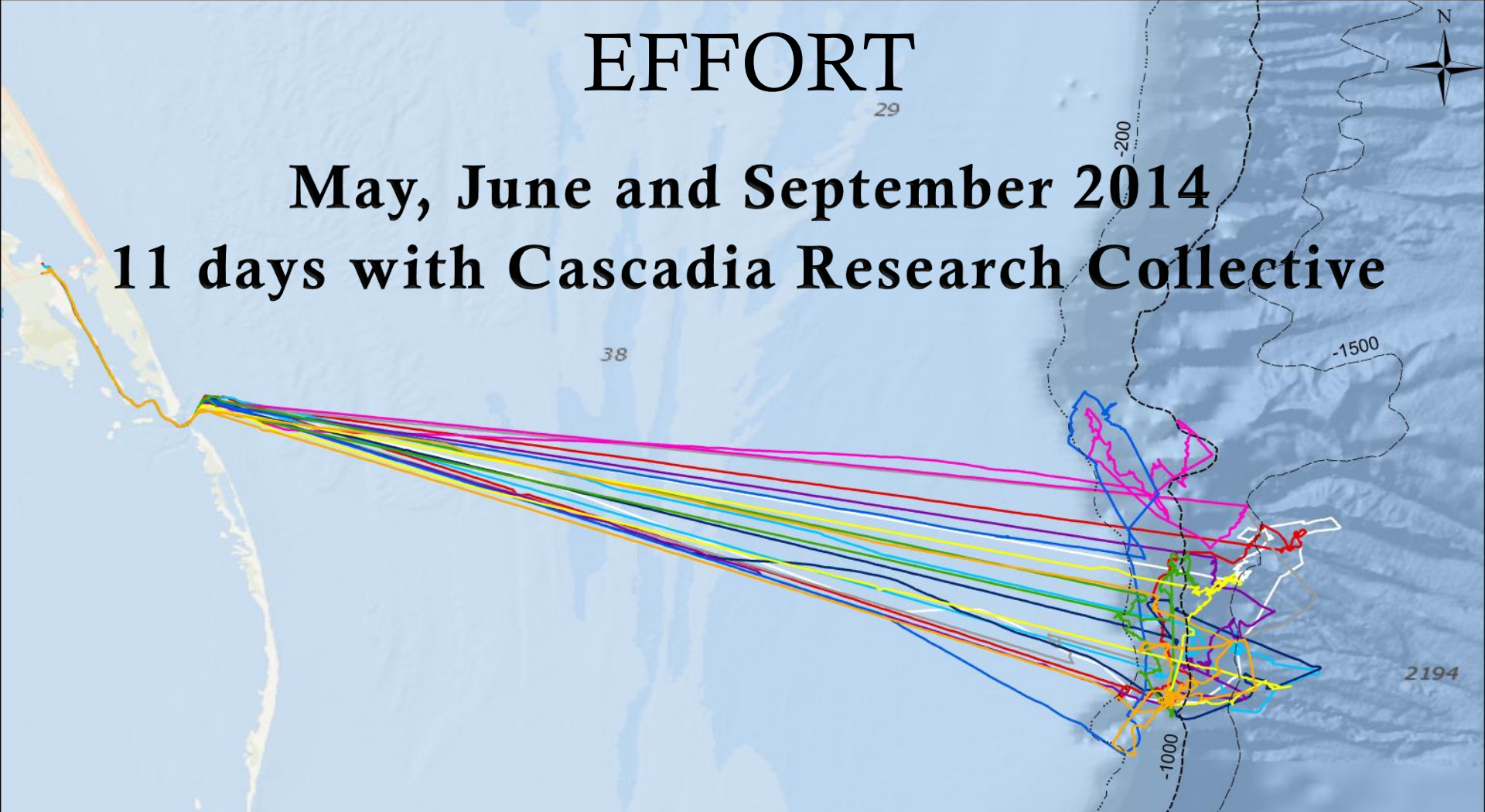


# EFFORT

29

May, June and September 2014

11 days with Cascadia Research Collective



0 5 10 20 Kilometers



# EFFORT

29

20 short-finned pilot whales tagged

38

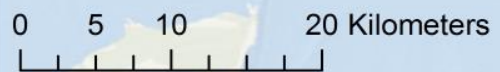
14 Wildlife Computers  
SPOT5 location-only LIMPET tags

6 MK 10-A depth-transmitting LIMPET tags



34

2194

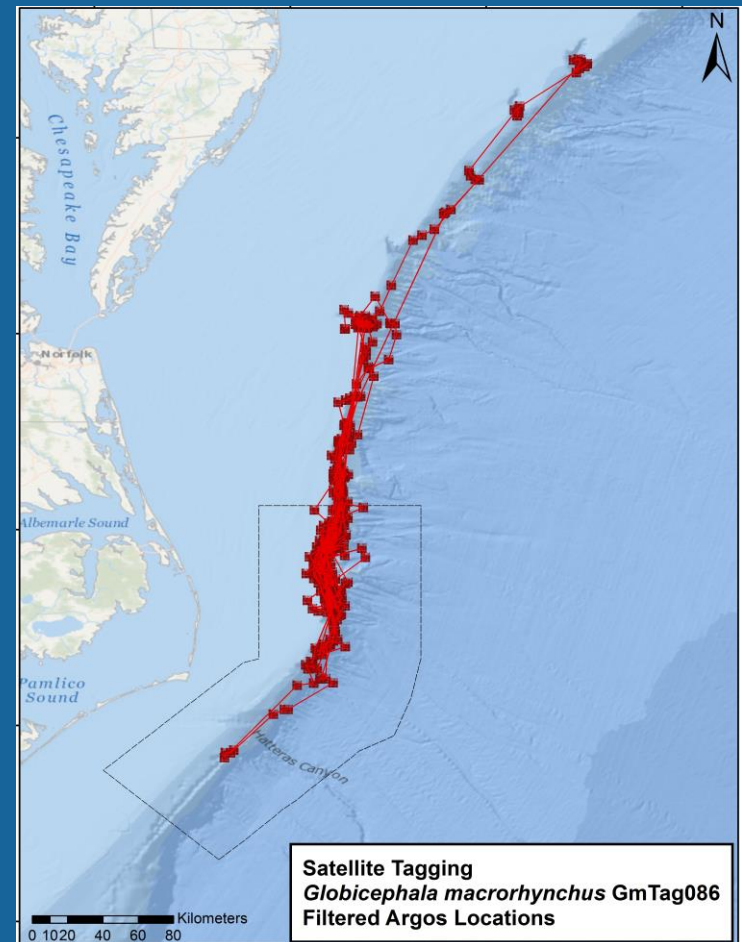
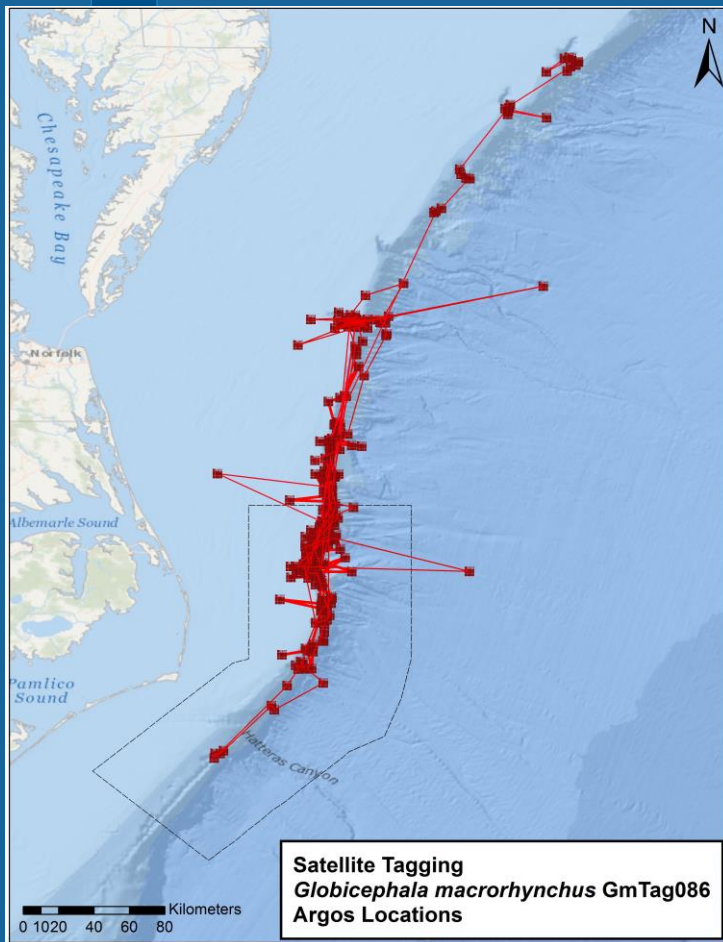


# DATA FILTERING

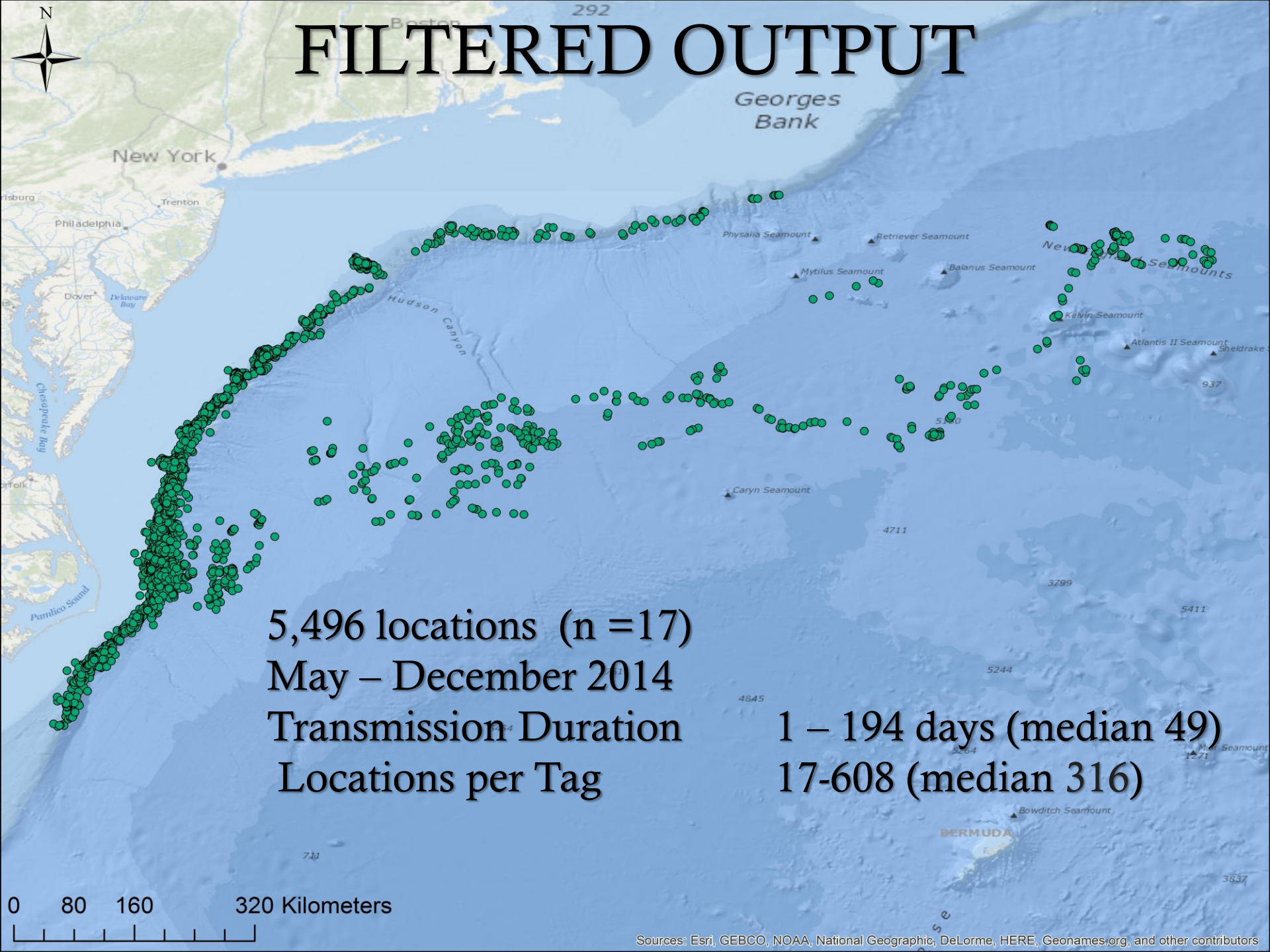
811 Locations

Douglas Filter

516 Locations



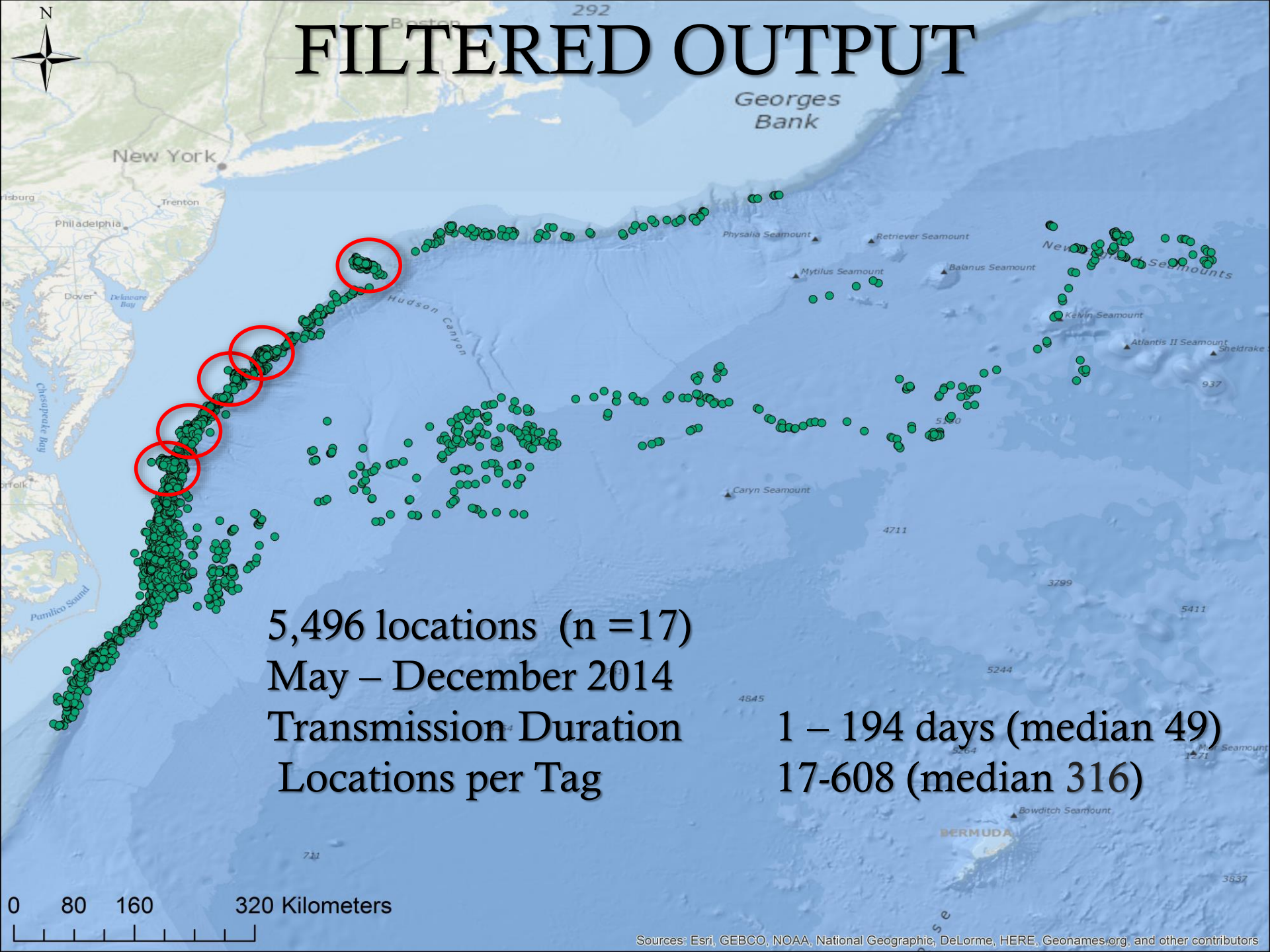
# FILTERED OUTPUT



5,496 locations (n =17)  
May – December 2014  
Transmission Duration  
Locations per Tag

1 – 194 days (median 49)  
17-608 (median 316)

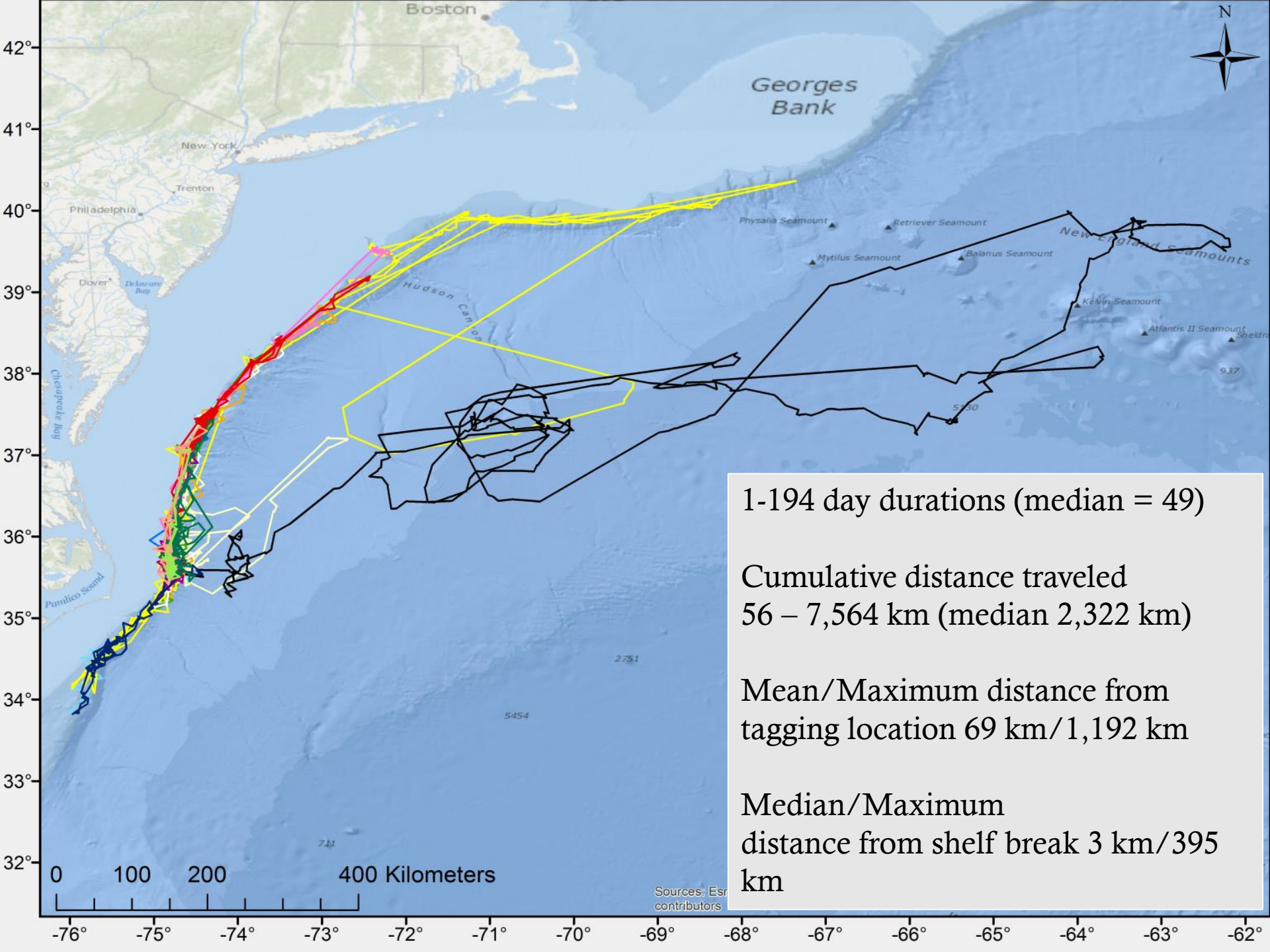
# FILTERED OUTPUT

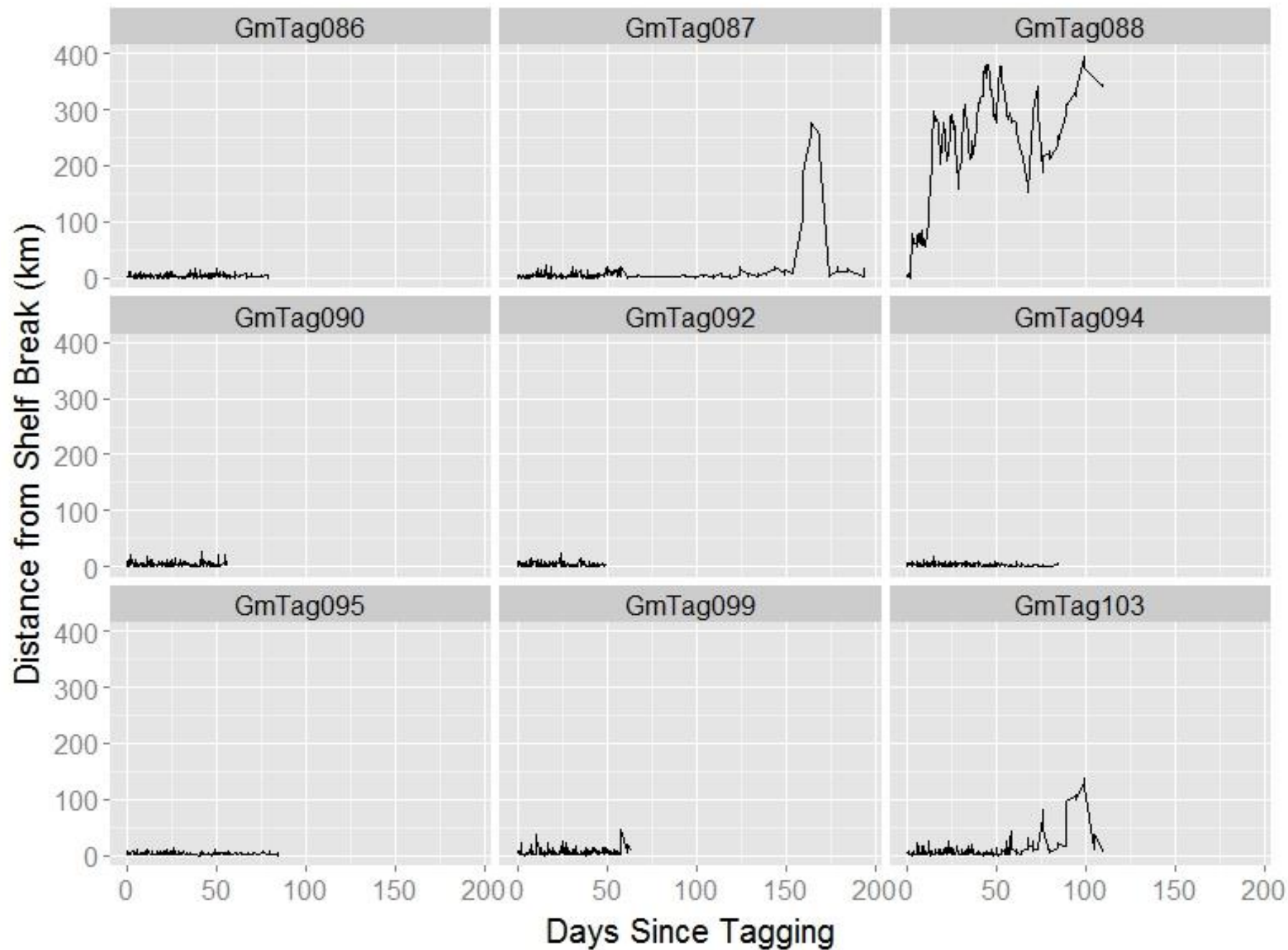


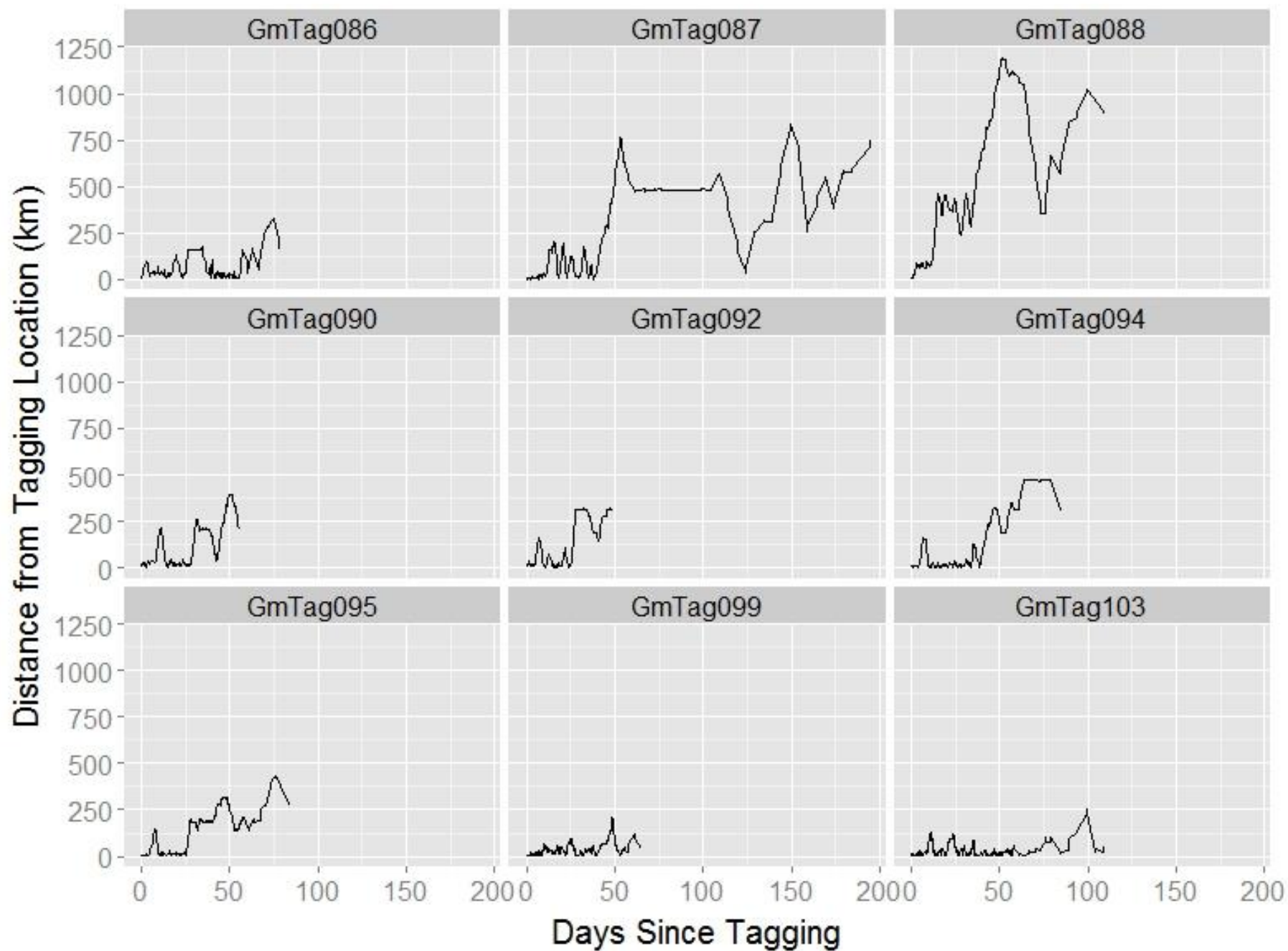
5,496 locations (n = 17)  
May – December 2014  
Transmission Duration  
Locations per Tag

1 – 194 days (median 49)  
17-608 (median 316)

0 80 160 320 Kilometers

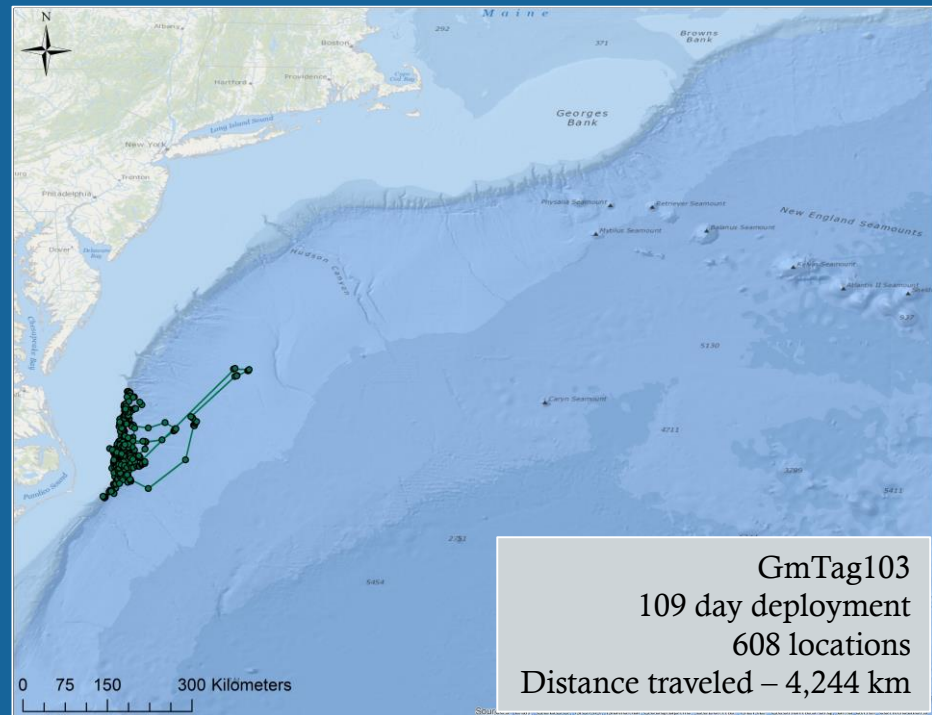
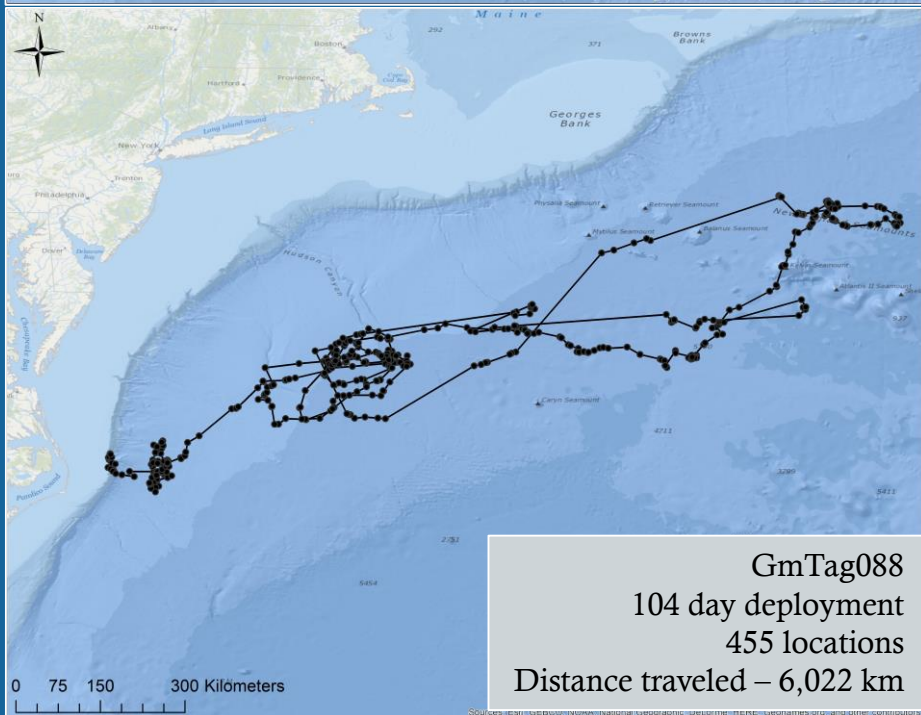
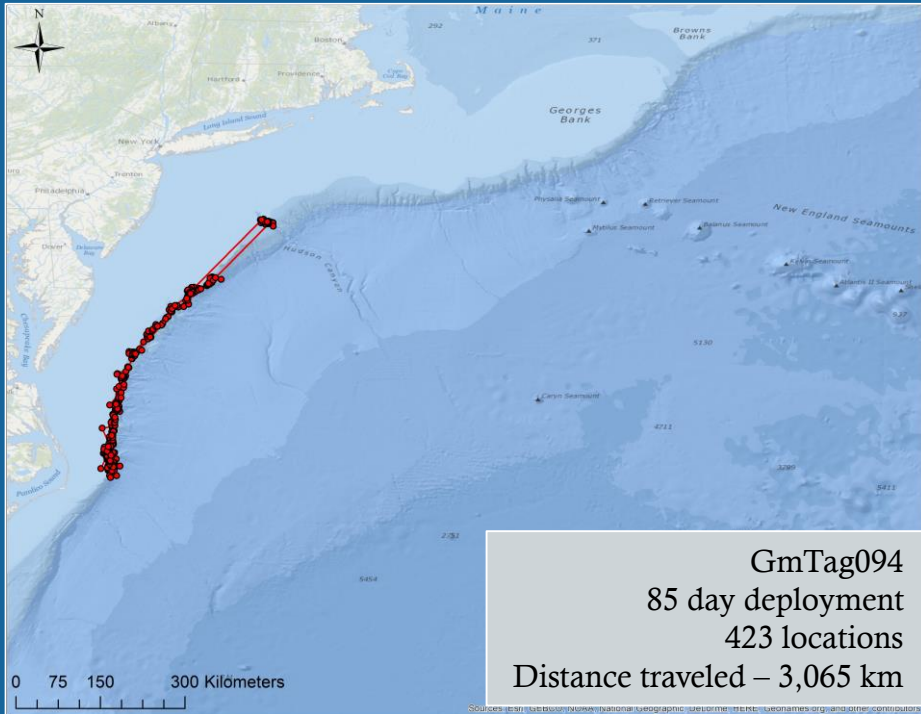






# Two habitat use modes

- Shelf break associated
- Gulf Stream associated
- some exhibit both

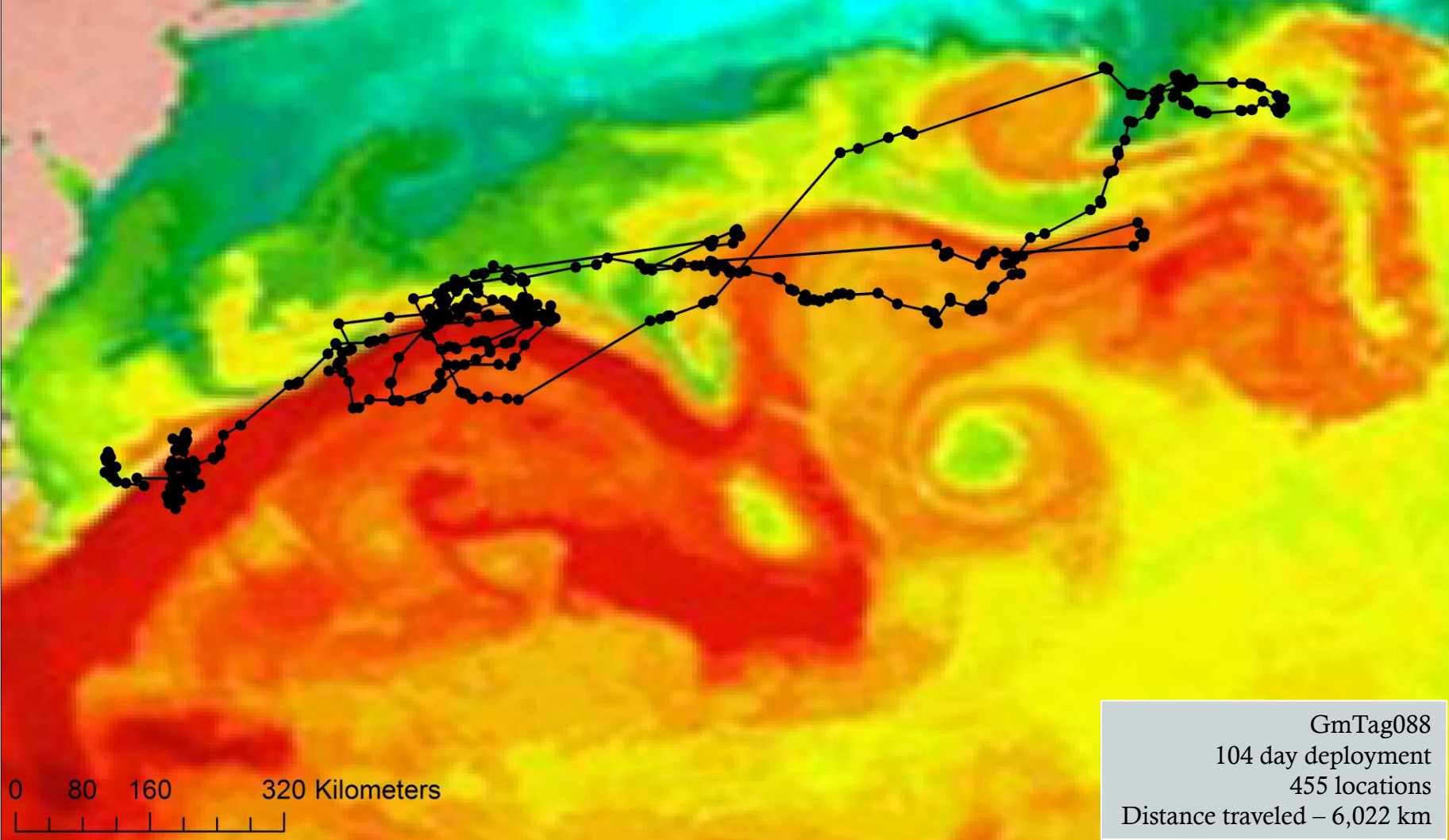






# Two habitat use modes

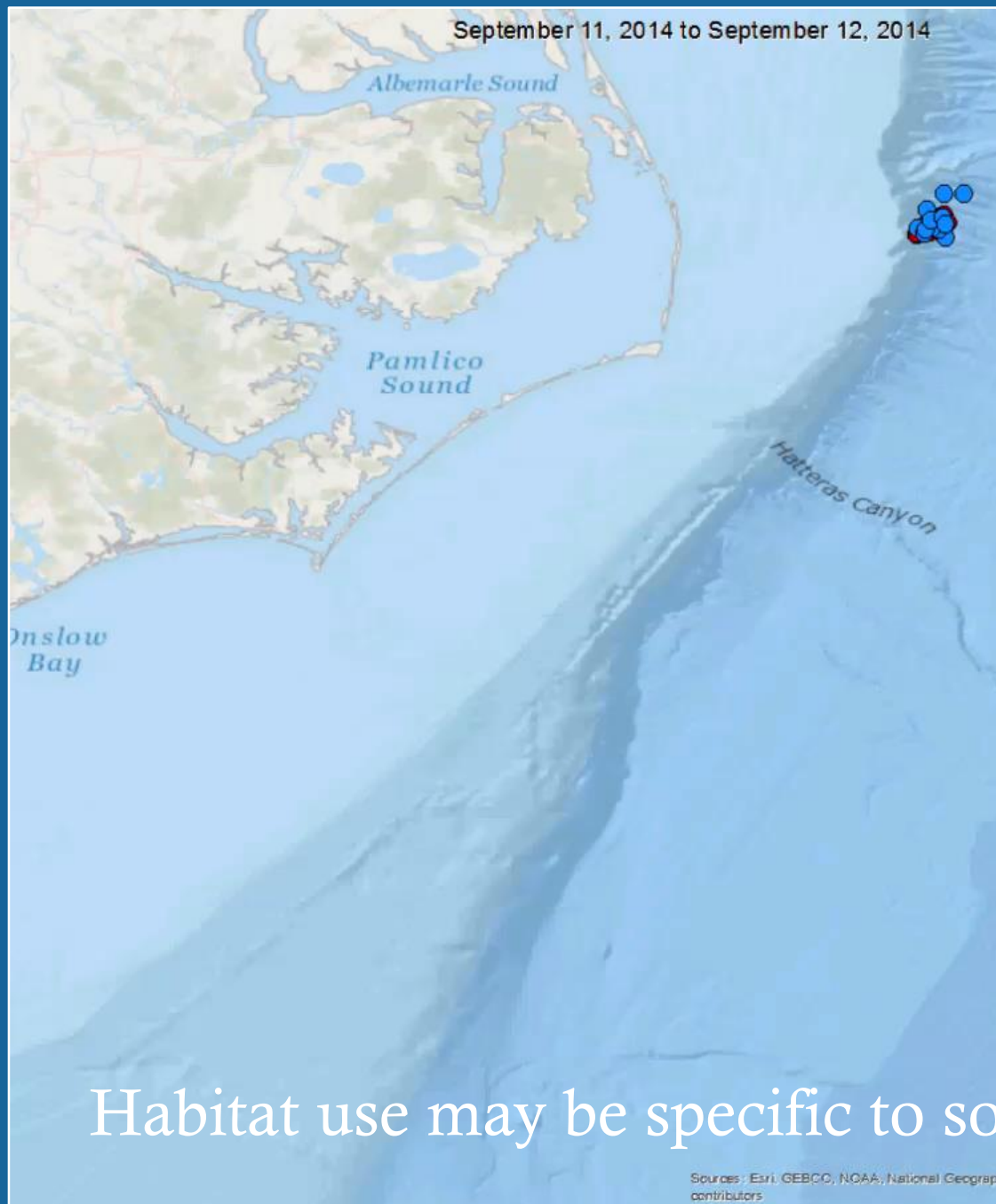
- Gulf Stream associated



0 80 160 320 Kilometers

GmTag088  
104 day deployment  
455 locations  
Distance traveled – 6,022 km

September 11, 2014 to September 12, 2014



GmTag098  
28 day deployment  
219 locations  
Distance traveled -  
1419 km



GmTag100  
25 day deployment  
251 locations  
Distance traveled -  
1359 km

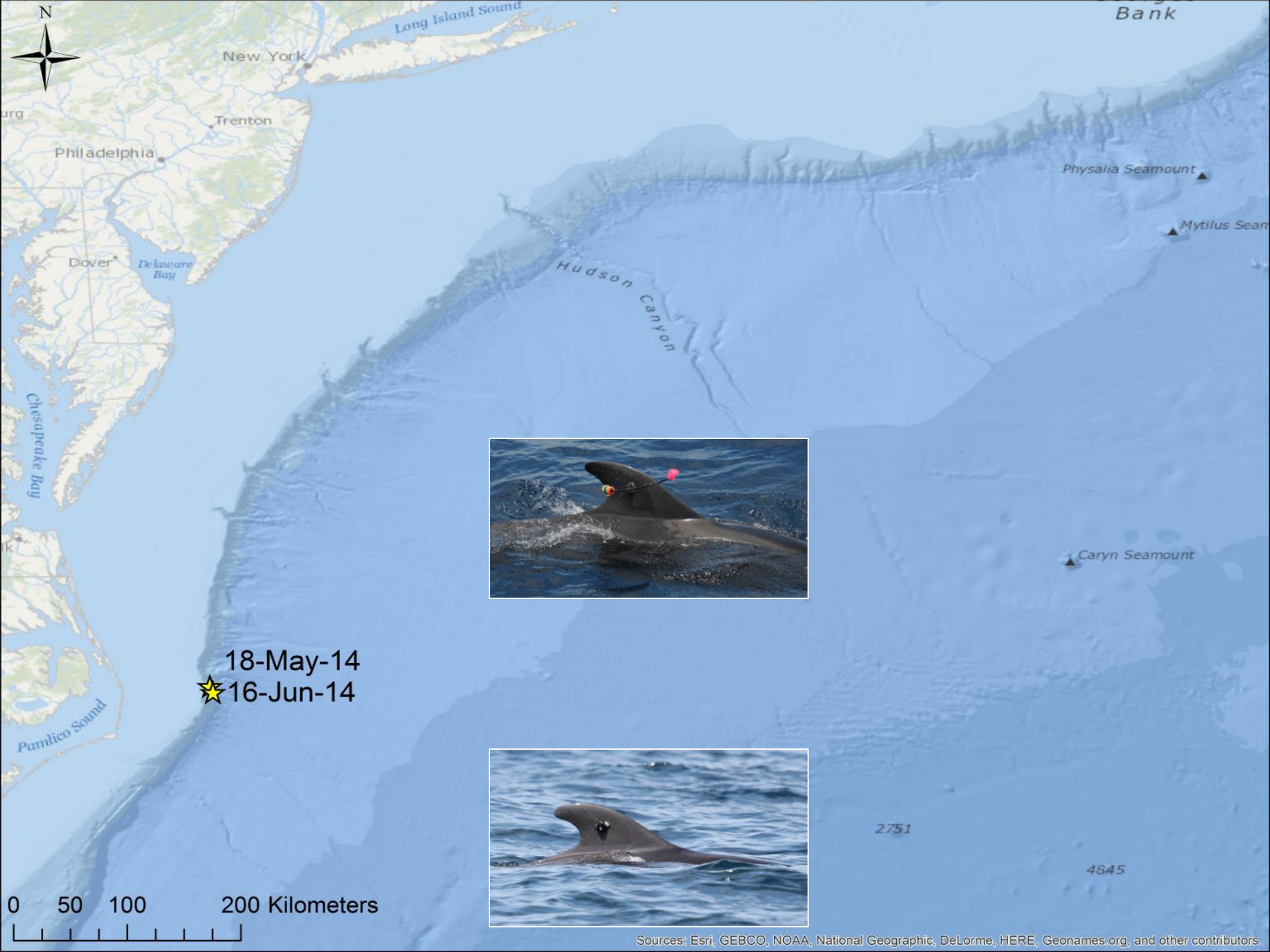
Habitat use may be specific to social group

# Photo-Id of satellite-tagged animals



3 of 15 distinct  
individuals (20%)  
matched to catalog

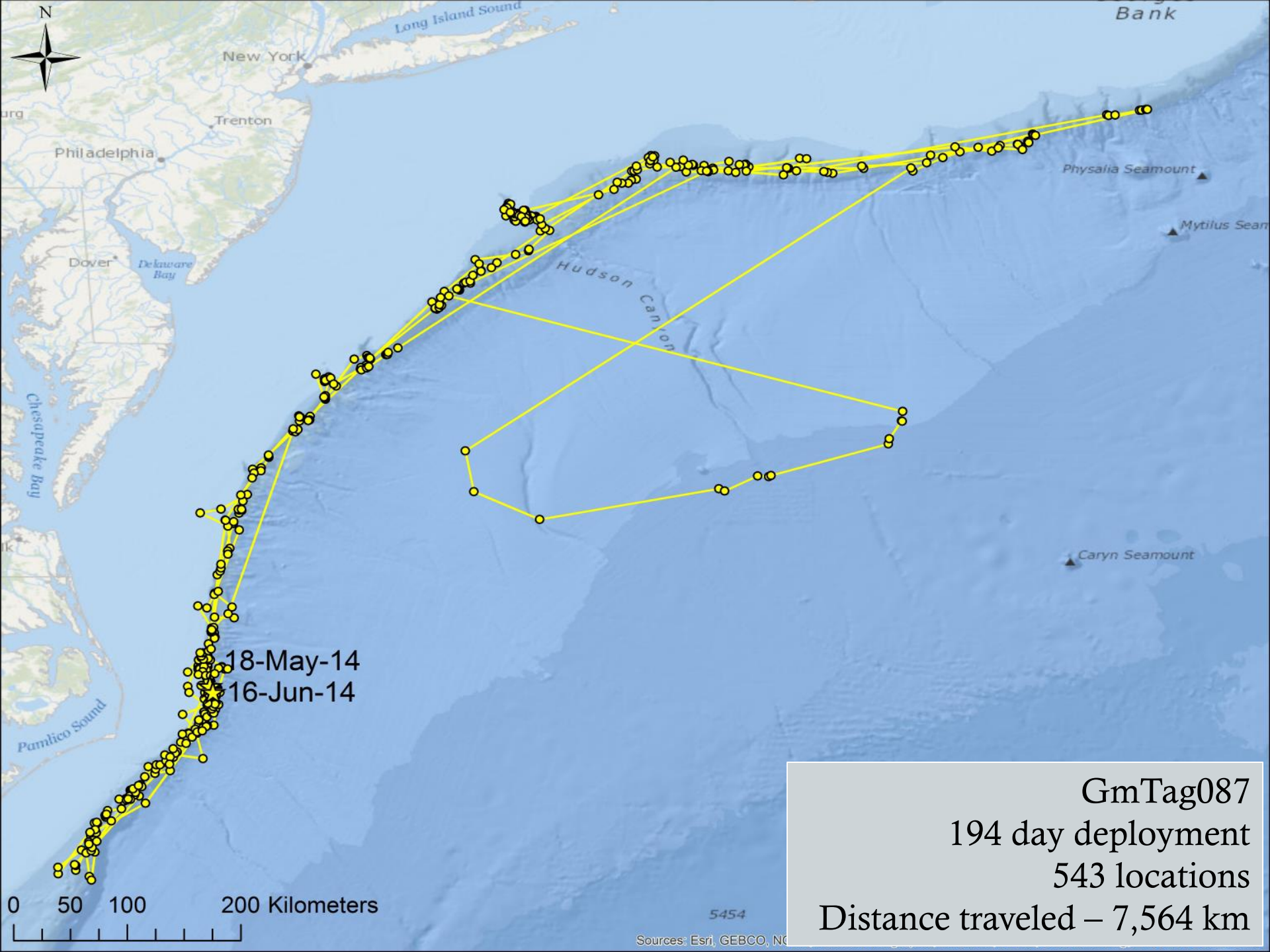
1 re-sight with tag



18-May-14  
★ 16-Jun-14



Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors



18-May-14  
16-Jun-14

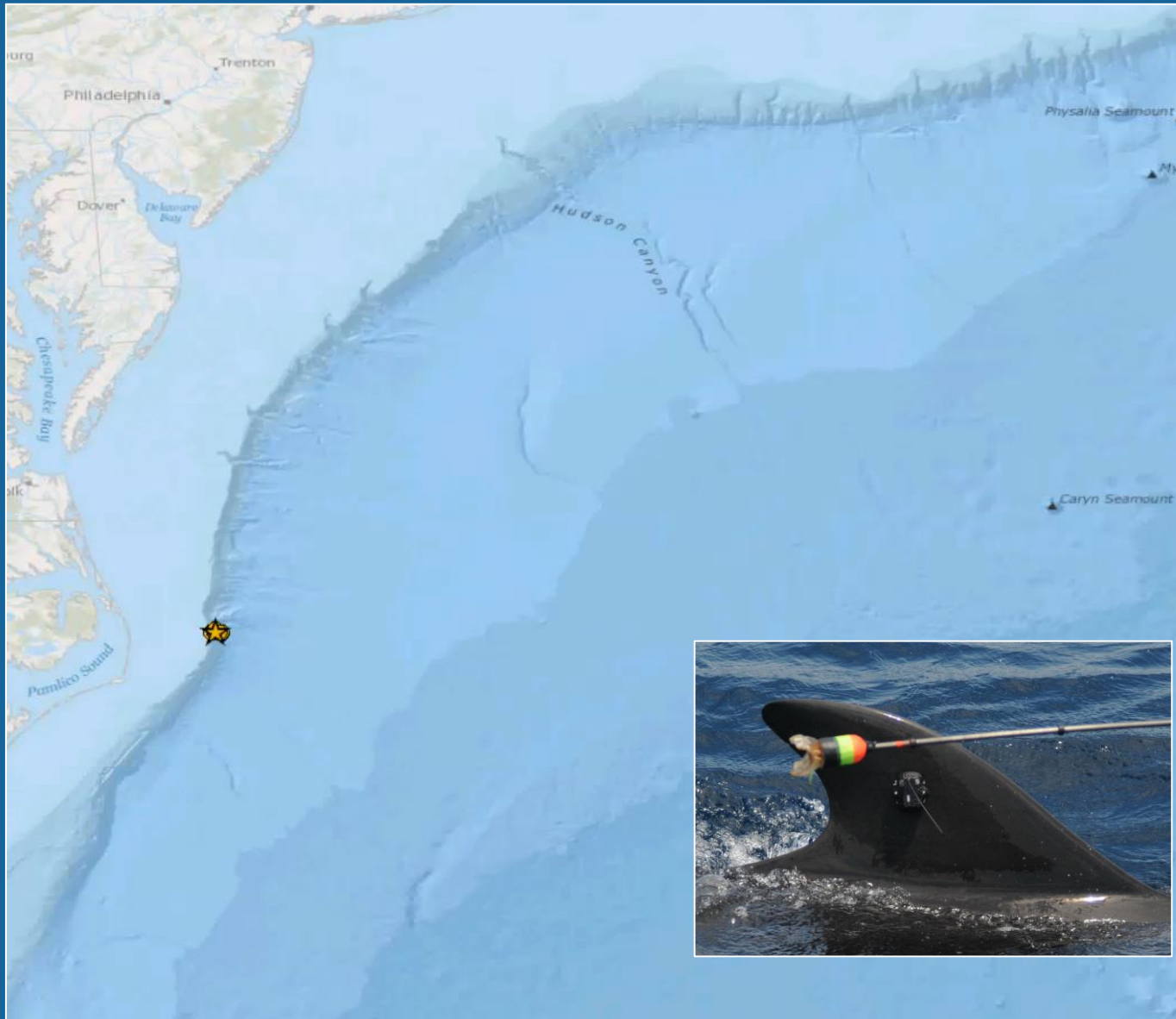
0 50 100 200 Kilometers

GmTag087  
194 day deployment  
543 locations  
Distance traveled – 7,564 km

# GmTag087

18 May 2014 – 28 November 2014

194 day deployment – 543 locations – 7,564 km traveled



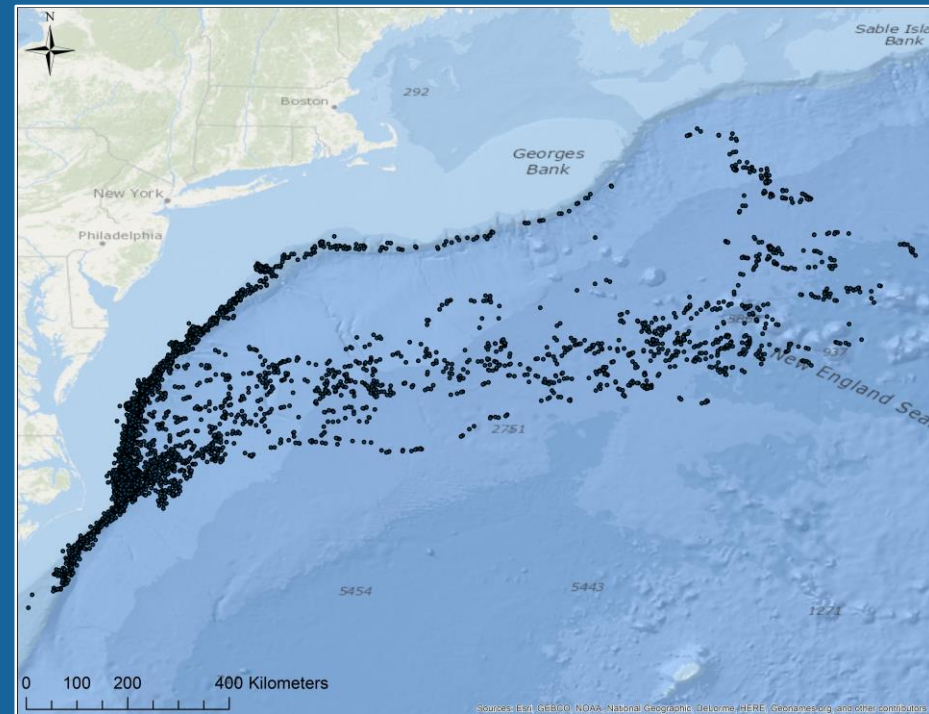
# Conclusions

- Short-finned pilot whales exhibit widely-varying and complex movement and spatial use patterns, which may differ by social group
- Despite significant distances traveled, high resighting rates suggest Cape Hatteras is an important area for short-finned pilot whales, indicating the potential for fisheries interactions

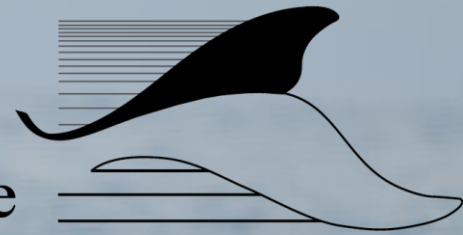


# Additional Work

- Habitat models of spatial use
  - Dr. Lesley Thorne Wednesday 3:20 Foraging Ecology
- Increase sample size (19 tagged in 2015)
  - similar patterns this year (17% matched to catalog, 1 re-sight)
- Additional sites
  - Jacksonville, FL
- Seasonality
  - January – May data
  - 6 tags still currently transmitting







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 [@heatherjfoley](https://twitter.com/heatherjfoley)

