

# Ecology and behavior of short-finned pilot whales off Cape Hatteras



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# Methods

Surveys of Distribution

Photo-Identification

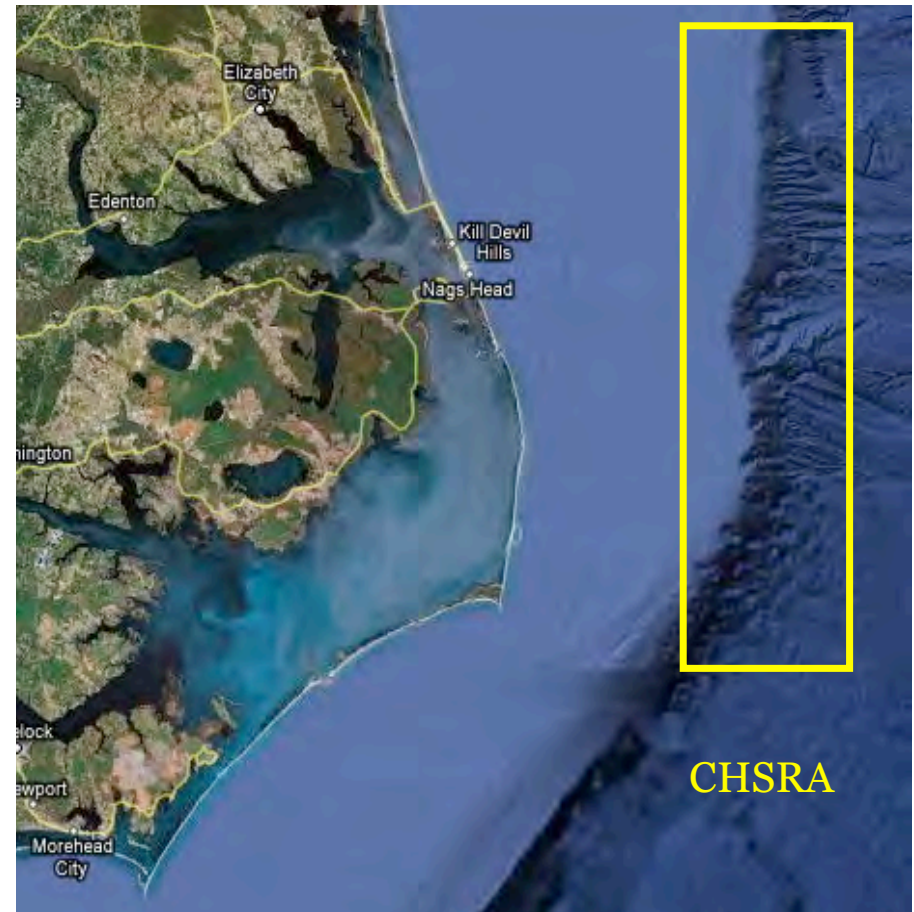
Biopsy Sampling

Stable Isotope Analysis

Digital Archive Tags (DTags)

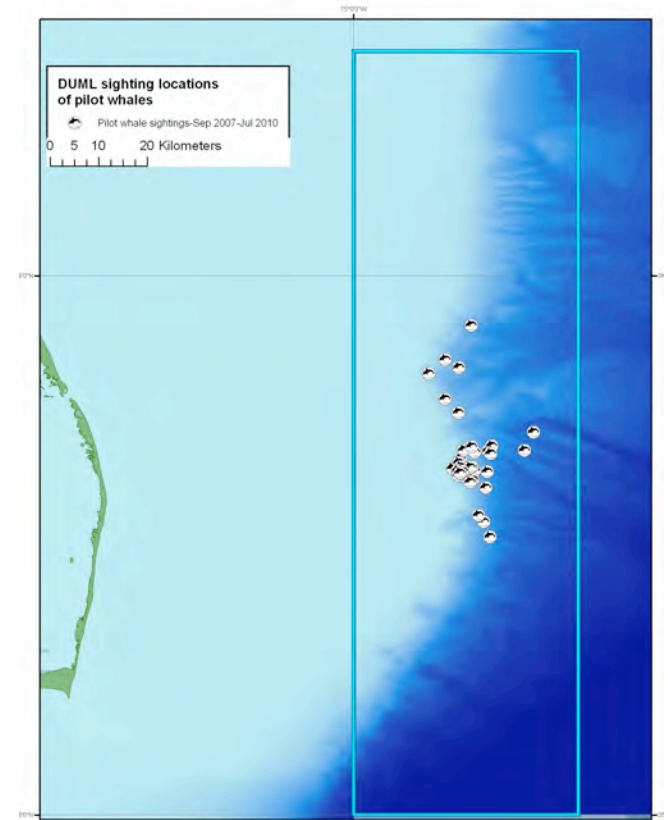
Focal Animal Behavior

Sampling Prey Distribution



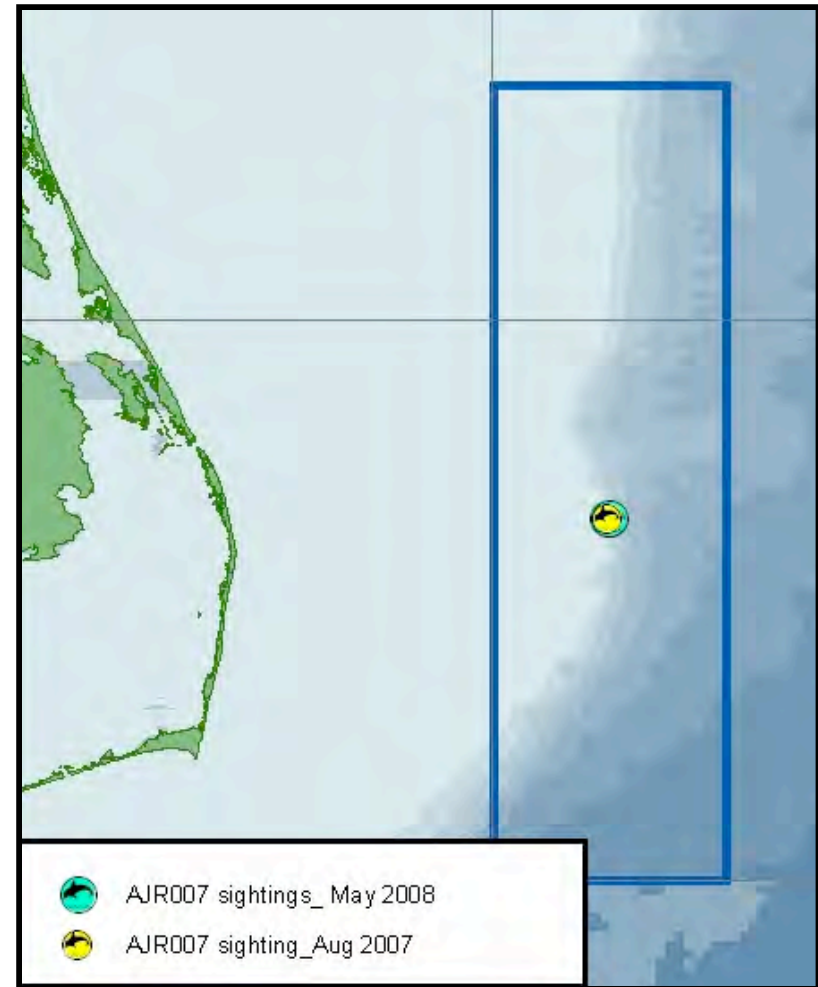
# Survey Effort

Month	Survey days	Biopsy samples	Images
September-06	2	6	669
May-07	7	28	6,241
August-07	4	17	5,045
May-08	5	11	4,432
Jul-10	7	6	3,675
<b>Total</b>	<b>25</b>	<b>68</b>	<b>20,062</b>





# Photo-Identification



Observations suggests some degree of residency within the CHSRA

# Biopsy Sampling

62 tissue samples provided to Dr. Patty Rosel for species identification

All samples were from short-finned pilot whales *Globicephala macrorhynchus*

Additional 26 samples from stranded animals

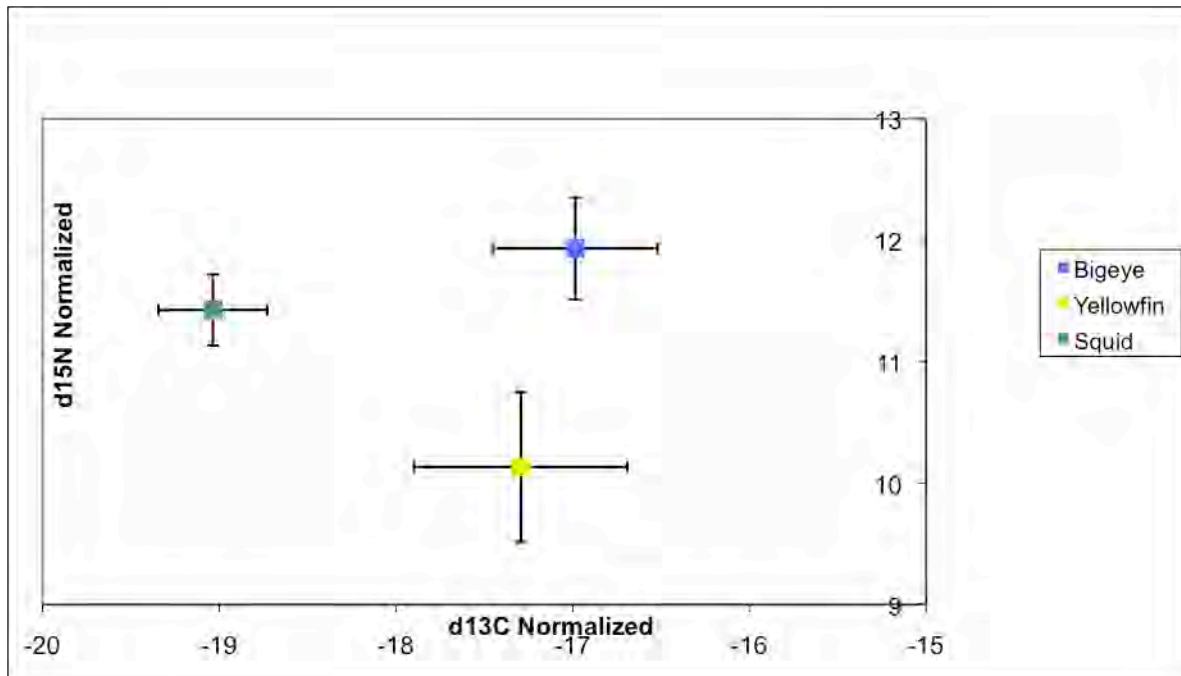


# Stable Isotope Analysis



In all taxonomic groups,  $\delta^{15}\text{N}$  increases with trophic level

So, we predict an enrichment in  $\delta^{15}\text{N}$  if pilot whales are feeding commonly on tuna from longlines rather than squid

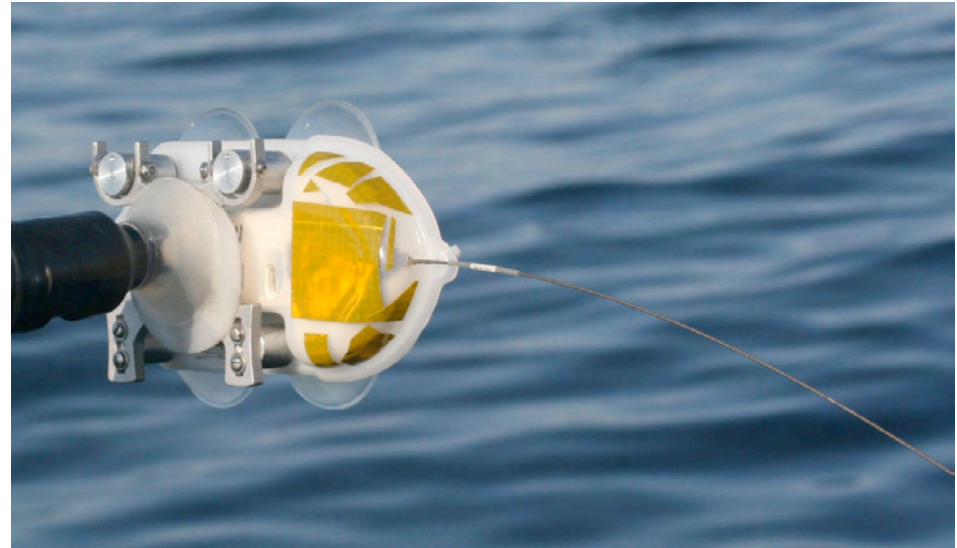


Tuna and squid samples have been processed and analyzed

Pilot whale samples are currently being processed



# DTag Deployments



Tags record sound, depth & orientation

13 DTags deployed (2008 & 2010)

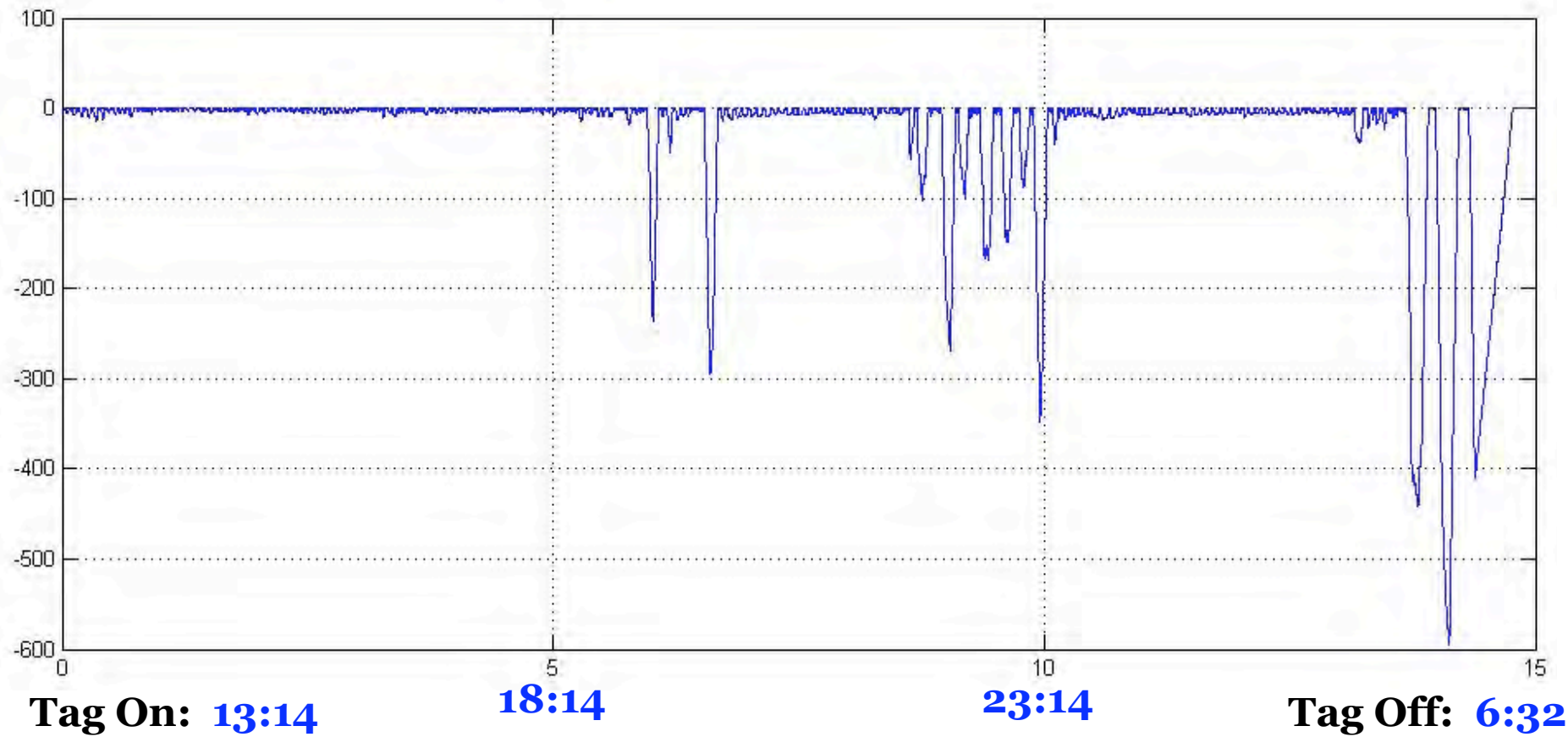
Deployments from 1 – 17 hours

Maximum depth ~ 900 m

# Pilot Whale Dive Record (Gm151b)

May 30-31, 2008

Total time= 16 hours 18 minutes

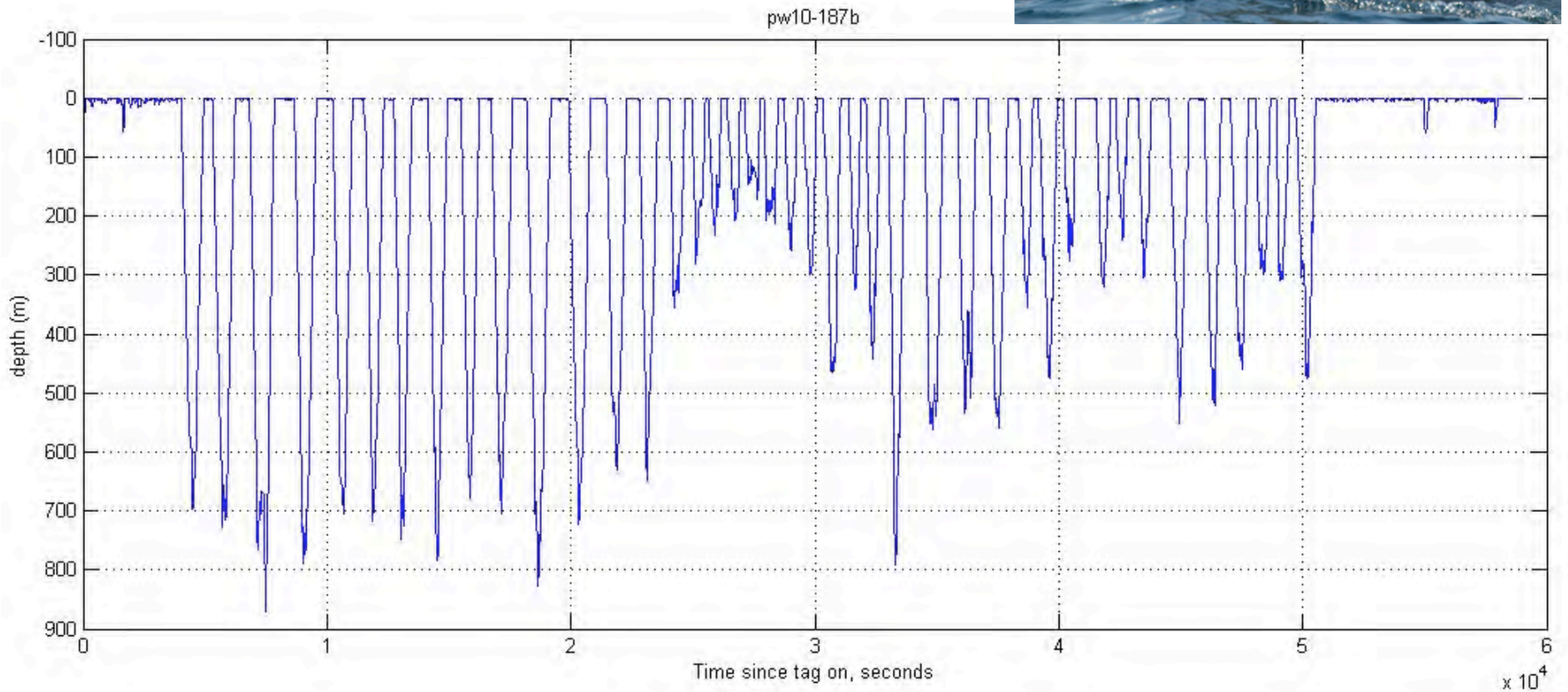




# Pilot Whale Dive Record (Gm187b)

July 6-7, 2010

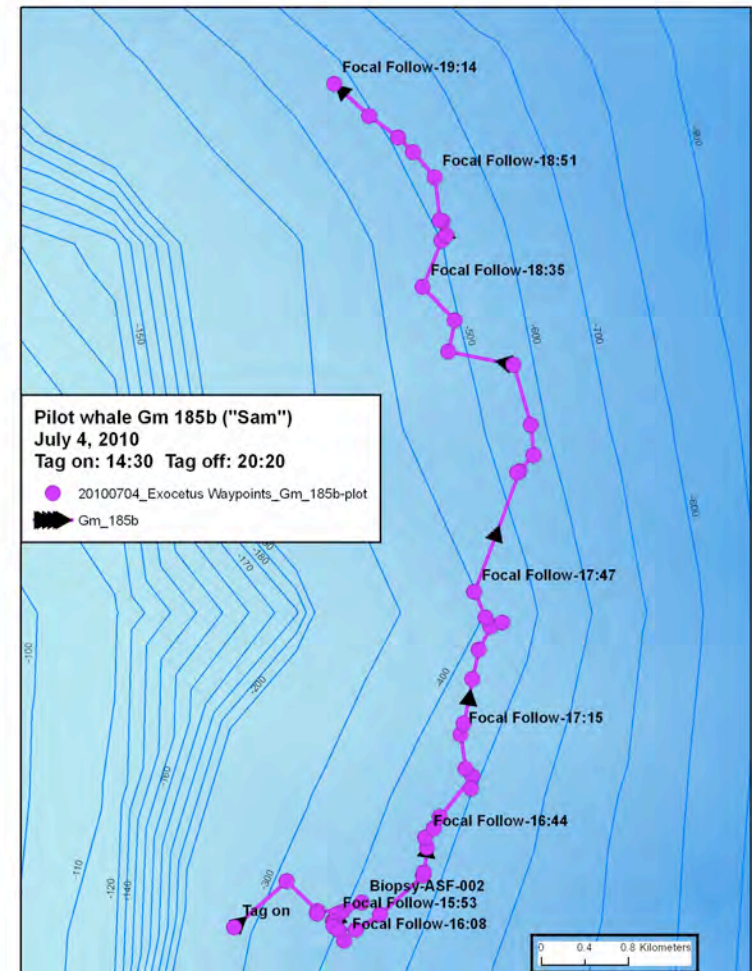
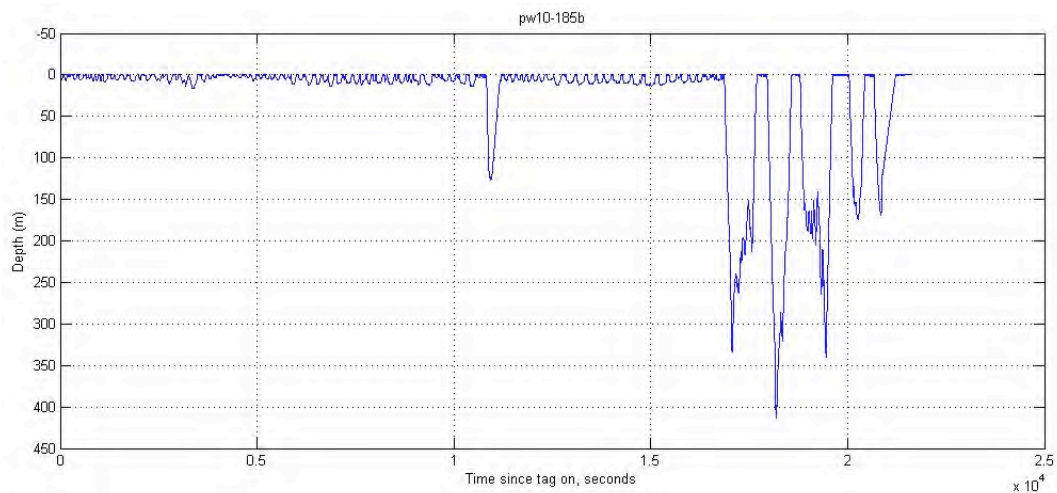
Total time= 17 hours 22 minutes



**Tag On: 12:53**

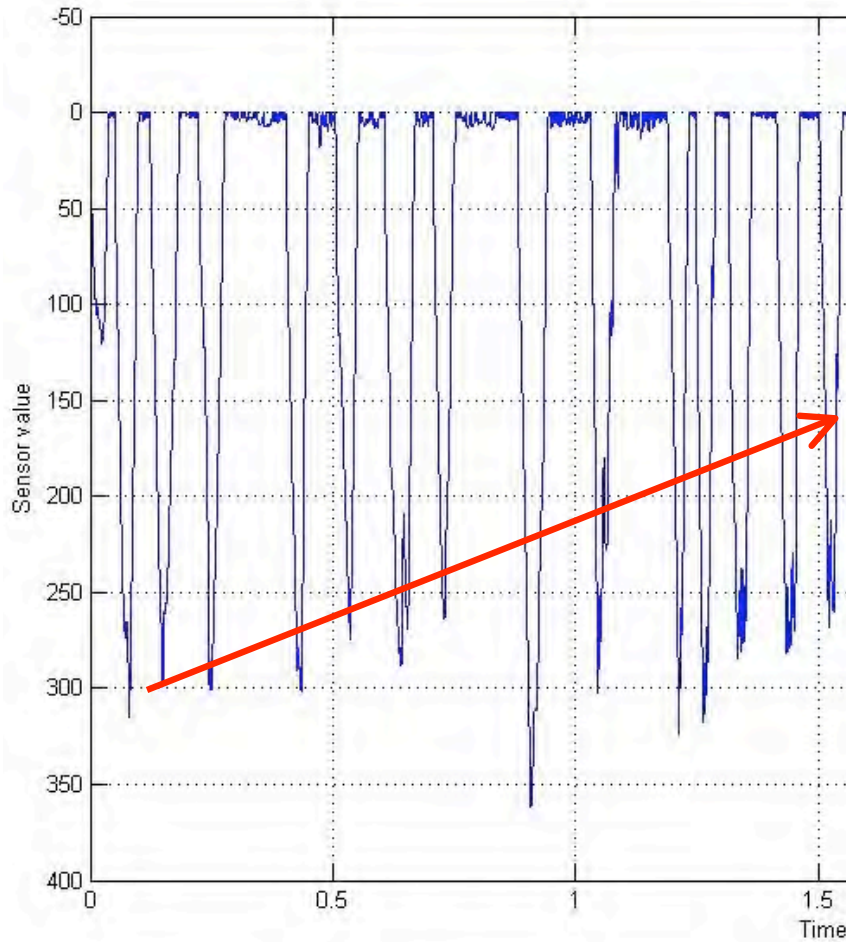
**Tag Off: 6:15**

# Focal Animal Behavior

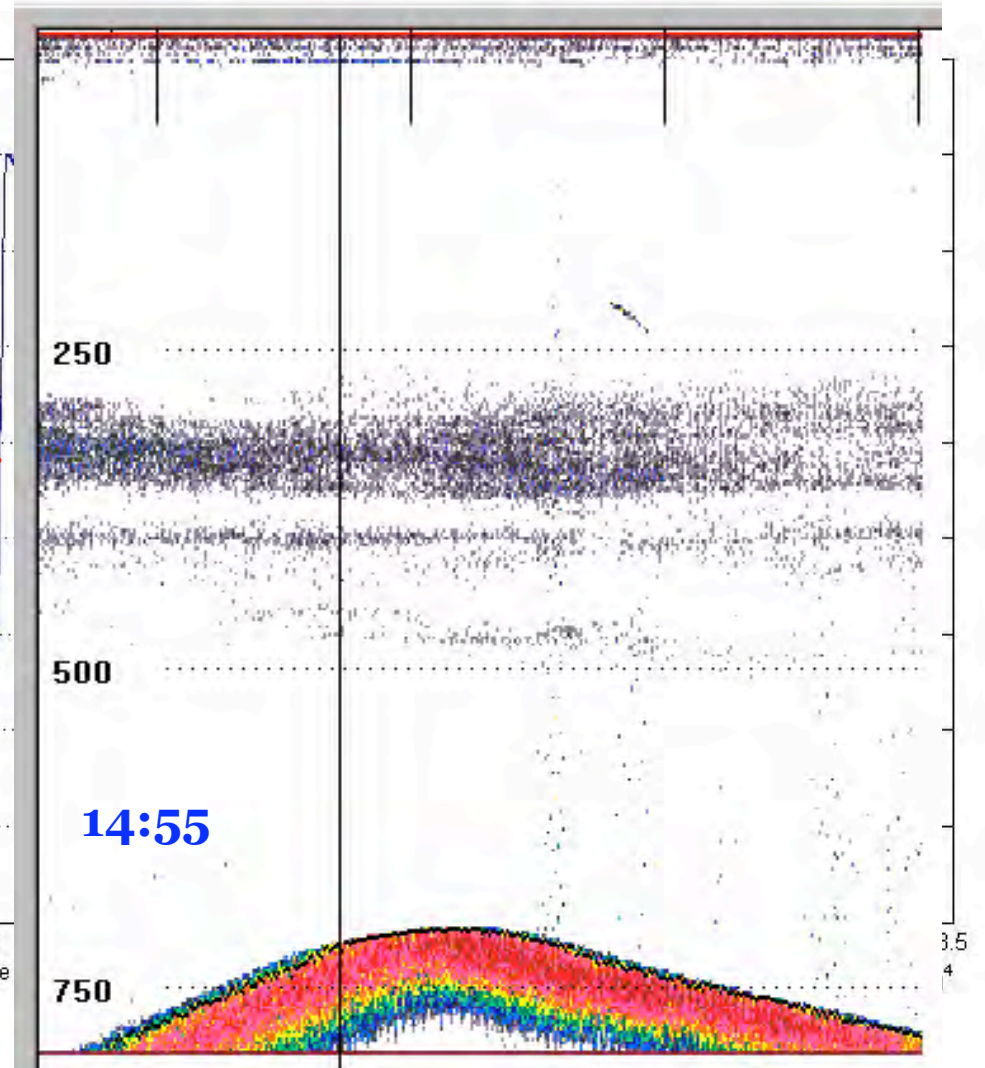




# Sampling Prey Distribution



Tag On: 14:50





# Future Work

More DTags

TrackPlot visualization and analysis

Oceanographic sampling & prey mapping

Behavioral response studies

DMONs (new acoustic recorders)

Occurrence of line scars

Social structure

Line transect surveys

HARP deployments



# Analysis of Scar Rates



What proportion of the population bears scars from past interactions?

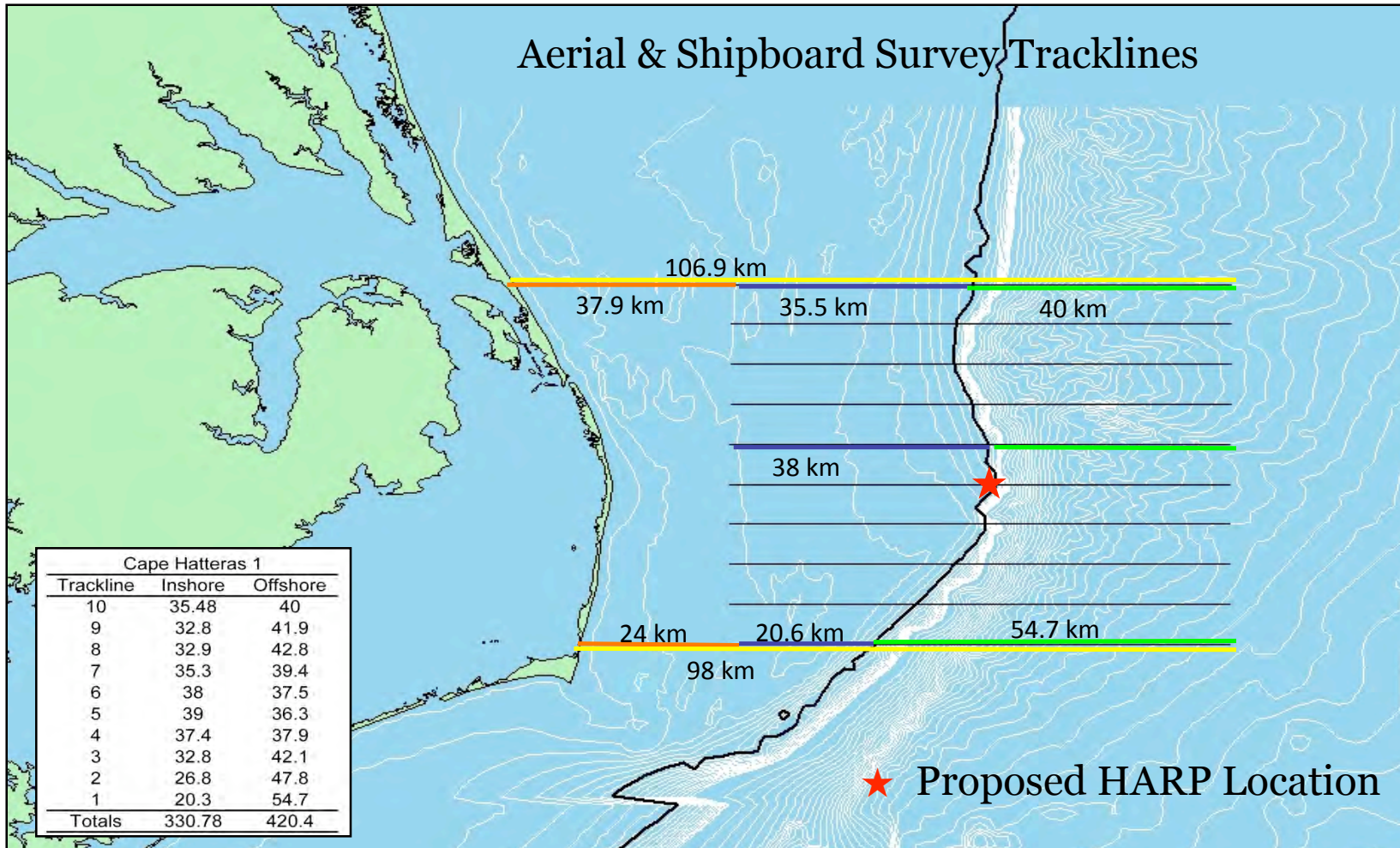
Does rate of scarring vary from family group to family group?

Ultimately, how is depredation transmitted through the population?





# Line Transect Surveys





## Thanks to:

### The Wanchese Pelagic Longline Fleet:

Captain Dewey Hemilright

Captains Chris Hanson, Matt Huth and Gordon Elliott

Willie Etheridge

### Collaborators:

Alex Loer & Jim Moir (R/V Stellwagen)

Peter Tyack, Alex Bocconcelli, Laela Sayigh, Mark Johnson & Eric Dawe (WHOI)

Field crew: Dee Allen, Matt Bowers, Todd Chandler, Catherine McClellan, Lesley Thorne,

Leigh Torres, Reny Tyson & Dave Johnston (Duke)

Lance Garrison, Keith Mullen, Kathy Foley, Annie Gorgone & Patty Rosel (NMFS SEFSC)

Laura Engleby (NMFS SER)

Nick Tregenza (Chelonia Inc.)

David Mann (USF)

Tim Werner (NEA)

### Funding :

NMFS Southeast Regional Office

Consortium for Wildlife By-Catch Reduction

North Carolina Sea Grant

NOAA Office of Science & Technology

Naval Facilities Engineering Command Atlantic