

# Diving Behavior & Movements of a Sowerby's Beaked Whale Tagged Near Norfolk Canyon

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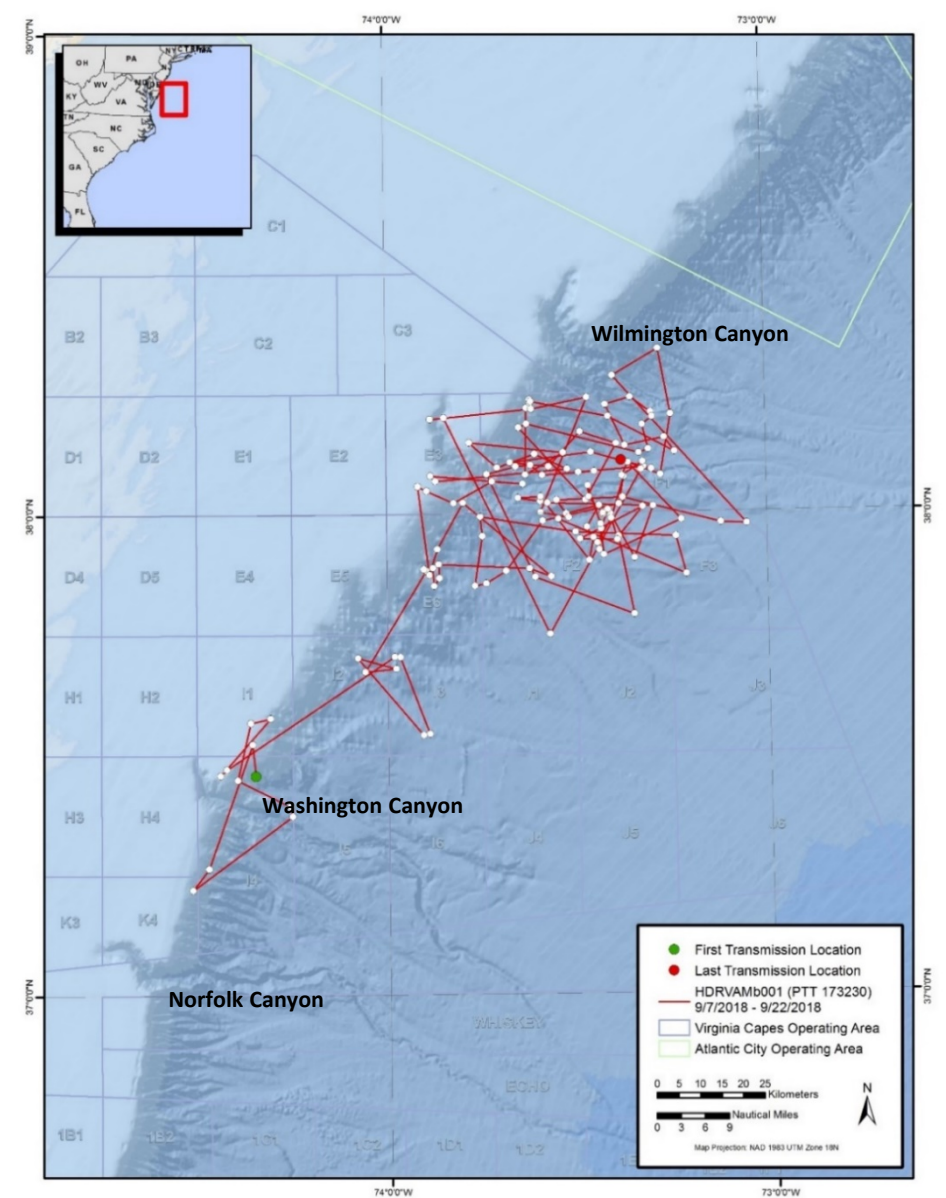
<sup>2</sup> Amy Engelhaupt Consulting

<sup>3</sup> NAVFAC Atlantic



# Argos Locations

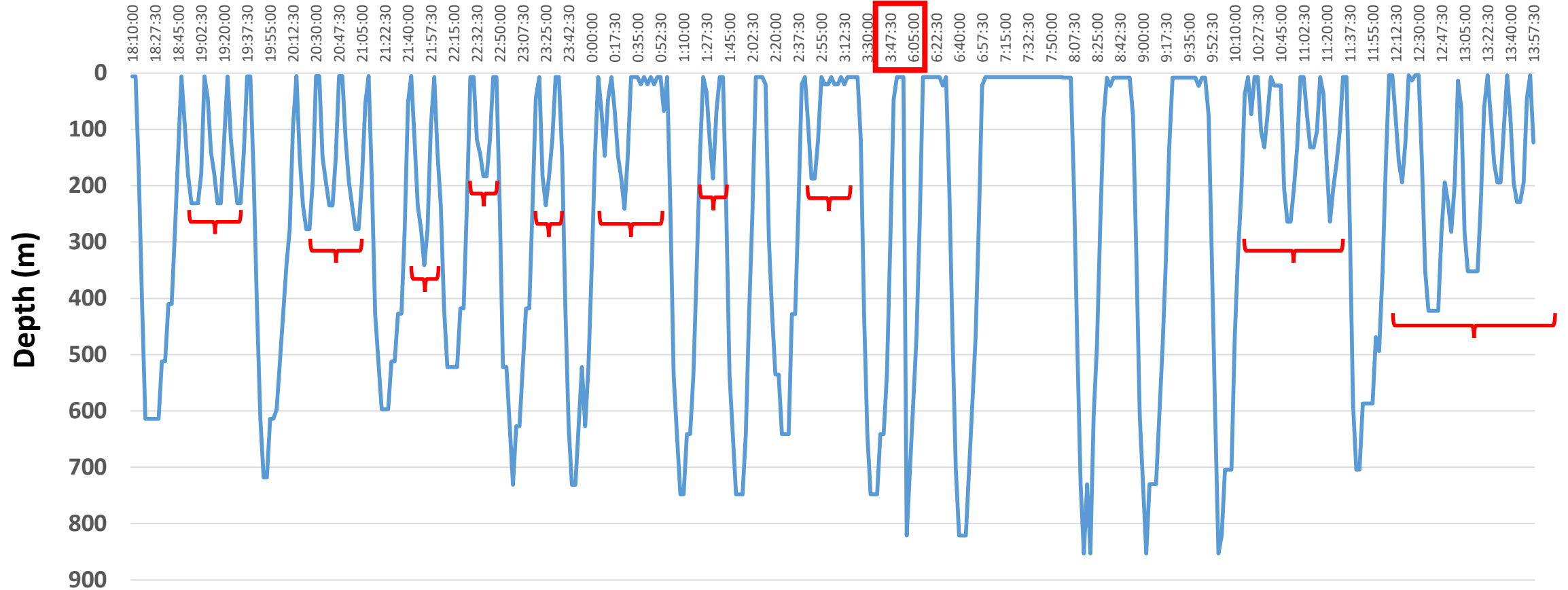
- Tag deployed 07 Sept 2018 near Norfolk Canyon 130 km east of Norfolk, VA
- Wildlife Computers SPLASH10 LIMPET location/dive tag
- Duration = 14 days
- Total Filtered Locations = 135
- Max distance from first location = 136 km
- Mean Depth of Seafloor at Location = 1412 m (sd = 620 m)
- SSM was not able to determine behaviors



# Dive Series Across 20 Hours

Series log data collected every 150 seconds

Duration 1800 – 1400 GMT: Contains one 2-hour gap from 0400-0600

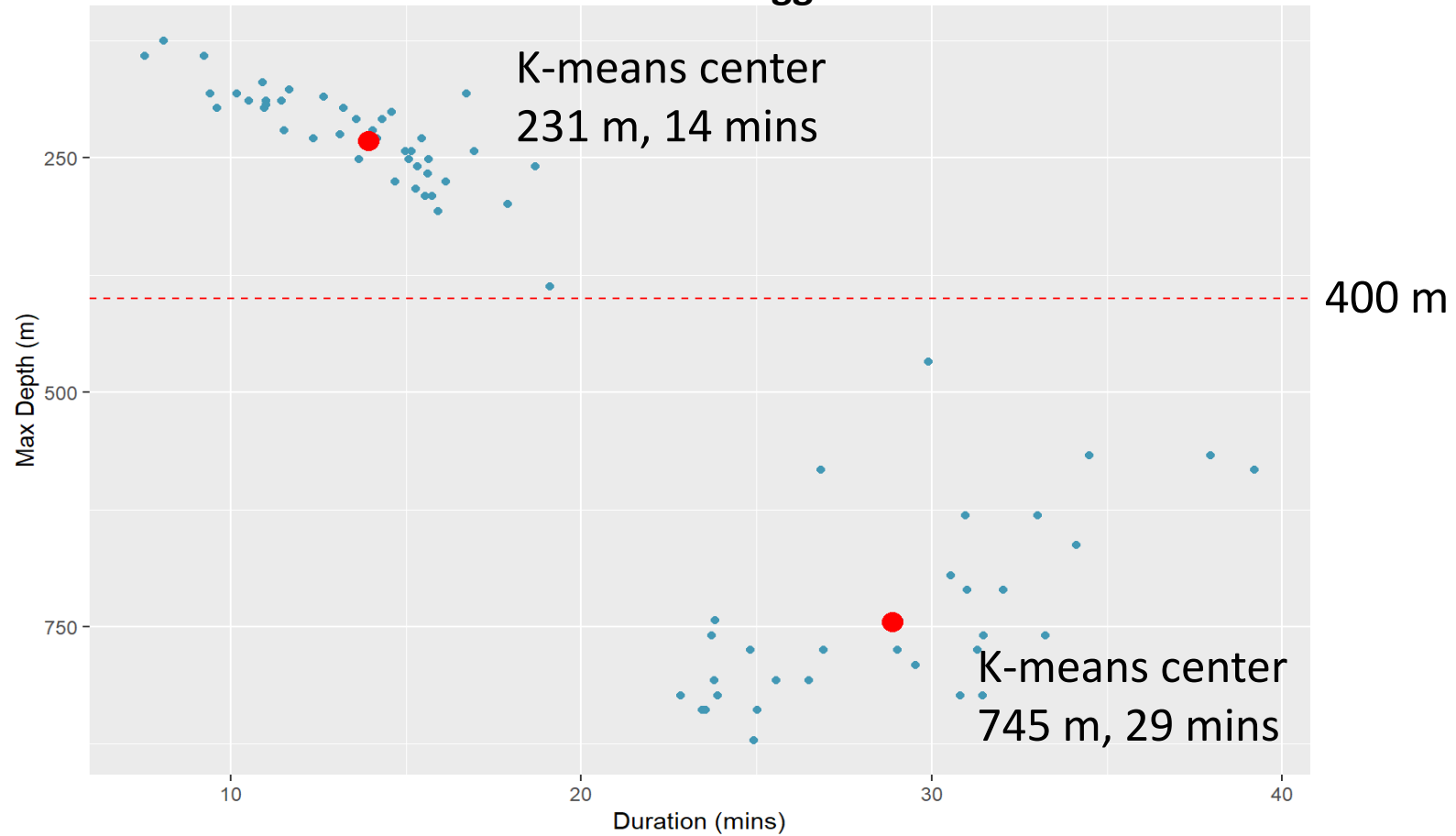


# Depth by Duration k-Means Clusters (k=2)

Behavior Log Data

Dive Definition = 50 meters, 5 minutes

74 Total Dives Logged



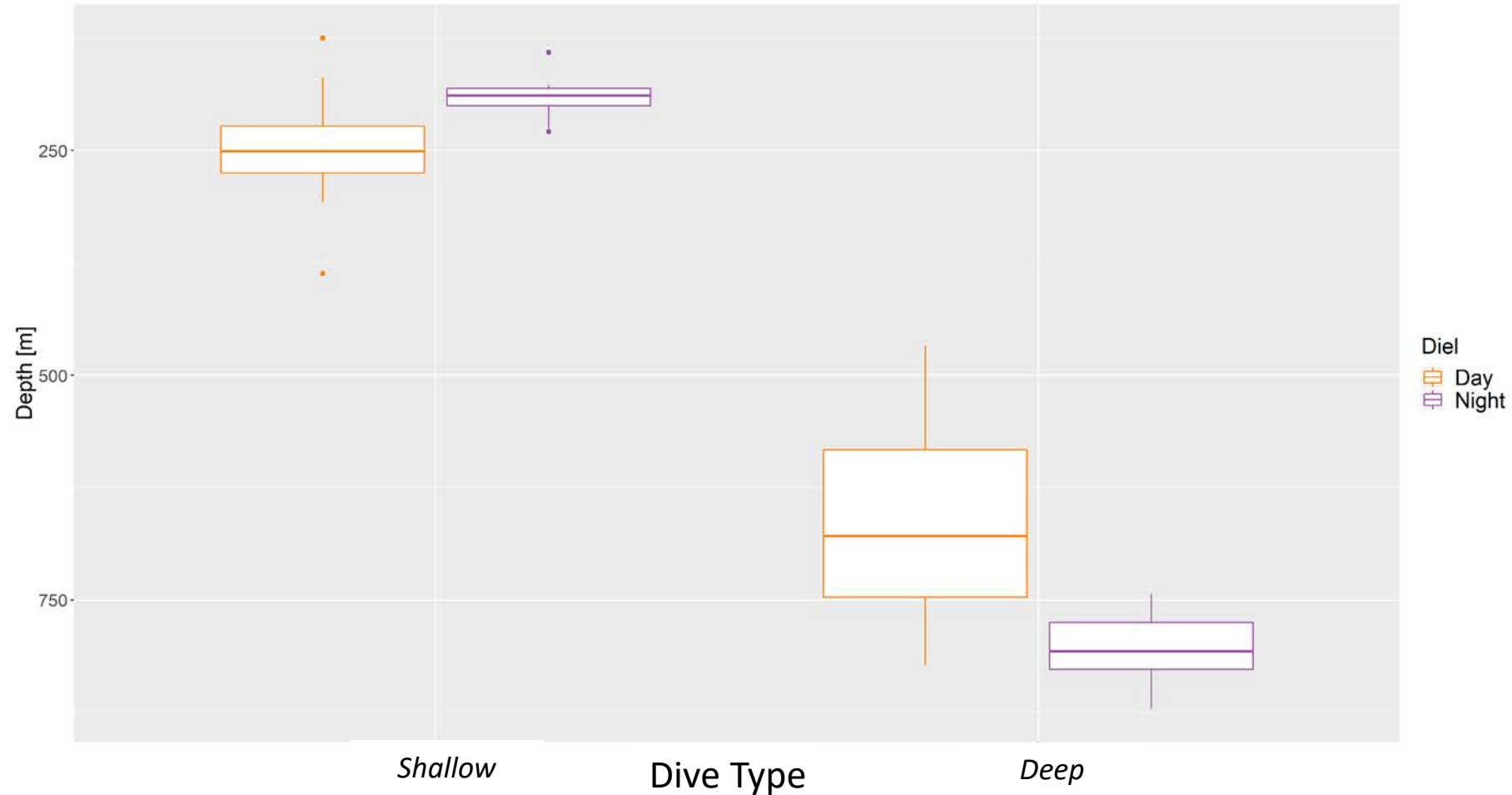
# Diel Comparison – Dive Depth

## Shallow Dives

- Day is deeper than night
  - $p < 0.001$  (*t-test*)

## Deep Dives

- Night is deeper than day
  - $p < 0.001$  (*Wilcoxon rank*)



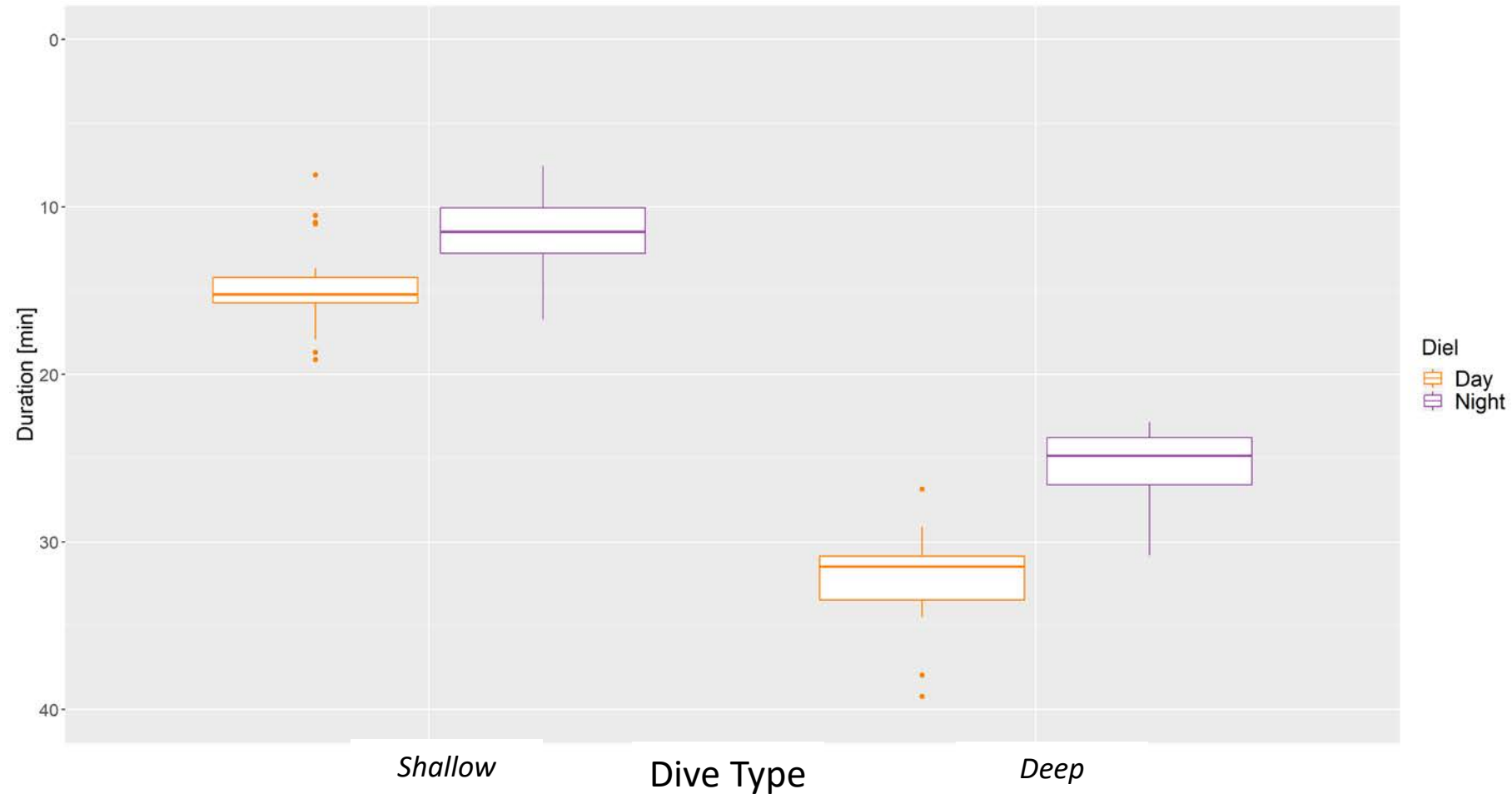
# Diel Comparison – Dive Duration

## Shallow Dives

- Day is longer than night
  - $p < 0.001$  (Wilcoxon rank)

## Deep Dives

- Day is longer than night
  - $p < 0.001$  (Wilcoxon rank)



# Comparisons – Deep ‘Foraging’ Dive Depth (Mean)



**Sowerby's**



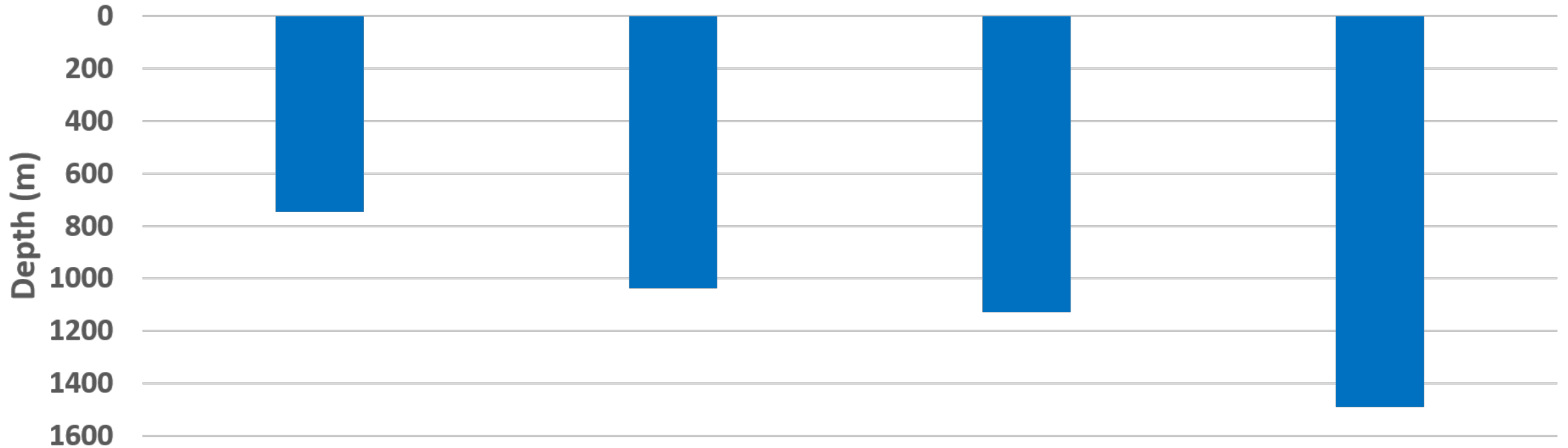
**True's**  
*Cholewiak et al. 2019*



**Blainville's**  
*Joyce et al. 2017*



**Cuvier's**  
*Shearer et al. 2019*



# Comparisons – Deep ‘Foraging’ Dive Duration (Mean)



**Sowerby's**



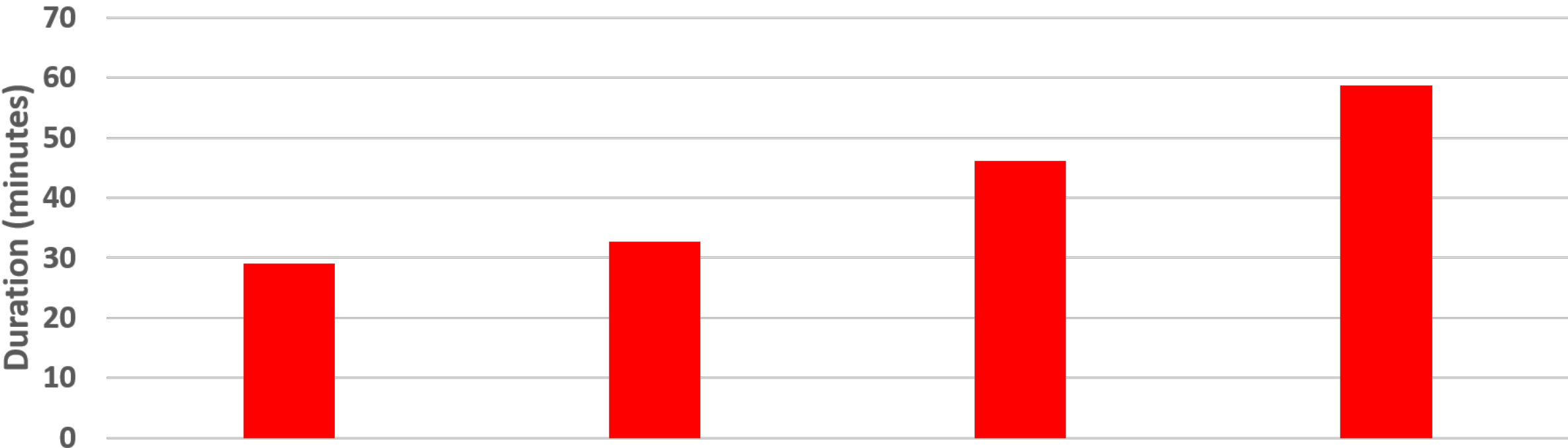
**True's**  
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**Cuvier's**  
*Shearer et al. 2019*





# Conclusions

- Dive depth mean 736 m overlaid with mean seafloor depth at location (1412 m) supports foraging on mesopelagic prey
- Significant differences between day and night dive depth and durations
- Comparison to other Mid-Atlantic beaked whales:
  - Lower end WRT dive depths and durations, but.....



# Acknowledgements

- U.S. Fleet Forces Command for funding
- NAVFAC Atlantic for technical support
- Todd Pusser – visuals
- Jaak Vandensype – programming
- Andrew DiMatteo – modeling

*Publication in preparation:*

*Diving behavior and movement of a Sowerby's beaked whale  
(*Mesoplodon bidens*) tagged near Norfolk Canyon.*

*Tagging efforts and all photos collected under NMFS Permit #16239*

## Questions?

