Acoustic tracking reveals at-depth coordination in groups of Blainville's beaked whales

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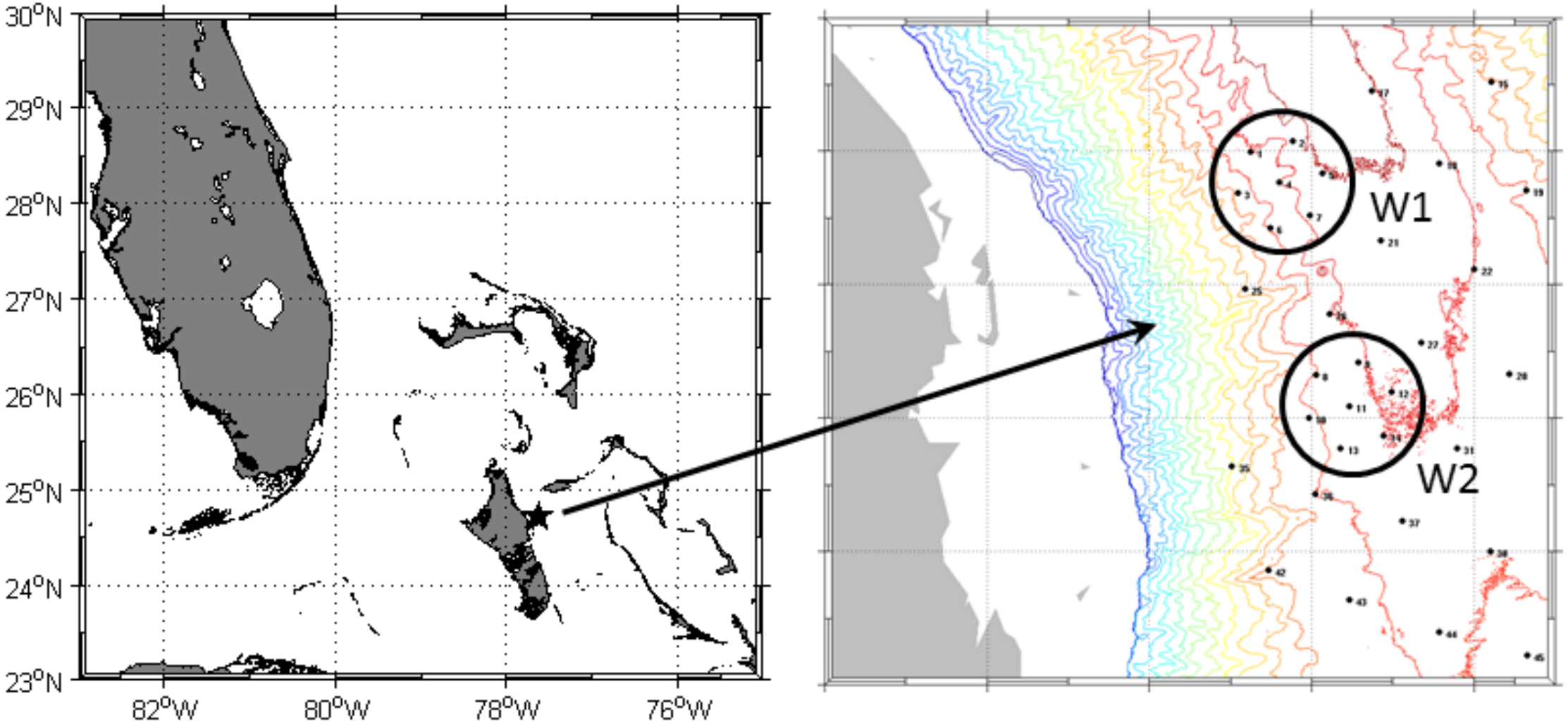
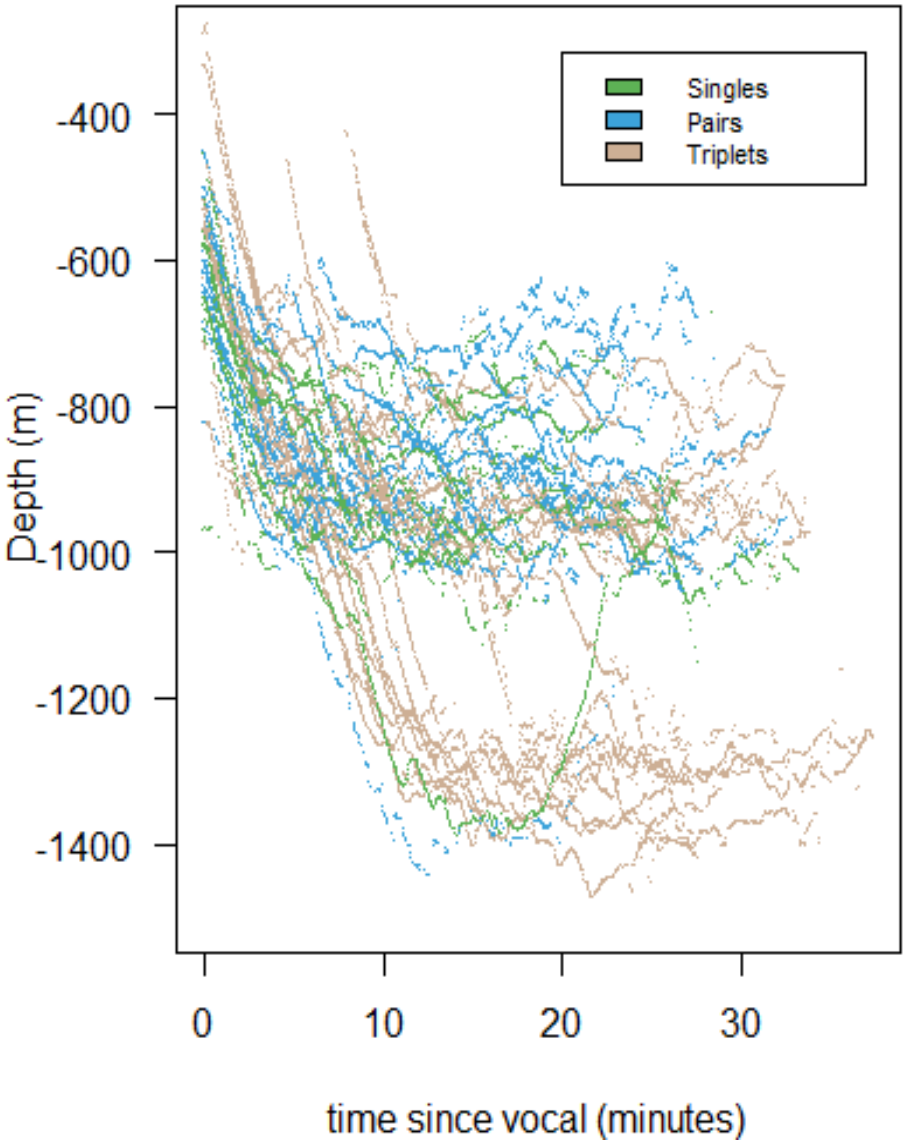
Studying coordination of moving social groups of elusive deep-diving animals is extremely challenging, here we leverage on unrivaled Navy facilities to do so

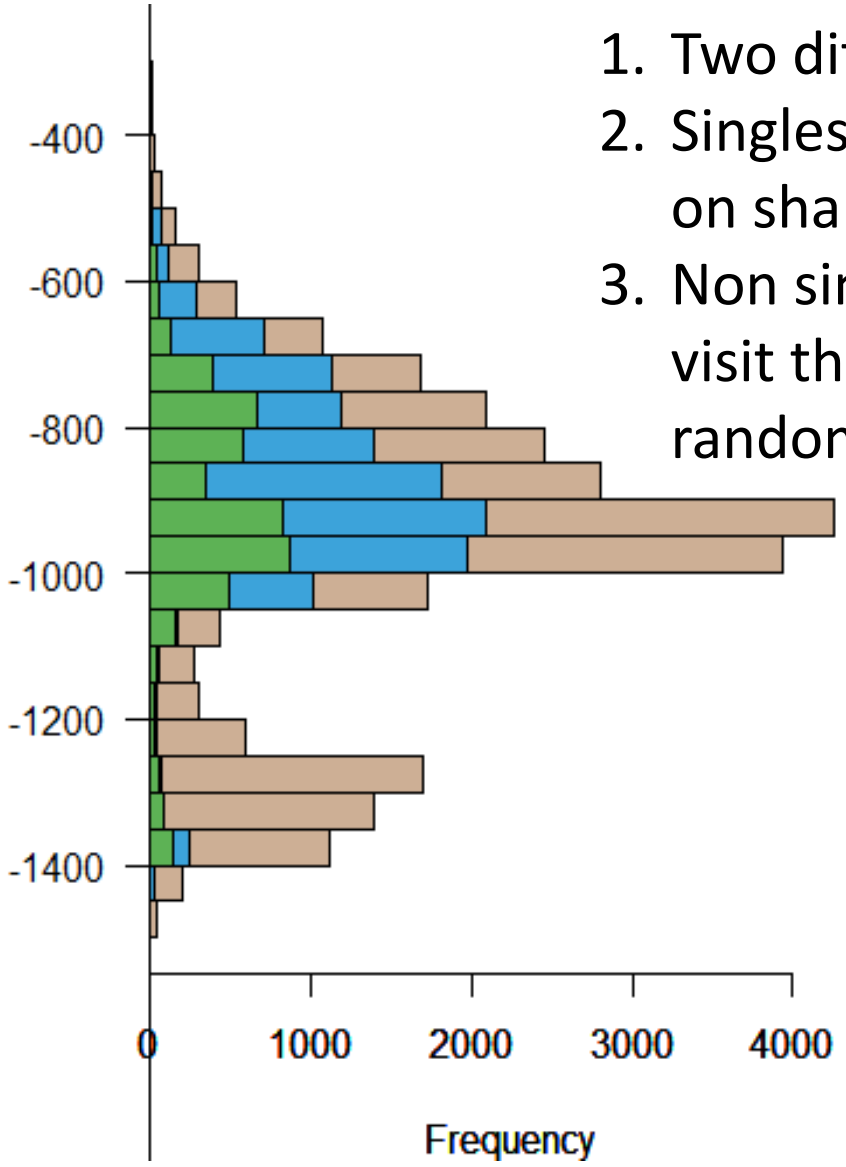
Automated detection and classification clustering process,
followed by localization and semi-automated track reconstruction process



Atlantic Undersea Test and Evaluation Center (AUTEC)
1-nmi baseline 7 hydrophone arrays

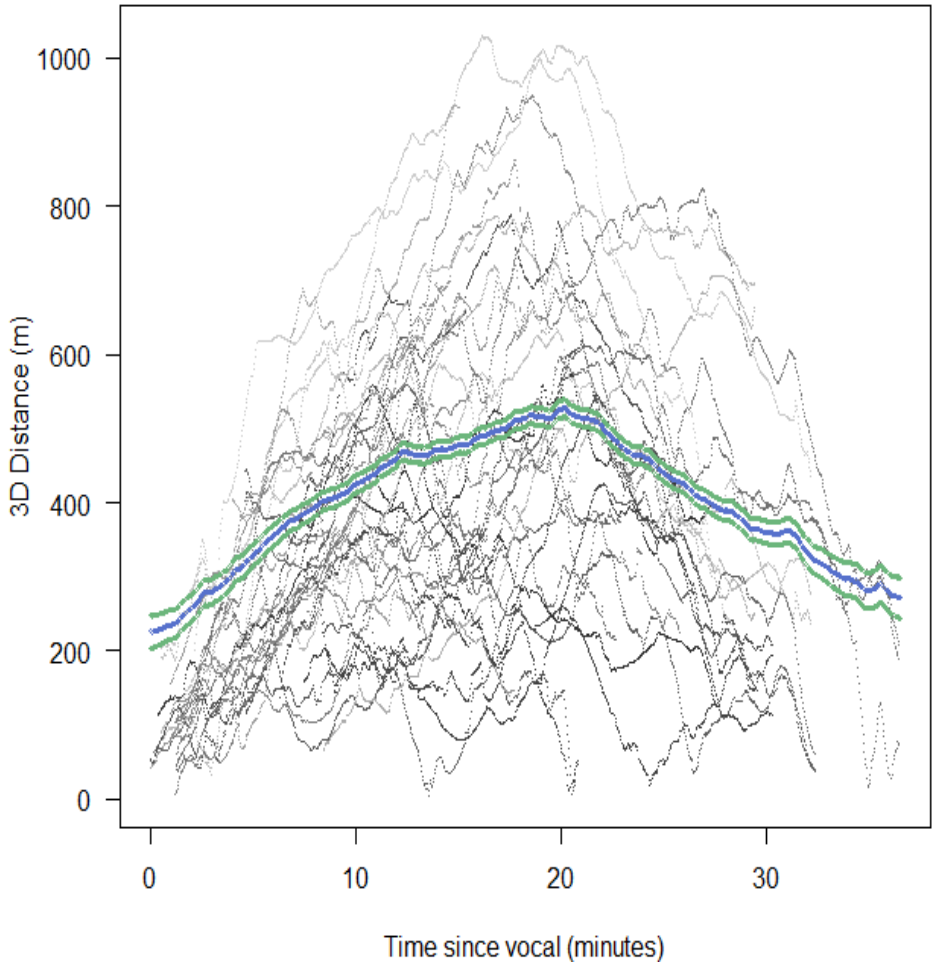
29 groups with reasonable / good 3D tracks: 1 to 3 animals per group

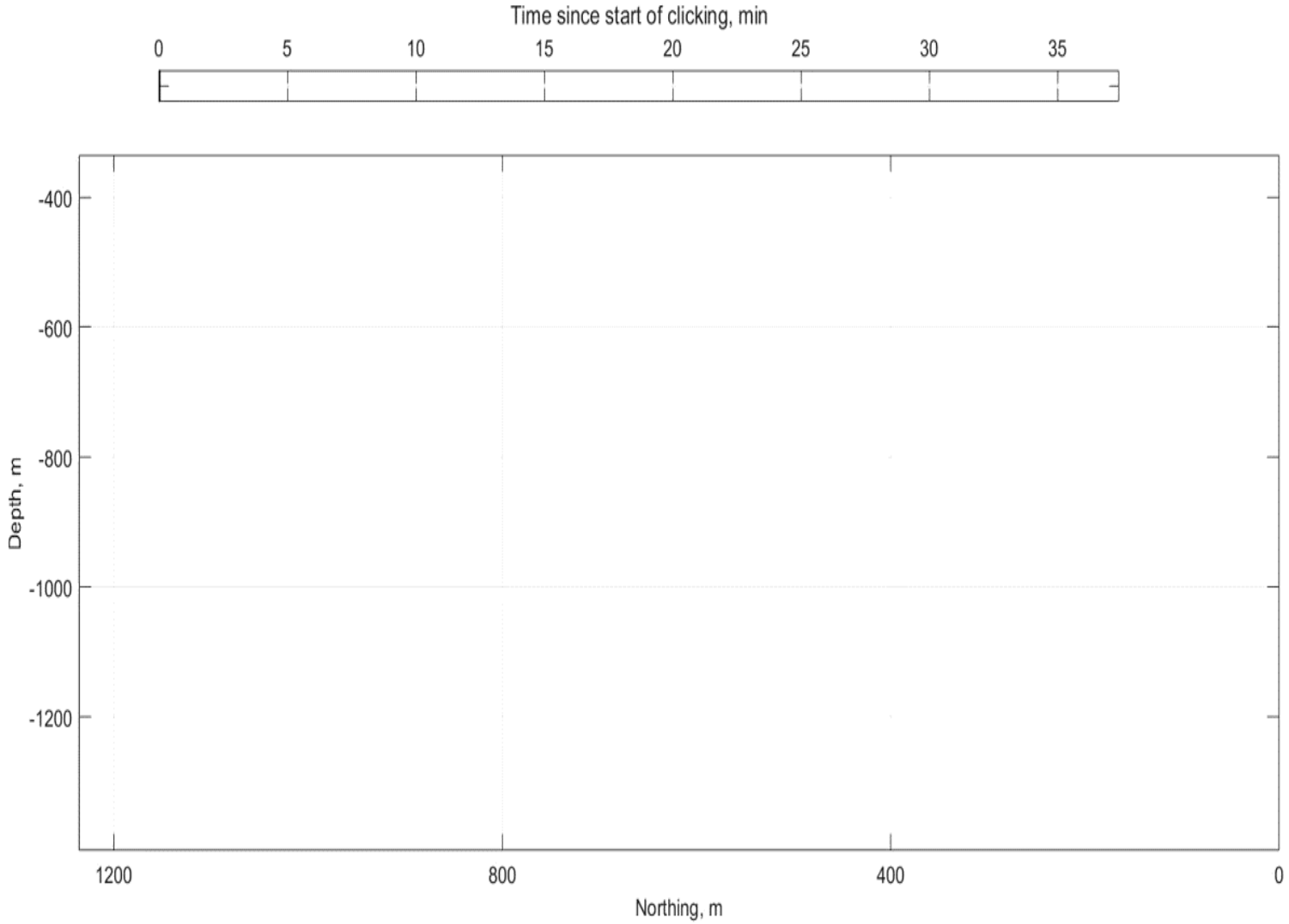


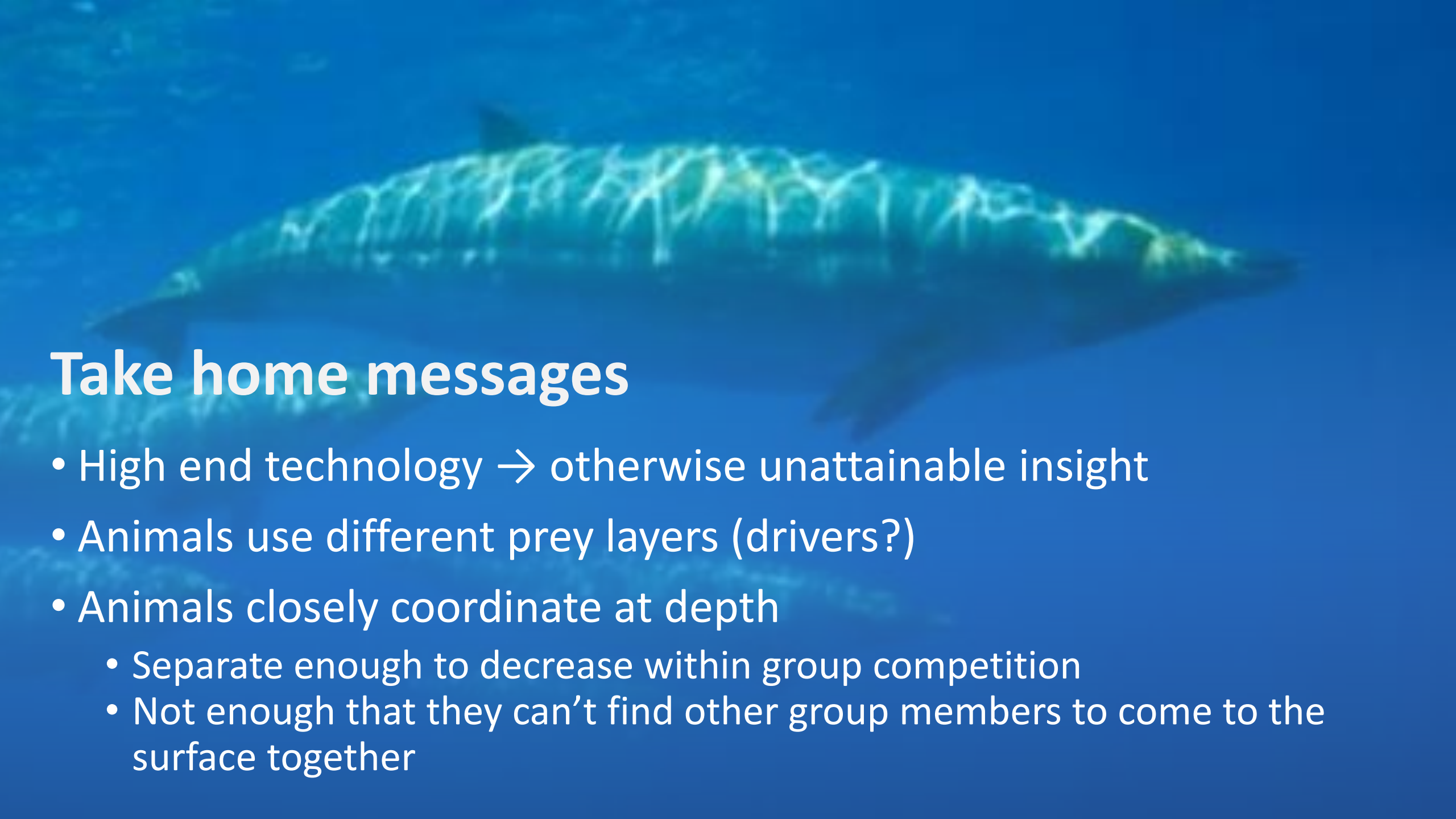


1. Two different layers visited
2. Singles more likely to remain on shallower layer
3. Non singles more likely to visit the same layer than by random assignment

Animals tend to start clicking together, spread out, and get back together before surfacing







Take home messages

- High end technology → otherwise unattainable insight
- Animals use different prey layers (drivers?)
- Animals closely coordinate at depth
  - Separate enough to decrease within group competition
  - Not enough that they can’t find other group members to come to the surface together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