
Driving John Hildebrand to Drink: Can I really finish in 3 minutes ?
OR

The application of passive acoustic methods to estimating the cumulative effect of sonar on Blainville's beaked whales

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Background: Blainville's beak whale photo courtesy of the Bahamas Marine Mammal Research Organization

Method

Premise:

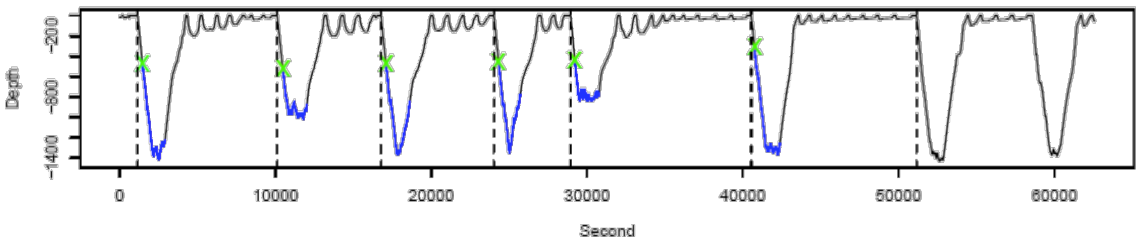
Displacement of Blainville's beaked whales (Mesoplodon densirostris) from AUTEC by Mid-Frequency Sonar results in reduced caloric intake, leading to a reduction in the proportion of calves and juveniles.

Method

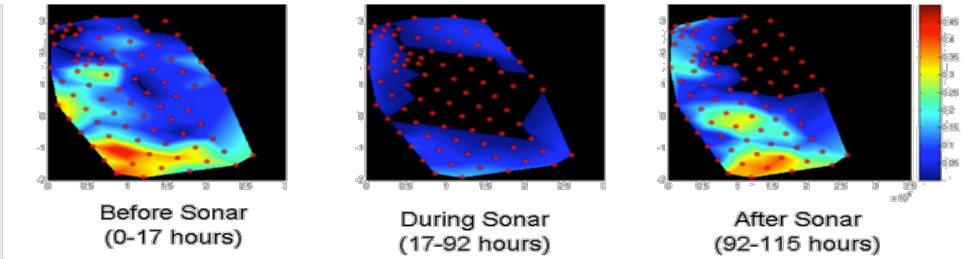
1. Use visual observation to assess population structure and inter-calf interval (Claridge, 2013).
2. Apply passive acoustic methods to measure Group Vocal Periods (a proxy for deep foraging dives) before and during Navy sonar exercises. Use these data to estimate the number of lost feeding dives (Moretti *et al.* , 2014)
3. Use the bioenergetics model described in New *et al.* (2013) to estimate the potential effects of lost dives on demographic rates
4. Compare population demographic predictions to observations from AUTEC and a nearby, undisturbed site at Abaco

Assumptions

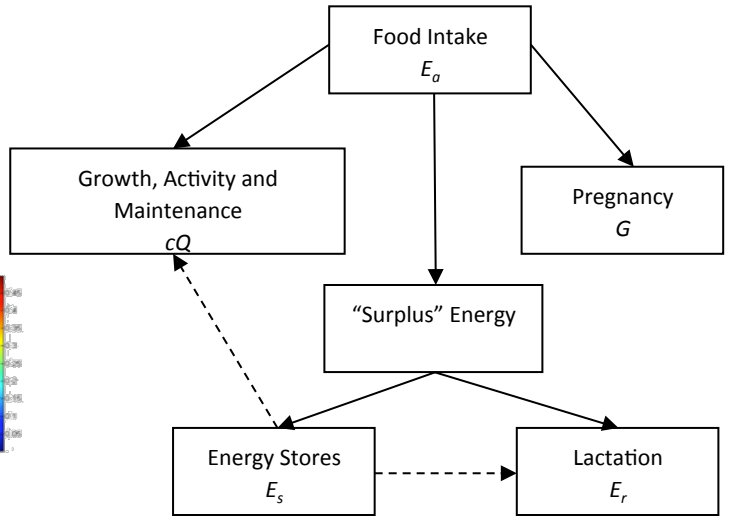
1. AUTEC animals are part of a distinct population (supported by both genetic sampling and sighting data).
2. Animals dive at a constant rate.
3. There is a linear decrease in maternal contribution to weaning.
4. Animals do not compensate for lost dives.



Dive record from a tagged Blainville's beaked whale (Tyack et al., 2010)



Mean number of Blainville's beaked Whale vocalizations per hour during 2007 SCC



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