# Evidence of adaptive foraging behaviour on schooling prey by Blainville's beaked whale (*Mesoplodon densirostris*)

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A paucity of data exists on the diving and foraging behaviour of beaked whales. Here we combine non-invasive tagging and dietary analysis, providing a novel insight into foraging behaviour occurring in response to large echoic targets, likely due to schooling prey. Multi-sensor DTAG data is presented on the dive and echolocation behaviour of a free-ranging Blainville's beaked whale (*Mesoplodon densirostris*) in Tongue of the Ocean, Bahamas. Stomach content and faecal analysis results for Ziphiids from the Bahamas are presented as additional evidence of consumption of schooling prey.
The tagged whale performed seven deep foraging dives (817-1070m), during which examples of echolocation behaviour were recorded. During capture attempts on targets with large sonar cross sections (max. 4.5 metres), the whale approached slowly, producing long buzzes (max. 8 seconds), with long inter-click intervals (ICIs) as compared to buzzes used to capture smaller or single prey items. Buzz length and initial ICI were highly variable but closely correlated ($\rho$=0.86; all statistics are Spearman's rank R with n=52, $p<0.001$). There was a strong correlation between target width and buzz duration ($\rho$=0.74) and between target width and initial ICI ($\rho$=0.72). The longer buzzes appear to compensate for the slower approaches with the whale mostly entering within the targeted school at the end of the buzz. Analysis of two faecal samples from *M. densirostris* did not provide evidence of feeding on schooling prey, however stomach contents from three stranded Cuvier's beaked whales (*Ziphius cavirostris*) did. These samples contained six squid beaks, 67% of which belong to two families of squid known to form schooling aggregations, the *Histioteuthidae* and *Ommastrephidae*.
Dietary analysis and tag results indicate schooling prey are available to foraging Ziphiids in the Bahamas and that *M. densirostris* can adjust both movement and echolocation behaviour for different prey on the basis of structural echo information.