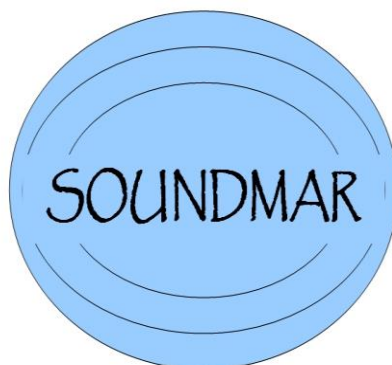
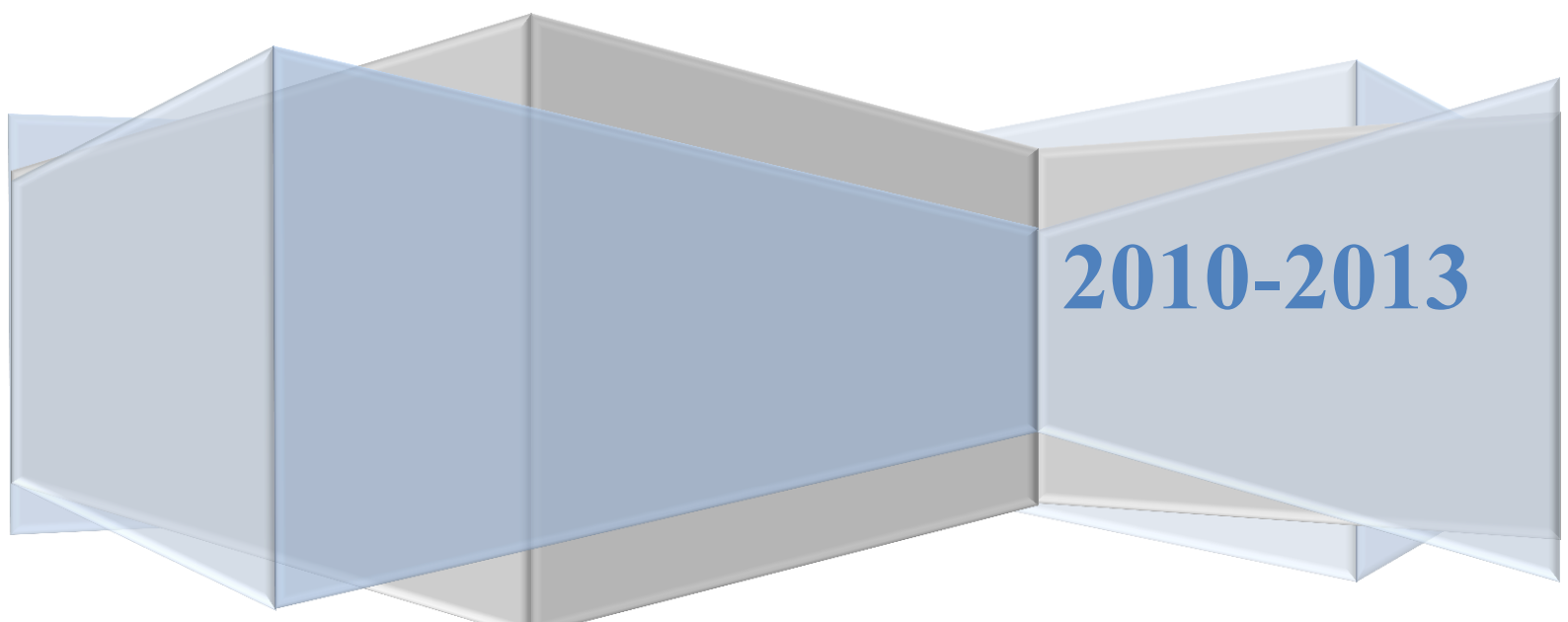




FINAL REPORT

UNIVERSIDAD DE LA LAGUNA

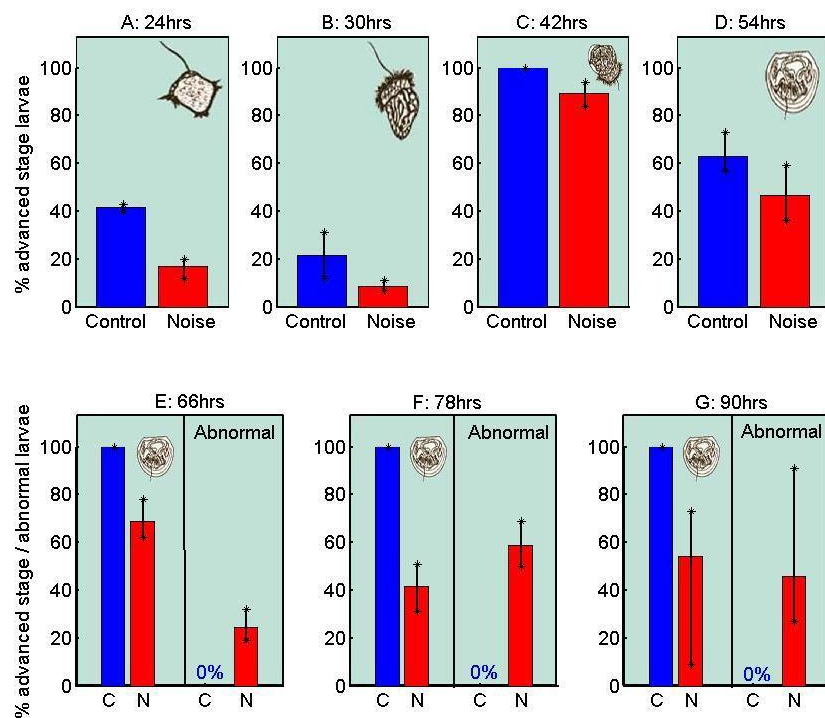
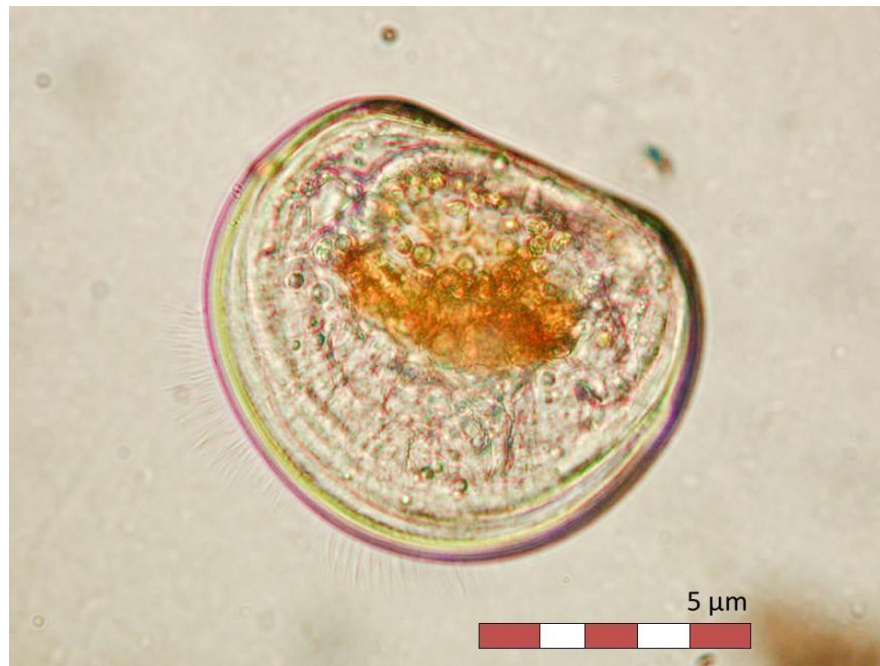
1. FINAL PUBLISHABLE SUMMARY REPORT



2010-2013

FINAL PUBLISHABLE SUMMARY REPORT: Include where appropriate, diagrams or photographs and the project logo, illustrating and promoting the work of the project.

A) SCALLOP LARVAE RESEARCH



Figures 1 & 2. Microscope photograph of a D-veliger larvae of New Zealand scallop *Pecten novaezelandiae* and comparative results for the noise-exposed (N) and control (C) groups of larvae. The height of the bars indicates the mean proportion of abnormal larvae and of larvae in the most

advanced developmental stage observed for each sampling interval. The error bars mark the minimum and maximum values observed for each condition. Sample size was 800 larvae per sampling in A) to D) and 738, 473 and 470 larvae in E), F) and G), respectively. Larval schematics from <http://www.fao.org/docrep/007/y5720e/y5720e0a.htm>. Photo by J. Williams and graph from Aguilar de Soto *et al.* (in press in Scientific Records).

B) Tagging of Bryde's whales with suction-cup attached DTAG in the Hauraki Gulf



Figures 3 & 4. Multi-sensor DTAG attach with suction cups to the back of a Bryde's whale. The tags record movements in the three axis, depth and broadband sound. The tag is delivered using a hand-held pole. Here the fellow is driving the boat while approaching a foraging Bryde's whale for tagging. Photos by R. Constantine

C) Diving and vocal behavior of beaked whales studied with DTAG in the Canary Islands

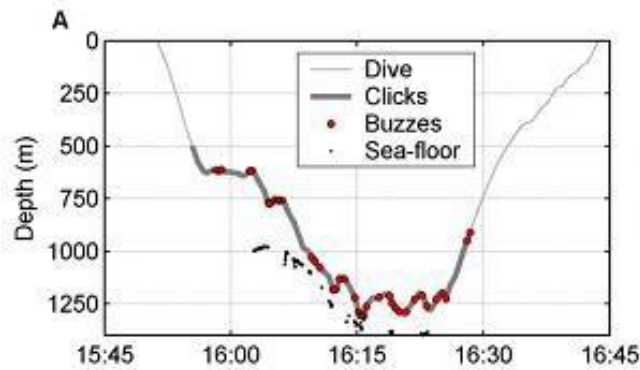


Figure 5: Dive profile of a Blainville's beaked whale recorded with DTAG off El Hierro, in the Canary Islands. The profile shows the vocal phase of the dive (thick grey line) when the whale is searching for food using echolocation, the location of the buzzes (black circles) indicating prey-capture attempts and the position of the seafloor (red dots) estimated from the time-delay between the clicks produced by the whale and their reflections from the ground. Figure from Arranz et al. (2011).

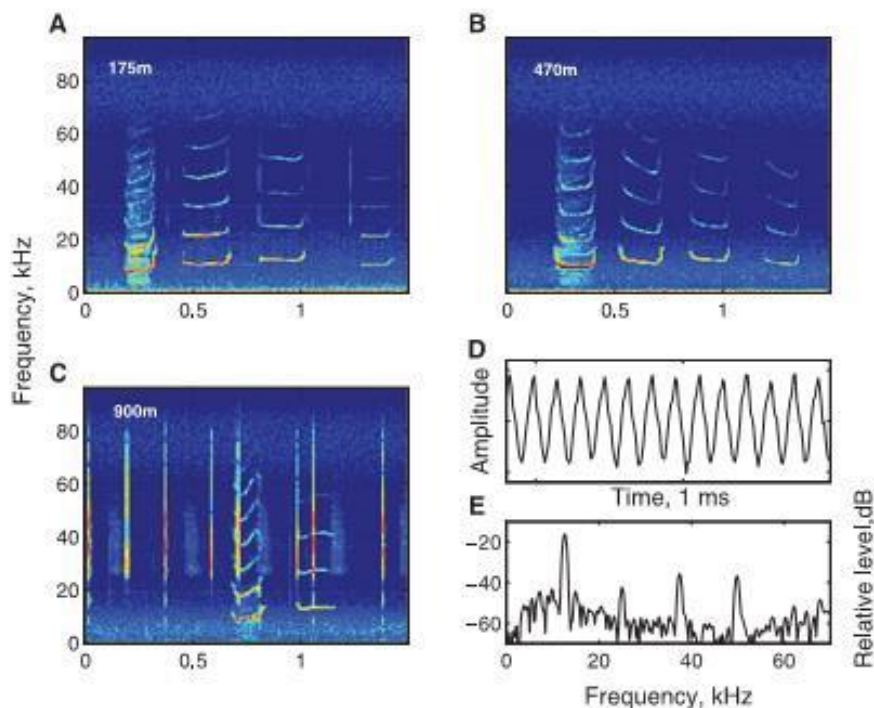


Figure 6: The deepest whistles ever recorded from a whale. (A–C) Spectrograms (1,024 Hamming, 512 overlap) of three series of stereotypical whistles produced by a tagged Blainville's beaked whale (male 1). The depth of the whale at the time is indicated in each panel. The whistles produced at 900 m depth coincided with clicks from two untagged whales (vertical thin lines) and bottom echoes produced by these clicks (vertical diffuse lines). (D) Waveform of 1 ms of the second whistle in B showing that the signal is a continuous tone. (E) Spectrum (1,024 FFT) of 2 ms of the same whistle showing the harmonics of the whistle as peaks in the relative received level. Figure from Aguilar de Soto et al. (2012).