

**Hunting, Fighting, or Playing with Bubbles: Possible Usage  
and Acoustic Characteristics of Bubble Burst Sounds Produced  
by the Amazon River Dolphin (*Inia geoffrensis*)**

**Supplementary Table**

Rodney A. Rountree,<sup>1,2</sup> Kelsey R. Moreno,<sup>3</sup> and Francis Juanes<sup>2</sup>

<sup>1</sup>*The Fish Listener, 23 Joshua Lane, Waquoit, MA 02536, USA*

*E-mail: rroundree@fishecology.org*

<sup>2</sup>*Department of Biology, University of Victoria, Victoria, British Columbia, Canada*

<sup>3</sup>*Zoology Department, Tel Aviv University, Tel Aviv, Israel*

**Supplementary Table S1.** Definitions of parameters measured for each bubble burst as defined in Charif et al. (2010)<sup>†</sup>

Parameter	Variable name	Definition Measurements on individual barks (sounds)
<i>Frequency measures (units in Hz)</i>		
5th percentile	Freq_5	The frequency that divides the selection into two frequency intervals containing 5 and 95% of the energy in the selection
Q1	Q1_Freq	The frequency that divides the selection into two frequency intervals containing 25 and 75% of the energy in the selection
Peak	Peak_Freq	The lowest frequency at which maximum power occurs within the selection
Q3	Q3_Freq	The frequency that divides the selection into two frequency intervals containing 75 and 25% of the energy in the selection
95th percentile	Freq_95	The frequency that divides the selection into two frequency intervals containing 95 and 5% of the energy in the selection
IQR bandwidth	IQR_BW	The difference between the 1st and 3rd quartile frequencies
90th percentile bandwidth	BW_90	The difference between the 5 and 95% frequencies
<i>Duration measures (units in ms or s)</i>		
90th percentile duration	Dur_90	The difference between the 5 and 95% times (i.e., the duration containing 90% of the energy)
Duration	Delta_Time	Length of the sound. The difference between Begin Time and End Time for the selection.
<i>Energy measures</i>		
Energy (dB)	Energy	Total energy in the sound (within frequency bounds)
Aggregate entropy	Agg_Entropy	The disorder in a sound by analyzing the energy distribution within a selection. Higher entropy values correspond to greater disorder in the sound whereas a pure tone with energy in only one frequency bin would have zero entropy. Non-dimensional units.
Average entropy	Avg_Entropy	The average entropy in a selection is calculated by finding the entropy for each frame in the selection and then taking the average of these values. Unlike the aggregate entropy which uses the total energy in a frequency bin over the full time span, the average entropy calculates an entropy value for each slice in time and then averages. As a result, the average entropy measurement describes the amount of disorder for a typical spectrum within the selection, whereas the aggregate entropy corresponds to the overall disorder in the sound. Non-dimensional units.

<sup>†</sup>Charif, R. A., Strickman, L. M., & Waack, A. M. (2010). *Raven Pro 1.4 user's manual*. The Cornell Lab of Ornithology, Ithaca, NY.