



STUDY OF SOTALIA GUIANENSIS SOUNDS IN FRENCH GUIANA

Amandine BORDIN¹, Nadège GANDILHON², Olivier ADAM³

¹ Association GEPOG, Groupe d'Etude et de Protection des Oiseaux en Guyane/Réserve Naturelle Nationale de l'Ile du Grand-Connétable

² UMR DYNECAR/BOREA, Biologie des Organismes et Ecosystèmes Aquatiques

³ NeuroPSI-CNRS, CNRS UR9197, Université Paris Sud

ABSTRACT

In French Guiana, the Guiana Dolphin (*Sotalia guianensis*) is observed along the coastline, estuaries and occasionally on the Continental Shelf up to 40 kilometers offshore (Van Canneyt *et al.*, 2009 ; Brichet, 2011 ; Bordin *et al.*, 2012).

Several observations were documented around the Remire islands and the Connetable islands area, as well as proven occurrences in the river mouths of Cayenne, Mahury, the Approuague, the Oyapock, Mana and Maroni (Bouillet *et al.*, 2002). Functionally, the areas close to the Mahury river and surrounding Cayenne could be a feeding area, with some degrees of fidelity. The dolphins could also be present in the estuary for functional activities such as rest (Bordin/GEPOG, pers. comm., 2015). Since 2014, the Marine Reserve of the Grand-Connétable Island established a photo-identification catalog to study the Guiana Dolphin population.

Acoustic method is a complementary approach to detect cetacean presence. The Guiana Dolphin produces different varieties of sounds, especially echolocation clicks to navigate, forage and communicate in turbid waters. We present here the first acoustic recordings analysis of *Sotalia Guianensis* in French Guiana, including odontocete-type sounds as clicks and whistles, and new type of sounds which can be classified as pulsed sounds (bursts) or incremental signals. Future research will be necessary to better define the nature/profile of these sound structures and the potential links between these emitted sounds and specific behaviors (feeding, location, etc.).

METHODS: passive acoustics

Opportunistic acoustic recordings

2 acoustic recordings of around 6 minutes in November 2014 (Remire islands) and in September 2015 (Dupont islands)

Acoustic recordings in a monitoring program of antropogenic activities in the Mahury river estuarine

4 acoustic detections datasets from August to September 2015

Materials : Hydrophone Cetacean Research™ C54 XRS and C75, Tascam HD-P2 and DR-680

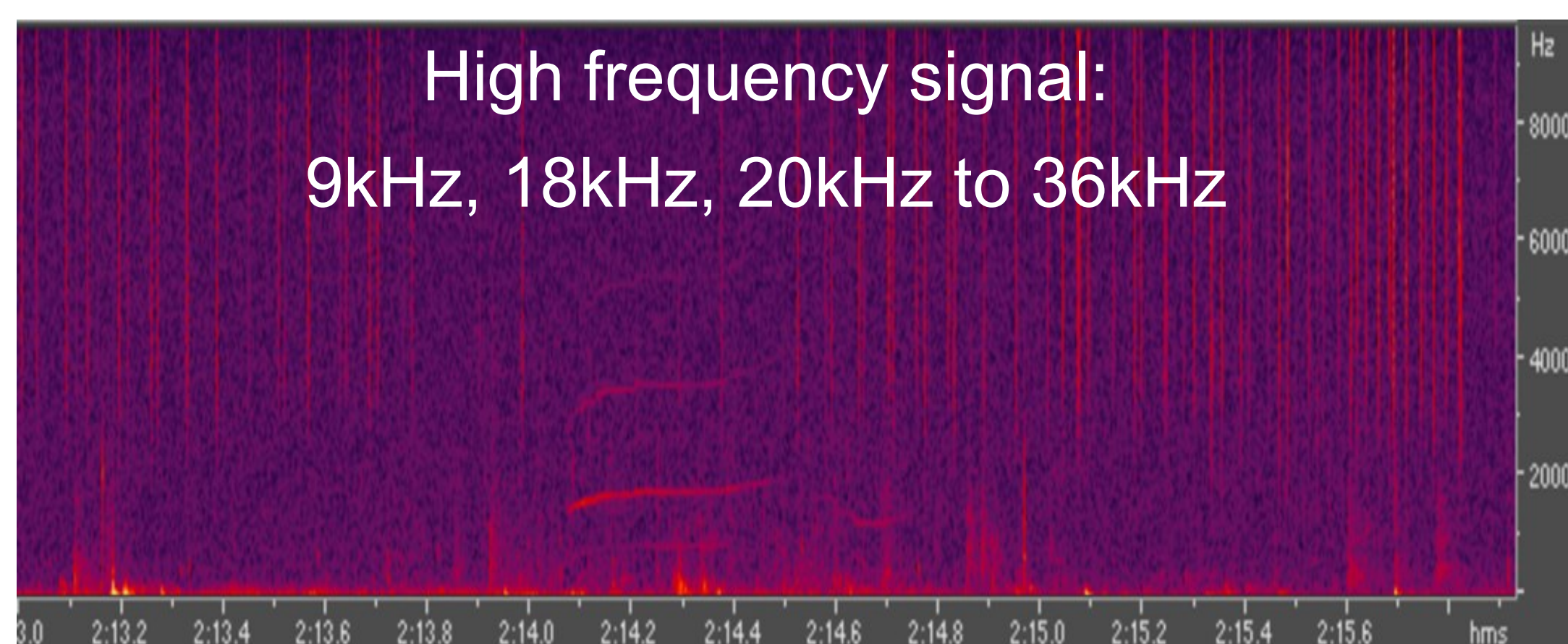
RESULTS: 3 different types of sounds!

Sampling frequency = 192 kHz
Digitalized on 16 bits
Spectrogram = FFT on 512 samples with Blackmann-Harris shift time-window (overlap 50%)

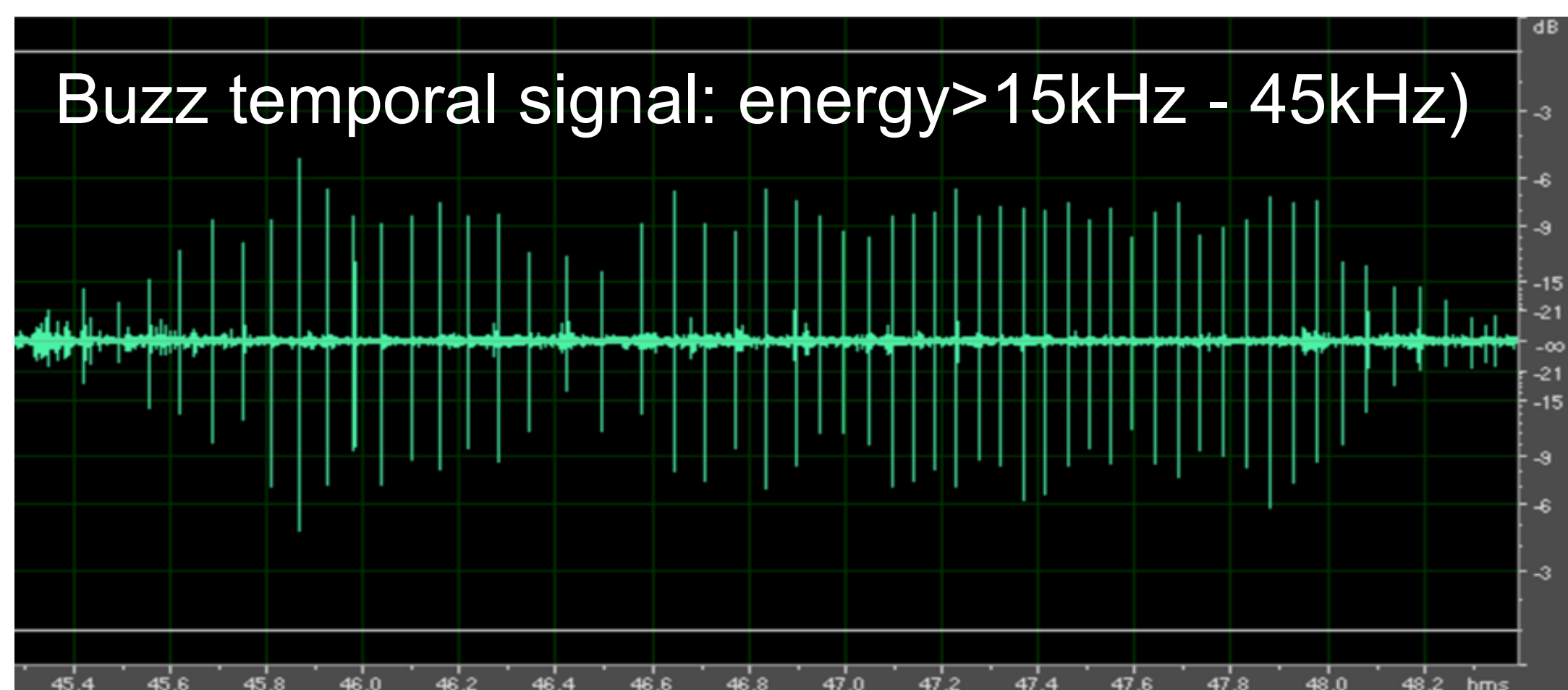
Presence of more upsweep whistles than constant whistles or downsweep whistles

Fundamental frequency =
[7kHz – 25kHz]
With harmonics range frequency range =
[15kHz – 71kHz]

WHISTLES SHAPE



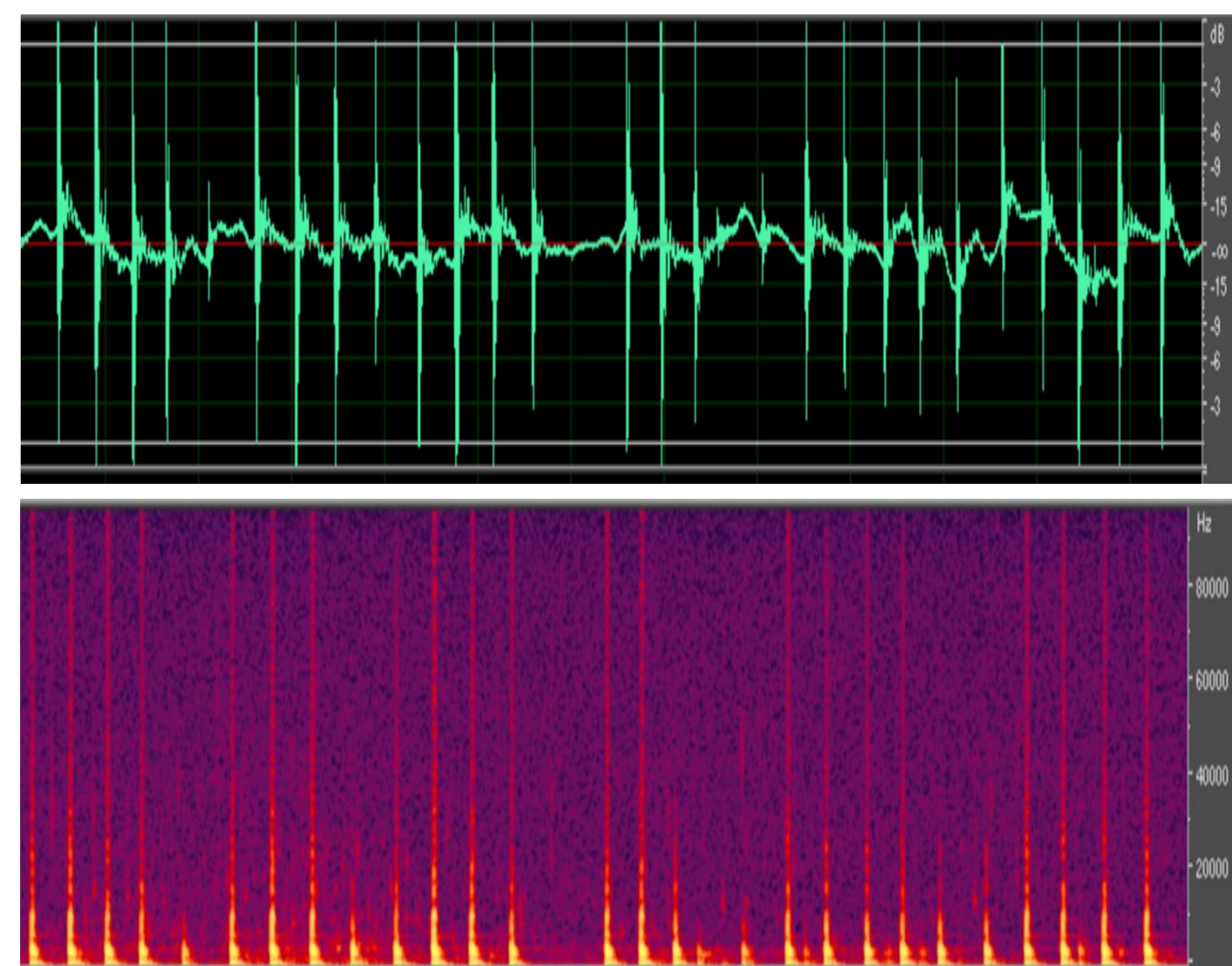
CLICKS SHAPE



Spectrograms November 2014 recordings

THIRD NEW SOUND SHAPE ?

2 architectural parts of the sound
Most of the energy concentrated under 20kHz



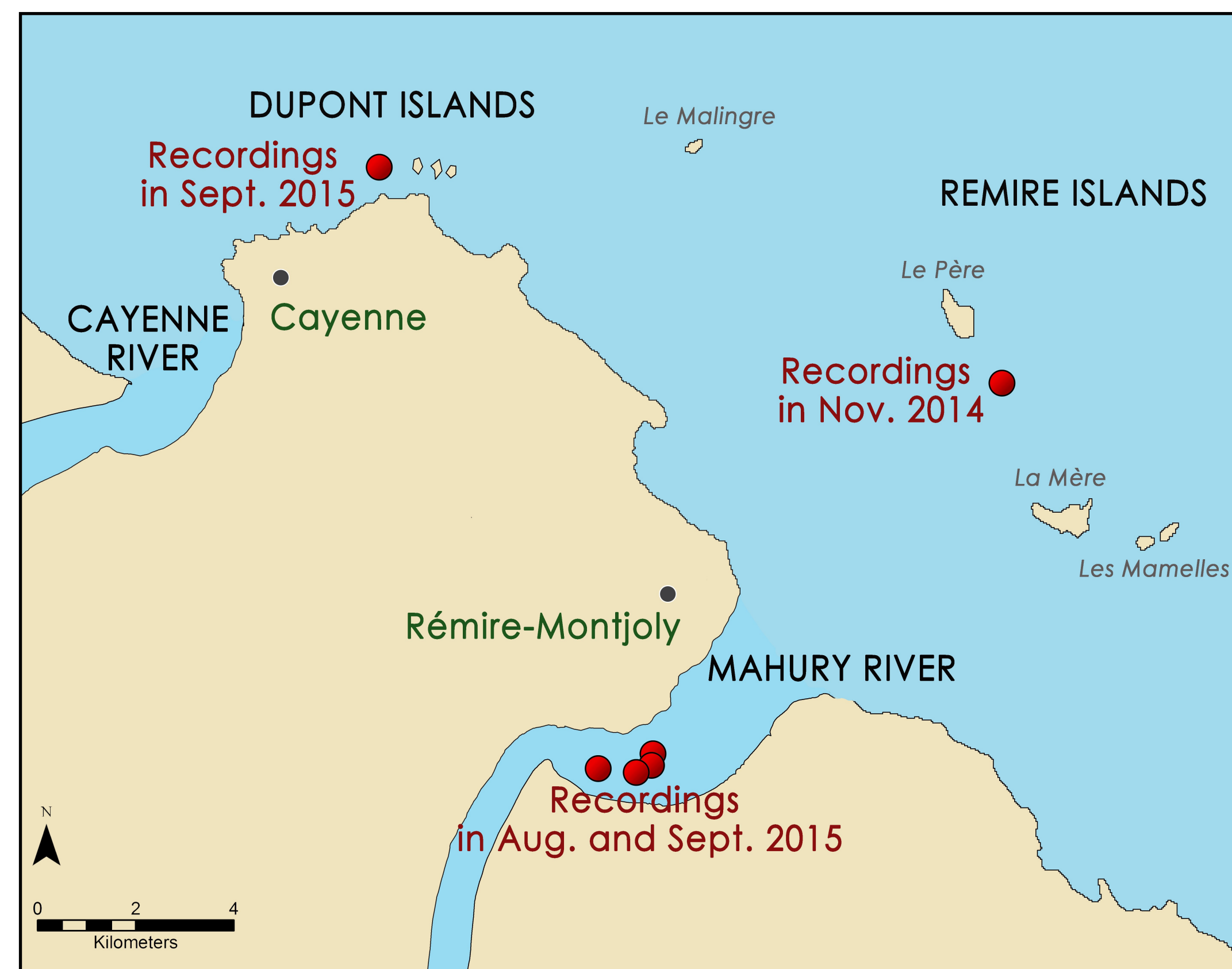
Spectrograms September 2015 recordings



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S. guianensis acoustic recordings localization

References

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