VARIATIONS OF SOUND PRODUCTION IN *DASCYLLUS FLAVICAUDUS* (POMACENTRIDAE)

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Introduction

Damselfishes (Pomacentridae) are important sound producers. Different species of this family (*Stegastes, Dascyllus,* etc.) emit sounds during aggressive and courtship behaviors. Acoustic cues can provide information on mate location, readiness to spawn, size, aggressive level, fitness, and species or individual identity. This study aims to describe the different kinds of sound made by *Dascyllus flavicaudus.*

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Material et methods

Recordings of sound production by *Dascyllus flavicaudus* were made from January to March 2009 in Moorea lagoon (French Polynesia). We used an hydrophone coupled to a video camera for description of behavior during sound production. The following features of the sounds were measured: number of pulses, pulse rate, pulse duration, inter-pulse interval and dominant frequency.

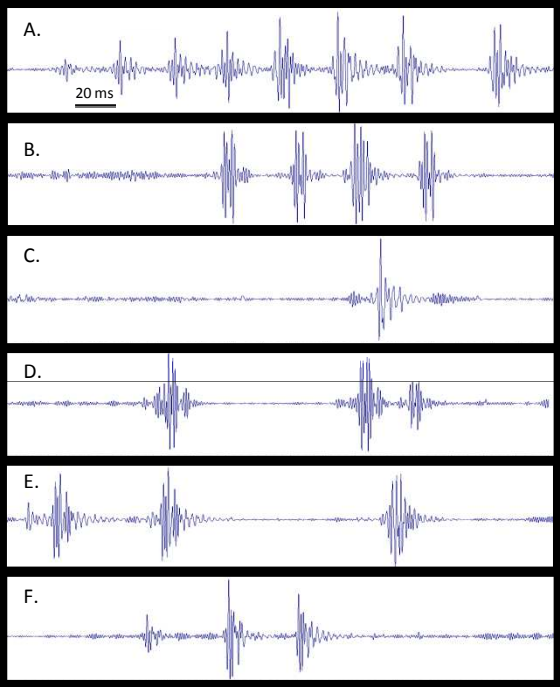

Fig. II: Oscillograms associated to typical sounds of the 6 behaviors. . A.: Signal Jump, B.: Conspecific chasing, C.: Heterospecific chasing, D.: Conspecific fighting, E.: Heterospecific

Results and discussion

Six behaviors (Fig. I) were found to be related to six types of sounds (Fig. II). They can be separated into two groups.
1) Courtship (signal jump and visiting-mating) and conspecific chasing sounds were associated with 'chirp' sounds (>2 pulses/call).
2) Hetero- and conspecific fighting, as well as heterospecific chasing, were associated with 'pop' sounds (<2 pulses/call).

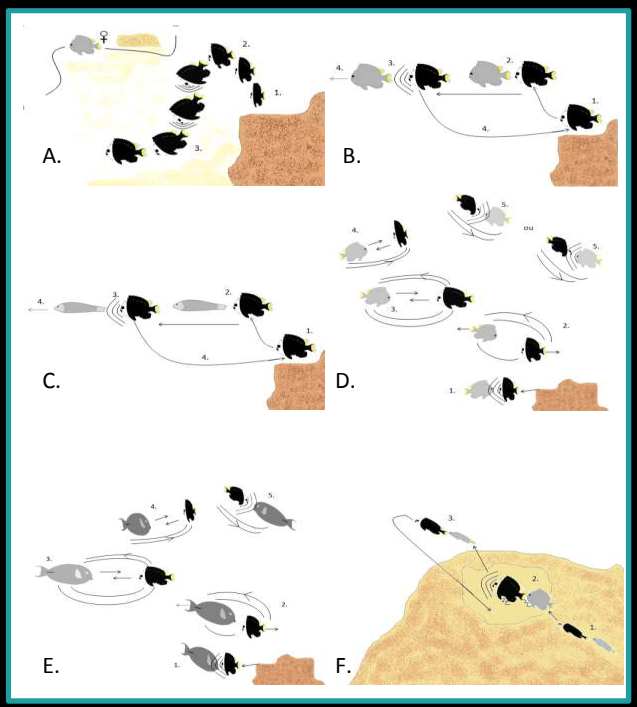

Fig. I: 6 behaviors related to sound production in *Dascyllus flavicaudus.* A.: Signal Jump, B.: Conspecific chasing, C.: Heterospecific chasing, D.: Conspecific fighting, E.: Heterospecific fighting, F.: Mating-Visiting.

The difference in pulse number between sounds to conspecifics and heterospecifics highlight the ability to recognize members of the species. Moreover, in both groups, other characteristics such as pulse period, relative intensity or peak frequency allow to discriminate each sound, showing fish could also be able to differentiate these cues.

Conclusions

Sound production in *Dascyllus flavicaudus* varies between behaviors. Differences are mainly due to number of pulses and interpulse duration.

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