

Abstract for FOCUS DAY 2024

Influence of Clownfish on the Acoustic Communication of Another Damselfish

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The concept of Acoustic Niche plasticity refers to the plasticity of acoustic resources allocation within a species. Few studies have focused on this adaptability in fish species. The relationship between anemones and clownfish is one of the best-known symbioses in coral reefs. However, other fishes also use anemones for shelter. The three-spot damselfish (*Dascyllus trimaculatus*) can inhabit the same sea anemone as the orange-fin clownfish (*Amphiprion chrysopterus*) in French Polynesia. Because both Pomacentridae species communicate acoustically through the same sound production mechanism, their sounds are very similar. We have demonstrated that *D. trimaculatus* produces shorter sounds when it shares its anemone with the clownfish. In addition, the daily sound production cycle of *D. trimaculatus* changes in the presence of the clownfish. It decreases sound production during the day and produces more sounds at sunset. These modifications should reduce the acoustic overlap of the signals produced by both species and differentiate the acoustic niche of *D. trimaculatus* from that of *A. chrysopterus*, thereby minimizing competition. This study supports the concept of Acoustic Niche plasticity, showing differences in the three-spot damselfish sound production when it cohabits with another vocal species (*Amphiprion chrysopterus*).

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