

SWIMMING PERFORMANCE OF LATE PELAGIC LARVAE OF CORAL-REEF FISHES: IN SITU AND LABORATORY-BASED MEASUREMENTS.

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Two complementary methods provide important new insights into swimming performance of coral-reef fish larvae of 15 families initially captured by light trap. A laboratory swimming chamber, and *in situ* observation of larvae by divers supply data on swimming distance and speed, respectively. These late larvae are strong, effective swimmers, capable of speeds higher than ambient currents and capable of swimming tens of km non-stop. We found a strong positive correlation between speed and distance swum both among species and among families. However, within neither of the two best-represented families, Chaetodontidae and Pomacentridae, was the relationship significant, probably due to the low number of species for which we have data on both variables and the narrow range of values. Not all species are amenable to measurement by both methods, and the methods differ in advantages and disadvantages as well as in the data they provide. The exceptional swimming performance we document requires reassessment of views on dispersal and retention of reef-fish larvae.

STOCK ASSESSMENT OF COMMERCIAL FISHES IN THE NORTHERN NEW CALEDONIAN LAGOONS. 1: CORAL REEF FISHES.

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An assessment of the reef fish stocks was performed on the northern lagoons of New Caledonia. The area studied covers approximately 10 000 km² with 500 km² of reefs and can be divided into three lagoons, North, East and West. Only commercial species *sensus lato* were censused, along 50 m transects using visual censuses. A total of 921 transects were performed on three reef types: fringing, intermediate and barrier reefs. The most diverse families were the Scaridae, Acanthuridae, Serranidae, Lethrinidae and Lutjanidae. Species richness displayed no major differences between lagoons. Within each lagoon, most families displayed a gradient in species richness increasing from fringing to barrier reefs. Some families displayed the opposite trend, in particular Siganidae. Densities were slightly higher in the East and West lagoons. Within lagoons, there was a strong density gradient increasing from the coast to the barrier reef. The most abundant families were the Acanthuridae and Scaridae, especially on the barrier reefs. Lutjanidae were best represented on intermediate reefs and Siganidae on fringing reefs. Biomasses were much higher in the North than the West, the East lagoon having the lowest values. Biomasses in the North were approximately twice larger than elsewhere in New Caledonia or in other Indo-Pacific areas. Fish of exceptional sizes were observed in the North, due to the very low fishing pressure in this area. Standing stocks were estimated for each lagoon and each reef type, with a partition per species. Total stocks on the reefs reach 64 500 tons. Most of the stock is located in the North lagoon and on the barrier reefs. Estimates of MSY were estimated, each species being considered independently, resulting in an exploitable stock of about 7000 tons per year.

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