

THE APOGON ERYTHRINUS COMPLEX A PACIFIC SPECIES GROUP.

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In Hawaii, a small red semitranslucent species of cardinalfish was described as *Apogon erythrinus*. Similar cardinalfishes from other areas of the Indo-Pacific have been identified as this species, or *E. erythrinus* has been synonymized with *A. crassiceps* or *A. coccineus*. These fishes form two phenetic groups defined by a number of characters; one group contains *A. coccineus* described from the Red Sea, and the other group contains *A. erythrinus* from Hawaii. The *A. erythrinus* complex appears to be restricted to the Pacific Ocean and is composed of several species, with *A. erythrinus* being endemic to Hawaii.

STRUCTURE OF FRINGING REEF FISH COMMUNITIES IN THE SOUTH WEST LAGOON OF NEW CALEDONIA.

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This work deals with the structure of fringing reef fish communities, with the relationships between these structures and the environment and with the influence of spatial scale on the relationships shown. Five structures have been defined. They are based on biological characteristics of fish species such as feeding ethology, life history strategies, size, mobility and schooling behaviour. The environmental variables are expressed at three spatial scales, which are: (1) the fish census station (100m), (2) the couple of stations (200 to 400 m) and (3) the group of stations located in front of the same river drainage basin (5km maximum). Two different ways were used to study the relationships between the community structures and the environment. The first one shows links between habitat and structures, using linear correlation. with respect to the type of the environmental variables chosen, a second approach is used to tackle the effect of spatial scale. This procedure is carried out at the three above-mentioned spatial scales, for each structure, in terms of species richness, density and biomass respectively. The aim is to define for the faunistic data as well as for the environmental data what is the most appropriate spatial scale to the fish-environment relationships. The structure study enabled us to modelise some aspects of the community functioning. This conceptual model shows three major ways which account for 75% of the total biomass, with two strategies: Microherbivorous and macrocarnivorous fish represent important and very mobile biomasses, with a slow turnover, whereas plankton feeders which are not very mobile, have a very high turn. The community structures are mostly significant correlated to depth, benthos composition, in particular coral, and the chemical composition of rocks on the shore. Finally, although environmental parameters expressed at the larger spatial scale are the most appropriate to describe fish-environment relationships, it appears that fish community studied at the station scale are the most representative.

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