

AGE AND GROWTH HISTORY OF TWO LARVAL ANCHOVIES, *ENCRASICHOLINA PUNCTIFER* AND *ENGRAULIS JAPONICA*, IN THE TANSHUI RIVER ESTUARY, TAIWAN.

WANG Y.-T. & W.-N. TZENG

Department of Zoology, National Taiwan University, Taipei, Taiwan

Daily growth increments in otoliths were used to elucidate the age and growth history of two larval anchovies, *Encrasicholina punctifer* and *Engraulis japonica* in the coastal waters off Tanshui River Estuary, northern Taiwan. The larvae were sampled daily by commercial set-nets during the fishing seasons of 1992 and 1993. *E. punctifer* larvae commenced to recruit to the estuary from October to March. Standard lengths at recruitment ranged 16 to 40 mm and ages 16 to 89 days. Mean lengths among sampling dates were not significantly different, while mean ages increased with time. This led to different growth rates from 1.04 mm/d in October to 0.38 mm/d in February. On the other hand, *E. japonica* larvae mainly recruited from March to May, minor in October and November. Standard lengths of the larvae at recruitment ranged 12 to 36 mm, ages 19 to 45 days, and growth rates 0.72 to 0.82 mm/d. Mean lengths, ages and growth rates among sampling dates were all not significantly different. The growth histories of the larvae, reflected in the time-series change in increment widths, were different between individuals and species. These results suggest that the growth of anchovies vary with season and are detectable by otolith daily growth increments.

THE ABORE MARINE RESERVE (NEW CALEDONIA) – 3: STRUCTURE OF THE REEF FISH COMMUNITY

WANTIEZ L., THOLLOT P., KULBICKI M., CHAUVET C., GALZIN R., LETOURNEUR Y. & S. SARRAMEGNA

T & W Consultants, Nouméa, Nouvelle-Calédonie

The fish community of Aboré reef was studied in August 1993, after 3 years of protection from fishing. Four fish communities characterized by different species assemblages were identified by a correspondence analysis. The first assemblage occurred on coral heads (mean depth 11 m, 63 species, 65.44 fish m⁻², 829.8 g m⁻²). The trophic structure of this assemblage was dominated by zooplanktivores (47 % of the biomass). The second fish assemblage occurred on the back reef (mean depth 7.1 m, 215 species, 4.78 fish m⁻², 460.1 g m⁻²). Piscivores dominated this community (39% of the biomass). The third assemblage was mainly found on the inner reef slope (mean depth 2.0 m, 194 species, 8.56 fish m⁻², 222.5 g m⁻²) and the fourth assemblage on the reef flat (mean depth 1.4 m, 243 species, 13.55 fish m⁻², 270.5 g m⁻²). These two communities were distributed along a reef slope - reef flat gradient. Microherbivores dominated the trophic structure in both assemblages (> 40% of the biomass). A similar survey was conducted in July 1995, two years after the opening of the northern part of Aboré reef to fishing. The coral head assemblage, which was located in the fishing zone, was not identified in 1995 and replaced by a back reef community. The back reef assemblage was comparable to 1993. The inner reef slope and the reef flat assemblages were difficult to separate but were still distributed along a reef slope-reef flat gradient. Density and biomass of the fish assemblages did not change significantly. Trophic structure of the inner reef slope and the reef flat remained comparable but microherbivores became the most important in biomass on the back reef. The impact of temporary marine reserves on the structure of the overall fish community is limited.

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