

## SEASONAL AND LOCAL DIFFERENCES OF EGG SIZE AND NUMBER IN THE ANEMONE FISH, *AMPHIPRION CLARKII*.

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The size and total number of eggs produced by a single female during one spawning season can vary according to local environmental factors. In species with distribution patterns that are subject to latitudinal variation in water temperature, the total amount of reproductive material (RM) produced by a female in one season should be less in colder water. There is scarce information, however, on the relationship between the total amount of RM and patterns of its allocation by a single batch spawning female. The monogamous anemone fish provides a good example for understanding the seasonal pattern of RM allocation. This paper compares the pattern of RM allocation of female anemone fish at two different sites in southern Japan, Bohnotsu (B) and Ushibuka (U). At both sites, the anemone fish spawned during summer but the season was longer at Site B. This site is about 100 km south of Site U and water temperatures are higher seasonally. The number of eggs in each batch was fewer at both sites at the beginning of the season but increased suddenly with a rise in water temperature. At Site U, fish spawned a fewer number of times compared to fish at Site B ( $U=5.5 \pm 1.03SD$ ;  $B=8.8 \pm 1.32$ ). Egg-size (mm<sup>3</sup>) of a batch was inversely correlated with average water temperature after previous spawning events at both sites, with lower values at Site U ( $p \leq 0.05$ ). At warmer Site B, RM output for a unit of body weight (L3) was larger than that at Site U ( $p \leq 0.05$ ). When calculated for RM produced per body weight per day however, there was no significant difference between the two sites. This result suggests that female anemone fish living at lower water temperature increase egg number but decreasing egg size. This result also suggests that the number of eggs produced within a unit of time and the number produced by a unit of body size are both larger in colder water.

## GENETIC STRUCTURE AND BIOGEOGRAPHY OF SOUTH-EAST ASIAN SCAD MACKEREL *DECAPTERUS MACROSOMA*.

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Restriction fragment analysis of the mitochondrial DNA control region in *Decapterus macrosoma* samples from the Indonesian archipelago revealed a high degree of polymorphism. Three groups of haplotypes were found, distributed in a contrasted geographical pattern: the westernmost samples (Java sea, southern South-China sea, Sunda strait, Makassar strait) harboured one group of related haplotypes, whereas the easternmost samples (Molucca sea and Banda sea) shared haplotypes unique to this region and genetically highly distant from the above western haplotypes. A sample from a geographically intermediate location (Sulawesi sea) showed both a third group of haplotypes unique to this sample, and a proportion of haplotypes of the western group. The haplotype diversity of the South China sea, Java sea and Makassar strait samples was very low compared to the level of polymorphism found elsewhere. Altogether, these results suggest a high degree of population genetic structure on a relatively small geographical scale and allow to propose some hypotheses on the recent biogeography of the Indonesian seas.

Arnaud S., Borsa Philippe, Bonhomme F. (1997).

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