沖縄島におけるムラサメモンガラの成熟様式

Form 3

Abstract

Maturation process of the Picasso triggerfish (Balistidae: *Rhinecanthus aculeatus*) from Okinawa Island

(沖縄島におけるムラサメモンガラの成熟様式)

Patterns of social structure, associated habitat and maturation process were studied in local populations of the Picasso Triggerfish (Balistidae: *Rhinecanthus aculeatus*) of Okinawa Island. The four study sites contained all life stages from post-settled juveniles, floaters (sub-adults) and territorial adults. More than 70 adults and 40 floaters were recognized individually and continuously observed between October 2012 to November 2013 (>200 h underwater observation). Floaters were assembling at specific sites within the study area and were an important pool of recruitment. Additionally, fish were sampled between 2010 and 2013 in order to determine age and growth and to collect data about the reproductive biology. *R. aculeatus* had different habitat preferences according to its life stage. Totally, two ontogenetic habitat shifts could be observed. The final recruitment into the adult habitat was characterized by conflict behavior of floaters with local adult residents. Observed minimum size for invaders was gender-specific and similar to the minimum size at first maturity obtained from histological sections of gonads.

R. aculeatus has previously been reported as a species with a haremic mating system. However, territorial arrangements suggested, that the mating system in this species involved a mixture of polygyny, monogamy and female promiscuity. An increase in the proportion of monogamous territories over the course of the reproductive season positively correlated with the adult sex ratio (increased male density relative to females). Females exclusively paired with larger males and male size was intimately linked to higher number of females (polygyny). In terms of reproductive success polygyny was advantageous and the optimal mating system for the males, while the mating status proofed to be irrelevant for female reproductive output. Positive size allometry and temporal shifts in demographic properties may be an important limiting factor of the degree of polygyny in this species.

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