

BEHAVIORAL PATTERNS OF HATCHERY-PRODUCED ABALONE *HALIOTIS ASININA* FOR STOCK ENHANCEMENT: PREDATOR AVOIDANCE AND SEARCH FOR FOOD AND SHELTER

Shelah Mae A. Buen-Ursua*, Wenresti G. Gallardo and Annabelle G.C. del Norte-Campos
Southeast Asian Fisheries Development Center - Aquaculture Department
Tigbauan, Iloilo, Philippines
smbuen@aqd.seafdec.org.ph

The successful development of abalone restocking program by seeding hatchery-reared juveniles depends upon production and release strategies that lead to improved anti-predator, refuge and feeding behavior. Controlled observations in the laboratory were used to examine abalone behavior in the presence of predators, shelter preference between coral fragments and PVC pipes, and food searching behavior and preferences between three species of seaweeds. Three size groups of abalone (size A:1.5-2.0 cm, size B:3.0-3.5 cm and size C:4.5-5.0 cm) were used to test the optimum size of abalone for stock enhancement.

“Experienced” abalone were exposed to three predators: the gastropod *Pleuroploca trapezium*, the crab *Metopograpsus latifrons*, and the grouper *Epinephelus coioides*, while “naïve” abalone were not exposed to the predators. “Experienced” abalone were able to evade predators by hiding in coral fragments while “naïve” abalone remained more exposed. Size A abalone exhibited cryptic behavior by hiding between coral fragments, thus avoiding predation of the gastropod. However, size A abalone were the preferred prey of the crabs, which were able to dismantle the coral fragments. The more exposed size B abalone were the preferred prey of the gastropods. No mortalities were observed in the treatment with the grouper.

The shelter preference of abalone was examined by providing a choice between coral fragments and 6” long, 4” dia PVC pipes cut into halves. Size A abalone were able to recognize the coral fragments as shelter, while size B and C abalones preferred to stay in the PVC pipes.

Three species of seaweeds: *Gracilariopsis bailinae*, *Gracilariopsis salicornia* and *Ulva lactuca* were used to test the feeding preferences of the abalone. Size B and C individuals moved immediately towards the seaweeds after release into the tank, whereas size A abalone remained passive. Movement of abalone towards the seaweeds was most active at night. There was no significant difference on the number of abalones that moved to the three species of seaweeds. Based on the amount of seaweed consumed, *G. bailinae* and *G. salicornia* were preferred as food compared to *U. lactuca*.

The results suggest that cultured abalones may acclimate quickly to new environments if previously exposed to predators, corals, and seaweeds found in their natural habitats. Thus, pre-conditioning abalone in the laboratory should increase their survival when released in the wild.