

# CAPTIVE BREEDING BEHAVIOR OF FOUR STROMBIDAE CONCH

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**ABSTRACT** The feasibility of a captive breeding program was examined for the protected fisheries species *Strombus gigas* (queen conch), and three non-protected Caribbean *Strombus* conch species: *S. raninus* (hawk-wing conch), *S. alatus* (Florida fighting conch), and *S. costatus* (milk conch). A total of 24 adult conch were collected from the Florida Keys: five *S. costatus* (three females, two males), seven *S. raninus* (five females, two males), eight *S. alatus* (four females, four males) and four *S. gigas* (one female, three males). The conch were placed in a 4.5 m dia circular tank that was divided into four equal quadrants (4.1 m<sup>2</sup>). The conch were fed a prepared gelatin diet made of Mazuri® Koi chow blended with *Ulva* sp. Egg masses collected from the breeding tank were measured for size, number of eggs, and diameter of egg capsule and strand. In the 40 week study, 426 egg masses were collected and egg laying activity appeared to be related to water temperature. A total of 341 egg masses were collected from the five *S. raninus* females. The four *S. alatus* females laid 58 egg masses, the three *S. costatus* females laid a total of 23 egg masses, and the single *S. gigas* female laid four egg masses. The viability of egg masses from all four species was confirmed by successfully hatching and culturing the larvae to the juvenile stage. All species, except *S. gigas*, laid egg masses while copulating. Mate preferences and guarding behavior was observed. The captive breeding of these species holds promise for the establishment of a commercial captive breeding program, and may provide alternative conch species for the food and aquarium market.

**KEY WORDS:** conch, culture, larvae, reproduction, spawning, *Strombus*

**Running title:** Captive Breeding of Strombidae Conch

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