

Northeast Gulf Science

Volume 8
Number 2 *Number 2*

Article 6

11-1986

Observations on the Reproductive Biology of the Marbled Catshark, *Galeus arae antillensis*

Glenn R. Parsons
University of South Florida

Steven I. Candileri

DOI: 10.18785/negs.0802.06

Follow this and additional works at: <https://aquila.usm.edu/goms>

Recommended Citation

Parsons, G. R. and S. I. Candileri. 1986. Observations on the Reproductive Biology of the Marbled Catshark, *Galeus arae antillensis*. *Northeast Gulf Science* 8 (2). Retrieved from <https://aquila.usm.edu/goms/vol8/iss2/6>

This Article is brought to you for free and open access by The Aquila Digital Community. It has been accepted for inclusion in Gulf of Mexico Science by an authorized editor of The Aquila Digital Community. For more information, please contact Joshua.Cromwell@usm.edu.

Short Papers and Notes:**OBSERVATIONS ON THE REPRODUCTIVE BIOLOGY OF THE MARBLED CATSHARK, *Galeus arae antillensis***

The genus *Galeus* consists of several western Atlantic species and subspecies. *Galeus arae arae* occurs on the slope from the Georgia coast around Florida and into the northern Gulf of Mexico as far as Louisiana. The island form of *Galeus arae*, *Galeus arae antillensis*, has been found along the shores of the northern coasts of Cuba, Hispaniola and Puerto Rico. *Galeus arae antillensis* can be differentiated from other Atlantic species by its shorter anal fin base and longer distance between the two dorsal fin bases.

The reproductive biology of the sharks of this genus is poorly understood. Both oviparity as well as aplacental viviparity is believed to exist within this genus (Springer 1979). In *Galeus arae arae* unencapsulated eggs have been found in the oviducts posterior to the nidamental glands (Bullis 1967). Springer (1979) examined a 34.5 cm female *Galeus arae antillensis* with one egg capsule in each oviduct. Based solely on these limited observations *G. arae arae* and *G. arae antillensis* are considered to be aplacentally viviparous and oviparous respectively.

On 6 July, 1980, while aboard the R/V Oregon II, three marbled catsharks, *Galeus arae antillensis*, were collected during bottom longlining at depths of 541 to 662 m at 18°31'N and 65°46'W, northeast of San Juan, Puerto Rico. The reproductive systems of these sharks were examined. A 31.0 cm TL (Total Length) female had an undeveloped ovary which measured about 2.0 cm in

length and 0.8 cm in width. Ovarian egg diameters were 1.0 mm or less. The nidamental gland was 1.7 cm long x 0.8 cm wide, and the uteri 2.5 cm long x 0.4 cm wide. A 33.5 cm TL female had four large ovarian eggs (0.8-1.4 cm diameter) within the ovary which measured 4.0 cm long x 1.5 cm wide. The nidamental gland was 1.7 cm long x 1.2 cm wide. A 37.5 cm TL female had approximately 8 ovarian eggs with diameters greater than 0.6 cm. The largest ovarian egg was about 1.0 cm in diameter. The ovary was ca. 3.5 cm long and 1.5 cm wide. A single encapsulated egg was found in each uterus, the small end of the capsule directed anteriorly (Figure 1). The egg capsule in the right uterus was removed for examination. The capsule was uniformly gold in color, transparent, and measured approximately 5.4 cm long x 1.9 cm wide. A filament was located at each of the four corners of the capsule. No embryonic development was apparent macroscopically.

These observations provide valuable information concerning the reproductive biology of *G. arae antillensis*. Springer (1979) reports that *G. arae antillensis* mature at less than 35.0 cm. Based on our observations it appears that maturation occurs at less than 33.5 cm since this specimen had a fully developed ovary. More importantly however, the gravid female examined provides additional evidence which suggests that *G. arae antillensis* utilizes an oviparous reproductive strategy. The possibility that such different methods of prenatal development could exist in two subspecies is interesting. According to Wourms (1977) oviparity represents the primitive condition from which aplacental viviparity and later placental viviparity have evolved. Wourms (1977) also reports that eight factors seem to be im-

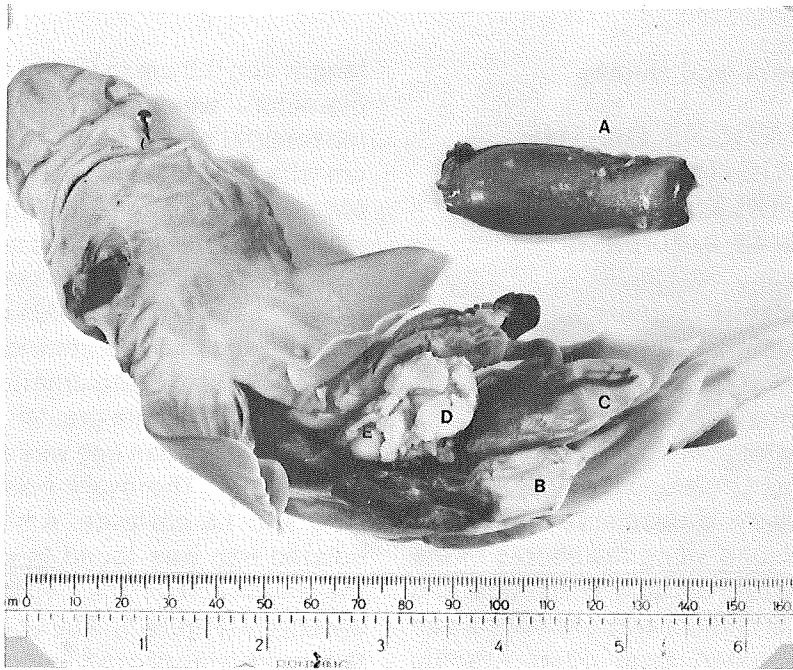


Figure 1. A 37.5 cm total length specimen of *G. arae antillensis* showing the following reproductive structures: (A) an encapsulated egg, (B) the right uterus from which the egg was taken, (C) the intact left uterus with egg inside, (D) the ovary and (E) an ovarian egg.

portant in the evolution of viviparity and in the retention of oviparity. To examine all eight factors in comparing *G. arae arae* and *G. arae antillensis* would be premature. However, two factors may be considered. Geographical distribution is correlated with reproductive strategies in some groups with oviparity occurring in temperate and polar regions and aplacental viviparity in tropical and subtropical regions. Adult size may also be a function of reproductive strategy. Viviparity is correlated with large adult size in sharks. It is noteworthy that neither of these factors apply to the two subspecies considered above. The apparently oviparous *G. arae antillensis* is the larger and more tropical form. A complete comparison awaits the collection of additional data.

ACKNOWLEDGMENTS

We would like to thank Stewart Springer for identifying the catsharks

mentioned in this paper, and without whose help this paper could not have been written.

LITERATURE CITED

- Bullis, H.R., Jr. 1967. Depth segregation and distribution of sex-maturity groups in the marbled catshark, *Galeus arae*. In: Sharks, skates and rays. P.W. Gilbert, R.F. Mathewson and D.P. Rall, eds. Johns Hopkins Press, Baltimore, p. 141-148.
- Springer, S. 1979. A revision of the catsharks, family Scylliorhinidae. NOAA Tech. Rept. NMFS Circular 422:1-152.
- Wourms, John P. 1977. Reproduction and development in chondrichthyan fishes. Amer. Zool. 17:379-410.

Glenn R. Parsons, Dept. of Marine Science, University of South Florida, 140 Seventh Ave., South, St. Petersburg, FL 33701, and Steven I. Candiller, 4901 Nebraska Ave., Tampa, FL 33603.