

Oceanic bonito
Katsuwonus pelamis
 Mackerel or Little tunny
Euthynnus alleteratus
 Big-eyed tuna
Parathunnus atlanticus
 Allison tuna
Neothunnus allisoni
 Yellow-fin
Neothunnus albacora
 Albacore (rare)
Germo alalunga
 Bonito
Sarda sarda
 Hogfish
Lachnolaimus maximus
 Bream
Diplodus argenteus
 Amberfish
Seriola lalandi
 Horse-eye
Seriola dumerili
 Madregal
Seriola falcata

Chub
Kyphosus sectatrix
 Bonefish
Albula vulpes
 Pompano
Trachinotus palometta
 Dolphin
Coryphaena hippurus
 Barracuda
Sphyaena barracuda
 Sennet
Sphyaena picudilla
 Jacks
Caranx sp. 4
 Yellowtail
Ocyurus chrysurus
 Gray Snapper
Lutianus griseus
 Porgy
Calamus bajonado
 Rockfish
Mycteroperca bonaci

Specimens of amberjack have been caught weighing over 170 lbs., and rockfish up to 180 lbs.

Repetition of Egg-Laying and Number of Eggs of the Bermuda Spiny Lobster¹

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DURING THE SUMMER MONTHS of 1949 the writer at the Bermuda Biological Station engaged in a study of the egg laying habits of the Bermuda Spiny Lobster, *Panulirus argus* (Latreille) 1804. This study has revealed some interesting features in numbers of eggs and repetition of laying which have not been recorded for this species in other locations.

Female specimens were tagged with a wire and lead plate fastened to a joint of the antennae. Others were tagged with a plastic tag thrust between the abdominal segments.

Considerable evidence was obtained by these tagging methods on the repetition of laying eggs in this species.

This evidence may be summarized as follows:

1. Tagged specimens known to have laid once in the laboratory tanks repeated the egg laying performance.
2. Females with pleopods recently shed of eggs (as shown by the condition of the pleopods and egg shell fragments) were tagged and released and later recaptured with a new batch of eggs.
3. Females which had laid eggs at least once, in the laboratory showed a condition in which either the ovaries were completely filled with eggs or were entirely spent.
4. A female known to have laid eggs twice, had the ovary entirely spent.
5. The second laying of eggs (at least the second) is considerably reduced in amount and the posterior pleopods are not completely filled.

1. This study has been made possible by the writer's affiliation with the Bermuda Biological Station as summer resident biologist, and with the Biology Department of Hofstra College, Hempstead, Long Island, N. Y.

6. Females captured late in the egg-laying season frequently carry the reduced number of eggs. The waxy substance on the annulus ventralis, believed to be the spermatophore, is almost completely expended at the time of the second laying.

The number of eggs deposited by the Spiny Lobster *Panulirus argus* (Latreille) 1804 has been previously estimated by other scientists. Crawford and De Smidt (1922 p. 307) have estimated that a female with a carapace length of 3½ inches (about 10 inches total length) carried an estimated 500,000 eggs. Those having a 4 inch carapace length laid an estimated 700,000 eggs. Such a specimen would be about 11½ inches in total length. These results were obtained from Southern Florida specimens. Smith (1948, p. 15) states that the number varies with the size of the animal and that a 9 inch specimen laid about 500,000 eggs. These also were computations on Florida and Caribbean specimens.

My results on the Bermuda race of lobster vary from the condition stated above. Computations were made by counting the eggs in one gram (9988 eggs) and multiplying this by the total weight.

A spiny lobster 10 inches long produced 669,196 eggs at one laying. Another, 12 inches long, laid 1,118,656 and a third, 15 inches long, laid 2,566,916 eggs. A 13 inch female tagged spiny lobster known to have laid at least once, produced 1,008,788 eggs on the repetition or second laying, the number being less than at the first laying.

On the basis of the foregoing it would appear that a 15 inch female might lay in excess of 4,000,000 eggs in one season.

The smallest female observed carrying eggs was 9 inches long. During the trapping operations in July virtually all females of varied sizes carried eggs. This seemingly indicates that the females lay eggs annually instead of every other year as has been suggested by some students of the species.

The number of eggs produced by the various length groups has a direct bearing upon the conservation of the species. A conservation measure which would save one 15 inch female would be equivalent to saving four 10 inch specimens.

LITERATURE CITED

- Crawford, D. R. and De Smidt, W. J. J. 1922. The Spiny Lobster, *Panulirus argus*, of Southern Florida: Its Natural History and Utilization. Bull. Bur. Fish., Vol XXVIII, 1921-22. Doc. No. 925 pp. 281-310.
- Smith, F. G. Walton 1948. The Spiny Lobster Industry of the Caribbean and Florida. Carib. Comm. Carib. Res. Council Fish. Ser. 3. Guardian Com. Printery, Port of Spain, Trinidad, B. W. I., pp. 1-49.

The Marine Fisheries Of The Caribbean

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INTRODUCTION

IT IS THE INTENTION of this paper to give a general picture of the marine fisheries of the Caribbean region. Attention is focused on the islands of the Caribbean (the Greater and Lesser Antilles), the territories of Central America, and the countries of South America bordering in the Caribbean Sea. The infor-