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### The Discovery of a New Shrimp Bank at Golfo de Batabanó, Cuba

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With the opening of the Fisheries Research Center on March 9, 1952, at Playa Habana, Cuba, the writer was asked to make a taxonomic study of the commercial shrimp of Cuba, a task which had not been carried out until then. The first objective was to gather data and study material from different parts of Cuba.

The commercial shrimp fishery in Cuba catches three species of the genus *Penaeus*: *P. schmitti*, *P. duorarum* and *P. aztecus*, the two first ones being those that constitute the bulk of production. Two other species are also exploited, *Trachypeneus similis* and *Sicyonia typica*. The results of this research were published in the *Memorias de la Sociedad Cubana de Historia Natural Felipe Poey*, Vol. 21, January, 1953, under the title, "The Commercial Shrimps of Cuba."

In periodical visits to different fisheries centers of Cuba, data were gathered on the ecology of different zones. This resulted in the conclusion that not only were two of the Cuban species of commercial shrimp the same as those exploited in the Gulf of Mexico, but also that certain conditions of environment, principally the nature of the bottom, were similar to those of the zones of the Gulf where the large shrimp banks are found. This led to the conviction that the seas of Cuba's insular shelf also had shrimp banks, and prompted a series of explorations. Until this time shrimp fishing in Cuba was limited to the bays and the shallow coastal waters, the cast net being generally used. The exploratory program envisaged the need of dragging, using the methods which experience in other areas had shown to be the most suitable.

The vessel used in the exploration was the yacht, "Aida", owned by Mr. Torwald Sanchez. She is 50 feet long with a beam of 11 feet and a draught of six feet, driven by a 130 horse power motor and with a speed of 6.5 miles an hour. The "Aida" was equipped with a Bendix Marine Supersonic Depth Recorder. The shrimp net was 36 feet long with a mouth of twelve feet.

Exploration began on April 19, 1953. By the 14th of June 200 hauls had been made, averaging half an hour each. These explorations were carried out in the Gulf of Batabanó. Most of the fishing was conducted within a triangle formed by lines joining a point west of the Isle of Pines, off Siguanea Bay, the mouth of the Hatiguanico River and the Batabanó anchorage. This is an area of some one thousand square kilometers (386 square miles). Most of the fishing was done between seven in the afternoon and seven in the morning. From the start the pink shrimp, *P. duorarum*, was caught in greater or less quantities. In one area, off the coast of Batabanó, 70 per cent of the

pink shrimp netted measured between 14 and 17 centimeters ( $5\frac{1}{2}$  to  $6\frac{3}{4}$  inches). A smaller species, *Sicyonia typica*, of approximately 10 centimeters (four inches) in length were ten times more numerous than the pink shrimp. In none of the hauls were specimens of *P. duorarum* of very small size.

The conditions of the environment in the Batabanó-Hatiguanico area may be summarized as follows. The bottom is muddy and rather consolidated, with a certain amount of mollusk shell, but free from vegetation. Depths of between 2.5 and 3.5 fathoms are common in this zone. An extraordinary amount of small crustaceans, mostly copepods, and of diatoms composed the plankton. This source of food has made the Gulf of Batabanó one of the richest in Cuba for sponges, lobsters, mangrove snapper, and other marine life. It was to be expected that shrimp should be abundant there.

The shrimp caught live in an animal community composed mostly of bivalves of the genus *Pecten*, the Gastropod *Bulla occidentalis*, squid *Doryteuthis*, sea urchins *Lytechinus variegatus*, mantis (*Squilla empusa*) and fish. The latter include mojarra (*Oligoplites saurus*) and (*Opisthonema oglinum*), "shad" or silver sides (*Eucinostomus pseudogula*), and peacock flounder (*Platophrys lunatus*), among others. All the species mentioned appeared consistently in the hauls.

Based on the results of these experiments, Mr. Thorwald Sanchez bought a typical American shrimper, completely equipped. This boat, named the "Ulda Velma", catches about 500 pounds of pink shrimp (*P. duorarum*) each night. The Cuban fishermen soon familiarized themselves with the new method of fishing, and it can now be said that they have mastered commercial fishing for shrimp. Shrimp had not previously been fished for in the Gulf of Batabanó, but since the arrival of the "Ulda Velma" a fortnight does not elapse without a new boat being equipped for this fishery. At this writing there are 11 shrimp boats working in this area and others are being made ready to enter this "pink gold" race. An average of seven to eight thousand pounds of shrimp of good size enter Cuban markets each morning, as a result of scientific contribution which was looked on at first with much skepticism. But enthusiasm has spread. Many fishermen are now preparing to carry on explorations on their own account, and there is already talk of new and richer fields. In midst of the satisfaction produced by success there is one concern, that in the enthusiasm the exploiting of this new fishery conservation may be ignored.

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## Migrations of the Common Shrimp (*Penaeus setiferus*) Along the South Atlantic and Northern Gulf Coasts of the U. S.

### Abstract

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A description was given of the methods employed in catching, tagging and recovery of shrimp marked and released in a study of migration patterns. General migration patterns during the various seasons of the year were illustrated and discussed for the South Atlantic Coast from North Carolina to Florida. A general movement of larger shrimp from the northern and