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NEW RECORDS OF INSHORE FISHES FROM THE ATLANTIC COAST OF PANAMA

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During February, March, and April, 1961, a collection of inshore fishes from both coasts of the Isthmus of Panama was made in connection with a study of the effects of geographical isolation on fish speciation. This collection consisted of 2095 specimens of 136 species. A total of 907 specimens of 47 species was taken from the Pacific coast and 1188 specimens of 89 species were collected on the Atlantic coast. Fourteen species in the latter collection were found to represent extensions of known ranges and some of these are sufficiently abundant to be considered resident members of the Panamanian fauna. The purpose of this paper is to report the new records from this area. Notes are also included on three species represented in previous collections from Panama by only one or two specimens each. All the specimens discussed herein are in the collections of the Museum of Comparative Zoology.

Rotenone poisoning of coral pools and lagoons was the principal method of collecting, although occasionally sandy beaches were seined. All of the new records are from coral reef areas, particularly from the reefs bordering the Galeta Point Naval Station near Coco Solo in the Canal Zone.

Most of the smaller eels were collected when the incoming tide overflowed poisoned coral pools onto the exposed surfaces of the reefs and into small crevices and burrows in the coral. When the poison reaches these burrows the inhabitants are driven onto the flat of the reef and are easily collected. Many young specimens of *Muraenidae* as well as most of the specimens of *Morinidae* and *Echelidae* were collected in this manner.

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In their classic work on the marine fishes of Panama, Meek and Hildebrand (1923, 1925, 1928) collected 236 species from the Atlantic coast, of which only five were eels. In other collections from this area, the apodes are one of the poorest represented groups. Numerous species are known to range along the Atlantic coast north and south of Panama but have yet to be recorded there. Of the nine species of apodes in our collection seven represent new records for this area.

Specimen lengths are standard lengths to the nearest millimeter in all cases except the eels, for which total lengths are given.

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Dr. James E. Böhlke of the Philadelphia Academy of Sciences most kindly identified some of the eels.

SPECIES NOT PREVIOUSLY RECORDED FROM THE ATLANTIC COAST OF PANAMA

XENOCONGRIDAE

Kaupichthys atlanticus Böhlke

MCZ 41455-58

Five specimens, 50-205 mm. long, were taken from coral reefs at Galeta Point. These specimens agree with the description of Böhlke (1956).

Range: Tropical western Atlantic from Bermuda to south of Jamaica.

MORINGUIDAE

Aphthalmichthys mayeri (Silvester)

MCZ 41459-61

One specimen, 275 mm. in length, was taken from the edge of a reef southwest of Las Palmas mountain about two-thirds of the distance from Maria Chiquita to Porto Bello. This fish had a distinctly pink head and pink-orange body. This color faded to a dull yellow two days after preservation. Three specimens, 150-330 mm. long, were taken from the exposed surface of Galeta Point Reef.

Range: Bermuda, Florida, Puerto Rico.

ECHELIDAE

Myrophis egmontis Jordan

MCZ 41462-64

Twelve specimens, 81-231 mm. in length, were obtained from Galeta Point. These specimens may be differentiated from Echelidae previously recorded from Panama by the following characteristics: origin of dorsal fin behind the vent, and absence of teeth on the vomer. These eels were found in situations similar to those of *Aphthalmichthys mayeri*.

Range: Florida, Bahamas, West Indies.

MURAENIDAE

Enchelycore nigricans (Bonnaterre)

MCZ 41465-67

Seventeen specimens of this eel, 81-545 mm. in length, were taken from the reefs at Galeta Point.

The slitlike posterior nostril diagnostic of *Enchelycore* is an unreliable character in separating young specimens from other Muraenidae. Separation of the young of *E. nigricans* from

Gymnothorax moringa which it closely resembles, was facilitated by two characters. The anterior nostrils of *Enchelycore* are shorter than those of *G. moringa* and the upper jaw of *Enchelycore* has a series of 4-6 long canine teeth medial to the outer row of teeth on both sides. All *Gymnothorax moringa* which we examined have 1-3 teeth in this series.

Range: Bermuda, West Indies.

Gymnothorax vicinus (Castelnau)

MCZ 41468,69

Four specimens, 145-330 mm. in length, were taken at the Galeta Point reefs.

Range: Bermuda, West Indies to Brazil, Cape Verde Islands and Africa.

Gymnothorax moringa (Cuvier)

MCZ 41470-73

The collection contains nine specimens, 64-185 mm. in total length, taken from the reefs at Galeta Point.

Range: Atlantic coast of America from Florida to Brazil, Bermuda, Bahamas, West Indies, St. Helena.

Uropterygius Böhlke (n. sp., in manuscript)

MCZ 41475

One specimen 190 mm. long was collected at Galeta Point. Our specimen was identified by Dr. James Böhlke as a species he is currently describing and it will be designated as a paratype.

AULOSTOMIDAE

Aulostomus maculatus Valenciennes

MCZ 41474

One specimen, 185 mm. long, was taken at Galeta Point.

Range: Bermuda, Florida, Gulf of Mexico, Central American coast of Caribbean, Bahamas, West Indies.

HOLOCENTRIDAE

Holocentrus coruscus Poey

MCZ 41476

One specimen, 45 mm. long, from Galeta Point, has the following meristics: D-XI, 12; A-IV, 8; gill rakers 9. Color of fresh specimen: dorsal surface of head red; body red and white lateral stripes; caudal fin red; anal and second dorsal dark red at distal portions; interspinous membranes of dorsal peppermint striped, black spot distally between first three dorsal spines. With the exception of the number of gill rakers this specimen fits the description of *H. coruscus* by Woods (1955) in his revision of the Western Atlantic species of *Holocentrus*.

Range: Bermuda, Florida, Bahamas, West Indies.

APOGONIDAE

Apogonichthys stellatus Cope

MCZ 41477

Two specimens, 12 mm. and 29 mm. in length, were taken from the edge of a reef southwest of Las Palmas mountain about two-thirds of the distance from Maria Chiquita to Porto Bello.

Range: Bermuda, Florida, Bahamas, West Indies.

LABRIDAE

Thalassoma bifasciatum (Bloch)

MCZ 41478-83

Fifty-eight specimens 19-83 mm. in length, were taken at Galeta Point. Although this species has not been previously recorded from Panama it is one of the most abundant representatives of the reef pool fauna. Many more examples were seen than were collected.

Range: Bermuda, Florida, Bahamas, West Indies, Honduras.

CANTHIGASTERIDAE

Canthigaster rostratus (Bloch)

MCZ 41484, 85

We collected eleven specimens, 19-42 mm. in length, at Galeta Point. Ten of these specimens have the fin formula D-10, A-9; one specimen has D-9, A-9. These specimens agree with the description of Breder (1927). Jordan and Evermann (1898), Evermann and Marsh (1900), and Nichols (1930) report specimens with the fin formula D-6, A-8. For a partial explanation of this discrepancy see Breder (1927).

Range: Bermuda, Florida, West Indies, Venezuela and Madeira.

CLINIDAE

Labrisomus kalisheræ (Jordan)

MCZ 41486, 87

Six specimens, 25-68 mm. in length, were found in Galeta Point reef pools. One 56 mm. specimen taken in the first week of April possessed enlarged ovaries from which ova 0.5 mm. in diameter were obtained. A 54 mm. male also taken at this locality had enlarged testes.

Range: Florida to Brazil.

Labrisomus nigrincinctus Rivero

MCZ 41488

One male specimen 45 mm. long was taken at Galeta Point. It was compared with the holotype, MCZ 34150, and with the description given by Springer (1958).

Springer (1959) reports the range extension of *L. bucciferus* and *L. guppyi* to the Atlantic coast of Panama. *L. nuchipinnis* reported by Meek and Hildebrand (1928) and our specimens of *L. kalisheræ* and *L. nigrincinctus* bring the total recorded number of Atlantic Panamanian *Labrisomus* species to five.

SPECIES RARELY RECORDED FROM THE
ATLANTIC COAST OF PANAMA

With the exception of *Dinematichthys cayorum* these species were not collected by Meek and Hildebrand (1923, 1925, 1928).

BLENNIIDAE

Rupiscartes atlanticus (Cuvier and Valenciennes)

MCZ 41489-91

Eight specimens, 39-74 mm. in length, from the coral reefs at Galeta Point are in the collection. The previous record of this species from Panama was a single specimen taken by Fowler (1916) at Toro Point.

Range: Bermuda, Atlantic and Pacific coasts of tropical America, West Indies.

Salarichthys textalis (Quoy and Gaimard)

MCZ 41492

Three specimens, 24-42 mm. in length, were taken at Galeta Point. One 31 mm. specimen was previously collected at Caledonia Bay, Panama, by Breder (1925).

Range: Bermuda, Florida, West Indies, Brazil.

BROTULIDAE

Dinematichthys cayorum (Evermann and Kendall)

MCZ 41493-96

Twelve specimens of this species (*Ogilbia cayorum* of Meek and Hildebrand), 26-51 mm. in length, were collected at Galeta Point. On April 6 some adults were found to contain well developed embryos which could be seen through the body wall. These were extruded in gelatinous strings when a slight pressure was exerted on the abdomens of the females. They were about 5-7 mm. in length and had small yolk sacs. When placed in a bucket of seawater the embryos were free swimming although apparently premature. Fowler (1916) and Meek and Hildebrand (1928) each found only one example of this species.

Range: Bermuda, Florida, Bahamas.

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