

## New Locality, Depth, and Size Records and Species Character Modifications of Some Caribbean Deep-Reef/Shallow Slope Fishes and a New Host and Locality Record for the Chimaera Cestodarian

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**ABSTRACT.**—New geographic localities are noted for chimaera cestodarian, *Gyrocotyle rugosa*, from the central Atlantic; it and Antillean snake eel, *Ophichthus spinicauda*; Caribbean lanternshark, *Etmopterus hillianus*; and dwarf cat shark, *Scyliorhinus torrei*, for the Caribbean Sea; those, black verilus, *Verilus sordidus*; dusky shark, *Carcharhinus obscurus*; lesser amberjack, *Seriola fasciata*; and longfinned bulleye, *Cookeolus japonicus*, for the insular Caribbean; all above (except Antillean snake eel), and bearded brotula, *Brotula barbata*; bigeye sixgill shark, *Hexachus nakamurai*; Darwin's slimehead, *Gephyroberyx darwini*; longsnout scorpionfish, *Pontinus castor*; short bigeye, *Pristigeny altus*; and tropical pomfret, *Eumegistus brevorti*, for Puerto Rico. Gulf of Mexico, Sargasso Sea, and Mexico are new for Antillean snake eel; French Guiana, Guyana, Isla La Tortuga, Jamaica, Pedro Bank, St. Croix, and St. Thomas for bearded brotula; Barbados, Dominican Republic, Florida, Florida Keys, Gulf of Mexico, St. Thomas, southern Caribbean Sea, and Tortola for bigeye sixgill shark; Honduras for black verilus; St. Croix for Caribbean chimaera; Vieques Island for Caribbean lanternshark; Anguilla, Colombia, Cozumel, Jamaica, Suriname, Venezuela, Yucatán for Darwin's slimehead; Saba Bank for dusky shark; Barbados and the Pedro Bank for lesser amberjack; Barbados, Dominican Republic, and Grenada for longsnout scorpionfish; Dominican Republic, Grenadines, and off South America for short bigeye; Campeche Bank, Panama, and Gulf of Mexico for shortjaw lizardfish, *Saurida normani*; Bahamas, Barbados, Campeche Bank, Cay Sal Bank, Dominican Republic, Grand Bahama Island, Inagua Islands, Panama for tattler, *Serranus phoebe*; Bimini, Lang Bank, and St. Croix for tropical pomfret. Also 17 depth and 2 size records are noted, and 5 species diagnostic characters modified. All these additions indicate how poorly this ichthyofauna is known.

**KEYWORDS.**—locality, depth, size, species characters, parasite, deep-reef/shallow slope fishes

### INTRODUCTION

Records of fish species of an island, country, or other terrestrial geographic locality are based on specimens collected at 200 m or shallower (Robins et al. 1991a; Williams and Bunkley-Williams in press). This depth was established as the usual maximum depth of the continental shelf. Caribbean islands have an insular, not continental shelf. Insular shelves may end at a depth of as little as 9 m (pers. observ.), but usually end in 15-100 m. Below the continental or insular shelf, a continental or insular slope begins. On Caribbean islands, this slope

usually begins rather steeply (~45°) and often extends several hundred to several thousand meters in depth (Colin 1978). Thus, the 200 m limit includes considerable amounts of slope fauna in Caribbean islands. A 100 m limit might be more logical for the insular Caribbean; however, in cool-water incursion areas (e.g., Trinidad), some deep-water fauna may practically reach the surface (Bunkley-Williams and Williams unpubl. data).

Fishes of the deep-reef/upper insular slope (70 to 400-500 m) are among the poorest known in the Caribbean (Colin 1974 [50-500 m]) because this habitat is too deep for SCUBA collection and too irregular for effective trawling. However, as the insular shelves of Caribbean islands have become

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over fished, the deep-reef/upper insular slope habitats have become increasingly more important and exploited. Nevertheless, only limited and sporadic trap and hook-and-line samples are available for scientific study from this habitat. Commercial and sport fishermen in Puerto Rico collected 22 fish specimens, representing 2 classes, 10 orders, 15 families, and 16 species of fishes, over the last 30 years and either gave them to us for parasite examinations or for species identification. In an effort to document the geographic distribution of these 16 species, we provide additional information based on unpublished museum records. The combined records represent one new geographic record for the central Atlantic; four for the Caribbean Sea; eight for the insular Caribbean; two for the Gulf of Mexico; one each for the southern Caribbean Sea, the western Gulf of Mexico, the Sargasso Sea, and off northwestern South America; 14 for Puerto Rico; four for Barbados, Dominican Republic; three for St. Croix (USVI); two for the Campeche Bank (off Mexico), Jamaica, Panama, the Pedro Bank (off Jamaica) and St. Thomas (USVI); one for Anguilla, Bahamas, Bimini (Bahamas), Cay Sal Bank (Bahamas), Colombia, Cozumel, Florida (USA), Florida Keys, French Guiana, Grand Bahama Island (Bahamas), Grenada, Grenadines, Guyana, Honduras, Inagua Islands (Bahamas), Isla La Tortuga (Venezuela), Lang Bank (St. Croix), Mexico, the Saba Bank, Suriname, Tortola (British Virgin Islands), Venezuela, Vieques Island (Puerto Rico), Yucatán (Mexico); eight shallower depth records are noted, four of these extending up onto the insular shelf (Puerto Rico Plateau) depth range for the first time, and nine deeper depth records extend previously known ranges; two maximum weight or length records are noted; and one new parasite host record is noted. The 8<sup>th</sup> and 9<sup>th</sup> known specimen of the black verilus, 10<sup>th</sup> Caribbean chimaera, 10<sup>th</sup> and 11<sup>th</sup> tropical pomfret, 11<sup>th</sup> Antillean snake eel are recorded. Species characters are modified for the Antillean snake eel, Caribbean chimaera, Caribbean lanternshark, dwarf catshark, and tropical pomfret, and the latter species may represent a species

complex. The English common names "Caribbean chimaera" and "chimaera cestodarian" are proposed.

#### MATERIALS AND METHODS

All our fish specimens were caught with hook-and-line, longline, or fish trap and were frozen following capture. Some were photographed (Figs. 1-10), their abdominal cavities were opened with an incision, and they were fixed in 20% formalin and deposited in the Ichthyological Collections of the U.S. National Museum of Natural History (USNM), Smithsonian Institution, Division of Fishes, Washington, DC, or the Vertebrate Collection (UPRM), University of Puerto Rico at Mayagüez, Maguëyes Island Laboratories, La Parguera, PR. Meristic counts and morphometric measurements were taken, but only standard length (SL) [tip of lower jaw to base of hypural "plate"], fork length (FL) [tip of lower jaw to posterior edge of center of caudal fin (tail)], and/or total lengths (TL) [tip of lower jaw to posterior tip of caudal fin (tail)] and exceptional values are presented here. The Antillean snake eel specimen was x-rayed to determine the number of vertebrae, as was a specimen of tropical pomfret to determine the number of anal rays. The radiographs were deposited in the USNM and the California Academy of Science (CAS), San Francisco, CA, respectively. The spiral intestine (spiral valve) of the Caribbean chimaera was excised, examined for parasites, and replaced in the abdominal cavity. Cestodarian parasites were fixed in 5% formalin and deposited in the U.S. National Parasite Collection (USNPC), Beltsville, MD. Museum records were examined from the American Museum of Natural History (AMNH), New York, NY; Academy of Natural Sciences of Philadelphia (ANSP), Philadelphia, PA; Natural History Museum (BMNH), London, England; CAS; Field Museum of Natural History (FMNH), The Field Museum, Chicago, IL; Ichthyology Collection (FSBC), Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, St. Petersburg, Florida; International Game Fish

Association (IGFA), Ft. Lauderdale, FL; University of Kansas Fish Collection (KU), KU Natural History Museum and Biodiversity Research Center, Lawrence, KS; Natural History Museum of Los Angeles County Fish Collection (LACM), Los Angeles, CA; Museum of Comparative Zoology (MCZ), Harvard University, Cambridge, MA; Royal Ontario Museum (ROM), Toronto, Ontario, Canada; Scripps Institution of Oceanography Collection (SIO), Santa Barbara, CA; Texas A&M University Cooperative Wildlife Collection (TCWC), Fish Collection, College Station, TX; University of British Columbia Fish Museum, University of British Columbia (UBC), Vancouver, Canada; Florida Museum of Natural History (UF), University of Florida, Gainesville, FL; UPRM; Fish Division, Museum of Zoology (UMMZ), University of Michigan, MI; and USNM. Some museum records were originally located using online databases; however, all records were confirmed by each curator with ledger records and/or museum jar labels (see Acknowledgments).

Sixteen fishes are reported in phylogenetic order with class, order, and family noted. The parasite is considered under the heading of its host. Citations are presented to support common names because we are not aware of any authority for English and Spanish common names of Caribbean fishes. Suggested common names are discussed in some detail because no standard method of proposing species common names exists, and some of our choices are, *de facto*, suggestions for approved common names. Known geographic distributions and known depth ranges are presented for each fish species. Fish records include museum catalog number, number of specimens, specimen length(s), sex, method and depth of capture, geographic locality, latitude and longitude, date of capture, and collector and/or identifier and year identified, when available. Comments are subdivided into categories for clarity.

The marine fish fauna ascribed to an island or country is limited to those fishes that occur on the insular or continental shelf, usually defined as extending to a depth of 200 m below the surface of the sea. Fishes that occur deeper than 200 m are

sometimes recorded as deep-water records for an island or continent but are not officially considered a part of that fauna (Dennis 2003; Robins et al. 1991a; Williams and Bunkley-Williams in press). We only call records from 200 m, or shallower, "new locality records" for islands or countries. We call deeper collections "new deep-water records".

## RESULTS

### *Class Chondrichthyes – cartilaginous fishes*

#### *Order Chimaeriformes, Family Chimaeridae – chimaeras*

##### *Chimaera cubana* Howell Rivero, 1936 – Caribbean chimaera, quimera del Caribe

**Known Distribution.** This fish has been reported off Matanzas Bay, Cuba (Howell Rivero 1936; Claro 1994) and Jamaica (Caldwell 1966). Carpenter (2003) noted generalized localities of Cuba, Puerto Rico, and the northern islands of the Lesser Antilles without supporting data.

**Known Depth Range.** Former 238 m (Caldwell 1966) to 900 m (Bigelow and Schroeder 1953) [360-900 m (Froese and Pauly 2003)]; new 180-900 m.

**English Common Name.** Caribbean chimaera. The common name "Chimaera" (Froese and Pauly 2003; Kotlyar 1984) seems a bit too generic, and it is also the common name of the family (Robins et al. 1991a); "Cuban chimaera" (Carpenter 2003; Zaneveld 1983) or "Cuban ratfish" (Smith 1997) seem too geographically limited. The name "Elephantfish" (Zaneveld 1983) has been used for *Callorhynchus callorynchus* Linnaeus, 1758 (Anonymous 1995; Menni et al. 1984); and for freshwater fishes (Mormyridae). "Tropical ratfish" (Grana-Raffucci 1999) seems to indicate too broad of a geographic range. We suggest the common name "Caribbean chimaera."

**Spanish Common Name.** Quimera del Caribe. "Quimera" (Claro 1994), a translation of the English "Chimaera," seems a bit too generic (see above), and is the Food and Agriculture Organization (FAO), United



FIG. 1. A 68.5 cm total length, 45.0 cm to upper origin of caudal fin, female specimen of *Chimaera cubana* Howell Rivero, 1936 – Caribbean chimaera collected off La Parguera, Puerto Rico, photograph taken by L. Bunkley-Williams

Nations, Spanish common name for *Chimaera monstrosa* Linnaeus, 1758, Rabbit Fish (Bauchot 1987). "Conejo de lo alto" (Zanveld 1983) is too local (Cuban). We suggest "Quimera del Caribe." Grana-Raffucci (1999) listed the name "quimera antillana" without explanation.

**Material Examined.** We obtained a 68.5 cm TL, 45.0 cm to upper origin of caudal fin, female specimen of Caribbean chimaera collected with a baited longline in 180 m depth off La Parguera, Puerto Rico, 30 August 2001 (USNM 372728). MCZ 36998, 1 specimen, collected by Atlantis (Harvard-Havana) in 430-476 m, Santaren Channel off Villa Clara, Cuba, 23°11'N, 79°8'W, 12 March 1938; MCZ 40682, 1 specimen, collected by R/V Oregon in 439 m depth in Caribbean Sea [= just west of the west central coast of Puerto Rico], 18°16'N, 67°17'W, 10 June 1959, identified

by D. A. Didier et al. 1994 (Anonymous 2003g); UF 47483-47484, 1 specimen each, in 640 m depth for UF 47483, collected by commercial fishermen and deposited by W. J. Tobias, "Virgin Islands" [undetermined if U.S. or British Virgin Islands, and no latitude and longitude recorded (Robins pers. comm.); however, "south of Stx." (Anonymous 2003d) means south of St. Croix (Tobias pers. comm.)], 19 March 1985 and 3 April 1981, identified by George H. Burgess (Anonymous 2003j); USNM 222711, 1 specimen, 0-274 m, Atlantic Ocean, 16°45'N, 81°27'W, 7 June 1962, identified by R. Kanazawa 1971; USNM 222800, 5 specimens, collected in 0-448 m] by R/V Oregon, east of Windward Islands (Lesser Antilles), Atlantic, 15°38'N, 61°15'W, 4 March 1966, identified by R. Kanazawa 1971 (Anonymous 2001; Williams pers. comm.).

**Associated Fishes.** A specimen of Car-

ibbean lanternshark occurred in the same collection with the specimen of Caribbean chimaera (see below).

**Comments: Geographic Localities.** This collection represents a new locality record for Puerto Rico (Dennis 2003), and only the 10th specimen reported [3 (Poey, 1876), 3 (Howell Rivero 1936), 1 (Bigelow and Schroeder 1953), 2 (Caldwell 1966)]. The unpublished museum records (above) for this fish also represent new deep-water records for Puerto Rico and St. Croix, U.S. Virgin Islands.

**Depth Record.** Our specimen also represents a new shallow depth record for this species (50% of previous minimum depth).

**Reproduction.** The egg capsules of this fish are not known (Bor 2003; Bor, pers. comm.), but two egg cases of an unidentified chimaera, *Chimaera* sp., USNM 220363, were collected 17 May 1964 off the Caribbean coast of Colombia, 11°9.5'N, 47°28.5'W (Anonymous 2001), which could represent the egg cases of the Caribbean chimaera.

**Species Diagnostic Characters.** In our specimen, the posterior tip of the anal fin extends to the end of the second dorsal fin. This character agrees with the same character in the Silver chimaera, *C. phantasma* Jordan and Snyder, 1900, instead of with the Caribbean chimaera that is supposed to have an anal fin tip well short of the end of the second dorsal termination (based on three specimens, Bigelow and Schroeder 1953). Our specimen otherwise agrees with the characters of the Caribbean chimaera. This character variation does suggest that these rather similar species may be even more closely related than previously assumed.

**Parasites.** This host specimen was parasitized by the chimaera cestodarian (Platyhelminthes). Most authors agree that only one morphologically highly variable species of cestodarian is found in chimaeras, but some confusion exists about calling it *Gyrocotyle rugosa* Diesing, 1850 or *G. urna* (Grube and Wagener, 1852). This worm is known from the colder-water areas of the northwestern Atlantic and South Atlantic (Brazil, Uruguay, Argentina) and North and South, but not central, Pacific. We found two specimens (USNPC 92730) in the

spiral intestine (spiral valve) of this host. This is the normal location and the usual number found per host. However, this collection represents a new locality record for the central Atlantic and Caribbean, a new host record, and a shallow-water record.

*Order Hexanchiformes, Family Hexanchidae – cow sharks*

*Hexachus nakamurai*\* Teng, 1962 – bigeye sixgill shark, cazón de seis branquias

**Known Distribution.** This shark has a wide but patchy distribution. It is never abundant and is only sporadically caught. Western central Atlantic: the Bahamas (Compagno 1984; Springer and Waller 1969), Costa Rica (Compagno 1984), Cuba (Claro 1994), Mexico (Bonfil 1977), Nicaragua (Compagno 1984), Trinidad and Tobago (Ramjohn 1999), Venezuela (Cervigón et al. 1993); also occurs in parts of the eastern Atlantic, Indian Ocean, and Western Pacific (Compagno and Niem 1998).

**Known Depth Range.** Former 90-600 m, may move to the surface at night in the tropics (Compagno 1984; Compagno et al. 1989), new 16-600 m.

**Scientific Name.\*** *Hexanchus vitulus* Springer and Waller, 1969, was formerly thought to represent this species in the western and eastern central Atlantic and the Mediterranean Sea, or in some cases, circumtropically/subtropically. This name was used (Cervigón et al. 1993; Herman et al. 1994; McEachran and Feckhelm 1998; Robins et al. 1991b), and is still in use (Anonymous 2003h, i). However, *H. vitulus* is now considered a junior synonym of the circumtropical/subtropical *H. nakamurai* (Eschmeyer 2003).

**English Common Name.** Bigeye sixgill shark. The AFS/FAO name (Compagno and Niem 1998; Robins et al. 1991b) appears to be the only common name in use for *H. nakamurai* and *H. vitulus*. Occasionally, other names have been used: “calf shark” (gray literature), “Lesser sixgill shark” (gray literature), and “Sharpnose sixgill shark” (Fergusson 1994, 2000).

**Spanish Common Name.** Cazón de seis branquias. The FAO name is “Cañabota ojigrande” (Cervigón et al. 1993; Coppola

et al. 1994); however, the approved Spanish common name in the new, 6th edition of the AFS list will be “cazón de seis branquias” (Ruiz-Carus pers. comm.). Other names have been suggested “Cazón de fondo” (Claro 1994), “Cazón de seis branquias” (Anonymous 2003i), “vilma ojona” (Grana-Raffucci 1999).

**Material Examined.** We obtained a 163.8 cm TL female specimen of bigeye sixgill shark collected with a fish trap in 180 m depth on banks off the southwest coast of the Dominican Republic, mid-January 1977 (held frozen, exact date not obtainable) (UPRM unnumbered). AMNH 26281SD, 1 pair of dry jaws of an adult female, collected by D. S. Erdman, Station DSE-67-II-18, Whale Bank north of Tortola, British Virgin Islands, 18 February 1967, identified by K. Wolfram, confirmed by M. N. Feinberg; AMNH 29830 SW, one wet jaws of an 157.5 cm TL adult female specimen, collected by D. S. Erdman, Station DSE-68-IX-02, off Boca de Cangrejos, Puerto Rico, 2 September 1968, identified by J. Herman and M. Hovestadt 1992; AMNH 33475, head, jaws, and pectoral fins of an 110.0 cm TL subadult male specimen, collected by the Smithsonian Oceanographic Sorting Center in the southern Caribbean Sea, no collection date recorded, identified by J. Herman and M. Hovestadt 1992; FSBC 11633, one 73.4 cm TL female, collected in 247 m depth in the northern Gulf of Mexico south of Alabama, 29°25.0'N, 87°50.0'W, 19 January 1980 (Ruiz-Carus pers. comm.); UF 34951, 3 specimens, collected in 280 m depth by R. F. Heagey, 14.4 km south of St. Thomas, U.S. Virgin islands, November (possibly December) 1981; UF 36969, 1 specimen, collected in 192 m depth by R/V Oregon II, north of Vega Baja, Puerto Rico, September 1982; UF 46079, 2 specimens, collected in 269 m depth by R/V Oregon II, east northeast of San Juan, Puerto Rico, 11 September 1982, identified by G. H. Burgess 1987; UF 46080, 1 specimen, collected in 256 m depth by R/V Oregon II, east northeast of San Juan, Puerto Rico, 14 September 1982, identified by G. H. Burgess 1987; UF 78004, 1 specimen, collected in 472 m depth by R/V Oregon II, north of Puerto Rico, 5 July 1980; UF 78008, 1 specimen,

collected in 285 m depth by M/V Fregata, south of Bridgetown, Barbados, 25 April 1968; UF 112233, 2 specimens, collected in 129-139 m depth by M. T. Callahan aboard the F/V 2nd Stage, south of Boca Grande Key, Florida Keys, 28 January 1998, identified by M. T. Callahan 1998 (Anonymous 2003j); USNM 186120, 1 specimen, collected in 15.8 m depth by R/V Silver, off Florida, 29°2.0'N, 85°46.0'W, 21 August 1957; USNM 220182, 1 specimen, collected in 183 m depth by R/V Oregon II, off northwest Florida, 29°32.0'N, 96°30.0'W, 26 February 1969 (Anonymous 2001).

**Associated Fishes.** A 109.2 cm TL female, with pups, *Mustelus canis* (Mitchill, 1815), dusky smooth-hound (Triakidae), with 2 isopods, 1 large shrimp, small shrimp, and crab parts in its stomach contents (UPRM unnumbered); and a 78.7 cm TL female *Squalus cubensis* Howell-Rivero, 1936, Cuban dogfish (Squalidae), with remains of fishes in its stomach (UPRM unnumbered), were examined in the same collection with our specimen of bigeye sixgill shark.

**Comments: Geographic Localities.** Our collection represents a new locality record for the Dominican Republic. Museum records (above) for this fish represent new locality records for Florida (USA), the Florida Keys (USA), the Gulf of Mexico, Puerto Rico (Dennis 2003), and Tortola (British Virgin Islands); and new deep-water records for Barbados, Puerto Rico, the southern Caribbean Sea, and St. Thomas (U.S. Virgin Islands).

**Depth Records.** One museum record (above) includes a new minimum bottom-occurrence depth record (15.8 m, 17.2% of previous).

*Order Squaliformes, Family Dalatiidae\* – lantern and sleeper sharks*

*Etmopterus hillianus* (Poey, 1861) – Caribbean lanternshark, tolo lucero Antillano

**Known Distribution.** This shark has recently been redescribed and separated from the similar, if somewhat deeper occurring and only partially sympatric *Etmopterus*

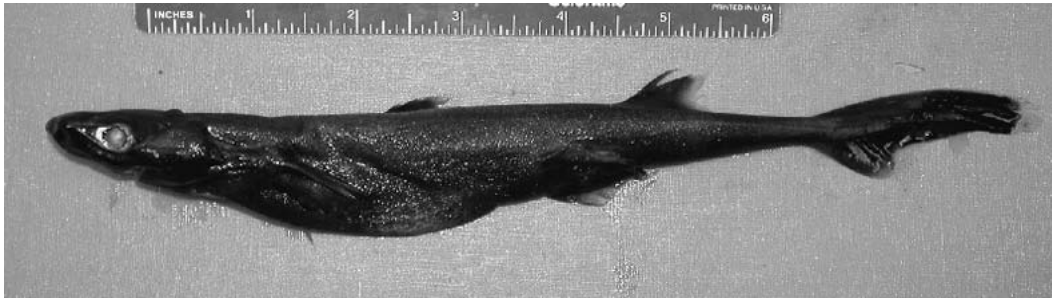


FIG. 2. A 23.2 cm total length specimen of *Etmopterus hillianus* (Poey, 1861) – Caribbean lanternshark collected off La Parguera, Puerto Rico, photograph taken by L. Bunkley-Williams

*robinsi* Schofield and Burgess, 1997, West Indian lanternshark (common name from Carpenter 2003). The Caribbean lanternshark has been reported off the east coast of Florida (USA); the north coasts of Cuba, Hispaniola, and Puerto Rico; and the northern Lesser Antilles (Schofield and Burgess 1997). Carpenter (2003) notes a general distribution from Virginia to southern Florida, Bahamas, Cuba, Bermuda, Hispaniola, and northern Lesser Antilles; however, Puerto Rico, not Hispaniola, is marked on the accompanying map. Also, only south Florida, and not the rest of the USA Atlantic east coast was marked.

**Known Depth Range.** Former 311-717 m; new 180-717 m. Different summary depth ranges were given by Schofield and Burgess (1997), 311-695 m, and (Compagno in Froese and Pauly 2003), 380-717 m.

**\*Family Name.** At least three family names have been used for lantern sharks by authorities in the last decade or so. We follow Nelson (1994) by using Dalatiidae (with Etmopterinae – lantern sharks, as a subfamily) as was followed by L. J. V. Compagno in Froese and Pauly (2003), and Eschmeyer (2003). Carpenter (2003) and Schofield and Burgess (1997) used “Etmopteridae – lantern sharks” as the name of the family following Shirai (1992). Robins et al. (1991b) retained lantern sharks in Squalidae – dogfish sharks.

**English Common Name.** Caribbean lanternshark. This is the FAO approved name (Coppola et al. 1994), and has been used by others (Bigelow and Schroeder 1948; Compagno 1994; Hardy 1993, as “Caribbean lanternshark”), “Caribbean lantern

shark” (Compagno 1999). The name “black-belly dogfish” (Grana-Raffucci 1999; McEachran and Fechhelm 1998; Robins and Ray 1986; Zaneveld 1983) is more descriptive, but is not as well established and uses the common name of a possibly different family of sharks, Squalidae (Robins et al. 1991a).

**Spanish Common Name.** Tollo lucero Antillano. This is the approved FAO name (Coppola et al. 1994). Other names include: “Galludo enano” (Claro 1994); “galludo vientre negro” (Grana-Raffucci 1999); “Tiburón enano” (Zaneveld 1983);

**Material Examined.** We obtained a 23.2 cm TL specimen of Caribbean lanternshark collected from a baited longline in 180 m depth off La Parguera, Puerto Rico, 30 August 2001 (USNM 372730). The very similar lined lanternshark was separated from the Caribbean Lanternshark by Schofield and Burgess (1997). They (Schofield pers. comm.) did not examine four specimens collected near Puerto Rico in their study. Therefore, we examined and re-identified these specimens: CAS 61102, two 18.1 and 14.1 cm TL immature specimens, 347-353 m, 40 ft. otter trawl, off northwest coast of Puerto Rico, 18°35.1'N, 67°13.9'W, 20 August 1987, originally identified by M. Eric Anderson 1987; CAS 61103, one 15.7 cm TL immature specimen, 357-384 m, 80 ft. otter trawl, west off Mayagüez, Puerto Rico, 18°13.5'N, 67°18.7'W, 21 August 1987, originally identified by Tomio Iwamoto 1987; CAS 61145, one 12.4 cm TL immature specimen, 494-549 m, 65 ft. otter trawl, off northwest coast of Puerto Rico, 18°31.0'N, 65°40.9'W, 15 August 1987, originally iden-

tified by Tomio Iwamoto 1987 (Anonymous 2003c).

**Comments: Geographic Localities.** Our specimen represents a new locality record for the Caribbean Sea and Puerto Rico (Dennis 2003). Since the common name of this fish is the Caribbean lanternshark, one would expect it to have been reported from the Caribbean Sea; however, we have been unable to locate any records in the literature. Schofield and Burgess (1997:1072) reported two collections of this fish "N of Puerto Rico": "UF 42188 (165 mm TL male), R/V Oregon sta. 2651, N of Puerto Rico, 18°16'N, 67°16.5'W, 230 fm, 6 Oct. 1959 [same record, FSBC 1563, but 158 mm TL (Ruiz-Carus, pers. comm.)] and UF 77860 (4 females, 211-255 mm TL; 235 mm TL male), R/V Oregon II sta. 31723, N of Puerto Rico, 18°18'N, 67°18'W, 290 fm, 27 June 1980." These localities are actually off the west coast of Puerto Rico as correctly shown on their map (Schofield and Burgess 1997:Fig. 7). These localities and one in the "Virgin Islands, 18°9'N, 65°10'W" (Schofield and Burgess 1997:1072) [actually just east of Vieques Island, not in the Virgin Islands, and not indicated on the map of Schofield and Burgess (1997:Fig. 7)] were the closest to the Caribbean Sea.

Another record, taken near the U.S. Virgin Islands, in Schofield and Burgess (1997:1072) UF 42187, 105 mm TL female, 175 mm TL male, 26 Sep. 1959, appears to be on the map (Schofield and Burgess 1997:Fig. 7). However, it differs from the original collection data in FSBC 1537, 3 specimens 98-235 mm TL, 25 Sep. 1959 (Ruiz-Carus pers. comm.).

All of the above previously published and unpublished museum records around Puerto Rico were reported from deeper water than the Puerto Rican Plateau. Our collection represents a new locality record for Puerto Rico. One museum record (above) is a new deep-water record for Vieques Island.

**Depth Record.** Our specimen also represents a new shallow depth record (57.9% of the previous minimum depth).

**Species Diagnostic Characters.** Our specimen had an abundance of dermal denticles just below the second dorsal fin that seemed to be intermediate between the densities reported for the Caribbean lanternshark and lined lanternshark; however, the post-pelvic photophore pattern in our specimen agrees with the Caribbean lanternshark.

*Order Carcharhiniformes, Family  
Scyliorhinidae – cat sharks*

*Scyliorhinus torrei* Howell Rivero, 1936 –  
dwarf cat shark, alitán enano

**Known Distribution.** This fish has been reported in the literature from the upper continental slope of the Florida Straits, Bahama region, and Cuba (Claro 1994; Compagno 1984; Howell Rivero 1936).

**Known Depth Range.** Former 229-550 m (Springer 1979); new 180-560 m.

**English Common Name.** Dwarf cat shark (Bigelow and Schroeder 1948; Compagno 1984, 1999, and Coppola et al. 1994, as "dwarf catshark;" Robins et al. 1991b,

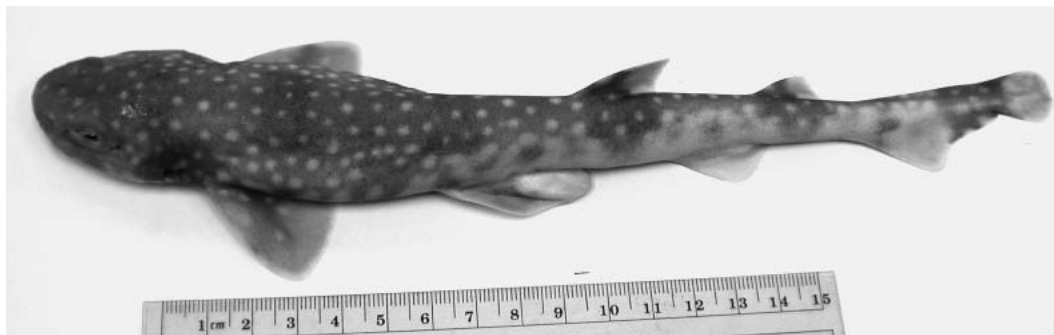


FIG. 3. A 25.5 cm total length male specimen of *Scyliorhinus torrei* Howell Rivero, 1936 – dwarf cat shark collected off Playa Santa, Puerto Rico, photograph taken by L. Bunkley-Williams



secondary name as “dwarf cat shark”). The name “whitespotted cat shark” (Grana-Raffucci 1999; Robins et al. 1991b, primary name) is more descriptive; however, Dwarf Cat Shark has been used earlier and more consistently, and is the FAO approved name (Coppola et al. 1994). “Cat shark” (Zaneveld 1983) is too generic and the common name of the family.

**Spanish Common Name.** Alitán enano. This is the approved FAO name (Coppola et al. 1994). Other names used: “Gatica” (Zaneveld 1983), also used as a Spanish common name of *Scyliorhinus boa* Goode and Bean, 1895, boa cat shark (Claro 1994); “Gatica prieta” (Claro 1994); and “tiburón gato enano” (Grana-Raffucci 1999).

**Material Examined.** We obtained a 25.5 cm TL male specimen of dwarf cat shark collected by hook-and-line in 180 m depth off Playa Santa, Puerto Rico, 6 September 2002 (USNM 372729). CAS 61146, 1 specimen, collected in 466 m depth with a 65 ft otter trawl by the R/V Oregon II, in the Mona Passage north of Mona island, Puerto Rico, 18°14.4'N, 67°50.5'W, 8 May 1987, identified by M. Eric Anderson 1987 (Anonymous 2003c); UF 231677, 1 specimen, collected in 560-591 m depth with a 41 ft otter trawl, Northwest Providence Channel, Grand Bahama Island, Bahamas, 27 September 1973, identified by R. N. Lea 1978 (Anonymous 2003j); USNM 188057, 1 specimen collected in 547 m depth by R/V Oregon off the Virgin Islands, 18°13.0'N, 64°14.5'W [actually in the Anegada Passage SE of the British Virgin Islands], identified by S. Springer 1979 (Anonymous 2001).

**Comments: Geographic Localities.** Our collection represents a new locality record for the Caribbean and Puerto Rico. The “Virgin Islands” record of Springer (1979) (possibly based on USNM 188057 above) was not stated as a precise locality or to be in the Caribbean. This record was not noted in Compagno (1984) or in Froese and Pauly (2003). Two museum records (above) for this fish represent deep-water records for the Caribbean.

**Depth Records.** Our specimen also represents a new shallow depth record for this species (78.6% previous minimum). One museum record (above) also includes a

new maximum depth (560 m, 101.8% of previous).

**Reproduction.** Bigelow and Schroeder (1948) stated that the tips of the claspers extended beyond the tips of the pelvic fins in a 24.7 cm specimen. Thus, they suspected that the male matures at or close to this size. However, in our 25.5 cm specimen the claspers did not extend beyond the tips of the pelvic fins. This could suggest that this shark may reach maturity at a larger size. The egg capsules of this fish are not known (Bor 2003; Bor pers. comm.).

**Species Diagnostic Characters.** Bigelow and Schroeder (1948) (based on 15 specimens) used the character “the pectorals of *torrei* are only a little larger in area than the first dorsal, whereas in *boa* [boa cat shark] they are twice as large as the latter;” to distinguish this species. The pectoral fins in our specimen are more than twice as large as the first dorsal fin in surface area. Thus, this character may be more variable than previously thought.

#### Family Carcharhinidae – requiem sharks

##### *Carcharhinus obscurus* (Lesueur, 1818) – dusky shark, tiburón arenero

**Known Distribution.** This is a highly migratory species found circutropically/subtropically (43°N-43°S) (Compagno 1984; Compagno in Froese and Pauly 2003). In the West Indies: Bahamas (Compagno 1984), Cuba (Claro 1994), Nicaragua (Compagno 1984), Trinidad and Tobago (Ramjohn 1999), Venezuela (Compagno 1984); western Atlantic: southern Massachusetts to Florida (USA), Georges Bank, northern Gulf of Mexico, French Guiana (Compagno 1984), Guyana (Lowe-McConnell 1962), Suriname (Compagno 1984), and southern Brazil (Compagno 1984). Beebe and Tee-Van (1933) and Bigelow and Schroeder (1948) reported this fish from Bermuda; however, Smith-Vaniz et al. (1999) suggested that their records were based on the Galapagos shark, *Carcharhinus galapagensis* (Snodgrass and Heller, 1905)(Carcharhinidae).

**Known Depth Range.** 0-400 m (Compagno 1984).

**English Common Name.** Dusky shark. This is the approved name used by FAO (Coppola et al. 1994), AFS (Robins et al. 1980, 1991a), and others (Cervigón et al. 1992; Zaneveld 1983). Twelve other names have been used for this shark (Compagno in Froese and Pauly 2003). Zaneveld (1983) reports the use of “Dusky ground shark” for this fish in Puerto Rico; however, this shark has never previously been reported from Puerto Rico.

**Spanish Common Name.** Tiburón arenero. This is the FAO approved name (Coppola et al. 1994), which has been used by others (Cervigón et al. 1992; Sánchez 1997); however, 15 other names have also been used (Compagno in Froese and Pauly 2003), including “tintorera oscura” (Grana-Raffucci 1999).

**Material Examined.** We obtained a 101.0 cm TL immature specimen of Dusky Shark, and a 61.0 cm severed head, collected with a baited longline set by the R/V Westward in 70 m depth over a 600 m bottom on the insular slope south of Guánica Bay, Puerto Rico, 18 November 1975 (UPRM unnumbered); ROM 28224 and 28227, 1 set of jaws each, collected in 195 m depth by E. J. Crossman and P. Buerschaper on Dawson Cruise with 150 hook baited longline, on Saba Bank in Caribbean Sea southwest of Saba (Netherlands Antilles), 17°41.0'N, 63°24.5'W, 29 February 1972, identified by collectors (Winterbottom and Rouse pers. comm.); USNM 195821, 2 partially burned teeth (Collette pers. comm.), collected by R. Doe et al., Coral Beach, Bermuda, 24 May 1960 (Anonymous 2001), 274 cm TL female, collected with a harpoon by Ross Doe, Stanton Waterman removed a tooth from the jaws which was sent to the National Museum (Randall 1963).

**Associated Fishes.** Two 290.5 cm FL, 304.8 cm TL, and 232.3 cm FL, 243.8 cm TL female swordfish, *Xiphias gladius* Linnaeus, 1758, (Xiphiidae) (Fig. 4) were examined in the same collection with our specimen of dusky shark. These represent the first adult swordfish reported in the scientific literature from Puerto Rico. Erdman (1956, 1963) reported juvenile Swordfish from Puerto Rico (Dennis 2003).



FIG. 4. A 243.8 cm total length female *Xiphias gladius* Linnaeus, 1758 – swordfish collected off Guanica Bay, Puerto Rico, photograph taken by Dr. Michael J. Dowgiallo

**Comments: Geographic Localities.** Our collection represents a new locality record for the insular Caribbean and Puerto Rico (Dennis 2003). Museum records above add the Saba Bank as a new locality record. This is also a second insular Caribbean record.

Smith-Vaniz et al. (1999) did not examine USNM 195821 (Collette pers. comm.). This collection was examined 8 April 2003 by Dr. B. B. Collette. It consists of two partially burned teeth from a shark that attacked Louis Goiran 24 May 1960. An extensive account of this attack is found in Randall (1963:354), but was not found by Smith-Vaniz et al. (1999). A newspaper photograph of the shark was identified by Steward Springer as a dusky shark. However, this record was referred to as a Galapagos shark by both Garrick (1982) and Compagno (1984). The teeth appear to be upper jaw teeth of the Galapagos shark (Collette

pers. comm.). Thus no record of dusky shark is known for Bermuda.

**Weight.** Compagno in Froese and Pauly (2003) lists 346.5 kg (Anonymous 1991) as the maximum weight, but it is now 347.3 kg (Anonymous 2003e, f).

*Class Actinopterygii – ray-finned fishes*

*Order Anguilliformes, Family Ophichthidae – snake and worm eels*

*Ophichthus spinicauda* (Norman, 1922) – Antillean snake eel, tieso Antillano

**Known Distribution.** The 10 specimens of this species formerly reported in the literature were noted from Cuba (Claro 1994; Howell Rivero 1932), Puerto Rico (Böhlke 1978; McCosker et al. 1989), Tobago (Norman 1922), Trinidad (McCosker et al. 1989), and Venezuela (Cervigón 1991). Cervigón et al. (1993) provides a record of an un-stated number of this fish from Colombia.

**Known Depth Range.** Former 110-310 m (McCosker et al. 1989); new 110-457 m.

**English Common Name.** Antillean snake eel. The common name “Spinefin snake eel” (Smith 1997) is more descriptive, and in agreement with the scientific name; however, “Antillean snake eel” was used first (Böhlke 1978; McCosker in Froese and Pauly 2003), and is the approved FAO name (Böhlke 1978). Grana-Raffucci (1999) used “banded snake eel” without explanation.

**Spanish Common Name.** Tieso Antillano. This is the FAO approved name (Böhlke 1978). Other common names used: “Safio” (Zaneveld 1983); “Safío bandeado”

(Claro 1994); “tieso franjeado” (Grana-Raffucci 1999).

**Material Examined.** We obtained a 98.5 cm TL Antillean snake eel collected by hook-and-line in 457 m depth off El Morro, San Juan, Puerto Rico, 23 June 2002 (USNM 372731). AMNH 12303, 1 specimen collected off Havana Cojimar, Cuba, 9 May 1932, identified by L. H. Rivero; ANSP 156471, one 2.5 cm SL leptocephalus, collected in 18-27 m depth in the Gulf of Mexico off northern Mexico, 26°5.8'N, 96°1.8'W, 21 April 1976, identified by M. Leiby 1986; ANSP 156472, one 8.3 cm SL leptocephalus, collected in 20-45 m depth in the Gulf of Mexico off northern Mexico, 24°2.2'N, 97°5.4'W, 21 April 1976, identified by M. Leiby 1986; ANSP 156473, one 8.8 cm SL leptocephalus, collected in 60 m depth in the Gulf of Mexico northeast of Veracruz, Mexico, course 40 degrees, 7 August 1976, identified by M. Leiby 1986; ANSP 156474, one 7.1 cm SL leptocephalus, collected in 55-60 m depth in the Gulf of Mexico northeast of Veracruz, Mexico, course 40 degrees, 7 August 1976, identified by M. Leiby 1986; ANSP 156475, one 4.6 cm SL leptocephalus, collected in 65 m depth in the Gulf of Mexico off Veracruz, Mexico, 19°30.0'N, 95°28.0'W, 5 August 1976, identified by M. Leiby 1986; ANSP 156476, three 1.0-1.3 cm SL leptocephali, collected in 33-35 m depth in the Gulf of Mexico off Veracruz, Mexico, 19°27.9'N, 95°27.9'W, 16 April 1976, identified by M. Leiby 1986; ANSP 156477, one 9.5 cm SL leptocephalus, collected in 50 m depth in the Sargasso Sea, 20°40.0'N, 95°57.0'W, 1 August 1977, identified by M. Leiby 1986; ANSP 156478, one 7.8 cm SL leptocephalus,



FIG. 5. *Ophichthus spinicauda* (Norman, 1922) Randall and Robins, 1966 – Antillean snake eel collected off El Morro, San Juan, Puerto Rico, with hook in mouth, photograph taken by L. Bunkley-Williams

collected in 45-58 m depth in the Gulf of Mexico off Veracruz, Mexico, 20°37.0'N, 96°0.0'W, 1 August 1977, identified by M. Leiby 1986; ANSP 156479, one 6.0 cm SL leptocephalus, collected in 50 m depth by R/V Pillsbury, PIL 1378, in the Puerto Rico Trench, 20°3.0'-2.0'N, 64°57.0'W, 3 July 1971, identified by M. Leiby 1986; ANSP 156481, one 3.3 cm SL leptocephalus, no collection locality except Western Atlantic, collection date unknown, identified by M. Leiby 1986; ANSP 156483, one 1.5 cm SL leptocephalus collected in 45-47 m depth in the Caribbean Sea off Yucatán, 20°30.0'N, 87°4.0'W, 20 July 1977, identified by M. Leiby 1986; ANSP 156484, three 1.4-1.7 cm SL leptocephali collected in 40-45 m depth in the Caribbean Sea off Yucatán, 20°34.0'N, 87°3.0'W, 1 August 1975, identified by M. Leiby 1986 (Anonymous 2003b). CAS 60866, 1 specimen, collected in 362-411 m depth with a 100-hook bottom longline off Punta Manatí, Puerto Rico, 18°31.4'N, 66°30.8'W, 19 August 1987, identified by Tomio Iwamoto 1987 (Anonymous 2003c); FSBC 16829L, 3 specimens 16-22 mm SL, no locality recorded, 25 Feb. 1966.

**Comments: Geographic Localities.** Our record is only the 11<sup>th</sup> reported adult specimen, but we report five additional adult specimens for 16 now known and 16 leptocephali. Unpublished museum records (above) add the Caribbean Sea to the known deep-water localities for this species. The leptocephali records add new deep-water localities for Mexico, the Gulf of Mexico, and the Sargasso Sea.

The AMNH 12303 specimen (above) was not mentioned in McCosker et al. (1989). It appeared to be an unrecognized type of *O. zonatus* (junior synonym of *O. spinicauda*) from the type locality and identified by the author of the species. However, only one type exists for *O. zonatus* (Eschmeyer 2003), and the collection date (9 May 1932) for the AMNH 12303 specimen was after the date of publication (2 April 1932) for the description of *O. zonatus* (Eschmeyer pers. comm.).

**Depth Record.** Our record represents a 47.7% increase in the known maximum depth.

**Species Diagnostic Characters.** Dark

saddles on the dorsal half of the body, pale pectoral fins, pectoral fin length in head length 35% instead of 23-30%, dorsal fin origin behind pectoral fin tips by length less than pectoral fin length and predorsal vertebrae 17, all agree with the description of the king snake eel, *Ophichthus rex* Böhlke and Caruso 1980, instead of the Antillean snake eel. The preanal number of vertebrae 59 does not agree with the meristics of any western Atlantic banded snake eel description; however, the 144 vertebrae agree with the Antillean snake eel. The most recent meristics of the Antillean snake eel (McCosker et al. 1989) were taken from six immature females. More specimens are needed to determine the meristics of mature females and males.

**Reproduction.** McCosker et al. (1989) found no Antillean snake eel leptocephali. We found records of sixteen 1.0-9.5 cm SL leptocephali from the northwestern Caribbean Sea, western Gulf of Mexico, Puerto Rico Trench, and the Sargasso Sea (Anonymous 2003b).

**Collection Method.** McCosker et al. (1989) noted that the only collection method reported for the Antillean snake eel was fish traps in Puerto Rico. Specimens are reported here taken by hook-and-line, scallop dredge, and trawl.

*Order Aulopiformes, Family Synodontidae – lizardfishes*

*Saurida normani* Longley, 1935 – shortjaw lizardfish, lagarto dientón

**Known Distribution.** Caribbean: Aruba and Curaçao, Netherlands Antilles; Colombia (Cervigón et al. 1992); British Virgin Islands (Bullis and Thompson 1965); Cuba (Claro 1994); Nicaragua (Sánchez 1997); Puerto Rico (Dyer et al. 1985; Martin and Patus 1984); Trinidad and Tobago (Manickchand-Heileman and Flüs 1990); and Venezuela (Cervigón et al. 1992). It is also known from the Bahamas (Robins and Ray 1986); French Guiana (Uyeno et al. 1983); the eastern Gulf of Mexico (Smith 1997); Guyana (Cervigón et al. 1992); South Carolina, USA; (Smith 1997); and Surinam (Uyeno et al. 1983).

**Known Depth Range.** Former 40-550 m (McEachran and Fechhelm 1998), same range, but sometimes 25 m (Cervigón et al. 1993), new 9.1-550 m.

**English Common Name.** Shortjaw lizardfish. This name is approved by FAO (Cervigón et al. 1992) and AFS (Robins et al. 1980, 1991a), and has been used by others (Böhlke and Chaplin 1993; Grana-Raffucci 1999).

**Spanish Common Name.** Lagarto dientón. This name is approved by FAO (Cervigón et al. 1992); however, a number of other names are in use, including "Guaripete" (Kotlyar 1984), "Lagarto" (Kotlyar 1984; Silva 1994), "Lagarto dienton" (Sánchez 1997), "Lagarto espinoso" (Claro 1994), "Rano" (Silva 1994), and "lagarto tímido" (Grana-Raffucci 1999).

**Material Examined.** We obtained a 41.0 cm SL, 46.5 cm TL specimen of shortjaw lizardfish collected in 180 m depth with a baited longline on the insular slope south of the shelf edge "Buoy Site" off La Parguera, Puerto Rico, 4 September 1976 (UPRM unnumbered); LACM 22171, collected by R/V Velero III in 9.1 m depth in Caledonia Bay, Panama, 8°53.7'N, 77°41.3'W, 26 April 1939; UMMZ 174015, one 8.8 cm SL specimen collected by R/V Silver Bay on Campeche Bank, 20°6.0'N, 91°47.0'W, 3 May 1958; UMMZ 174100, four 5.5-6.4 mm SL specimens collected by C. L. Smith on R/V Silver Bay on Campeche Bank, 22°34.0'N, 89°56.0'W, 11 May 1958; UMMZ 174138, two 14.3-19.0 mm SL specimens collected by C. L. Smith on R/V Silver Bay on Campeche Bank, 23°13.0'N, 89.0°W, 17 May 1958; UMMZ 174156, collected by C. L. Smith on R/V Silver Bay on Campeche Bank, 87°54.0'N, 23°36.0'W, 18 May 1958.

**Comments: Geographic Localities.** This fish was thought to have a continental distribution in the Caribbean (Carpenter 2003; Froese and Pauly 2003); however, Bullis and Thompson (1965) reported it from the British Virgin Islands, and Dyer et al. (1985) and Martin and Patus (1984) from Puerto Rico. Four museum records above add new locality records for the western Gulf of Mexico and the Campeche Bank off

Mexico; and one adds a new locality record for Panama (Caribbean).

**Length.** Froese and Pauly (2003) cite the 45.0 cm TL record of Robins and Ray (1986) as the maximum length. Cervigón et al. (1993) lists 40 cm TL as the maximum, and Carpenter (2003) 33 cm. Our 46.5 cm TL specimen would have represented a new length record; however, Böhlke and Chapman (1993) list a 49.0 cm TL specimen from the Bahamas.

**Depth Record.** The 10 m (25% of previous) depth in Dennis (2003) and Martin and Patus (1984) was an unstated minimum depth record. The record of 9.1 m (22.8% of previous), in a museum record above, is a new shallow depth record.

*Order Ophidiiformes, Family Ophidiidae – cusk-eels*

***Brotula barbata*** (Bloch and Schneider, 1801) – bearded brotula, brótula de barbas

**Known Distribution.** This fish is known from the tropical/subtropical waters of the Atlantic from 29°N to 22°S or Senegal to Angola in the eastern Atlantic, and Florida through the Gulf of Mexico and the Caribbean to northern South America in the western Atlantic (Nielson et al. 1999; Robins and Ray 1986). Ross et al. (1981) reported this fish from North Carolina off the Atlantic coast of the USA (34°+N) (see also USNM 319975, below). In the Caribbean, it has been reported from Barbados (Butsch 1939); Belize, Colombia, Dominican Republic, Haiti, Honduras, Mexico, Nicaragua, Panama, Venezuela (Nielson et al. 1999); Cuba (Claro 1994); Jamaica (Munro 1983); Puerto Rico (Erdman 1956); St. Croix, U.S. Virgin Islands (Clavijo et al. 1980); St. John, U.S. Virgin Islands (Dammann 1969); Trinidad and Tobago (Manickchand-Heileman and Flüs 1990). Near the Caribbean, it has been reported from Bermuda (Smith-Vaniz et al. 1999) and Surinam (Gines and Cervigón 1967).

**Known Depth Range.** Continental/insular shelf down to 650 m (Nielson 1990).

**English Common Name.** Bearded brotula. This is the approved FAO (Nielson 1981) and AFS (Robins et al. 1980, 1991a)



FIG. 6. A 52.5 cm total length male specimen of *Brotula barbata* (Bloch Schneider, 1801) – bearded brotula collected off La Parguera, Puerto Rico, photograph taken by L. Bunkley-Williams

name. Other names include: “Atlantic sea-snail” (Anonymous 1995), “Brotula” (Butsch 1939), and “Deep water soapfish” (Butsch 1939).

**Spanish Common Name.** Brótula de barbas. This is the approved FAO name (Nielsen 1981). Other names include: “anguililla barbuda” (Grana-Raffucci 1999), “Brotá” (Delgado de Molina and Santana 1985), “brotula” (Grana-Raffucci 1999), “Brótula” (Claro 1994), “Brotula de barbas” (Sánchez 1997), and “Zafiro” (Silva 1994).

**Material Examined.** We obtained a 52.5 cm TL male specimen of bearded brotula collected in a fish trap in 85 to 90 m depth off La Parguera, Puerto Rico, 22 November 2002 (USNM 372737). CAS 60865, 1 specimen, collected in 347 to 353 m depth with a 40 ft otter trawl from R/V Oregon II, off the northwestern coast of Puerto Rico, 18°35.1'N, 67°13.9'W, 20 August 1987, identified by M. Eric Anderson 1987 (Anonymous 2003c); MCZ 45100, 2 specimens, collected in 402 m depth by R/V Oregon north of St. Thomas, U.S. Virgin Islands, 18°37'N, 64°57'W, 26 September 1959; MCZ 76742, 1 specimen, collected by R/V Atlantis II, Cr. 79, north of Isla la Tortuga (Venezuela), 11°22.0'N, 65°14.0'W, 10 December 1973, identified by D. G. Smith 1988; MCZ 76748, 1 specimen, collected in 139 to 154 m depth by R/V Chain 60, south southeast off St.

Croix, U.S. Virgin Islands, 16°45'N, 64°18'W, 24 May 1966, identified by D. G. Smith 1988; MCZ 76749, 1 specimen, collected in 366 to 466 m depth by R/V Chain 60, just west of Pedro Bank (SW of Jamaica), 17°4'N, 79°26'W, 24 May 1966, identified by D. G. Smith 1988 (Anonymous 2003g); SIO 76-206, one 36.0 cm TL specimen, collected by D. Nesbitt, U.S. Bureau of Fish and Wildlife (BFW), in 244 m depth with a bottom trap set over night, Frederiksted, St. Croix, 17°42.5'N, 64°53.8'W, 20 April 1975, identified by Shirley Imsand, BFW; SIO 76-209, one 55.0 cm TL specimen, collected by I. Latimer, BFW, in 274 m depth with a fish trap set 24 hrs, St. Croix, 17°42.5'N, 64°53.7'W, 15 May 1975, identified by BFW; UBC 81-0049, collected 72 to 126 km off the coast of Guyana, between the mouths of the Esquibo and Orinoco Rivers, 8°30.0'N, 57°15.0'W, 29 July 1980; UF 34945, 1 specimen, collected in 84 to 97 m, Guyana, 19 May 1968, no identifier listed, specimens temporarily unavailable (Robins pers. comm.); UF 34955, 2 specimens, collected in 267 m, 14.4 km south of St. Thomas, U.S. Virgin Islands, November 1981 (may have been December 1981), R. F. Heagey collector, specimens temporarily unavailable (Robins pers. comm.); UF 44231, 1 specimen, collected in 55 m, French Guiana, 12 December 1977, collected by Fredrick H.

Berry, identified by G. H. Burgess 1986; UF 44249, 1 specimen, collected in 48 to 62 m depth by F/V Cayenne, French Guiana, 13 December 1972, collected by Fredrick H. Berry, identified by G. H. Burgess 1986; UF 203964, 1 specimen, collected in 73 to 84 m depth with a 40 ft flat trawl by R/V Oregon, Guyana, 1 September 1958, identified by C. R. Robins 1958; UF 232903, 1 specimen, collected in 183 m depth by handline in Jamaica, 9 March 1964, collector J. Parkinson (Anonymous 2003j); UPRM 889, one 60 cm TL specimen, collected off west coast of Puerto Rico, October 1942, collector Ventura Barnés, Jr. (Erdman 1956); USNM 319975, 1 specimen, collected in 331 m depth by R/V Albatross IV, Mid-Atlantic Bight off North Carolina, USA, 36°35'N, 74°43'W, 17 March 1974, collector C. Wenner (Anonymous 2001).

**Comments: Geographic Localities.** Our specimen represents a new locality record for Puerto Rico. Erdman (1956:337) stated that his specimen was collected in "deep water off west coast" of Puerto Rico, which suggests it was collected deeper than 200 m, and was thus not a part of the shallow-water fauna of Puerto Rico. We attempted to examine the specimen Erdman (1956) noted (UPRM 889); however, it could not be located. Since the depth of capture remains, at least, uncertain (Erdman 1956), our specimen collected in 85-90 m depth is the first confirmed record shallower than 200 m from Puerto Rico.

Museum records above represent new locality records for Jamaica, French Guiana and Guyana; and new deep-water records for Guyana, Isla La Tortuga (Venezuela), Pedro Bank (Jamaica), and St. Croix (U.S. Virgin Islands), and St. Thomas (USVI). One is an additional deep-water record for Puerto Rico. Clavijo et al. (1980) did not list a depth for this species in St. Croix, and her checklist included species found below 200 m. Munro (1983) casually mentioned this species as having caridean prawns in their stomachs in depths below 200 m on the insular slope of Jamaica. Thus our records for Jamaica and St. Croix are new.

**Length/Weight Relationship.** The Fish-Base summary (Froese and Pauly 2003), based on Anonymous (2003e, f), listed a

maximum TL of 94.0 cm and a maximum weight of 8520 g. However, two popular or gray literature records list greater weights in shorter specimens. Lane (2003) noted a 9204 g weight for a specimen only 86.4 cm TL, and STUR (2000) a weight of 9091 g for a 91.4 cm TL specimen.

**Economic Importance.** Although this fish is little known, it is apparently highly prized as a commercial food fish (MacWhinnie 2000). Its importance as a sport fish is based entirely on its food value as it has little or no fighting ability on hook-and-line (Holshouser 1998). It is commercially important in several central west African countries (Nielsen et al. 1999). Life history and population dynamics of this fish are being studied in the northern Gulf of Mexico (MacWhinnie 2000).

*Order Beryciformes, Family Trachichthyidae – slimeheads*

*Gephyroberyx darwinii* (Johnson, 1866) – Darwin's slimehead, reloj de Darwin

**Known Distribution.** Atlantic, Indian, and western Pacific Oceans. In the West Indies: Bimini, Great Inagua, and Long Island, Bahamas (Woods and Sonoda 1973), Cuba (Claro 1994), Nicaragua, Panama, Puerto Rico (Woods and Sonoda 1973), Puerto Rico ("Sonode 1973" in Martin and Patus 1984; Martin and Patus 1984; Woods 1961).

**Known Depth Range.** Former (combined juvenile and adult?) 9-1210 m (Moore in Froese and Pauly 2003), new (juvenile) 9-536 m, new (adult) 60-1000 m.

**Scientific Name.** Often spelled "*Gephy-*



FIG. 7. A 37.4 cm total length specimen of *Gephyroberyx darwinii* (Johnson, 1866) – Darwin's slimehead collected off Arecibo, Puerto Rico, 11 March 2003, photograph taken by Kelvin Serrano

*roberyx darwini*" in the literature, although *G. darwini* is correct (Eschmeyer 2003).

**English Common Name.** Darwin's slimehead. This is the approved name used by FAO (Bianchi et al. 1999; Maul 1981); however, AFS approved name is "big roughy" (Robins et al. 1991a). Part of this disagreement lies in different common names used for the family (roughy or slimehead); however, these differences between authorities must be resolved. "Darwin's red-fish" (Munro 1955), "Darwin's roughy" (May and Maxwell 1986), "Darwin's sawbelly" (Anonymous 2003a), "Director's fish" (Gordon 1993) have also been used.

**Spanish Common Name.** Reloj de Darwin. This is the approved name used by FAO (Maul 1981); however "Carajuelo del fondo" is used in Cuba (Claro 1994), and Grana-Raffucci (1999) used "cueriduro grande".

**Material Examined.** A 29.9 cm SL, 37.4 cm TL specimen of Darwin's slimehead collected in 100 m depth by hook-and-line by William Lopez, off Arecibo, Puerto Rico, 11 March 2003, was photographed (Fig. 7) and meristic counts and morphometric measurements were taken by N. I. Ruiz (pers. comm.) at the Arecibo Outboard Motor Club. However, the sport fisherman was unwilling to donate or sell the specimen. We identified the specimen from his photograph, counts and measurements. FMNH 65226, one 6.84 cm SL specimen, collected in 229 m depth by R/V Oregon with a 40 ft semiballon trawl, northwest off Puerto Rico, 18°26.0'N, 67°11.0'W, 6 October 1959, identified by L. P. Woods and P. M. Sonoda 1973 (note in jar appears to be in Wood's hand writing, M. A. Rogers pers. comm.); FMNH 65227, two 4.65 and 7.45 cm SL specimens, collected in 183 m depth by R/V Oregon with a 40 ft semiballon trawl, northwest off Puerto Rico, 18°24.0'N, 67°15.0'W, 6 October 1959, identified by L. P. Woods and P. M. Sonoda 1973 (note in jar appears to be in Wood's hand writing, M. A. Rogers pers. comm.); FMNH 65228, one 6.24 cm SL specimen, collected in 293 m depth by R/V Oregon with a 40 ft semiballon trawl, Atlantic Ocean north off Puerto Rico, 18°31.5'N, 66°46.5'W, 7 October 1959,

identified by L. P. Woods and P. M. Sonoda 1973 (note in jar appears to be in Wood's hand writing, M. A. Rogers pers. comm.); FMNH 66710, 1 specimen, collected in 347 m depth by R/V Oregon with a 40 ft flat trawl, Caribbean off Venezuela, 12°46.0'N, 70°59.0'W, 26 September 1963; FMNH 67021, 1 specimen, collected in 338 m depth by R/V Oregon with a shrimp trawl, Atlantic Ocean north of Anguilla, 18°10.0'N, 63°16.0'W, 25 February 1966; FMNH 74340, 1 specimen, collected in 274 m depth by R/V Oregon with a 6 ft tumbler dredge, east of Cozumel, Mexico, 20°25.0'N, 86°13.0'W, 11 June 1964; FMNH 74341, 1 specimen, collected in 210 m depth by R/V Oregon with a 40 ft shrimp trawl, Caribbean off Venezuela, 10°42.0'N, 67°56.0'W, 28 September 1965; FMNH 74354, 1 specimen, collected in 374-357 m depth by R/V Oregon with a 65 ft flat shrimp trawl, off Colombia, 10°24.0'N, 75°50.0'W, 24 May 1964; FMNH 88044, 1 specimen, collected in 384 m depth by R/V Oregon with a 40 ft shrimp trawl, north of Yucatán, Mexico, 23°13.0'N, 87°50.0'W, 9 December 1963; TCWC 6207.12, 1 specimen, collected by the Marine Biomedical Institute, off Cozumel, Mexico, 11 April 1976; UF 228603, 1 specimen, collected in 165-183 m depth by R/V Calamar, Suriname, 23 May 1968, identified by W. F. Smith-Vaniz 1970 (Anonymous 2003j); USNM 214209, 3 specimens, collected in 274 m depth by R/V Oregon, off Jamaica, 17°53.0'N, 77°56.0'W, 16 May 1962; USNM 214210, 1 specimen, collected in 274 m depth by R/V Oregon II, off Colombia, 11°24.0'N, 73°47.0'W, 12 May 1968; USNM 266277, 1 specimen, collected in 375 m depth by R/V Oregon II, Venezuela, 12°18.0'N, 72°41.0'W, 21 November 1970 (Anonymous 2001).

**Additional Records.** The Fisheries Laboratory in Mayagüez, Puerto Rico, recently collected a specimen of Darwin's slimehead (Peña Alvarado pers. comm.). We have not had the opportunity to examine their specimen.

**Comments: Geographic Localities.** Museum records above represent new deep-water records for Anguilla; Colombia; Co-



zumel, Mexico; Jamaica; Suriname; Venezuela; and Yucatán, Mexico.

Woods and Sonoda (1973) reported this fish from Puerto Rico. This record was based on FMNH 65226-65228 (above). Two of these collections were made below 200 m depth and all of the specimens were juveniles. Martin and Patus (1984:198-191) include this fish in an appendix of fish species occurring very near to Puerto Rico, but too deep to be considered part of the fauna. Dennis (2003) also does not list this species in the Puerto Rican Plateau fauna. The record of one, juvenile specimen did not establish the presence of this fish on the Puerto Rico Plateau; therefore, our collection of an adult is a new locality record for Puerto Rico.

The references "Woods (1960) & Sonode (1973)" cited in Patus and Martin (1984) may have been some sort of cryptic citation for "Woods (1960 [=1961]), Woods & Sonoda (1973)," or a typographical error, as we have been unable to locate "Sonode (1973)." Sonode (1973) was not listed in the Bibliography of Patus and Martin (1984).

**Depth Record.** Moore in Froese and Pauly (2003) apparently combined the adult-deepsea depth records (down to 1210 m) with the juvenile-inshore records (up to 9 m). Since the depth ranges of juveniles and adults differ, their depth records should be considered separately.

Gordon (1993) suggested that the records down to 1200 m depth off the British Isles in the 1970s for this fish were based on orange roughy, *Hoplostethus atlanticus* Collett, 1896, misidentified as Darwin's slimehead. Most records for adults were in the 150-450 m depth range. However, Maul (1981) notes a 1000 m depth for this fish, and Quéro (1982) a depth of 60 m.

**Economic Importance.** If the epicure who refused us a specimen of Darwin's slimehead is any indication, this fish may have the potential of becoming a food/sport fish. The closely related orange roughy has become an important food fish. The only known commercial use of Darwin's slimehead is for oil and fishmeal in the central eastern Atlantic (Maul 1981). However, it may also be mixed in with orange roughy landings (Robins et al. 1991b).

*Order Scorpaeniformes, Family Scorpaenidae – scorpionfishes*

*Pontinus castor* Poey, 1860 - longsnout scorpionfish, rascacio de fondo

**Known Distribution.** Southeastern Florida, USA, to Colombia, including Bermuda (Froese and Pauly 2003; Robins and Ray 1986). In the West Indies: Bahamas (Eschmeyer 1969); Belize (Claro 1994), Bermuda (Eschmeyer 1969; Robins and Ray 1986; Smith-Vaniz et al. 1999), Colombia (Robins and Ray 1986), Cuba (Claro 1994; Eschmeyer 1969), north of Puerto Rico and the Virgin Islands (Eschmeyer 1969); southeast Florida (Robins and Ray 1986). Froese and Pauly (2003) cited Eschmeyer (1978) as confirming this fish in 12 additional countries in the West Indies; however, this reference only provided generalized maps, and thus cannot be used to document specific localities.

**Known Depth Range.** Former 45-400 m (Froese and Pauly 2003; Robins and Ray 1986) and 73-402 m (Smith-Vaniz et al. 1999), new 32-549 m.

**English Common Name.** Longsnout scorpionfish. This is the approved name used by FAO (Eschmeyer 1978) and AFS (Robins et al. 1980, 1991a).

**Spanish Common Name.** Rascacio de fondo. This is the approved FAO name (Eschmeyer 1978). However "Rascacio de lo alto" and "Rascacio polux" (Claro 1994); "rascana hocicuda" (Grana-Raffucci 1999); and "Rascasio" (Grana-Raffucci 1999; Silva 1994) are used in the Caribbean.

**Material Examined.** We obtained a 21.8 cm TL female specimen of longsnout scorpionfish collected in 174 m depth with a fish trap on a bank off the southeastern coast of the Dominican Republic, 27 September 1976 (UPRM unnumbered); and, one 18.8 cm SL, 22.9 cm TL specimen, collected in 32 m depth by M. J. Dowgiallo with a band speargun, on the upper insular slope, at "Buoy Site" southeast of La Parguera, Puerto Rico, 17 February 1979, identity confirmed and deposited by P. L. Colin 1980 (ANSP 144679). CAS 56822, 2 specimens, collected in 549 m depth with a 8 ft tumbler dredge by the National Marine

Fisheries Service, off the southeast coast of Puerto Rico, 17°50.0'N, 66°8.0'W, 28 July 1978, identified by W.N. Eschmeyer 1984; CAS-SU\* 137305, 1 specimen, collected in 118.9 m by W. K. Fisher off Barbados, 13 May 1918 (Anonymous 2003c) (\*SU=Stanford University Collection in CAS); UF 228891, 2 specimens, collected in 66-84 m depth by R/V Pillsbury with a 10 ft otter trawl, Grenada, 3 July 1969, identified by W. N. Eschmeyer 1970 (Anonymous 2003j); USNM 155336, 1 specimen, collected in 36.8 m depth by R/V Pelican, Gulf of Mexico south of Cape San Blas, Florida, USA, 29°24.0'N, 85°54.0'W, 10 March 1939; USNM 187911, 1 specimen, collected by R/V Oregon, off Puerto Rico, 30°13.5'N, 88°33'W [=18°37.0'N, 65°4.0'W (Williams pers. comm.)], 25 September 1959; USNM 187914, 1 specimen, collected in 384 m depth by R/V Oregon, 18°37.5'N, 65°4.0'W, 25 September 1959 (Anonymous 2001).

**Associated Fishes.** One specimen of tattler and one short bigeye (see below), were examined in the same collection with our specimen of longnout scorpionfish.

**Comments: Geographic Localities.** Froese and Pauly (2003) cite Eschmeyer (1978) as confirming this fish in the Dominican Republic; however, this reference only provided generalized maps, not specific localities. Therefore, our collection represents a new locality record for the Dominican Republic. Our second collection is a new locality record for Puerto Rico. Museum specimens above represent new locality records for Barbados and Grenada.

**Depth Record.** Museum records above note a minimum depth of 37 m (82.2% of previous), and a maximum of 549 m (136.6% of previous), which are new depth records. Our collection in 32 m depth (71.1% of previous) is also a new minimum depth record.

*Order Perciformes, Family Acropomatidae - lanternbellies, temperate ocean-basses*

*Verilus sordidus* Poey, 1860 – black virilus, verilo negro

**Known Distribution.** Colombia (Cervigón et al. 1992), Cuba (Claro 1994), Venezuela (Cervigón et al. 1993).

**Known Depth Range.** Former ~100 m, new ~100-600 m. Heemstra in Froese and Pauly (2003) suggest this fish “Inhabits . . . depths less than 100 m,” however, Cervigón et al. (1993) found it in depths greater than 100 m.

**English Common Name.** Black verilus is the approved FAO name (Cervigón et al. 1993).

**Spanish Common Name.** Verilo negro. This FAO translation of the English common name by Cervigón et al. (1992) is an approved name. Other local names include “Berregüello” (Claro 1994) and “Escolar chino” (Zaneveld 1983).

**Material Examined.** We obtained two female specimens, 18.5 and 20.3 cm SL, 23.0 and 25.4 cm TL, respectively, of black verilus collected with a baited longline in 600 m depth on the insular slope south of Guanica Bay, Puerto Rico, 18 November 1975 (UPRM unnumbered). USNM 289485, 1 specimen collected in 201 m depth by R/V Oregon II, in Caribbean Sea off Honduras 11°26'N, 073°30'W, 6 December 1968 (Anonymous 2001).

**Comments: Geographic Localities.** Our collection represents a new deep-water record for the insular Caribbean and Puerto Rico. The museum record (above) for this fish represents a new locality record for Honduras. Only seven specimens in five collections appear to have been previously reported.

Colin (1974:Fig. 4A,B) photographed, what he provisionally identified as black verilus, in 270 m depth off Glover's Reef, Belize, and in 308 m depth off Discovery Bay, Jamaica. He also observed a third specimen in 300 m depth off Discovery Bay. His identifications appear to be correct. His records and ours suggest that this fish may be distributed throughout much of the Caribbean Sea.

**Depth Records.** One museum record (above) includes a new maximum depth record (201 m, 201% of previous); however our record (600 m, 600% of previous) greatly exceeds it and the previously known maximum depth. This is not surprising since the depth of capture was not noted in most reports. If Colin's (1974) provisional identifications of three specimens

of black verilus are correct, then he doubled the number of precise depth records known for this fish (see above).

**Length.** Heemstra in Froese and Pauly (2003) cite the 30.0 cm TL record of Claro (1994) as the maximum length; however, the holotype (MCZ 21764) of the species measures 36.5 cm TL (Anonymous 2003g). Poey (1860) published a holotype TL of 29.0 cm, which is actually the SL of the holotype (Anonymous 2003g). This either represents a transposition of the TL for the SL or some confusion with the holotype specimen.

*Family Serranidae – groupers and fairy basslets*

*Serranus phoebe* Poey, 1851 – tattler, serrano de charco

**Known Distribution.** Bermuda and east coast of USA from North Carolina (Parker and Ross 1986) to Florida, USA, Gulf of Mexico and Yucatán, through West Indies to northern South America, possibly Brazil (Smith-Vaniz et al. 1999). In the West Indies: Aruba (Cervigón et al. 1992); Belize (Claro 1994); Bermuda (Robins and Ray 1986); Colombia (Cervigón et al. 1992); Cuba (Claro 1994); Curaçao, Netherlands Antilles (Cervigón et al. 1992); Haiti (Smith 1997); Jamaica (Cladwell 1966); Nicaragua (Sánchez 1997); Puerto Rico (Bullock and Smith 1991; Erdman 1956; Smith 1997); Trinidad and Tobago (Cervigón et al. 1992); Venezuela (Cervigón et al. 1992); Yucatán, Mexico (Robins and Ray 1986); south of the West Indies: Brazil (Cervigón et al. 1992); French Guiana (Uyeno et al. 1983); Guyana (Cervigón et al. 1992); Suriname (Uyeno et al. 1983); Trindade Island, Brazil (Gasparini and Floeter 2001).

**Known Depth Range.** Former 27-180 m (Claro 1994; Robins and Ray 1986), new 15-274 m.

**English Common Name.** Tattler. This name is approved by FAO (Cervigón et al. 1992) and AFS (Robins et al. 1980, 1991a). However, "Phoebe" is also in use (Zanveld 1983).

**Spanish Common Name.** Serrano de charco. This is the approved FAO name

(Cervigón et al. 1992). However "Diana" is also used in Cuba (Claro 1994); and "guaseta blanca" in Puerto Rico (Grana-Raffucci 1999).

**Material Examined.** We obtained a 19.4 cm TL female specimen of tattler collected in 174 m depth with a fish trap on a bank off the southeastern coast of the Dominican Republic, 27 September 1976 (UPRM unnumbered). KU 14819 and 14822, 1 specimen each, collected by Frank B. Cross et al. on R/V Eastward, Grand Bahama Island, Bahamas, 14 March 1971; ROM 29551, five 18.5-21.0 cm TL specimens, obtained by W. B. Scott at the Bridgetown Fish Market, Barbados, 13°30.0'N, 60°20.0'W, 26 August 1963; UF 15602, 2 specimens, collected in 198 m depth by R/V Silver Bay with a 60/80 ft balloon trawl, Mona Passage off Puerto Rico, 17 October 1963, identified by W. F. Smith-Vaniz 2001; UF 34946, 1 specimen, collected by R. F. Heagey in 252 m, off St. Thomas, U. S. Virgin Islands, 25 November 1981; UF 34947, 1 specimen, collected by R. F. Heagey in 262 m, 14.4 km south of St. Thomas, U. S. Virgin Islands, 25 November 1981; UF 44298, 1 specimen, collected in 82 m depth by R/V Oregon with a 40 ft shrimp trawl, Caribbean Sea off Panama, 29 May 1962; UF 44301, 11 specimens, collected in 274 m depth by R/V Oregon with a 40 ft shrimp trawl, Inagua Islands, Bahamas, 25 May 1965; UF 126126, 1 specimen, collected in 274 m depth by R/V Silver Bay with a 40 ft balloon trawl, Santaren Channel, Cay Sal Bank, Bahamas, 6 November 1960; UF 203002, collected in 23-24 m depth by W. A. Starck with Pronoxfish® (fish toxicant), Florida Keys, Florida, USA, 15 June 1958; UF 216272, 1 specimen, collected in 16 m depth by R/V Silver Bay with an 80-100 ft roller trawl, Onslow Bay, North Carolina, USA, 24 July 1962, identified by C. R. Robins 1965; UF 222008, 3 specimens, collected in 229 m depth by R/V Oregon with a 40 ft shrimp trawl, Inagua Islands, Bahamas, 25 May 1965, identified by C. R. Robins 1966; UF 228752, 1 specimen, collected in 229 m depth by the R/V Oregon with a 6 ft tumbler dredge, Aruba, Netherlands Antilles, 2 October 1965, identified by P. C. Heemstra 1971; UF 228801, 2 specimens, collected in 212-214 m depth by R/V Oregon with a 40

ft shrimp trawl, Nicaragua, 4 February 1967, identified by P. C. Heemstra 1971; UF 229748, 1 specimen, collected by R/V Pillsbury with a 40 ft otter trawl, Inagua Islands, Bahamas, 13 January 1970, identified by P. C. Heemstra 1971; UF 229868, 6 specimens, collected in 92-140 m depth by R/V Pillsbury with a 41 ft otter trawl, Caribbean Sea off the Dominican Republic, 9 July 1971, identified by P. C. Heemstra; UF 230548, 8 specimens, collected in 130-165 m depth by R/V Pillsbury with a 10 ft try net, Caribbean Sea off the Dominican Republic, 9 July 1971, identified by P. C. Heemstra 1972 (Anonymous 2003j); UMMZ 173976\*, one specimen 14.8 cm SL, collected in 101 m depth with otter trawl, 18 km northwest of Cayo Arenas, 22°17.0'N, 91°29.0'W, 1 May 1958; UMMZ 174076\*, two 13.3-13.6 cm SL specimens, collected with roller net, 22°28.0'N, 90°24.0'W, 10 May 1958; UMMZ 174081\*, one 8.9 cm SL specimen, collected in 55 m depth with roller net, 22°22.0'N, 90°16.0'W, 10 May 1958; UMMZ 174102\*, one 12.4 cm SL specimen, collected in 77 m depth with roller net, near Alacran, 22°34.0'N, 90°56.0'W, 11 May 1958; UMMZ 174119\*, three 13.7-14.2 cm SL specimens, collected in 48 m depth with roller net, east of Alacran, 22°18.0'N, 88°54.0'W, 14 May 1958; UMMZ 174129\*, three 13.1-14.3 cm SL specimens, collected with roller net, east of Alacran, 22°45.0'N, 88°10.0'W, 15 May 1958; UMMZ 174130\*, six 12.0-14.2 cm SL specimens, collected in 60 m depth with roller net, east of Alacran, 22°49.0'N, 88°13.0'W, 15 May 1958; UMMZ 174149\*, one 11.2 cm SL specimen, collected in 91-121 m depth with roller net, 23°36.0'N, 87°58.0'W, 18 May 1958; UMMZ 174157\*, one 12.5 cm SL specimen, collected in 124 m depth with roller net, 23°36.0'N, 87°54.0'W, 18 May 1958 [\*last nine UMMZ records collected and identified by C. L. Smith on R/V Silver Bay on Campeche Bank off Mexico].

**Comments: Geographic Localities.** Our collection represents a new locality record for the Dominican Republic. Museum collections above represent new locality records for the Bahamas, Barbados, Campeche Bank (off Mexico), Cay Sal Bank (Bahamas), Grand Bahama Island (Bahamas), Inagua

Islands (Bahamas), and Panama (Caribbean); and two additional collections from the Dominican Republic. Smith-Vaniz et al. (1999) did not report AMNH 52460 in their synopsis of Bermuda fishes.

**Depth Records.** Two museum records above list capture depths of 16-24 m, but Williams and Bunkley-Williams (in press) note this species occurs as shallow as 15 m depth in Puerto Rico, which is a new minimum depth record (55.5% of previous). Seven museum records above list depths of 198-274 m, which represent a new maximum depth record (152.2% of previous).

*Family Priacanthidae – bigeyes*

*Cookeolus japonicus* (Cuvier, 1829) – longfinned bulleye, catalufa aleta larga

**Known Distribution.** This fish apparently occurs circumglobally in tropical and subtropical influenced waters (Starnes 1988); however, it has only been reported in the southern or continental Caribbean (Aruba, Colombia, Curaçao, Trinidad and Tobago, Venezuela) (Cervigón et al. 1993; Froese and Pauly 2003), and Bermuda (Smith-Vaniz et al. 1999).

**Known Depth Range.** 40 to ~400 m (Starnes 1988).

**English Common Name.** Longfinned bulleye. This is the approved FAO name (Starnes 1995). Other common names have been suggested: “bigeye” (May and Maxwell 1986), “bulleye” (Heemstra 1986; Robins et al. 1991a; Santos et al. 1997; Smith 1997), “bull-eye” (Randall 1968); “Deepwater bullseye” (Edwards 1990), “long-finned bullseye” (May and Maxwell 1986).

**Spanish Common Name.** Catalufa aleta larga. This is the FAO approved name (Starnes 1995). Other names include: “Catalufa de aleta larga” (Escobar-Fernández and Siri 1997) and “ojobuey” (Grana-Raffucci 1999).

**Material Examined.** We obtained a 35.5 cm TL, 28.1 cm SL, frozen, gutted specimen of longfinned bulleye collected by hook-and-line in 180 m depth off Puerto Rico between Guánica and Playa Santa on the southwest coast 5 September 2002 (USNM 372733).



FIG. 8. A 35.5 cm total length, 28.1 cm standard length, specimen of *Cookeolus japonicus* (Cuvier, 1829) – longfinned bulleye collected off southwestern Puerto Rico between Guanica and Playa Santa on the southwest coast, photograph taken by L. Bunkley-Williams

**Additional Records.** David López (pers. comm.) recognized that this specimen represented a rare fish. He had seen only five other specimens of this fish in 20 years of fishing and managing a fisheries cooperative in La Parguera, Puerto Rico. He knew the differences between this fish and the short bigeye thus his identifications of prior catches appear to be correct.

**Comments: Geographic Locality.** This collection represents a new locality record for the insular Caribbean and Puerto Rico (Dennis 2003). However, Colin (1974) observed *Cookeolus boops* (Forester, 1801) off Discovery Bay, Jamaica. This species name is now regarded as a junior synonym of *Heteropriacanthus cruentatus* (Lacepède, 1801), glasseye; however, the fish observed was the longfinned bulleye (Colin pers. comm.). No specimen was captured or deposited in a museum to confirm this record (Colin pers. comm.). Martin and Patus (1984) anticipated the occurrence of this fish in Puerto Rico: "Distribution data from Hardy (1978) indicate that *Cookeolus boops* [= *japonicus*] (Bloch and Schneider), the bull-eye and *Pristigenys altus* (Gill), the short big-eye[,] should be expected in Puerto Rican waters though not presently reported."

*Pristigenys alta* (Gill, 1862) – short bigeye, catalana de canto

**Known Distribution.** East coast of North America, Gulf of Mexico and the Caribbean. Records from Brazil are in error, and the report by Uyeno et al. (1983) from Suriname, is in doubt (Starnes 1988). In the West Indies: Anguilla, Antigua Barbuda (Smith 1997), the Bahamas (Starnes 1988), Barbados (Smith 1997), Belize (Claro 1994; Colin 1974 [observation]), Bermuda (Smith-Vaniz et al. 1999; Starnes 1988), British Virgin Islands (Smith 1997), Colombia (Cervigón et al. 1992), Cuba (Starnes 1988), Dominica, Grenada, Guadeloupe, Martinique, Montserrat (Smith 1997), Jamaica (Colin 1974), Nicaragua (Starnes 1988), Puerto Rico (Dennis 2003; Martin and Patus 1984 [anticipated]), St. Lucia, St. Kitts Nevis, St. Thomas (U.S. Virgin Islands) (as summarized by Dennis 2003), St. Vincent (Smith 1997), Trinidad and Tobago (Cervigón et al. 1992), St. Croix (U.S. Virgin Islands) (Ogden et al. 1975), Venezuela (Cervigón et al. 1992).

**Known Depth Range.** Former 5-200 m (Starnes 1988), new 5-201 m; juveniles 0-630 m.

**English Common Name.** Short bigeye. This is the approved name used by FAO (Cervigón et al. 1992) and AFS (Robins et al. 1980, 1991a).

**Spanish Common Name.** Catalana de canto. This is the approved name used by FAO (Cervigón et al. 1992); however, "Catalufa de lo alto" is used in Cuba (Claro 1994); and "ojitobuey" by Grana-Raffucci (1999).

**Material Examined.** We obtained a 21.8 cm TL female specimen of short bigeye collected in 174 m depth with a fish trap on a bank off the southeastern coast of the Dominican Republic, 27 September 1976 (UPRM unnumbered). MCZ 80717, 1 juvenile specimen, collected by the R/V Atlantis II in 0-490 m depth in the Atlantic Ocean north of Suriname, 9°3'N, 55°0'W, 25 September 1973, identified by D. G. Smith 1988; MCZ 80714, 1 juvenile specimen, collected by the R/V Gosnold with an open bottom trawl in depths ranging from 630-670 m in the Hudson Canyon, Atlantic Ocean off New York (USA), 39°54'N, 70°53'W, 10 August 1972, identified by D. G. Smith 1988 (Anonymous 2003g); UF 31325, 2 specimens, collected in 201-219 m depth by R/V Oregon with a 60 ft shrimp trawl, Nicaragua, 4 February 1967; UF 115584, one 2.1 cm SL specimen, collected in 18-20 m depth with a 6 ft tumbler dredge by the R/V Oregon in the Grenadines, 27 September 1964, identified by G. L. Miller 1985; UF 230722, 1 specimen (Colin 1974: 20.4 cm SL), collected in 150 m depth (Colin 1974: surface) by R/V Nekton Gamma off Jamaica (Colin 1974: using explosives, off Discovery Bay), August 1972, identified by P. L. Colin 1973 (Anonymous 2003j); UPRM 3714, one 19.9 cm SL specimen, collected by J. J. Kimmel on R/V Stahl in a fish trap off Mayagüez, Puerto Rico, no date recorded.

**Additional Records.** David López (pers. comm.) has handled numerous specimens of short bigeye in 20 years of fishing and managing a fisheries cooperative in La Parguera, Puerto Rico. Unfortunately, none of these specimens was saved.

**Comments: Geographic Localities.** Our collection represents a new locality record for the Dominican Republic. Museum rec-

ords above add a new locality record for the Grenadines. The museum record above of a larval form of this fish off Suriname, identified by D.G. Smith in 1988, supports the Uyeno et al. (1983) record. This appears to be the first confirmed locality record off northeastern South America.

Dennis (2003) reported part of the data for a specimen collected off Puerto Rico (complete UPRM 3714 record above). However, this record is not adequate to establish a locality record for Puerto Rico since it could have been collected in waters deeper than 200 m, because neither Dennis (2003) nor UPRM 3714 recorded a depth of collection (or date of collection). The collector, Kimmel (pers. comm.) cannot locate his field notes, but does recall that the depth of collection was ~183 m and the collection date was sometime in 1986-1987. Therefore, the revised record represents a new locality record for Puerto Rico. When the collector locates his field notes, we will update the UPRM record. David López (pers. comm.) occasionally catches this fish off southwestern Puerto Rico (see comment above), and finds this fish to occur more commonly than the longfinned bulleye.

The synopsis by Froese and Pauly (2003) states that this fish is not found in Brazil or anywhere in South America; however, Robins and Ray (1986) noted it from the northern Brazil shelf; Cervigón et al. (1992) from Colombia, Trinidad and Tobago, and Venezuela; Uyeno et al. (1983) from Suriname; and we list a museum record from off northeastern South America.

**Depth Records.** One museum record above of 201-219 m collection depth is a new maximum depth record (100.5% of previous). Juveniles of the short bigeye have a greater depth range than the adults. They are frequently collected at the surface and one museum record above lists bottom depths between 630 and 670 m (although the open bottom trawl could possibly have picked this specimen up in the water column or surface).

**Length.** Froese and Pauly (2003) list a maximum TL of 30.0 cm; however, Smith-Vaniz et al. (1999) noted a 33.5 cm FL specimen.

Family *Carangidae* – jacks

*Seriola fasciata* (Bloch, 1793) – lesser amberjack, medregal listado

**Known Distribution.** This fish occurs throughout the western Atlantic from Massachusetts (USA) to Brazil, including the Gulf of Mexico (Robins and Ray 1986); the Mediterranean Sea (Massuti and Stefanescu 1993); and in the eastern Atlantic in the Madeira Islands (Smith-Vaniz et al. 1990), the Canary Islands (Brito 1991; Falcón et al. 1996), and St. Helena Island (Edwards 1993). However, no records are known from the insular Caribbean. Berry and Smith-Vaniz (1978) showed generalized, unsubstantiated, map localities for this fish around Bermuda, Puerto Rico and the northern Lesser Antilles; however, Smith-Vaniz et al. (1999) subsequently noted it for the first time from Bermuda, and we have found no previous records of this fish from Puerto Rico or the Lesser Antilles. Smith-Vaniz in Froese and Pauly (2003) attributed a record of this fish from “Antigua Barbuda” to Berry and Smith-Vaniz (1978), but this article does not mention these islands. Records exist for Colombia (Cervigón et al. 1993), Cuba (Claro 1994), Mexico (Anonymous 1994), Nicaragua (Sánchez 1997), and Venezuela (Cervigón et al. 1993), but these are continental Caribbean areas, with the exception of Cuba, and Cuba is generally considered to have a continental fish distribution. One casual or gray-literature record

does exist for the British Virgin Islands reporting ciguatera poisoning in lesser amberjack (Dammann 1969). However, his use of only the common name leaves this identification in question, and it was not substantiated by specimen deposition. Dammann’s (1969) record is also not recognized as a valid Puerto Rican Plateau occurrence by Dennis (2003). The map in Carpenter (2003:1460) includes the Dominican Republic, Puerto Rico, and the U.S. and British Virgin Islands in the distribution of this species; however, no specific data was presented to support these records.

**Known Depth Range.** Former 55-130 m; new 55-348 m. Adults (>43-47 cm FL) occur near the bottom in 55-130 m depth [55-125 m (Claro 1994)], while larger juveniles are pelagic or benthic in shelf waters (Berry and Smith-Vaniz 1978).

**English Common Name.** Lesser amberjack. This is the approved FAO (Coppola et al. 1994) and AFS (Robins et al. 1980, 1991a) name. Zaneveld (1983) suggested “False amberjack” as a common name used in parts of the Caribbean.

**Spanish Common Name.** Medregal listado. This is the approved FAO name (Berry and Smith-Vaniz 1978; Coppola et al. 1994). “Medregal” (Claro 1994; Grana-Raffucci 1999; Zaneveld 1983) is too generic being applied to four species in the genus. Other names “Boquerón,” “Segundo,” and “Volantin” (Grana-Raffucci 1999; Zaneveld 1983) are only used locally in the Caribbean.



FIG. 9. A 32.6 cm fork length, 36.5 cm total length, juvenile female specimen of *Seriola fasciata* (Bloch, 1793) – lesser amberjack collected off La Parguera, Puerto Rico, photograph taken by L. Bunkley-Williams

**Material Examined.** We received three specimens of lesser amberjack from small-scale, hook-and-line, commercial fishermen: one 34.5 cm TL, 30.0 cm FL, gutted (presumed juvenile) collected off Cabo Rojo, Puerto Rico, 1 February 2000; one 52.0 cm TL, 47.6 cm FL, adult male collected in 252-270 m depth off Rincón, Puerto Rico, 17 February 2002; and one 32.6 cm FL, 36.5 cm TL, juvenile female collected in 90 m depth off La Parguera, Puerto Rico 15 September 2002 (USNM 372732). ANSP 136525, 1 specimen, collected by R/V Agustin Stahl, west coast of Puerto Rico, 18°11'N, 67°22'W, 25 March 1977, identified by W. F. Smith-Vaniz 1978; ANSP 136526, 1 specimen, collected in 38 m depth by R/V Agustin Stahl, west coast of Puerto Rico, 18°11'N, 67°20'W, 5 July 1977, identified by W. F. Smith-Vaniz 1978 (Anonymous 2003b); CAS 87869, 1 specimen, collected at the surface by R/V Pillsbury (Fehlmann, Damkaer) with a 1 m plankton net in the Gulf of Mexico off Cuba, 23°30'N, 84°9'W, 13-14 June 1968, identified by J. Moberly 1979 (Anonymous 2003c); USNM 120744, 1 specimen, Barbados, F. Gardner collector; USNM 308448, 2 specimens, collected in 348 m depth by R/V Silver Bay off Florida, 27°20'N, 79°49'W, 1 October 1962, identified by J. M. Velderman (Anonymous 2001).

**Additional Records.** Adrian Cooper and S. G. Oakley sent us parasites (to be reported elsewhere) from two specimens of lesser amberjack collected off Jamaica from the Pedro Bank, April 1980; and 20 m Bank (Pedro Bank), no date. We will assume that these professional fishery biologists accurately identified the host specimens. Also, the apparently genus-specific parasites they sent correspond to those we found in this fish in Puerto Rico (Bunkley-Williams and Williams unpubl. data).

**Comments: Geographic Records.** Two of our collections represent a new geographic locality record for the insular Caribbean and Puerto Rico (Dennis 2003). The collections from Cooper and Oakley represent an additional locality record for the Caribbean Sea at the Pedro Bank near Jamaica. Caldwell (1966) noted new locality records for greater amberjack, *S. dumerili* (Risso),

and almaco jack, *S. rivoliana* Valenciennes, for Jamaica. Neither Caldwell (1966) or Thompson and Munro (1983) reported the lesser amberjack from Jamaica. Apparently, the field work of Thompson and Munro (1983) had been completed (~1972-1974) before the specimens of lesser amberjack were collected by Cooper and Oakley.

The museum records add a new geographic locality record for this fish from Barbados. These also note two additional specimens from Puerto Rico.

**Depth Records.** Our depth of 252 m would have been a new depth record for this fish species; however, USNM 308448 (above) lists a greater depth of 348 m for this species. Those are increases of 193.8 and 267.3% in the previously known maximum depth. One of our large juvenile specimens did not occur over the insular shelf, as suggested by Berry and Smith-Vaniz (1978), but at 90 m depth down the insular slope. Nelson Crespo (pers. comm.) usually catches this fish in 180 m depth off Rincon, Puerto Rico, while commercially fishing for snapper (Lutjanidae). This suggests a typical deep-water habitat.

**Economic Importance.** Amberjacks (*Seriola* spp.) cannot be sold legally in Puerto Rico because of the potential of ciguatera fish poisoning. Since these fishes cannot be sold, they are usually released or discarded. This prevented Williams and Bunkley-Williams (1996) from obtaining specimens in Puerto Rico. It also probably limited the availability of specimens of lesser amberjack, thus hindering previous documentation from Puerto Rico.

#### Family Bramidae – pomfrets

##### *Eumegistus brevorti* (Poey, 1860) – tropical pomfret

**Known Distribution.** Three specimens have previously been reported from Cuba (Lunel 1866; Mead 1972; and Poey 1860), one from the northeast Gulf of Mexico off Florida (Hernández-Hamón et al. 1999), two from the “Virgin Islands” (Thompson and Russell 1996), one from Isaac Cays, Bahamas (Thompson and Russell 1996), and one from Isla de la Aguja, Santa



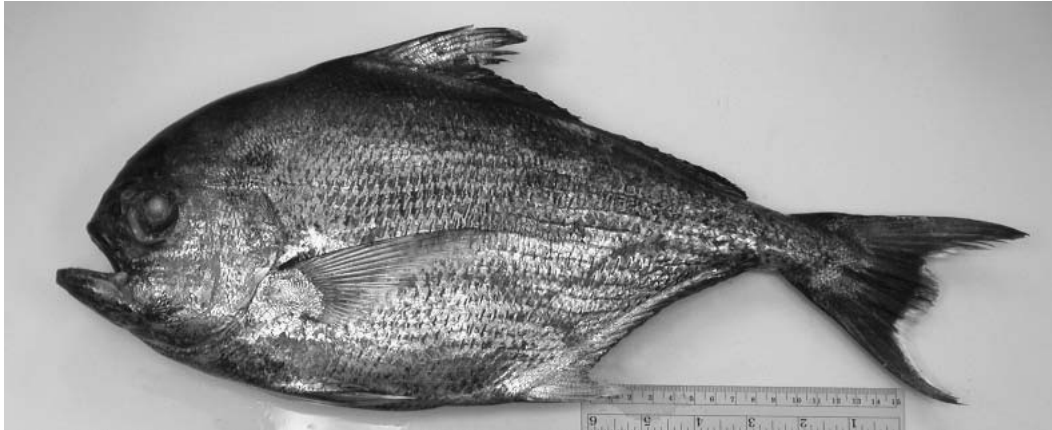


FIG. 10. A 34.0 cm standard length, 45.0 cm total length, specimen of *Eumegistus brevorti* (Poey, 1860) – tropical pomfret collected off La Parguera, Puerto Rico, photograph taken by L. Bunkley-Williams

Marta, Colombia (Hernández-Hamón et al. 1999). These were all western tropical/subtropical Atlantic, but eight larval individuals of this species have been reported from equatorial West Africa (Mead 1972).

**Known Depth Range.** Former 190-460 m (Hernández-Hamón et al. 1999); new 190-1317 m. Carlos Alemañy (pers. comm.) never catches this fish shallower than 384 m off Puerto Rico.

**English Common Name.** Tropical pomfret. Hernández-Hamón et al. (1999) use the common name “tropical pomfret.” The origin of this common name or even if they were using it as a group name or specific common name is not clear in Hernández-Hamón et al. (1999). However, this name has been used as an alternate common name for the bigtooth pomfret, *Brama orcini* Cuvier, 1831, by Smith (1986). This makes the common name somewhat confusing. It is also too generalized. A more proper common name should be established. Grana-Raffucci (1999) used the name “Caribbean pomfret” without explanation. Since this fish is known from the Gulf of Mexico and possibly West Africa, his name seems too restrictive.

**Spanish Common Name.** Claro (1994) gave the names “Brama clara” and “Brama de lo alto” for this fish in Cuba. We are not aware of any approved common name.

**Material Examined.** We obtained, from a sport fisherman, a 27.0 cm SL, 35.5 cm TL

immature specimen and a 34.0 cm SL, 45.0 cm TL (previously gutted) specimen of tropical pomfret collected in 384 m depth by hook-and-line of La Parguera, Puerto Rico, November 2002 (USNM 372736). CAS-SU\* 148107, 1 specimen, collected in 1317 m depth with a longline by R/V Oregon, Gulf of Mexico, 28°50'N, 88°11'W, 14 July 1954, identified by Wilimovsky 1955 (Anonymous 2003c) (\*SU=Stanford University Collection in CAS); IGFA (no number) one 61.0 cm FL specimen, collected by hook-and-line off Bimini, Bahamas, 25°43.0'N, 71°57.0'W, 16 November 1998 (Anonymous 2003e, f); UF 47476, 1 specimen, collected in 274-366 m depth by J. Skov, Virgin Islands, 15 July 1983, identified by George H. Burgess; UF 47477, 1 specimen, collected in 366 m depth by G. Connell, Virgin Islands, 25 January 1984, identified by George H. Burgess (Anonymous 2003j); USNM 266281, 1 specimen, collected in 439 m depth by R/V Oregon II, 28°4'N, 85°27'W, 24 June 1971 (Anonymous 2001).

**Additional Records.** Carlos Alemañy (pers. comm.) also caught this fish off Venezuela. This would be a new locality record and only the second record in the southern Caribbean, if it had been substantiated. He has only recently begun to catch numerous specimens of this fish off Puerto Rico.

**Comments: Geographic Records.** Our specimens represent new deep-water rec-

ords near Puerto Rico and only the 10<sup>th</sup> and 11<sup>th</sup> specimens to be reported in the literature. The International Game Fish Association unpublished or gray literature record (Anonymous 2003e, f) represents a new deep-water record for Bimini, Bahamas.

Thompson in Froese and Pauley (2003) suggested that USNM 266281 records this fish from "Mexico," but the associated Latitude and Longitude noted place the record off Florida in the northeastern Gulf of Mexico (Anonymous 2001). The "Virgin Islands" locality (Thompson and Russell 1996; Anonymous 2003j; UF 47476-47477) did not specify the U.S. or British Virgin Islands, and no Latitude and Longitude were recorded. However Anonymous (2003d) lists the localities "Long Bank" [=Lang Bank east of St. Croix, Tobias, pers. comm.] for UF 47476, and "South of Stx." for UF 47477. These localities refer to St. Croix, U.S. Virgin Islands (Tobias pers. comm.). These specimens were collected by commercial fishermen and deposited by W. J. Tobias stationed in St. Croix (Robins pers. comm.). The corrections of these museum records represent a deep-water record for St. Croix and Lang Bank.

**Depth Record.** The unpublished museum record, CAS 148107, from the northeast Gulf of Mexico represents a new depth record of 1317 m (286.3% of previous) for this fish.

**Species Diagnostic Characters.** Catania (pers. comm.) was kind enough to take meristic counts and morphometric measurements and radiographs of the CAS 148107 specimen. It was 32.0-33.0 cm SL, the anterior lobes of the dorsal and anal fins were pronounced (15.0-17.0 cm long), the caudal fin lunate, the scaleless "snout saddle" extended above the eye, but there was no smaller patch behind the eye, more than 22 anal rays were present, but the scales made the count difficult and the radiographs did not clearly show the rays. He also made a radiograph available for our examination. We will tentatively consider this specimen to be a tropical pomfret until we can obtain additional local specimens and reexamine all existing specimens.

Thompson and Russell (1996) and Hern-

ández-Hamón et al. (1999) noted that the specimens of tropical pomfrets caught in the Bahamas and the Virgin Islands differed from those caught in Cuba by being larger, having shorter snouts and shorter anal fin bases, more shallow caudal peduncles, and longer pectoral fins. Hernández-Hamón et al. (1999) noted that the Cuban and Colombian versus the Bahamian and Virgin Island specimens had deeper bodies, shorter eye and vertical eye diameters, shorter preanal lengths, and shorter dorsal and anal fin lengths; and the Colombian specimen had longer pelvic fins. This suggests that more than one species of *Eumegistus* may exist in the Caribbean and Atlantic. Additional specimens from the commercial catch of Puerto Rico might help resolve this issue.

**Length/Weight Relationship.** Most of the specimens Carlos Alemañy (pers. comm.) has caught were larger than the two he gave us. He has weighed specimens exceeding 11.3 kg. This is almost four times the known maximum weight of 3.1 kg. (Thompson in Froese and Pauley 2003; Anonymous 2003e, f). We will not consider his report to constitute a new size record until we can examine one of these specimens.

**Economic Importance.** Carlos Alemañy (pers. comm.) cooked and ate several specimens and rates the flesh texture and flavor as excellent. If his comments concerning the abundance, size, and quality of this fish are correct, the Tropical Pomfret, could become an important sport fish or commercial fishery product. Species in this genus are important food fishes in other parts of the world.

## DISCUSSION

The small collection of 22 fish specimens from the deep reef/shallow slope of Puerto Rico and the Dominican Republic, allowed us to recognize a number of large-scale or regional range extensions [1 central Atlantic record, 4 Caribbean, 8 insular Caribbean, 2 Gulf of Mexico, 1 off northeastern South America, 1 Sargasso Sea, 59 island or country records], 17 depth re-

records, and two maximum weight or length records; and one new parasite host record. These records are an indication of just how poorly this fauna is known in the Caribbean.

Many of these fishes are either rarely collected or poorly studied as our collections were the 8<sup>th</sup> and 9<sup>th</sup> known specimen of the black verilus, 10<sup>th</sup> Caribbean chimaera, 10<sup>th</sup> and 11<sup>th</sup> tropical pomfret, 11<sup>th</sup> Antillean snake eel recorded. Thus, we were able to modify some of the species diagnostic characters for the Antillean snake eel, Caribbean chimaera, Caribbean lanternshark, dwarf catshark, and tropical pomfret. We suggest that the tropical pomfret may represent a species complex and are attempting to obtain more specimens to revise the description(s).

Four of our exceptionally shallow depth records (Caribbean chimaera, chimaera cestodarian, dwarf cat shark, Caribbean lanternshark) of 180 m place these species in the shallow fauna for the first time. Twelve species were added to the fauna of the Puerto Rican Plateau (Dennis 2003).

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