

LIST OF FISHES COLLECTED AT PANAMA BY CAPTAIN JOHN M. DOW, NOW IN THE UNITED STATES NATIONAL MUSEUM.

By **DAVID S. JORDAN** and **CHARLES H. GILBERT.**

About twenty years ago (1861-1865) several collections of fishes were forwarded to the Smithsonian Institution by Capt. J. M. Dow, from Panama and other points on the west coast of Central America. One of these collections has been studied by Professor Gill.* The others have hitherto remained unnoticed and many of the specimens have been allowed to decay. The present paper gives an account of what remains at present.

1. *Mustelus dorsalis* Gill.

(*Mustelus dorsalis* Gill, Proc. U. S. Nat. Mus. 1864.)

8068. (Types of *Mustelus dorsalis*.) Four half-grown specimens.

2. *Anableps dowi* Gill.

(*Anableps dowi* Gill, Proc. Ac. Nat. Sci. Phila. 1861, 4.)

8005. Five specimens, the largest nearly 11 inches long, from La Union, San Salvador.

3. *Hemirhamphus poeyi* Günther.

30953. Two fine adult specimens.

This species is very close to *H. unifasciatus*, if really distinct. It differs chiefly in the shortness of the lower jaw.

Four specimens of *Exocoetus*, representing three species, are also in the collection, but it is questionable whether any of them really came from Panama. We are informed by Captain Dow that the specimen which became the type of *Exocoetus albidactylus* Gill (Proc. Ac. Nat. Sci. Phila. 1863, 167) was taken off the northern coast of Brazil, and not at Panama.

4. *Agonostoma nasutum* Günther.

30966. One specimen.

5. *Joturus stipes* sp. nov.

31010. One large specimen, found in the same bottle as 30957 (*Pomadasys humilis*).

19915. Two still larger examples, in good condition, about 15 inches in length, from "Central America"; the exact locality and the collector unknown.

Head $4\frac{2}{3}$ in length; depth 4; D. IV-1, 9. A III, 9. Scales 45-13.

* Descriptive Enumeration of a Collection of Fishes from the Western Coast of Central America. Presented to the Smithsonian Institution by Capt. John M. Dow. By Theodore Gill. Proc. Ac. Nat. Sci. Phila. 1863, 162-174.

Body robust, a little compressed behind. Head heavy, little compressed, gibbous above and anteriorly. Snout thick, broad, protruding, blunt and tumid at tip, considerably overhanging the small inferior mouth, and entirely below the level of the eye. Length of snout $2\frac{3}{8}$ in head. Maxillary reaching nearly to posterior margin of eye, $2\frac{1}{2}$ in head, hidden entirely beneath the preorbital. Mouth broad, but without much lateral cleft. Lower jaw included. Upper lip thick, slipping beneath the snout. Lower lip very thick, its anterior edge forming a soft sharp-edged fold; outline of the lip very obtuse. Teeth rather strong, coarse, bluntly conical, forming a large ovate patch on each side of lower jaw, the two patches not confluent. A similar but smaller patch on the vomer. No teeth on the palatines. Upper jaw with a band of similar but rather smaller teeth.

Nostrils roundish, close together, in front of the small round eye, which is nearer angle of mouth than level of top of head. Interorbital space very broad, transversely convex. Eye 6 in head, 3 in interorbital width. No adipose eyelid. Neither lip with cirri or papillæ.

Scales of head each with many smaller ones at base; accessory scales on body largely developed. All the fins, including spinous dorsal, covered with small scales. Gill membranes largely united, free from the isthmus.

Dorsal spines compressed and curved, becoming rapidly shorter from the first, which is about two-thirds length of head. Second dorsal and anal with their free margins concave, the anal somewhat falcate, its longest ray $1\frac{1}{8}$ in head. Caudal forked, as long as head. Pectoral as long as head, reaching middle of first dorsal.

Color dull olivaceous, without distinct markings, paler below.

6. *Mugil brasiliensis* Agassiz.

15121, 15122, 15128. Several young specimens.

7. *Murænesox coniceps* Jor. & Gill.

30981. One large specimen, in poor condition.

8. *Echeneis naucrates* L.

30984. One half-grown specimen, in fair condition. Disk with 22 laminae.

9. *Scomber grex* Mitchill.

30998. Two half-grown specimens, in poor condition. The air-bladder is present.

10. *Oligoplites altus* (Gthr.) J. & G.

30969. A young specimen, in good condition.

11. *Oligoplites occidentalis* (L.) Gill.

(*Oligoplites inornatus* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 166.)

30959. (Type of *Oligoplites inornatus*.) One adult specimen, in good condition.

12. *Trachynotus ovatus* (L.) Lac.

30970. One partly grown specimen, in good condition.

15123. Three very young specimens.

Compared with Atlantic specimens of somewhat larger size, No. 30970 is somewhat deeper (depth $1\frac{2}{3}$ in length, instead of $1\frac{1}{2}$), and the dorsal and anal fins are much less elevated in front (anterior lobe of dorsal $4\frac{1}{3}$ in length; $2\frac{1}{10}$ in *T. ovatus* from Cuba).

13. *Caranx dorsalis* (Gill) Gthr.

(*Carangoides dorsalis* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 166.)

4957. (Types of *Carangoides dorsalis*.) Two specimens, in good condition.

14. *Caranx speciosus* Lac.

(*Caranx panamensis* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 166.)

30960. (Type of *Caranx panamensis*.) One adult specimen, in good condition.

15. *Caranx fallax* C. & V.

(*Carangus marginatus* Gill, Proc. Ac. Nat. Sci. Phil. 1863, 166.)

30958. (Type of *Carangus marginatus*.) One adult example, in good condition.

There can be no doubt that Dr. Günther's identification of *Scomber hippos* L. with this species is erroneous.

16. *Caranx atrimanus* J. & G.

30745. One specimen, $5\frac{1}{3}$ inches long, in good condition.

17. *Rhypticus nigripinnis* Gill.

(*Promicropterus decoratus* Gill, Proc. Ac. Nat. Sci. Phil. 1863, 164.)

30961. (Type of *Promicropterus decoratus*.) One specimen, 8 inches long, in good condition.

18. *Alphestes multiguttatus* (Gthr.) J. & G.

30988. One specimen, in fair condition, but somewhat faded.

30954. A young specimen, in good condition.

This species is closely allied to the West Indian *Alphestes afer* Bloch, (*Plectropoma chloropteron* C. & V.), but is readily distinguished by the more pointed snout and the totally different coloration.

19. *Epinephelus analogus* Gill.

(*Epinephelus analogus* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 163.)

4944. (Type of *Epinephelus analogus*.) A half-grown specimen, in good condition.

30993. One fine young specimen.

20. *Pomadasys humilis* (Kner & Steindachner) J. & G.

30957. A fine adult specimen, and one young specimen.

The resemblance of this species to *Pomadasys crocro* (C. & V.) is very close.

21. *Kuhlia xenura* Jor. & Gilb.

(*Xenichthys xenurus* Jordan & Gilbert, Proc. U. S. Nat. Mus. 1881, 454.)

4356. (Types of *Xenichthys xenurus*.) Two specimens, in good condition.

This species should be referred to the genus *Kuhlia* Gill (= *Moronopsis* Gill), rather than to *Xenichthys*. It has no enlarged scale in the ventral axil, and it has the naked snout, jaws, and fins, the compressed body, and high dorsal spines of the species of *Kuhlia*.

An examination of the Museum records shows that these specimens now bear a number originally given to one of the types of "*Euschistodus concolor*," from San Salvador. As the connection of these specimens with the Dow collection rests on the same records, we consider it doubtful whether they really came from San Salvador.* *Kuhlia xenura* appears to be a valid species distinct from *K. tenuira*, but it should be suppressed from the list of species inhabiting the Pacific coast of Central America, until its occurrence there is verified by some collector.

22. *Centropomus unionensis* Bocourt.

30991. One fine specimen, in good condition.

23. *Apogon dovii* Günther.

30990. Two specimens, in bad condition.

24. *Polynemus approximans* Lay & Bennett.

15129. One specimen, in good condition.

25. *Sciæna oscitans* Jor. & Gilb.

30967. Three fine specimens, two of them adult.

26. *Sciæna armata* (Gill) J. & G.

(*Bairdiella armata* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 164 = *Corrina acutirostris* Steindachner Ichth. Beitr. III, 28, 1875.)

(Type of *Bairdiella armata*.) One specimen, in good condition.

27. *Sciæna ophioscion* (Gthr.) J. & G.

(*Ophioscion typicus* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 165.)

22861. (Type of *Ophioscion typicus*.) One adult specimen, in good condition.

28. *Pomacanthus zonipectus* (Gill.) Günther.

(*Pomacanthodes zonipectus* Gill, Proc. Ac. Nat. Sci. Phila. 1862, 244 (adult) = *Pomacanthus crescentalis* Jor. & Gilb. Proc. U. S. Nat. Mus. 1881, 358, young.)

5922. (Type of *Pomacanthodes zonipectus*.) A large specimen, in good condition, from San Salvador.

29979. A young specimen (from Nicaragua), showing the coloration of the "*crescentalis*" stage, which is wholly different from that of the adult. The changes in coloration appear to be analogous to those of *Pomacanthus arcuatus*.

* There is some reason for thinking that these specimens belonged to Dr. Stimpson's collection, and came from the east coast of Asia.

29. *Acanthurus tractus* Poey.

30992. A young specimen, in good condition.

30. *Holocentrum suborbitale* Gill.

2765. Four specimens, in good condition.

31. *Gerres dowi* (Gill) Gthr.

(*Diapterus dowii* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 162.)

30985. (Types of *Diapterus dowi*.) Three half-grown specimens, in good condition.

Two large specimens of *Gerres lineatus* (30982), from a fresh-water lake near Acapulco, Mexico, are also in the collection.

32. *Glyphidodon declivifrons* (Gill) Gthr.

(*Euschistodus declivifrons* and *concolor*, Gill, Proc. Ac. Nat. Sci. Phila. 1862, 145: *Euschistodus analogus*, Gill, l. c., 1863, 219.)

30986. (Formerly 4356.) (Type of *Euschistodus concolor*.)

2757. One specimen.

33. *Glyphidodon saxatilis* (L.) Lac.

4360. Young specimens from San Salvador.

34. *Pomacentrus quadrigutta* Gill.

4365. One small specimen from San Salvador, having the coloration ascribed to *P. quadrigutta*.

35. *Pomacentrus rectifrænum* Gill.

30962. Small specimens from San Salvador.

36. *Scorpæna plumieri* Bloch.

One specimen, in bad condition, apparently belonging to this species.

37. *Dormitator maculatus* (Bloch) J. & G.

(*Dormitator microphthalmus* Gill, Proc. Ac. Nat. Sci. Phila. 1863, 170.)

4953. (Type of *Dormitator microphthalmus*.) A very large specimen, nearly a foot in length.

38. *Philypnus lateralis* Gill.

30994. Several specimens.

39. *Gobius saporator* C. & V.

2761. Many small specimens.

40. *Clinus macrocephalus* Günther.

30956. Two specimens, in bad condition.

41. *Diodon liturosus* Shaw.

(Shaw, General Zoöl. v. pt. 2, 43', 1804, after *Diodon tacheté* Lac. = *Diodon maculatus* Gthr.)

9876. One young specimen, in good condition.

The types of the following species described by Professor Gill, from the present collection, appear to be lost:

<i>Centropomus armatus</i>	= <i>Centropomus armatus</i> Gill.
<i>Amblyscion argenteus</i>	= <i>Larimus argenteus</i> (Gill) J. & G.
<i>Exocoetus dowii</i>	= <i>Exocoetus dowi</i> Gill.
<i>Upeneus grandisquamis</i>	= <i>Upeneus grandisquamis</i> Gill.
<i>Trichidion opercularis</i>	= <i>Polynemus opercularis</i> (Gill) Gthr.
<i>Mugil guentherii</i>	= <i>Mugil albula</i> L. (<i>Mexicanus</i> Steind).
<i>Leptariius dowii</i>	= <i>Arius dowi</i> (Gill) Gthr.
<i>Sciades troschelii</i>	= <i>Arius</i> Sp.
<i>Aelurichthys panamensis</i>	= <i>Aelurichthys panamensis</i> Gill.
<i>Atractosteus tropicus</i>	= <i>Lepidosteus tropicus</i> (Gill) Gthr.
<i>Urotrygon mundus</i>	= <i>Urolophus mundus</i> (Gill) Gthr.

All these species are now represented in the National Museum, with the exception of *Sciades troschelii* and *Urotrygon mundus*, which remain unidentified.

UNITED STATES NATIONAL MUSEUM, July 4, 1882.

**LIST OF A COLLECTION OF FISHES MADE BY MR. L. BELDING NEAR
CAPE SAN LUCAS, LOWER CALIFORNIA.**

By DAVID S. JORDAN and CHARLES H. GILBERT.

1. *Muraena dovii* Günther.
(*Muraena pintita* Jor. & Gilb.)

30486. A young specimen from Espiritu Santo Island, agreeing fairly with the original description of *Muraena pintita*, but the tail slightly shorter than the rest of the body. There are a few small yellowish spots on the posterior part of the head, similar to those on the body, which are not very numerous.

We have examined two very large eels (19893) collected by Captain Herendeen at the Galapagos Islands. They seem to be referable to *Muraena dovii*, agreeing as well with Günther's description as they do with each other, and there seems to be little room for doubt that our "*Muraena pintita*" is the young of the same species. There is considerable variation in the size and form of the small pale spots.

2. *Leptocephalus* conger* (L.) J. & G.

30930. A small specimen, 6½ inches long, from near Cape San Lucas, does not show any variation from Mediterranean examples of this spe-

* The generic names *Leptocephalus* Gmelin (Syst. Nat. 1, 1150, 1788; based on *Leptocephalus morrissi*, a larval *Conger*) and *Echelus* Rafinesque (Caratteri di Alcuni Nuovi Generi, etc., 1810, 64; *E. macropterus* Raf.) have priority over *Conger* Cuvier. As *Leptocephalus* is the first generic name applied to this group, it should in our opinion be retained, in preference to *Echelus*, notwithstanding its common use for larval forms generally.