
LIST OF FISHES

COLLECTED AT THE

REVILLAGIGEDO ARCHIPELAGO AND NEIGHBORING ISLANDS.

BY

DAVID STARR JORDAN AND R. C. MCGREGOR.

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In March, 1897, the schooner *H. C. Wahlberg*, Capt. A. W. Anthony, set out from San Diego, California, on a collecting expedition to the islands off the west coast of Mexico, the principal purpose being the exploration of Clarion and Socorro, which islands, with other smaller ones, compose the Revillagigedo Archipelago. Mr. R. C. McGregor, a student in zoology in Leland Stanford Junior University, went with the vessel as assistant naturalist. Among other things he obtained a fine collection of fishes, most of them secured by the use of dynamite among the rocks of Clarion and Socorro islands. A very few of the fishes were taken in an improvised seine; no dredge was used.

Collections were made at the following localities: Ensenada, March 6; Todos Santos Island, March 10; San Martin Island, March 12; San Geronimo Island, March 15; Guadalupe Island, March 23; San Benito Island, March 27; Cerros Island, April 4; Abreojos Point, April 19; San Jose del Cabo, April 23. Finally, nearly the whole month of May was devoted to collecting about San Benedicto, Socorro, and Olarion islands.

Six new species were obtained, as follows:

Myrichthys pantostigmus, Clarion Island, 5710, L. S. Jr. Univ. Mus.
Zalocys stilbe, Clarion Island, 11996, L. S. Jr. Univ. Mus.
Apogon atricaudus, Socorro Island, 5708, L. S. Jr. Univ. Mus.
Forcipiger flavissimus, Clarion Island, 5709, L. S. Jr. Univ. Mus.
Cantherines carola, Socorro Island, 11995, L. S. Jr. Univ. Mus.
Azurina hirundo, Guadalupe Island, 5706, L. S. Jr. Univ. Mus.

These species are also described in Jordan & Evermann's Fishes of North America.

The fauna of the outlying islands of Mexico and Ecuador contains a number of species properly belonging to the fauna of the East Indies. Few of these oriental types reach the coast of Mexico or Panama, the coast fauna in general being analogous to that of the West Indies. Among the forms not found along the mainland, and identical or nearly identical with East Indian species, are the following, those here recorded for the first time from American waters being printed in italics:

<i>Lycodontis pictus.</i>	<i>Kyphosus lutescens.</i>	<i>Teuthis aliala.</i>
<i>Caranx orthogrammus.</i>	<i>Forcipiger flavissimus</i>	<i>Melichthys bispinosus.</i>
<i>Caranx lugubris.</i>	(longirostris).	<i>Xanthichthys mento.</i>
<i>Kuhlia arge (teniura).</i>	<i>Zanclus cornutus.</i>	<i>Cantherines carola (pardalis).</i>
<i>Priacanthus carolinus.</i>	<i>Teuthis triostegus.</i>	<i>Ovoides setosus.</i>
<i>Evoplites viridis (kasmira).</i>		

A full series of the specimens taken, including the types of the new species, has been presented to the Leland Stanford Junior University through the Hopkins Seaside Laboratory, under the auspices of which Mr. McGregor carried on his work. The rest of the collection has been sent to the British Museum, the museum at Vienna, the U. S. Fish Commission, and the U. S. National Museum.

Family GALEIDÆ.

1. *Mustelus lunulatus* Jordan & Gilbert. One specimen, a yard long, from Ensenada, Lower California, March 6. The first dorsal fin is lower and both dorsals and pectorals less incised than in the type of the species. The snout is also somewhat shorter and broader. All these may be characters of increased age, as the specimen is larger than any of those originally described.
2. *Carcharhinus platyrhynchus* (Gilbert). Two young individuals from Clarion Island.
3. *Galeorhinus zyopterus* Jordan & Gilbert. One young example from Ensenada harbor.

Family DASYATIDÆ.

4. *Urolophus halleri* Cooper. One specimen from Ensenada, Todos Santos Bay.

Family OPHICHTHYIDÆ.

5. *Ophichthus triserialis* (Kaup). One example, 25 inches long, Abreojos Point, Lower California.
6. *Myrichthys pantostigmus* Jordan & McGregor, new species. (Plate 4.)

Head $4\frac{1}{2}$ in trunk; head and trunk $1\frac{1}{2}$ in tail; cleft of mouth 3 in head; eye $2\frac{3}{8}$ in snout, which is 5 in head. Pectorals 2 in snout. Anterior nasal tube equal to eye. Color olivaceous, with distinct rows of roundish blackish spots, some oblong, smaller on head and covering whole belly; 39 spots in dorsal row, these spots usually alternating each with its fellow on the other side of dorsal, but sometimes opposite; spots of second row usually opposite; spots of third row smaller and more numerous, extending from the cheeks to opposite the vent, thence running along base of anal, not running on fin, most of this row little more than half length of snout; two rows of smaller spots along belly from gill-opening to front of anal; spots on nape rather large, on head larger and more numerous than in *Myrichthys xysturus*. Pale color of head reduced to reticulations; chin and throat spotted as much as head; no pale centers to any of spots; dorsal without spots or with only a few which come up from back; from beginning to end the dorsal has a broad black margin about one-third height of fin; anal mostly pale, but having some black markings toward tip; pectoral with upper half jet-black—a white margin posteriorly—a small black spot in lower corner.

One specimen, 20 inches long, from Clarion Island; type number 5710, Leland Stanford Junior University Museum.

This species is distinguishable from all others by the great number of spots of small size and without pale centers, the black edge of dorsal, the black spot on the rather large pectoral, and especially by having the belly spotted as much as the other parts.

Family MURÆNIDÆ.

7. *Lycodontis pictus* (Ahl). Head 4 in trunk; tail about as long as body; eye $2\frac{1}{2}$ in snout, situated midway between snout and angle of mouth; cleft of mouth $2\frac{3}{8}$ in head; snout $5\frac{3}{8}$ in head; anterior nasal tube 5 in snout; gill-opening 11 in head. Teeth in each jaw in a single series; palatine series either parallel with these or divergent; no distinct canines; teeth comparatively small;

anterior vomerine one or two in number, bluntish and conical; posterior vomerine teeth rather blunt. Anterior nasal tubes moderate. Dorsal low anteriorly, beginning in front of gill-opening.

Color brownish-gray or purplish, everywhere covered with small purplish-black spots which are not confluent. In adults the spots are arranged in roundish or ringlike blotches on the sides; fins colored like body, without dark edges.

Two specimens, each about 3 feet long, taken at Clarion Island seem to correspond in full with figures given by Dr. Bleeker of this common East Indian species.

8. *Echidna nocturna* (Cope). The smallest specimen measures 20 inches and is unspotted except for a few faint yellow markings near end of tail. The largest example measures a yard in length. Teeth of lower jaw blunt, subequal and biserial, in upper jaw larger and irregularly biserial. Directly under front of eye these teeth become regularly biserial, much smaller, and more pointed; two regular rows of blunt vomerine teeth. Dorsal high, beginning over gill-opening; eye $2\frac{1}{4}$ in snout; head $3\frac{1}{2}$ in trunk; cleft of mouth $3\frac{1}{2}$ in head; tail shorter than rest of body by distance from cleft of mouth to gill-opening. Color seal brown, belly lighter, covered everywhere with irregular spots and points of yellow, the largest about $\frac{1}{4}$ inch across. Lower jaw heavily mottled with yellow; no black margins to spots. Eight specimens were collected among rocks in tide pools at Clarion and Socorro islands.

Family EXOCETIDÆ.

9. *Exocoetus volitans* Linnaeus.

Halocypselus evolans (Linnaeus).

Numerous specimens taken from the Gannets of the Revillagigedo Islands.

10. *Exonautes xenopterus* (Gilbert). One large specimen from Clarion Island—another off Morro Hermoso, Lower California.

Family MUGILIDÆ.

11. *Mugil curema* Cuvier & Valenciennes. An abundant species at Socorro Island. Four specimens.
12. *Chænomugil proboscideus* (Günther). Young and large individuals abundant at Socorro Island.

Taken commonly in large tide pools with *Kuklia arge*. Some of the smaller specimens have the pectorals and anal colorless; others have a smaller mouth and thinner lips, but these characters are not coordinated with any other differences. All probably belong to one species.

Family HOLOCENTRIDÆ.

13. *Holocentrus suborbitalis* Gill. Clarion Island and Socorro Island; twelve large examples taken similar to others from Mazatlan.
14. *Myripristis clarionensis* Gilbert. Five large examples from Clarion and Socorro islands, similar to original types.

Family MULLIDÆ.

15. *Upeneus dentatus* Gill.

Upeneus dentatus Gill, Proc. Ac. Nat. Sci. Phila. 1862, 256.

Upeneus xanthogrammus Gilbert, Proc. U. S. N. M. 1891, 553.

A 6-inch specimen from Clarion Island. Teeth in bands anteriorly; uniserial behind; scales 38. This specimen certainly belongs to *U. dentatus*. We can not separate *U. xanthogrammus* from it.

Family LEPIDOPODIDÆ.

16. *Lepidopus xantusi* Goode & Bean.

Lepidopus caudatus Jordan & Gilbert, Proc. U. S. N. M. 1882, 358, Cape San Lucas; not of Euphrasen.

Lepidopus xantusi Goode & Bean, Ocean. Ichth., 519, 1896; same type; no description.

Head $4\frac{1}{2}$ in body; depth 3 in head; eye $5\frac{1}{2}$; interorbital space $8\frac{1}{2}$; snout 3; maxillary $3\frac{1}{2}$; D. 82; A. 11, 45. Jaws with long, sharp teeth in front, followed by single rows of weaker ones arranged in groups of twos and threes. Height of dorsal, near middle of body, 3 in head. Anal preceded by 2 scutes, the first minute, the second wide, strongly keeled, its length $\frac{1}{2}$ diameter of eye. Pectoral of 12 rays, its length 2 in head. Each ventral consists of a flat, keeled spine followed by a minute ray. This species is known from two small mutilated specimens, both found on the beach near San Jose del Cabo, Cape San Lucas. The type was taken by John Xantus about 1860, and recorded by Jordan & Gilbert in 1882 as *Lepidopus caudatus*. The second, of about the same size ($5\frac{1}{2}$ inches), was taken by Mr. McGregor in 1897. From the latter the above account was taken. The species differs from *Lepidopus caudatus* in the much shorter dorsal and longer anal. (D. 103; A. 24, besides rudiments, in *L. caudatus*.)

Family CORYPHÆNIDÆ.

17. *Coryphæna equisetis* Linnæus. Head $4\frac{1}{2}$; depth 5; D. 51; A. 24. Eye $3\frac{1}{2}$, large, without adipose eyelid. Nostril in middle of snout, vertically oblong, rather small, anterior opening scarcely visible. Snout bluntish, $3\frac{1}{2}$. Mouth slightly oblique; maxillary $2\frac{1}{2}$ in head; narrow at tip, without distinct supplemental bone. Preorbital very narrow, 4 in head. Jaws each with a broad band of small, sharp, rather wide-set teeth; bands of villiform teeth on vomer, palatine, and tongue. Body elongate, little compressed, formed as in a mackerel; head broad above, with a conspicuous crest. No pseudo-branchiæ; branchiostegals subtruncate; opercles strongly striate. Dorsal beginning near opercle, posterior ray longest, last few rays pencil-like, resembling finlets, but not divided at base; anal without evident spine, first rays longest, 5 in head, last rays slightly free at tip, but less so than in dorsal; caudal peduncle slender, rather long; caudal lobes long and sharp, about as long as head; ventrals long, depressible into a deep groove on abdomen, $1\frac{1}{2}$ in head; ventral rays 1, 5; pectoral very short, falcate, $1\frac{1}{2}$ in head. Scales cycloid, more or less elongate on each side of head, along base of anal more or less bony, elongate and spine-like, closely imbricated; along ventral groove and other lower parts somewhat similarly modified; lateral line somewhat undulate and a little arched in front. Color dark blue-black above, lower parts paler and nearly uniform.

This specimen is probably the young of *Coryphæna equisetis*. It seems to differ from *Coryphæna equisetis* as described, in color, in not having an angulation in lateral line, in the longer head, in having the opercle striated for its whole length, in elevated last rays of dorsal, and possibly in modified scales of belly.

One specimen, 9 inches long, from San Benedicto Island.

Family CARANGIDÆ.

18. *Trachurops crumenophthalmus* (Bloch). Six specimens from Socorro Island.

ZALOCYS Jordan & McGregor, new genus.

This genus is closely allied to *Hypodis* Rafinesque (= *Lichia* Cuvier), differing in the absence of a procurrent spine before the dorsal, in the cultrate thoracic region, and in the weaker teeth. *Hypodis* is scarcely different from *Trachi-*

notus, the only characters tangible being the larger teeth, low dorsal, and less elevated forehead. The distinctions between *Hypodis* and *Trachinotus* are of little value. *Porthmeus* (= *Lichia amia* and *L. radigo*) is a well-defined genus, distinguished by the large mouth and projecting lower jaw.

19. *Zalocys stilbe* Jordan & McGregor, new species. (Plate 5.)

Head $4\frac{1}{2}$; depth $2\frac{1}{2}$; D. VI, 1-26; A. II, 1-23. Body elliptical, deeper than in *Hypodis glaucus*; belly sharply compressed; ventral outline similar to that of dorsal. Anterior profile of head elevated and sharp, the eye being rather below than above its middle. Eye 5 in head, with conspicuous adipose eyelid before and behind; posterior nostril much larger than anterior, vertically oblong; maxillary broad, without supplemental bone, extending to pupil, $2\frac{1}{2}$ in head. Mouth moderate, oblique; each jaw with bands of villiform teeth; similar teeth on vomer, palatines, and tongue. Preopercle very broad; cheek moderate; suborbital narrow; preorbital very narrow, 4 in eye. No pseudobranchiæ. Gillrakers very long and slender, numerous. No procumbent spine before dorsal. Spines low and separate; spines progressively higher. Soft dorsal and anal each with a sheath of scales. First rays of dorsal very slightly elevated, $2\frac{1}{2}$ in head; anal without distinct anterior lobe, longest ray $2\frac{1}{2}$ in head; caudal peduncle long and slender, its depth $3\frac{1}{2}$ in head; caudal fin widely forked, lobes long and slender, upper a little the longer, more than half longer than head, and $2\frac{1}{2}$ in body; pectoral moderate, $1\frac{1}{2}$ in head; ventrals very small, $6\frac{1}{2}$ in head. Snout $3\frac{1}{2}$ in head. Premaxillary protractile.

Color dark steel-blue or blackish above; lower parts soiled white; axil and base of pectoral within jet-black; dorsal and anal each with a narrow whitish edging; caudal black, each lobe with a narrow whitish edging within; body covered with small smooth scales, much as in *Trachinotus*. Lateral line undulate; very slightly arched anteriorly.

One specimen, 16 inches in length, from Clarion Island.

Type, No. 11996, L. S. Jr. Univ. Mus.

20. *Carangoides orthogrammus* (Jordan & Gilbert). Seven large specimens from Clarion and Socorro islands.

21. *Caranx marginatus* Gill. Two large specimens from Socorro Island.

22. *Caranx lugubris* Poey. Three large specimens from San Benedicto and Clarion islands.

Family APOGONIDÆ.

23. *Apogon retrosella* (Gill). About 30 specimens secured with dynamite at San Benito Island.

24. *Apogon atricaudus* Jordan & McGregor, new species.

Head $2\frac{1}{2}$; depth 3; D. VI-1, 9; A. II, 8; scales large, finely ctenoid, 3-26-11; eye $3\frac{1}{2}$ in head; second dorsal spine stoutest, about 2 in head; gillrakers 17, moderate. Body similar in shape to *A. retrosella*. Jaws reaching to posterior border of eye, $1\frac{1}{2}$ in head. Pectoral reaching to opposite front of anal, $1\frac{1}{2}$ in head. Color rosy, darkened with dusky points, more or less olivaceous above; head and throat verging on orange; first dorsal black; second dorsal rosy; caudal dusky, more or less flushed with rosy, other fins paler; no black spot on head or on base of caudal, there being no definite markings anywhere except the dusky red of the tail. Numerous specimens collected at San Benedicto, Socorro, and Clarion islands. Usual length 3 to 4 inches. Type, No. 5708, L. S. Jr. Univ. Mus.

Family KUHLIDÆ.

25. *Kuhlia arge* Jordan & Bollman. Thirty-one specimens, from Clarion and Socorro islands, where it is very common.

Family **SERRANIDÆ**.

26. *Epinephelus labriformis* (Jenyns). Three specimens, taken at Socorro Island.
27. *Epinephelus analogus* Gill. The two specimens from Clarion Island are very dark, almost black, and scarcely spotted, except on the breast.
28. *Dermatolepis punctatus* Gill. Three specimens from Clarion and Socorro islands.
29. *Paranthias furcifer* (Cuvier & Valenciennes). San Benedicto, Socorro, and Clarion islands. Seventeen fine specimens obtained.
30. *Paralabrax clathratus* (Girard). One specimen from Todos Santos Bay.
31. *Pronotogrammus multifasciatus* Gill. One young example from Clarion Island. Head $2\frac{1}{2}$; depth $3\frac{1}{2}$; D. x, 15; A. III, 7. Snout $\frac{3}{8}$ of eye. Gill's specimen was of the same size as ours (2 inches). Ours differs from the description in having no rufous bands. Color very pale brown; upper third of body thickly sprinkled with fine black spots. In other respects this specimen agrees with the very young one on which the species was based.

Family **PRIACANTHIDÆ**.

32. *Priacanthus carolinus* Lesson. This species is very close to *Priacanthus cruentatus* of the West Indies, from which it is very doubtfully distinguished by the larger spine on the preopercle, which reaches the edge of the opercle and is $2\frac{1}{2}$ in eye. That of *P. cruentatus* does not reach opercle and measures 4 in eye; its edge less rough. Body a little deeper than in *P. cruentatus*; depth of the latter 3 in the length. In *P. carolinus* the depth is $2\frac{1}{2}$ in the length. In color and general appearance similar. Caudal truncate. The distinction of this species from *P. cruentatus* is very doubtful. Socorro and Clarion islands; 4 specimens.

Family **LUTIANIDÆ**.

33. *Evoplites viridis* (Valenciennes). Abundant at the Revillagigedo Islands, Clarion, and Socorro; 18 specimens obtained.

Family **HÆMULIDÆ**.

34. *Anisotremus davidsoni* (Steindachner). One specimen from Cerros Island.
35. *Anisotremus interruptus* (Gill). Three specimens from Clarion and Socorro islands.

Family **KYPHOSIDÆ**.

36. *Girella nigricans* (Ayres). Four specimens from San Benito Island.
37. *Kyphosus analogus* (Gill). Eight specimens from Clarion and Socorro islands.
38. *Kyphosus elegans* (Peters). Four specimens from Clarion and Socorro islands.
39. *Kyphosus lutescens* (Jordan & Gilbert). A distinct species, quite different from *Kyphosus elegans*, differing in larger body, smaller scales, lower pectorals, and especially the larger mouth and broader teeth. In all, 19 specimens were obtained. Those from Clarion Island indicate a marked dichromatism. The coloration of four typical specimens may be described as follows:
1. Everywhere bright lemon-yellow.
 2. Dull dark-brown, almost black, slightly paler on lower half of body; a large lemon-yellow area beginning on the nape extending over the sides and front of the head; this includes the opercle, upper part of preopercle, suborbital and preorbital on right side, while on left side the color does not reach quite so far down; in front the color descends to a deep groove above the upper lip; under lip, tip of left pectoral, and tip of caudal also yellow; length, 16 inches.

3. The yellow patch extending backward to front of dorsal and below on sides only to a line passing horizontally through center of eye; no color on pectorals, and only a few small blotches on caudal and lower lip; length, 16 inches.

4. Everywhere dark-brown; scales of sides and lower parts with lighter centers, the brown being reduced to a mere edging; no yellow anywhere; length, 11 inches.

40. *Medialuna californiensis* (Steindachner). One specimen from Cerros Island.

Family SCIÆNIDÆ.

41. *Genyonemus lineatus* (Ayres). Five specimens from Ensenada, Todos Santos Bay.

Family CHÆTODONTIDÆ.

FORCIPIGER Jordan & McGregor, new genus.

Type *Chelmon longirostris* Cuvier & Valenciennes.

This genus differs from *Prognathodes* Gill in having smaller scales, about 175 in a lateral series instead of 40. *Chelmon* Cuvier is also closely related, having the same forceps-like mouth; but in the latter genus the spinous dorsal is much less developed, containing about 9 spines.

42. *Forcipiger flavissimus* Jordan & McGregor, new species.

Head $2\frac{1}{2}$; depth 2; eye $6\frac{1}{2}$ in head; D. XII-22; A. III, 17; snout $1\frac{1}{2}$ in head, its free part $2\frac{1}{2}$ in head. Body short, strongly compressed, its outline angular; anterior profile very steep, concave, extending into the forceps-like mouth. Mouth small, at tip of projected head; cleft of mouth $1\frac{1}{2}$ in eye. Scales 9-75-35; small, ctenoid, irregularly placed, smaller on head and bases of fins; rows along lateral line parallel with it only anteriorly; those below run horizontally on lower parts of body and irregularly upward and backward above; lateral line concurrent with back. Dorsal spines extremely strong; fifth spine $1\frac{1}{2}$ in head; longest soft rays $2\frac{1}{2}$ in head; caudal $2\frac{1}{2}$ in head, slightly lunate; upper lobe longer; third anal spine very long, much longer than second, $1\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ in head; ventral $1\frac{1}{2}$ in head. Color bright orange, deepest at base of dorsal; head and nape abruptly black to level of lower point of eye; below this point reddish pearly; breast and lower jaw nearly white; preorbital bones paler than cheeks, which are mottled with brownish; median region of top of head paler; pectoral slightly dusky; dorsal and anal colored like body; last rays of anal with a large black blotch, vertically oblong, its longest diameter a little greater than diameter of eye; not ocellated as in *F. longirostris*; soft rays of dorsal and anal blackish at tip, the very edge pale; caudal abruptly blackish.

This species is extremely close to *F. longirostris*, which is common in the East Indies. The American species differs, however, in the deeper body and much larger anal spot, which is almost round in the East Indian species. This species belongs to the new genus *Forcipiger*, of which *Chelmon longirostris* Cuv. & Val. may be taken as type. Four specimens from Clarion and Socorro islands; one specimen from San Benedicto Island. Length, from 5 to 7 inches. Type No. 5709, L. S. Jr. Univ. Mus., Clarion Island.

43. *Chætodon nigrirostris* (Gill). Six specimens from San Benedicto, Socorro, and Clarion islands; largest about 6 inches long.

44. *Holacanthus clarionensis* (Gilbert). Eighteen specimens from Clarion and Socorro islands. A very young example from Clarion Island may be thus described: D. XIV, 17; A. III, 18; head $4\frac{1}{2}$ in total length; depth $2\frac{1}{2}$; pectoral equal to head; interorbital space equal to eye; eye 3 in head. Color in alcohol, very pale yellow; two parallel dark-brown bands passing vertically from near lower edge of preopercle to occiput, one on each side of eye,

the two anterior bands joining on top of head, forming an inverted Λ , above which is a dark-brown spot; on posterior half of body, extending from dorsal to anal, but not on these fins, are finer bands of very dark brown; between each two bands is a parallel row of spots; these are also five in number; posterior half of body dark; caudal and peduncle abruptly light; dorsal and anal plumbeous, each with an edging of black, which becomes wider on posterior rays of each fin; traces of bright orange near anterior part of dorsal.

Family ZANCLIDÆ.

45. *Zanclus cornutus* (Linnæus). Twelve fine specimens from Clarion and Socorro islands.

Family TEUTHIDIDÆ.

46. *Teuthis triostegus* (Linnæus). Abundant at Clarion and Socorro islands, where 18 specimens were taken.
47. *Teuthis aliala* (Quoy & Gaimard). Head $3\frac{1}{2}$; depth $1\frac{1}{4}$ to $1\frac{1}{2}$; eye $3\frac{1}{2}$; maxillary 6 in head; D. IX, 30; A. III, 26; from eye to corner of mouth $1\frac{1}{4}$ in head; gill-opening $1\frac{1}{2}$ in head; opercle short and obliquely set, $4\frac{1}{2}$ in head; humeral bone striate. Body ovate, strongly compressed, closely covered with small rough scales, which become shagreen-like on head; lateral line present but obscure; anterior profile strongly convex above and before the eye, thence somewhat concave and nearly vertical to the small projecting mouth. Teeth broad, digitate, each with 4 or 5 claw-like serræ at tip; lower teeth with serræ much smaller, forming notches. Jaws very short, about equal, about ten incisors in each. Anterior nostril moderate, close to posterior, which is much smaller. Dorsal and anal low, continuous, rounded behind; longest dorsal ray near end of fin, $2\frac{1}{2}$ in head; longest anal ray 2 in head; caudal lunate, upper and lower angles produced but acuminate and short; middle rays $1\frac{1}{2}$ in head, the outer 1 in head; caudal spine very strong, $2\frac{1}{2}$ in head, attached near its posterior end; the short, sharp posterior end free, the long knife-like anterior portion slipping into a groove in the flesh; pectoral long, $\frac{1}{2}$ longer than head; ventrals $1\frac{1}{2}$ in head.

Color dark purplish-brown, almost black; a pale yellowish or flesh-colored crescentic area under eye; a ring of pearly whitish around mouth, not quite continuous above; a pale streak along dorsal fin, widening behind into a pale orange patch, occupying two-thirds of height of last ray; base of last ray dusky; anal marked in the same way as the soft dorsal; a very narrow pale edge to soft parts of dorsal and anal; pectoral black; caudal abruptly pale at end of black caudal peduncle, with a curved dark streak parallel with edge of fin and nearly the diameter of the eye behind it; behind this a diffuse yellow area parallel with the dark streak; fin behind with a narrow pale edging; flap of opercle narrowly pale.

Abundant at Clarion and Socorro islands, where 12 specimens were taken. We can not distinguish our specimens from descriptions and figures of *Teuthis aliala* (*Acanthurus glaucopareius*) of the East Indies.

48. *Xesurus punctatus* (Gill). Two adults from Socorro Island.
49. *Xesurus clarionis* (Gilbert & Starks). Twelve specimens from Clarion and Socorro islands.

Family BALISTIDÆ.

50. *Pachynathus capistratus* (Shaw). Six specimens from Clarion and Socorro islands.
51. *Melichthys bispinosus* Gilbert. Nine specimens from Socorro and Clarion islands.
52. *Xanthichthys mento* (Jordan & Gilbert). Seventeen specimens from Clarion and Socorro islands.

Family **MONACANTHIDÆ**.

53. *Cantherines carolæ* Jordan & McGregor, new species. (Plate 6.)

Head $3\frac{1}{10}$; depth 2; D. 1-38; A. 34; eye $5\frac{1}{2}$. Body elliptical, compressed; anterior profile somewhat concave, oblique; mouth small; teeth large, white, and irregular. Gill-opening somewhat in front of pectoral, its length $3\frac{1}{2}$ in head; dorsal spine very stout and straight; everywhere rough, but without distinct barbs; $1\frac{1}{2}$ in head; dorsal rays 2 in head; anal ray 2 in head; caudal short and rounded, $1\frac{1}{2}$ in head; pectoral $2\frac{1}{2}$ in head. Pelvic bone with ventral spine firmly attached, with about 10 radiating spines; ventral flap little developed; caudal peduncle with four strong, bluntish spines, turned forward and arrayed in two pairs, one above and one below the middle line. Color dull grayish-olive; head finely speckled with darker; fins all pale; lips whitish. Length 11 inches; two specimens from Socorro Island.

The species is named for Mrs. Charlotte C. McGregor.

54. *Ceratacanthus scriptus* (Osbeck). Thirteen specimens from Clarion and Socorro islands. A specimen has been recently sent us from the Venados Islands at Mazatlan, by Dr. George Warren Rogers.

Family **TETRAODONTIDÆ**.

55. *Ovoïces setosus* (Rosa Smith). Very abundant about Socorro and Clarion islands; 48 fine specimens taken; mostly in shallow water during low tide at Clarion Island. These vary in color from pure lemon-yellow to indigo-blue and dark brown, with round white spots. There are also various intergradations, as yellow blotched with blue, the singular variations in coloration being parallel with those of *Kyphosus lutescens*.

Family **DIODONTIDÆ**.

56. *Diodon hystrix* Linnæus. Five specimens from Clarion and Socorro islands.

Family **EMBIOTOCIDÆ**.

57. *Abeona minima* (Gibbons). One specimen. Todos Santos Bay.
58. *Brachyistius frenatus* Gill. Five specimens from Guadalupe Island, 4 to 5 inches in length. These are somewhat deeper than the typical form from California, but we do not think them specifically distinct. Also taken at Todos Santos Islands. Head 3; depth 2; D. VIII-13; A. III, 22; scales 44; eye in head 3; pectoral in head $1\frac{1}{2}$; ventral $1\frac{1}{2}$; second anal spine $4\frac{1}{2}$; middle caudal rays $2\frac{1}{2}$. Body short and compressed; back elevated; head depressed above snout, which sharply projects; mouth, small, projecting, maxillary not reaching to opposite eye. Gillrakers 23, slender. Color olivaceous above with darker blotches on each scale, forming lengthwise stripes; lower parts tinged with coppery; a large moon-shaped black spot in axil of pectoral, nearly as large as eye, but not so wide; fins pale, lower ones, especially caudal, flushed with orange.
59. *Embiotoca jacksoni* Agassiz. Specimens taken at Todos Santos, San Benito, Cerros, and Guadalupe islands.
60. *Tæniotoca lateralis* (Agassiz). Two specimens from San Benito Islands.

Family **POMACENTRIDÆ**.

AZURINA Jordan & McGregor, new genus.

This genus is closely allied to *Chronis*, from which it differs in the long and slender body, the low vertical fins, the very deeply forked tail, the pointed snout, and especially in the continuous lateral line which extends much beyond the dorsal fin, and is wanting on but two or three scales.

61. *Azurina hirundo* Jordan & McGregor, new species. (Plate 7.)

Head 4 in length; depth $3\frac{1}{2}$; D. XII, 11; A. II, 11; scales 34; maxillary 3 in head; eye $4\frac{1}{2}$; pectoral 1; ventral $1\frac{1}{2}$; longest dorsal spine $3\frac{3}{8}$; longest soft ray $3\frac{3}{4}$; second anal spine $3\frac{1}{2}$; longest anal ray 3; caudal lobes $1\frac{1}{2}$; middle caudal rays 4. Body elongate, elliptical, slender, and symmetrical, moderately compressed; snout acute; profile slightly depressed above. Eye moderate, larger than in related species; maxillary reaching to below front of eye. Teeth conical, rather few and small, in narrow bands or almost a single series. Preorbital very narrow, about one-half eye; suborbital hidden by scales. Preopercle narrow, largely free, its edge slightly crenulate; gillrakers 36, long and slender; head covered with small scales except throat and tip of snout; those on body large and ctenoid, lateral line strongly curved, continuous, extending downward along the tail, wanting on two or three scales only. Caudal deeply forked. Color deep steel-blue above, slightly paler below, with a tinge of orange at throat; pectoral light yellow, dusky at base; other fins black, each with a narrow whitish edge. West coast of Mexico. Three specimens from Guadalupe Island, each $6\frac{1}{2}$ inches long. A beautiful fish with a symmetrical outline, unusual in this family. Type No. 5706, L. S. Jr. Univ. Museum.

62. *Chromis punctipinnis* (Cooper). Many young from Todos Santos Island; adult examples from Guadalupe, Cerros, and San Benedicto Islands.63. *Abudefduf saxatilis* (Linnæus). Abundant in the tide pools at Clarion Island; 11 specimens taken.64. *Eupomacentrus leucorus* (Gilbert). Socorro Island, 6 specimens; San Benedicto Island, 6 specimens; Clarion Island, 4 specimens; a strongly marked species.65. *Eupomacentrus rectifrænum* (Gill). Six specimens from Clarion and Socorro islands.66. *Eupomacentrus flavilatus* (Gill). Head $3\frac{1}{2}$; depth 2; D. XII, 15; A. II, 13; scales 29; eye in head $3\frac{1}{2}$; pectoral in head $1\frac{1}{2}$; ventral in head 1; longest dorsal spine 2; second anal spine 2; body deep, robust; anterior profile more or less convex and broad; general appearance of *E. rectifrænum*, from which this seems to differ only in color. No blue spots, even in specimens 3 to 5 inches long; posterior part of body, especially pectoral and caudal, light yellow; rest of body paler than in *E. rectifrænum*, but color variable; ventrals black; dorsal and anal dusky, more or less pale posteriorly; pectoral with a very distinct black spot at base of upper rays. The latter species has the tail and caudal as dark as other fins, which is not the case in *E. flavilatus*. Twelve specimens from Socorro Island, two from Clarion Island, and one from San Benedicto Island.67. *Hypsypops rubicundus* (Girard). One young example, 4 inches long, from Guadalupe Island agrees in the distribution of blue spots with Mrs. Eigenmann's description. Eight specimens of different sizes from Todos Santos and Cerros islands.68. *Microspathodon dorsalis* (Gill).

Microspathodon cinereus Gilbert; adult;

Microspathodon azurissimus Jordan & Culver; partly grown.

Ten very fine specimens from Clarion and Socorro islands.

69. *Microspathodon bairdii* (Gill). Head 3; depth $1\frac{1}{2}$; D. XII, 16; A. II, 14; scales 3-29-10. Body short, compressed, elongated; nape abruptly produced behind and above a depression which lies above eye, nape thus projecting forward in a fleshy crest. Anterior profile steep with fleshy corrugations separated by depressions. Tip of snout above premaxillary enlarged to a fleshy pad, under which the jaw slips, separated from preorbital and top of head by a deep crease, deeper in larger specimens. Nostril midway between eye and crest, its size much larger than in *M. dorsalis*, being $\frac{1}{2}$ diameter of eye. In *M. dorsalis* of same size the nostril is reduced to a small pore, about

$\frac{7}{8}$ of eye. Preorbital lower than in *M. dorsalis*, its height $2\frac{1}{2}$ in head in adult; in *M. dorsalis* of same size the preorbital is $2\frac{1}{2}$ in head. Teeth small, truncate, movable, about as in *M. dorsalis*; lower jaw shorter; width of mouth 2 in head; 4 or 5 rows of scales on cheek. Caudal peduncle short and deep, length $2\frac{1}{2}$ in head, its depth 2 in head. Dorsal elevated but not falcate, simply angular, its longest ray $1\frac{1}{2}$ in head; anal similar, its longest ray $1\frac{1}{2}$ in head; caudal lunate, its lobes not produced, the upper longer, $1\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$ in head; ventral $1\frac{1}{2}$ in head.

Color uniform deep blue-black without paler margins to fins, except very narrow line on upper ray of pectoral and upper lobe of caudal; no spots.

This species is well separated from *M. dorsalis*, differing in the much larger nostril, fleshy hump at nape, in lower preorbital, and in the uneven slope of profile, as well as the absence of falcate tips to fins. The very small specimens which have been named *Microspathodon bairdii* seem to be the young of this species, having the large nostril and the nonfalcate fins. The bright orange markings seem to disappear with advanced age.

One adult from San Benito Island; three adults from Socorro Island.

Family LABRIDÆ.

70. *Harpe diplotænia* Gill. Thirteen large specimens from Socorro and Clarion islands.
71. *Pimelometopon pulcher* (Ayres). One specimen from Todos Santos Bay and one from Guadalupe Island.
72. *Iridio semicinctus* (Ayres). Several specimens taken at Cerros Island; one from Todos Santos Bay.
73. *Julidio notospilus* (Günther). A number of young, half an inch long, from Clarion Island.
74. *Oxyjulis californicus* (Günther). Specimens from Guadalupe Island and San Geronimo Island.
75. *Thalassoma grammaticum* Gilbert. Clarion Island. Numerous specimens.

Family MALACANTHIDÆ.

76. *Caulolatilus princeps* (Jenyns). Two specimens from San Martin Island.

Family CIRRHITIDÆ.

77. *Cirrhitès rivulatus* Valenciennes. Four fine specimens from Clarion and Socorro islands.

Family SCORPÆNIDÆ.

78. *Sebastodes flavidus* (Ayres). One young specimen, 5 inches long, from Todos Santos Island.
79. *Sebastodes chrysomelas* (Jordan & Gilbert). One specimen from Todos Santos Bay.
80. *Sebastopsis xyris* Jordan & Gilbert. Head $2\frac{3}{8}$; depth $3\frac{1}{2}$; D. XII-1, 10; A. III, 5; scales 48; maxillary in head $1\frac{1}{2}$; eye $3\frac{1}{2}$; pectoral about 1; longest dorsal spine $2\frac{3}{8}$; second anal spine $1\frac{1}{8}$; ventral $1\frac{1}{2}$; middle caudal ray about 2. Body moderately elongate; head rather sharp; jaws equal; interorbital space concave; top of head scaly and without occipital depression; nasal spines sharp with a fleshy flap nearly as long as pupil. Spines above eye each with a similar fleshy flap. Preorbital, superorbital, postorbital, and tympanic spines present, each sharp and high. Occipital and nuchal spines also well developed; a small temporal spine; a small spine under the eye on the sharp stay; a spine at end of stay in front of the preopercular spine; the last has a small spine at its base; two sharp spines below opercular spine. Cheeks and opercle covered with ctenoid and imbricated scales without flaps; body scales ctenoid and closely imbricated, without flaps.

Gillrakers very short and slender. Breast covered with imbricated cycloid scales. Villiform teeth on jaws and vomer, none on palatines. Dorsal thin and moderately deeply notched; caudal rounded; third anal spine greater than second; pectoral with upper rays branched; lower or simple rays thickened and the upper of them longer than any of the branched rays.

Color light-olive, irregularly banded and blotched with darker; flushed with cherry-red; subopercle with large black blotch somewhat ocellated. Head blotched with olive and paler. Jaws and throat largely orange. Dorsal mottled with blood-red, orange, and whitish. Pale-yellowish bar across soft dorsal, then a blackish streak; rest of fin white, tipped with black; caudal largely bright-scarlet, black toward tip. Anal largely scarlet, mottled with black; pectoral yellowish, barred with white and black, lower part of fin washed with scarlet; ventral light yellow, with a few black spots on posterior half, and scarlet spots on anterior portion. The most definite marks are a dark bar from soft dorsal to base of anal, everywhere washed with scarlet, and black spot on the subopercle.

Three specimens collected at Socorro Island, $3\frac{1}{2}$, $2\frac{1}{2}$, and 2 inches, respectively.

Family COTTIDÆ.

81. *Clinocottus analis* (Girard). Todos Santos and San Martin islands.

Family GOBIIDÆ.

82. *Gobius soporator* Cuvier & Valenciennes. Numerous specimens taken in the tide pools at Socorro and Clarion islands.
83. *Gobius zebra* Gilbert. Two specimens from Todos Santos and Clarion islands; larger one $1\frac{1}{4}$ inches. The colors in life—blue stripes on a crimson ground—were very beautiful.

Family GOBIESOCIDÆ.

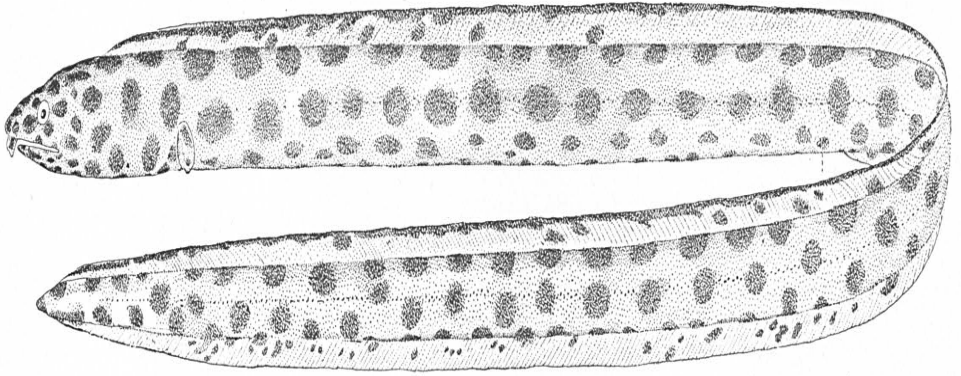
84. *Gobiesox adustus* Jordan & Gilbert. Two specimens, each an inch long, in tide pools at Clarion Island.

Family BLENNIIDÆ.

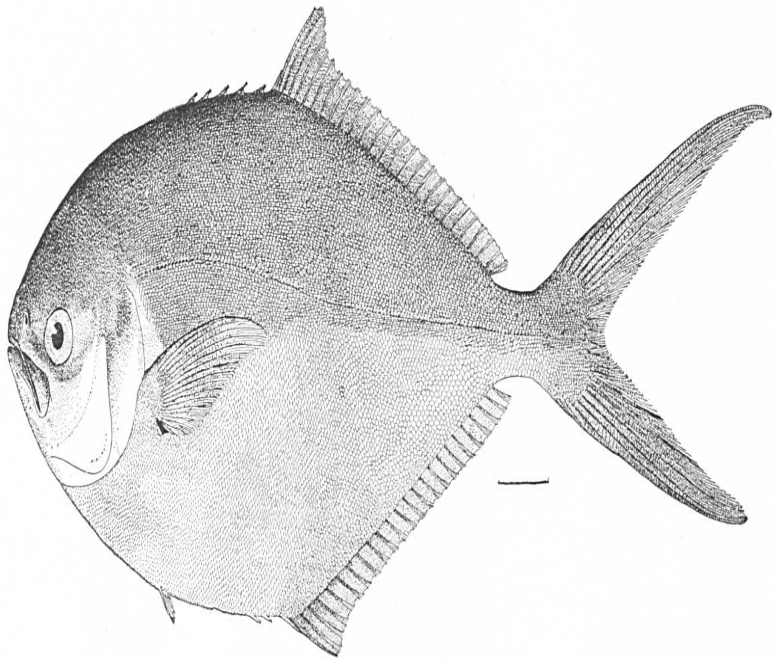
85. *Heterostichus rostratus* Girard. Interorbital $\frac{1}{2}$ less than orbit. One specimen, 7 inches long, from Guadalupe Island.
86. *Gibbonsia elegans* (Cooper). One specimen from San Martin Island.
87. *Entomacrodus chiostictus* (Jordan & Gilbert). Specimens taken in tide pools at Clarion and Socorro islands.

Family PLEURONECTIDÆ.

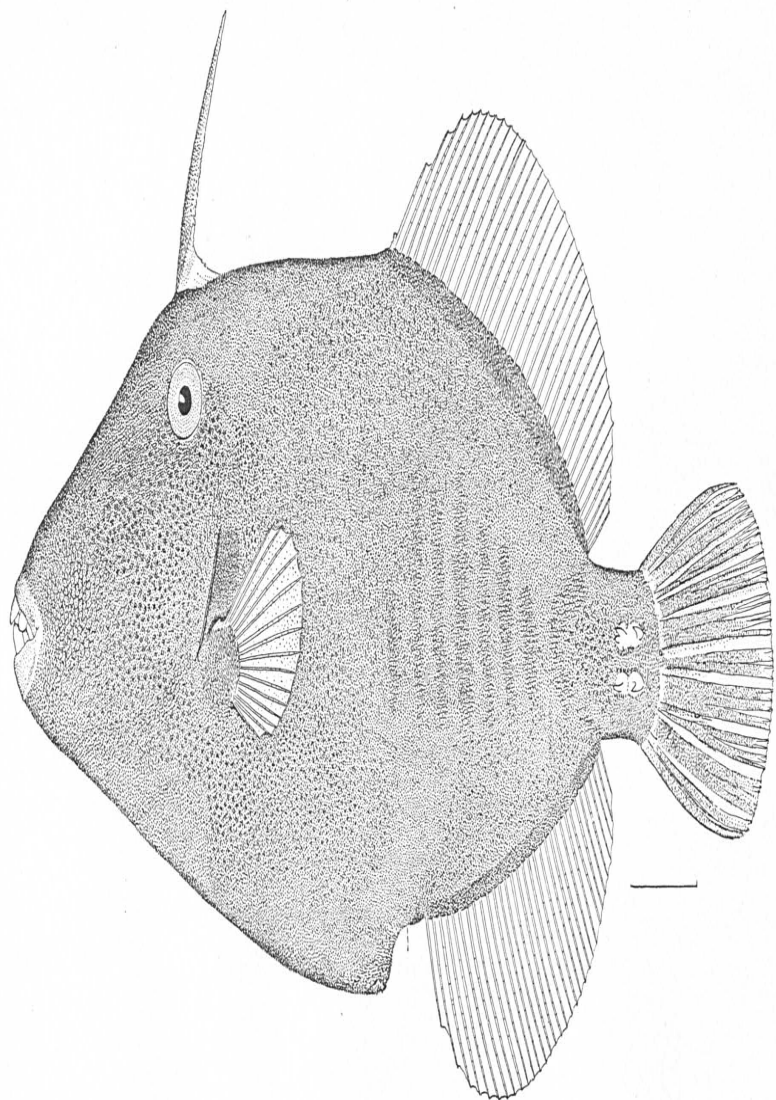
88. *Platophrys leopardinus* (Günther). Three specimens taken at Clarion Island. Length of each about 3 inches.



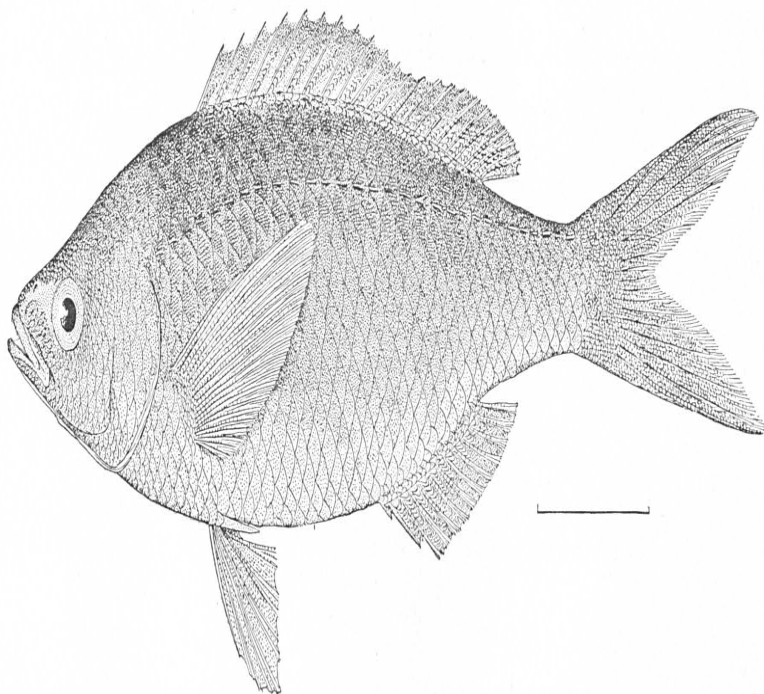
MYRICHTHYS PANTOSTIGMIUS Jordan & McGregor. New species.



ZALOCYS STILBE Jordan & McGregor. New genus and new species.



CANTHERINES CAROLÆ Jordan & McGregor. New species.



AZURINA HIRUNDO Jordan & McGregor. New genus and new species.