

Cambarus sp.

4867. Cheatham's Ferry, Lauderdale County, Ala.

40. Cambarus rusticus Gir.

4968. Cincinnati, Ohio. One of Hagen's types. Mus. Comp. Zoöl. 1 ♂.

4966. Lebanon, Tenn. Type of *C. placidus* Hag. Mus. Comp. Zoöl. 1 ♂.

9427. White River, Eureka Springs, Ark. Jordan & Gilbert. 1 ♀.

4967. Kentucky River, Little Hickman, Ky. Type of *C. juvenilis* Hag. Mus. Comp. Zoöl. 1 ♂.**41. Cambarus spinosus** Bundy.

4881. Cypress Creek, Lauderdale County, Ala. C. L. Herrick.

Cambarus sp.

4884. Georgia.

42. Cambarus Putnami Fax.

10130. Grayson Springs, Grayson County, Ky. Type. Mus. Comp. Zoöl. 1 ♂.

43. Cambarus forceps Fax.

4880. Cypress Creek, Lauderdale County, Ala. C. L. Herrick, October, 1882. Types.

44. Cambarus Montezumæ Saus.

4119. Lake San Roque, Trapuato, Mexico.

4864. Mexico.

45. Cambarus Shufeldtii Fax.

4860. Near New Orleans, La. Dr. R. W. Shufeldt, 1883. Types.

46. Cheraps Preissii Erichs. ?

4889. Sydney, Australia.

47. Parastacinae, sp. nov.

4133. Colima, Mexico. J. Xantus.

A LIST OF THE FISHES KNOWN FROM THE PACIFIC COAST OF TROPICAL AMERICA, FROM THE TROPIC OF CANCER TO PANAMA.

By DAVID S. JORDAN.

Four hundred and seven species of fishes are now known to inhabit the waters of the Pacific coast of tropical America between Cape San Lucas and Panama. Our knowledge of these species is due chiefly to the studies of Dr. Gill, Dr. Günther, Dr. Steindachner, and Professors Jordan and Gilbert. Only a few collectors have given especial attention to the fish fauna of this region, but the work of these has in nearly all cases been of exceptional value.

The earliest extensive collections were made by Mr. John Xantus at Cape San Lucas, and later at Colima. The specimens obtained by Xantus comprise especially the fishes of the rock-pools. These were studied by Dr. Gill in 1862, and by Professor Gilbert and the writer in 1882. Many of the specimens collected by Xantus still remain unique.

The next collections were made in the bay of Panama, by Capt. John M. Dow, about 1862 to 1866. The first of these were sent to the Smithsonian Institution, where they were studied by Dr. Gill. Later, still

larger collections were sent by Captain Dow to the British Museum. These fishes, and others collected by Dr. Oscar Salvin about Chiapam, were made the subjects of several papers by Dr. Günther, and in 1869 they formed the basis of his general work on the fishes of Central America.

Still later, Dr. Franz Steindachner visited various points along the coast, making collections of fishes. Various local collectors have since sent specimens to the Vienna professor. His various treatises on the fishes of different regions contain many references to the fishes of the Pacific coast of tropical America, and a very large number of the species were first made known by him. The figures published by Dr. Steindachner are the best in ichthyological literature.

A very valuable collection was made by Professor Bradley in the vicinity of Panama in 1866, and by him sent to the museum of Yale College. Unfortunately this collection was allowed to suffer from neglect, and before it was finally studied by Dr. Gilbert and the writer in 1882, most of the species which were new to science when the collection was made had been already described.

Smaller collections have also been obtained by Dr. Bocourt, about La Union, by Dr. Streets, by Mr. Lockington, and by Mr. Belding, in the Gulf of California, and by Lieutenant Nichols at various points on the Mexican coast. The first named collection has formed the rather insufficient basis for an elaborate memoir by Professor Vaillant and Dr. Bocourt; the last mentioned has been studied by Dr. Gilbert and the writer.

The most extensive collections yet made on the Pacific coast of Mexico and Central America, in number of specimens exceeding all the others combined, are those obtained by Professor Gilbert at Mazatlan and Panama in 1881, and about Panama in 1883.

These collections have formed the subject of numerous papers by Professor Gilbert and the writer in the publications of the United States National Museum.

We had prepared a descriptive catalogue, giving the full synonymy and detailed descriptions of all the known species. In the fire which, in 1883, destroyed the museum of the Indiana University our manuscripts (then ready for the printer) were all burned, and with them about two-thirds of Professor Gilbert's entire collections. All the specimens obtained at Panama in 1883 were destroyed, but most of the collection of 1881 had then been returned to the National Museum.

Among the specimens destroyed were twenty species from Panama which still remain without names.

The present paper is the result of the joint studies of Professor Gilbert and the writer, but for its details the present writer is alone responsible.

I have given a list of the species ascribed on good authority to the region in question. Those species, three hundred and sixty-two in

number, of which specimens have been examined by the writer are indicated by a star (*). Those species, seventy-one in number, which appear to be common to both the Atlantic and Pacific coasts of tropical America are indicated by the dagger (†). Those actually collected at Mazatlan by Professor Gilbert, one hundred and seventy-two in number, are indicated by the letter "M"; "P" indicates those obtained by Professor Gilbert at Panama. Of these there are about one hundred and eighty. The other references explain themselves.

Family 1.—BRANCHIOSTOMIDÆ.

1. BRANCHIOSTOMA Costa.

1. *Branchiostoma lanceolatum* † Pallas.

Angel Island, Gulf of California (*Eockington*).

Family 2.—SCYLLIIDÆ.

2. GINGLYMOSTOMA Müller & Henle.

2. *Ginglymostoma cirratum* * † Gmelin. *M.*, *P.*

3. *Ginglymostoma fulvum* * † Poey. *P.*

(Doubtful species.)

Family 3.—GALEORHINIDÆ.

3. GALEUS Rafinesque.

4. *Galeus lunulatus* * Jordan & Gilbert. *M.*

5. *Galeus dorsalis* * Gill. *P.*

Panama (*Gill*).

4. GALEOCERDO Müller & Henle.

6. *Galeocerdo maculatus* * † Ranzani. *M.*

San José (*Gilbert*).

5. CARCHARHINUS Blainville.

7. *Carcharhinus longurio* * Jordan & Gilbert. *M.*, *P.*

8. *Carcharhinus limbatus* † Müller & Henle.

Chiapam (*Gthr.*) (?).

9. *Carcharhinus æthalarus* * Jordan & Gilbert. *M.*, *P.*

10. *Carcharhinus* * sp. indescr.¹ *P.*

11. *Carcharhinus fronto* * Jordan & Gilbert. *M.*

¹This species and others similarly indicated belong to Professor Gilbert's collection of 1883. These were destroyed by fire before the publication of descriptions of them as new species.

Family 3.—SPHYRNIDÆ.

6. SPHYRNA Rafinesque.

12. *Sphyrna tudes** Cuvier. *M*.
13. *Sphyrna zygaena**† Linnaeus. *M., P.*

Family 4.—PRISTIDIDÆ.

7. PRISTIS Latham.

14. *Pristis perrotteti** Müller & Henle. *M*.
Chiapam (*Günther*).

Family 5.—RHINOBATIDÆ.

8. RHINOBATUS Bloch & Schneider.

15. *Rhinobatus glaucostigma** Jordan & Gilbert. *M*.
Gulf of California (*Streets*).
16. *Rhinobatus leucorhynchus** Günther. *P*.
Panama (*Gthr.*).
17. *Rhinobatus exasperatus** Jordan & Gilbert.
Panama (*Bradley*).

Family 6.—TORPEDINIDÆ.

9. NARCINE Henle.

18. *Narcine*,* sp. indescr. *P*.

10. DISCOPYGE Tschudi.

19. *Discopyge*,* sp. indescr. *P*.

Family 7.—TRYGONIDÆ.

11. UROLOPHUS Müller & Henle.

20. *Urolophus mundus** Gill. *P*.
Panama (*Gill*).
21. *Urolophus asterias** Jordan & Gilbert. *M., P*.
22. *Urolophus aspidurus** Jordan & Gilbert. *P*.
23. *Urolophus nebulosus* Garman.
Colima (*Xantus*).
24. *Urolophus halleri** Cooper. *M., P*.
Panama (*Bradley*).

12. DASYBATIS Rafinesque.

25. *Dasybatis longus** Garman. *M*.
Acapulco, Panama (*Garman*).

13. **PTEROPLATEA** Müller & Henle.

- 26.
- Pteroplatea crebripunctata*
- * Peters.
- M.*

Mazatlan (*Peters*).14. **AËTOPLATEA** Müller & Henle.

- 27.
- Aëtoplatea*
- , * sp. indescr.
- P.*

Family 8.—**MYLIOBATIDÆ**.15. **STOASODON** Cantor.

- 28.
- Stoasodon laticeps*
- * Gill.
- M.*

Family 9.—**CERATOPTERIDÆ**.16. **MANTA** Baneroff.

- 29.
- Manta birostris*
- † Walbaum.

(*Brachioptilon hamiltoni* Newman.)Gulf of California (*Newman*; *Streets*).Family 10.—**SILURIDÆ**.17. **ÆLURICHTHYS** Baird & Girard.

- 30.
- Ælurichthys pinnimaculatus*
- * Steindachner.
- M.*
- ,
- P.*

Altata, Costa Rica, Panama (*Steind.*); Panama (*Rowell*).

- 31.
- Ælurichthys panamensis*
- * Gill.

(*Ælurichthys nuchalis* Gthr.) *M.*, *P.*Libertad, Punta Arenas (*Gilbert*); Panama (*Gill*; *Gthr.*); Magdalena Bay, Altata, Panama (*Steind.*).18. **GALEICHTHYS** Cuvier & Valenciennes.

- 32.
- Galeichthys peruvianus*
- * Lütken.
- P.*

Callao (*Lütken*); Altata, Panama (*Steind.*).

- 33.
- Galeichthys*
- , * sp. indescr.
- P.*

- 34.
- Galeichthys arioides*
- Kner.

(*Arius multiradiatus* Günther.)Rio Bayano, Panama (*Kner.*).

- 35.
- Galeichthys dowi*
- * Gill.
- P.*

(*Arius alatus* Steind.)Panama (*Gill*; *Bradley*); Panama, Guayaquil (*Steind.*).

- 36.
- Galeichthys brandti*
- * Steindachner.
- M.*
- ,
- P.*

Panama, Altata (*Steind.*); Punta Arenas (*Gilbert*).

- 37.
- Galeichthys kessleri*
- * Steindachner.
- P.*

Altata, Panama (*Steind.*).

38. *Galeichthys insculptus* * Jordan & Gilbert. *P.*

39. *Galeichthys planiceps* * Steindachner. *P.*

Altata, Panama (*Steind.*).

40. *Galeichthys troscheli* Gill.

Panama (*Gill*).

41. *Galeichthys* * sp. indescr. *P.*

42. *Galeichthys platypogon* * Günther. *M., P.*

Libertad, Punta Arenas (*Gilbert*); San José (*Gthr.*); Magdalena Bay, Callao (*Steind.*).

43. *Galeichthys elatturus* * Jordan & Gilbert. *P.*

44. *Galeichthys osculus* * Jordan & Gilbert. *P.*

45. *Galeichthys seemani* * Günther. *M.*

Altata (*Steind.*); Panama (*Steind.*).

46. *Galeichthys cœrulescens* Günther.

Rio Huamuchal (*Gthr.*).

47. *Galeichthys guatemalensis* * Günther. *M.*

Chiapam (*Gthr.*); Colima (*Xantus*).

48. *Galeichthys dasycephalus* * Günther. *P.*

Panama (*Steind.*).

49. *Galeichthys fürthi* *† Steindachner. *P.*

Panama (*Steind.*).

50. *Galeichthys melanopus* * Günther. *P.*

Rio Motagna (*Gthr.*); Panama (*Steind.*).

51. *Galeichthys hypophthalmus* * Steindachner. *P.*

Panama (*Steind.*).

Family 11.—CLUPEIDÆ.

19. CLUPEA Linnaeus.

52. *Clupea thrissina* * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

53. *Clupea stolifera* * Jordan & Gilbert. *M., P.*

20. OPISTHONEMA Gill.

54. *Opisthonema libertate* * Günther. *M., P.*

Libertad (*Günther*).

21. OPISTHOPTERUS Gill.

55. *Opisthopterus lutipinnis* * Jordan & Gilbert. *M.*

56. *Opisthopterus dovii* * Günther. *P.*

Panama (*Günther*).

57. *Opisthopterus macrops* Günther.

Panama (*Gthr.*).

22. ODONTOGNATHUS Lacépède.

58. *Odontognathus panamensis* * Steindachner. *P.*

Panama (*Steind.*).

23. PELLONA Cuvier & Valenciennes.

59. *Pellona panamensis* * Steindachner. *P.*

Panama, Guayaquil (*Steind.*).

60. *Pellona fürthi* * Steindachner. *P.*

Punta Arenas (*Gilbert*). Panama (*Steind.*).

Family 12.—ENGRAULIDIDÆ.

24. STOLEPHORUS Lacépède.

61. *Stolephorus macrolepidotus* * Kner & Steindachner. *M., P.*

Rio Bayano (*Kner & Steind.*); Panama (*Steind.*).

62. *Stolephorus panamensis* * Steindachner. *P.*

Panama (*Steind.*).

63. *Stolephorus poeyi* * Kner & Steindachner. *P.*

Rio Bayano (*Kner & Steind.*).

64. *Stolephorus spinifer* † Cuv. & Val.

Panama (*Steind.*).

65. *Stolephorus opercularis* * Jordan & Gilbert.

Gulf of California (*Nichols*).

66. *Stolephorus lucidus* * Jordan & Gilbert. *M.*

67. *Stolephorus ischanus* * Jordan & Gilbert. *M.*

68. *Stolephorus curtus* * Jordan & Gilbert. *M.*

69. *Stolephorus exiguus* * Jordan & Gilbert. *M.*

70. *Stolephorus miarchus* * † Jordan & Gilbert. *M.*

Pearl Islands (*Bradley*).

71. *Stolephorus ringens* Jenyns.

California; Peru; Chili; (not in Central America?)

72. *Stolephorus*, * sp. indescr. *P.*

25. CETENGRAULIS Günther.

73. *Cetengraulis mysticetus* Günther.

Panama (*Gthr.*).

Family 13.—ALBULIDÆ.

26. ALBULA Gronow.

74. *Albula vulpes* * † Linnaeus. *M., P.*

Family 14.—ELOPIDÆ.

27. **ELOPS** Linnaeus.

75. *Elops saurus* *† L. *M.*, *P.*

Family 15.—CHANIDÆ.

28. **CHANOS** Lacépède.

76. *Chanos chanos* * Forskål. *M.*

Chiapam (*Gthr.*).

Family 16.—SYNODONTIDÆ.

29. **SYNODUS** Bloch & Schneider.

77. *Synodus scituliceps* * Jordan & Gilbert. *M.*, *P.*

Family 17.—CYPRINODONTIDÆ.

30. **CHARACODON** Günther.

78. *Characodon furcidens* * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

31. **FUNDULUS** Lacépède.

79. *Fundulus punctatus* Günther.

Chiapam (*Gthr.*).

80. *Fundulus guatemalensis* Günther.

Rio Guacalate (*Gthr.*).

81. *Fundulus pachycephalus* Günther.

Lake Atitlan (*Gthr.*).

82. *Fundulus vinctus* * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

83. *Fundulus extensus* * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

32. **HAPLOCHILUS** McClelland.

84. *Haplochilus dovii* Günther.

Punta Arenas (*Günther*).

33. **ANABLEPS** Bloch.

85. *Anableps dovii* * Gill.

La Union (*Dow*); Chiapam (*Gthr.*).

34. **PÆCILIA** Bloch. & Schneider.

86. *Pæcilia elongata* * Günther. *P.*

Panama (*Gthr.*).

Family 18.—MURÆNIDÆ.

35. MURÆNOBLENNA Lacépède.

- 87.
- Murænoblenna nectura*
- * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

36. MURÆNA Linnæus.

- 88.
- Muræna pinta*
- * Jordan & Gilbert.
- M.*

Cape San Lucas (*Xantus*); Colima (*Xantus*); Panama (*Rowell*); San Josef Island (*Nichols*).

- 89.
- Muræna melanotis*
- * † Kaup.

Panama (*Günther*, *Bradley*).

37. SIDERA Kaup.

- 90.
- Sidera ocellata*
- † Agassiz.

Panama (*Gthr.*) (?)

- 91.
- Sidera dovii*
- * Gunther.
- M.*

(*Muræna pinta* Jordan & Gilbert.)Espiritu Santo (*Belding*); Galapagos Islands (*Herendeen*); Panama (*Gthr.*).

- 92.
- Sidera castanea*
- * Jordan & Gilbert.
- M.*

- 93.
- Sidera verrilli*
- * Jordan & Gilbert.

Panama (*Bradley*).

- 94.
- Sidera panamensis*
- * Steindachner.

Panama (*Steind.*); Pearl Island (*Bradley*).

- 95.
- Sidera aquæ-dulcis*
- Cope.

San José (*Cope*).

38. ECHIDNA Forster.

(*Pæcilophis* Kaup.)

- 96.
- Echidna nocturna*
- Cope.

San José (*Cope*)

Family 19.—CONGRIDÆ.

39. ICHTHYAPUS Barneville.

- 97.
- Ichthyapus selachops*
- * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

40. OPHISURUS Lacépède.

- 98.
- Ophisurus xysturus*
- * Jordan & Gilbert.
- M.*

Mazatlan, Acapulco, Panama (*Bradley*).

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41. **OPHICHTHYS** Ahl.

- 99.
- Ophichthys miurus*
- * Jordan & Gilbert.

Cape San Lucas (*Xantus*).

- 100.
- Ophichthys triserialis*
- * Kaup.
- M.*

(*Ophisurus californiensis* Garrett; *Herpetoichthys callisoma* Abbott)."Pacific" (*Kaup*); Cape San Lucas (*Nichols*); Pacific (*Abbott*); Lower California (*Garrett*).

- 101.
- Ophichthys zophochir*
- * Jordan & Gilbert.
- M.*

Acapulco (*Sutter*).42. **MYROPHIS** Lütken.

- 102.
- Myrophis vafer*
- * Jordan & Gilbert.
- P.*

Panama (*Gthr.*); Guaymas (*Emeric*).43. **MURÆNESOX** McClelland.

- 103.
- Murænesox coniceps*
- * Jordan & Gilbert.
- M., P.*

44. **CONGER** Cuvier.

- 104.
- Conger conger*
- * † Linnæus.

Cape San Lucas (*Belding*).Family 20.—**BELONIDÆ**.45. **TYLOSURUS** Cocco.

- 105.
- Tylosurus hians*
- † Cuv. & Val.

Acapulco (*Steind.*).

- 106.
- Tylosurus fodiator*
- * Jordan & Gilbert.
- M.*

- 107.
- Tylosurus pacificus*
- * Steindachner.
- P.*

Panama, Acapulco (*Steind.*); Panama (*Bradley*).

- 108.
- Tylosurus scapularis*
- * Jordan & Gilbert.
- P.*

- 109.
- Tylosurus*
- , sp. indescr *
- P.*

- 110.
- Tylosurus stolzmanni*
- * Steindachner.
- M., P.*

(*Tylosurus sierrita* Jordan & Gilbert.)Peru (*Steind.*).Family 21.—**SCOMBERESOCIDÆ**.46. **HEMIRHAMPHUS** Cuvier.

- 111.
- Hemirhamphus roberti*
- † * Cuv. & Val.
- M., P.*

Gulf of California (*Nichols*); Panama (*Bradley*).

- 112.
- Hemirhamphus unifasciatus*
- † * Ranzani.

Panama (*Dow.*).

- 113.
- Hemirhamphus balao*
- * † Le Sueur.
- P.*

Panama (*Bradley*).

47. FODIATOR Jordan & Meek.

- 114.
- Fodiator acutus*
- * Cuv. & Val.

Panama (*Ruschenberger*).

48. EXOCÆTUS Linnæus.

- 115.
- Exocætus rufipinnis*
- * † Cuv. & Val.

(*Exocætus dowi* Gill.)Panama (*Gill.*); Payta (*C. & V.*).

- 116.
- Exocætus californicus*
- * Cooper.

Near Cape San Lucas (*Gilbert*).

- 117.
- Exocætus callopterus*
- * Günther.
- P.*

Panama (*Gthr.*; *Lütken*).

Family 22.—SYNGNATHIDÆ.

49. DORYRHAMPHUS Kaup.

- 118.
- Doryrhamphus californiensis*
- Gill.

Cape San Lucas (*Xantus*).

50. HIPPOCAMPUS Linnæus.

- 119.
- Hippocampus ingens*
- * Girard.
- M.*

(*Hippocampus gracilis* Gill.)San Diego (*Girard*); Cape San Lucas (*Gill*).

Family 23.—FISTULARIIDÆ.

51. FISTULARIA Linnæus.

- 120.
- Fistularia depressa*
- * Gthr.
- M.*

Lower California. (*Gthr.*).

Family 24.—MUGILIDÆ.

52. MUGIL Linnæus.

- 121.
- Mugil cephalus*
- † * L.
- M.*
- ,
- P.*

Acapulco (*Steind.*); Punta San Ygnacio (*Nichols*); California, Chili, &c.

- 122.
- Mugil incilis*
- * † Hancock.

Chiapam (*Steind.*); Panama (*Bradley*).

- 123.
- Mugil curema*
- * † Cuv. & Val.
- M.*
- ,
- P.*

Everywhere.

- 124.
- Mugil*
- , * sp. indescr.
- P.*

53. CHÆNOMUGIL Gill.

- 125.
- Chænomugil proboscideus*
- * Günther.
- M.*
- ,
- P.*

54. **QUERIMANA** Jordan & Gilbert

- 126.
- Querimana harengus*
- * Günther.
- M., P.*

Panama (*Günther*); Zorritas (*Bradley*).Family 25.—**ATHERINIDÆ**.55. **MENIDIA** Bonaparte.

- 127.
- Menidia pachylepis*
- * Günther.
- P.*

Panama (*Gthr.*).

- 128.
- Menidia guatemalensis*
- Günther.

L. Huamuchal (*Gthr.*).

- 129.
- Menidia*
- , * sp. indescr.

56. **ATHERINA** Linnæus.

- 130.
- Atherina eriarcha*
- * Jordan & Gilbert.
- M.*

Peru.

57. **ATHERINELLA** Steindachner.

- 131.
- Atherinella panamensis*
- Steindachner.

Panama (*Steind.*).Family 26.—**SPHYRÆNIDÆ**.58. **SPHYRÆNA** Bloch.

- 132.
- Sphyræna argentea*
- * Girard.

(*Sphyræna lucasana* Gill.)Cape San Lucas (*Xantus*); California.

- 133.
- Sphyræna ensis*
- * Jordan & Gilbert.
- M., P.*

San Bartholomé Bay (*Steind.*); Panama (*Steind.*).Family 27.—**POLYNEMIDÆ**.59. **POLYNEMUS** Linnæus.

- 134.
- Polynemus approximans*
- * Lay & Bennett.
- M., P.*

Common.

- 135.
- Polynemus opercularis*
- * Gill.
- M., P.*

(*Polynemus melanopoma* Günther.)

Common.

Family 28.—**ECHENEIDIDÆ**.60. **REMORA** Gill.

- 136.
- Remora remora*
- * † Linnæus.
- P.*

- 137.
- Remora albescentis*
- * † Temminck & Schlegel.

La Paz (*Streets*).

Family 29.—TRICHIURIDÆ.

61. TRICHIURUS Linnaeus.

138. *Trichiurus lepturus* * † L.
Gulf of California (*Streets*).

62. LEPIDOPUS Gouan.

139. *Lepidopus caudatus* * Euphrasen.
Cape San Lucas (*Xantus*).

Family 30.—SCOMBRIDÆ.

63. SCOMBER Linnaeus.

140. *Scomber colias* * † Gmelin.
Cape San Lucas (*Xantus*).

64. SCOMBEROMORUS Lacépède.

141. *Scomberomorus maculatus* * † Mitchill. *M., P.*

65. SARDA Cuvier.

142. *Sarda chilensis* Cuv. & Val.

66. ORCYNUS Cuvier.

143. *Orcynus alalonga* † Gmelin.
Near Mazatlan (*Lay & Bennett*).

Family 31.—CARANGIDÆ.

67. DECAPTERUS Bleeker.

144. *Decapterus macarellus* * † Cuv. & Val.
(*Decapterus hypodus* Gill.)
Cape San Lucas (*Xantus*).

68. TRACHURUS Rafinesque.

145. *Trachurus picturatus* * † Bowdich.
Cape San Lucas (*Xantus*).
146. *Trachurus trachurus* * † Linnaeus.
Cape San Lucas (*Xantus*).

69. TRACHUOPS Gill.

147. *Trachurops crumenophthalmus* * † Bloch.
(*Trachurops brachychirus* Gill.)
Cape San Lucas (*Xantus*).

70. **CARANX** Lacépède.

148. *Caranx atrimanus* * Jordan & Gilbert. *P.*
 149. *Caranx vinctus* * Jordan & Gilbert. *M.*
 San Blas (*Lay & Bennett*); Punta Arenas (*Gilbert*).
 150. *Caranx leucurus* * Günther.
 (*Caranx fürthi* Steindachner.)
 Panama (*Gthr.*; *Steind.*).
 151. *Caranx chrysus*† *caballus* * Günther.¹ *M., P.*
 (*Caranx boöps* Girard; *Caranx girardi* Steind.)
 Common.
 152. *Caranx latus* *† Agassiz. *M., P.*
 (*Carangus marginatus* Gill.)
 Common.
 153. *Caranx hippos* *† Linnæus. *M., P.*
 Common.
 154. *Caranx lugubris* *† Poey.
 Clarion Islands (*Nichols*).
 155. *Caranx melampygus* * Cuv. & Val.
 Socorro Island (*Nichols*).
 156. *Caranx speciosus* * Forskål. *M., P.*
 (*Caranx panamensis* Gill.)
 Panama (*Gill*; *Gthr.*).
 157. *Caranx orthogrammus* * Jordan & Gilbert.
 Clarion Island (*Nichols*).
 158. *Caranx dorsalis* * Gill. *M., P.*
 Panama (*Gthr.*; *Gill*).
 159. *Caranx crinitus* *† Mitchill. *M.*
 Cape San Lucas (*Xantus*).

71. **VOMER** Cuvier.

160. *Vomer setipinnis* *† Mitchill. *M., P.*
 Common.

72. **SELENE** Lacépède.

161. *Selene cerstedti* * Lütken. *M., P.*
 Punta Arenas (*Lütken*).
 162. *Selene vomer* *† Linnæus. *M., P.*
 (*Argyriosus brevoorti* Gill; *Argyriosus pacificus* Lockington.)
 Common.

¹ Specimens of *Caranx chrysus*, which I cannot distinguish from the West Coast *caballus* occur, at Key West. Probably the two forms *chrysus* and *caballus* will prove to be undistinguishable.

73. CHLOROSCOMBRUS Girard.

163. *Chloroscombrus chrysurus* † orqueta * Jordan & Gilbert. *P.*
Magdalena Bay (*Steind.*).

74. TRACHYNOTUS Lacépède.

164. *Trachynotus carolinus* * † Linnæus.
Cape San Lucas (*Xantus*) ?
165. *Trachynotus rhodopus* * † Gill.
Cape San Lucas (*Xantus*) ?
166. *Trachynotus kennedyi* * Steindachner. *M., P.*
Magdalena Bay (*Steind.*); Lower California (*Lockington*).
167. *Trachynotus fasciatus* * Gill. *M., P.*
(*Trachynotus glaucoides* Gthr.)
Cape San Lucas (*Xantus*); Porto Escondido (*Nichols*); San José, Panama (*Gthr.*).

75. SERIOLA Cuvier.

168. *Seriola dorsalis* * Gill.
Cape San Lucas (*Xantus*).
169. *Seriola mazatlanana* Steindachner.
Mazatlan (*Steind.*). (Doubtful species).

76. NEMATISTIUS Gill.

170. *Nematistius pectoralis* * Gill. *M.*
Cape San Lucas (*Gill*); Magdalena Bay (*Steind.*); Picheluogo (*Nichols*).

77. OLIGOPLITES Gill.

171. *Oligoplites altus* * Günther. *M., P.*
Panama (*Gthr.*).
172. *Oligoplites saurus* * † Bloch & Schneider. *M., P.*
(*Oligoplites inornatus* Gill.)

Family 32.—STROMATEIDÆ.

78. STROMATEUS Linnæus.

173. *Stromateus medius* * Peters. *P.*
Mazatlan (*Peters*).

Family 33.—HOLOCENTRIDÆ.

79. HOLOCENTRUM Bloch.

174. *Holocentrum suborbitale* * Gill. *M., P.*
Cape San Lucas (*Xantus*); Panama (*Dow*).

80. MYRIPRISTIS Cuvier.

- 175.
- Myripristis occidentalis*
- * Gill.

(? *Rhamphoberyx leucopus* Gill.)La Paz (*Harford*); Cape San Lucas (*Gill*).

- 176.
- Myripristis pœcilopus*
- * Gill.

Cape San Lucas (*Xantus*). (Doubtful species.)

Family 34.—CENTROPOMIDÆ.

81. CENTROPOMUS Lacépède.

- 177.
- Centropomus undecimalis*
- * † Bloch.
- M.*
- ,
- P.*

(*Centropomus viridis* Lockington.)

Common.

- 178.
- Centropomus nigrescens*
- * Günther.
- M.*
- ,
- P.*

Chiapam (*Gthr.*); Punta Arenas (*Gilb.*).

- 179.
- Centropomus pedimacula*
- * † Poey.
- M.*
- ,
- P.*

(*Centropomus medius* Gthr.)Chiapam (*Gthr.*); San Blas (*Nichols*); Punta Arenas (*Gilb.*).

- 180.
- Centropomus unionensis*
- * Bocourt.
- P.*

La Union (*Bocourt*).

- 181.
- Centropomus robalito*
- * Jordan & Gilbert.
- M.*
- ,
- P.*

- 182.
- Centropomus armatus*
- * Gill.
- P.*

Panama (*Gill*); Chiapam (*Gthr.*).

Family 35.—SERRANIDÆ.

82. SERRANUS Cuvier.

- 183.
- Serranus radialis*
- * † Quoy & Gaimard.
- M.*
- ,
- P.*

(*Centropristis macropomus* Gthr.)(*Centropristis ayresi* Steind.)Gulf of California (*Streets, Nichols*); Panama (*Gthr.*); Panama, Rio Janeiro, Santos (*Steind.*).

- 184.
- Serranus calopteryx*
- * Jordan & Gilbert.
- M.*

(*Prionodes fasciatus* Jenyns; preoccupied.)Pearl Islands (*Bradley*); Galapagos Islands (*Jenyns*).

- 185.
- Serranus albomaculatus*
- Jenyns.

Galapagos Islands (*Jenyns, Steind.*); Panama (*Steind.*).

- 186.
- Serranus maculofasciatus*
- * Steindachner.
- M.*

Mazatlan (*Steind.*).

83. HYPOPLECTRUS Gill.

- 187.
- Hypoplectrus lamprurus*
- * Jordan & Gilbert.
- P.*

34. **ANTHIAS** Bloch.

- 188.
- Anthias multifasciatus**
- * Gill.

Cape San Lucas (*Xantus*).85. **PARANTHIAS** Guichenot.

- 189.
- Paranthias furcifer**
- * Cuv. P.

(*Brachyrhinus creolus* Gill; *Serranus colonus* Val.)Cape San Lucas (*Xantus*); Galapagos Islands (*Val.*, *Steind.*); Panama (*Steind.*).86. **MYCTEROPERCA** Gill.

- 190.
- Mycteroperca rosacea**
- * Streets. M.

Gulf of California (*Streets*).87. **PROMICROPS** Gill.

- 191.
- Promicrops itaiara**
- † * Lichtenstein. M., P.

(*Serranus quinquefasciatus* Bocourt.)Punta Arenas (*Gilb.*); Tauesco (*Boc.*).88. **EPINEPHELUS** Bloch.

- 192.
- Epinephelus sellicauda**
- * Gill. M., P.

(*Epinephelus ordinatus* Cope.)Socorro Island (*Nichols*); Cape San Lucas, Colima (*Xantus*); Panama (*Gthr.*, *Steind.*, *Cope*).

- 193.
- Epinephelus analogus**
- * Gill. M., P.

(*Serranus courtadéi* Bocourt.)Acapulco (*Nichols*); La Union (*Boc.*); Acapulco, Mazatlan, Panama (*Steind.*); Panama (*Gthr.*).89. **ALPHESTES** Bloch & Schneider.

- 194.
- Alphestes multiguttatus**
- * Günther. M., P.

Panama (*Gthr.*).90. **ENNEACENTRUS** Gill.

- 195.
- Enneacentrus panamensis**
- Steindachner.

Panama (*Steind.*).91. **DERMATOLEPIS** Gill.

- 196.
- Dermatolepis punctatus**
- * Gill. M.

Cape San Lucas (*Xanthus*); Socorro Island (*Nichols*).Family 36.—**RHYPTICIDÆ**92. **RHYPTICUS**.

- 197.
- Rhypticus xanti**
- * Gill. M.

Cape San Lucas (*Xantus*).

198. *Rhypticus nigripinnis* * Gill. P.(*Rhypticus maculatus* Gill. = *Promicropterus decoratus* Gill.)Cape San Lucas (*Xantus*); Panama (*Rowell, Gthr.*).

Family 37.—LOBOTIDÆ.

93. LOBOTES Cuvier.

199. *Lobotes surinamensis* * Bloch. P.Panama (*Steind.*).

Family 38.—SPARIDÆ.

94. XENICHTHYS Gill.

200. *Xenichthys xanti* * Gill. P.(*Xenichthys xenops* Jordan & Gilbert.)Cape San Lucas (*Xantus*).

95. XENISTIUS Jordan & Gilbert.

201. *Xenistius californiensis* * Steindachner.Cerro Island (*Streets, Nichols*); San Diego (*Steind.*).

96. HOPLOPAGRUS Gill.

202. *Hoplopagrus güntheri* * Gill. M.Cape San Lucas (*Xantus*); Altata (*Steind.*).

97. LUTJANUS Bloch.

203. *Lutjanus argentiventris* * Peters. M., P.Mazatlan (*Peters*); Acapulco (*Nichols*).204. *Lutjanus*, * sp. indescr. P.205. *Lutjanus novemfasciatus* * Gill. M. P.(*Lutjanus pacificus* Bocourt; *Lutjanus prieto* Jordan & Gilbert.)Punta Arenas (*Gilb.*); Tauesco (*Boc.*); Cape San Lucas (*Xantus*); San Blas (*Nichols*).206. *Lutjanus guttatus* * Steindachner. M. P.Mazatlan (*Steind.*).207. *Lutjanus colorado* * Jordan & Gilbert. M.Punta Arenas (*Gilb.*).208. *Lutjanus aratus* * Günther. M., P.Punta Arenas (*Gilb.*); Chiapam, Panama (*Gthr.*).209. *Lutjanus inermis* * Peters.Mazatlan (*Peters*).

98. CONODON Cuv. & Val.

210. *Conodon serrifer* * Jordan & Gilbert.
Boca Soledad, Gulf of California (*Streets*).

99. ORTHOPRISTIS Girard.

211. *Orthopristis inornatus* * Gill.
Cape San Lucas (*Xantus*).
212. *Orthopristis brevipinnis* * Steindachner.
Mazatlan (*Steind.*); Panama (*Bradley*).
213. *Orthopristis cantharinus* * Jenyns.
Guaymas (*Nichols*); Galapagos Island (*Jenyns*).
214. *Orthopristis chalcus* * Günther. *M., P.*
(*Pristipoma Kneri* Steind.)
Mazatlan (*Steind.*); Panama (*Gthr.*).

100. POMADASYS Lacépède.

215. *Pomadasys leuciscus* * Günther. *M., P.*
San José, Chiapam, Panama (*Gthr.*).
216. *Pomadasys elongatus* * Steindachner. *M., P.*
Panama (*Steind.*); Punta Arenas (*Gilb.*).
217. *Pomadasys nitidus* * Steindachner. *M., P.*
Mazatlan (*Steind.*).
218. *Pomadasys axillaris* * Steindachner. *M.*
Mazatlan (*Steind.*); Lower California (*Streets*).
219. *Pomadasys panamensis* * Steindachner. *M., P.*
Panama (*Steind.*).
220. *Pomadasys branicki* * Steindachner. *M., P.*
Tumbez (*Steind.*).
221. *Pomadasys macracanthus* * Günther. *M., P.*
Mazatlan (*Steind.*); Punta Arenas (*Gilb.*); Chiapam (*Gthr.*).
222. *Pomadasys humilis* * Kner & Steindachner.
Rio Bayano (*Kner & Steind.*); Rio Bayano (*Dow*).

101. ANISOTREMUS Gill.

223. *Anisotremus dovii* * Günther. *M., P.*
Panama (*Gthr.*).
224. *Anisotremus pacifici* * Günther. *P.*
Panama (*Steind.*); Chiapam (*Gthr.*).
225. *Anisotremus cæsius* * Jordan & Gilbert. *M.*

226. *Anisotremus interruptus* * Gill.*Pristipoma fürthi* Steind.). *M.*, *P.*Cape San Lucas (*Xantus*); Panama, &c. (*Steind.*).**227. *Anisotremus virginicus*† *tæniatus* * Gill. *M.*, *P.***Magdalena Bay (*Steind.*); Panama (*Dow*).**102. *HÆMULON* Cuvier.****228. *Hæmulon maculicauda* * Gill. *P.****(Hæmulon mazatlanum* Steind.).Cape San Lucas (*Xantus*); Mazatlan, Acapulco (*Steind.*); Colima (*Xantus*).**229. *Hæmulon flavoguttatum* * Gill. *M.*, *P.****(Hæmulon margaritifera* Gthr.).Mazatlan, Acapulco, Altata, Panama (*Steind.*); Lower California (*Streets*); Cape San Lucas (*Xantus*); Panama (*Gthr.*).**230. *Hæmulon steindachneri* *† Jordan & Gilbert. *M.*, *P.****(Hæmulon caudimacula* Steind., not C. & V.)Acapulco (*Steind.*); Cape San Lucas, Colima (*Xantus*); Brazil (*Steind.*).**231. *Hæmulon scudleri* * Gill. *M.*, *P.****(Hæmulon brevirostrum* Gthr.; *Hæmulon undecimale* Steind.)Cape San Lucas (*Xantus*); Panama (*Gthr.*); Acapulco, Panama (*Steind.*).**232. *Hæmulon sexfasciatum* * Gill. *M.*, *P.****(Hæmulon maculosum* Peters.)Cape San Lucas, Colima (*Xantus*); Mazatlan (*Peters*).**103. *CALAMUS* Swainson.****233. *Calamus brachysomus* * Lockington. *M.***Gulf of California (*Lock.*; *Nichols*); Panama (*Gthr.*).**104. *GIRELLA* Gray.****234. *Girella nigricans* * Ayres.***(Girella dorsimacula* Gill.)Cape San Lucas (*Xantus*); California.**105. *KYPHOSUS* Lacépède.****235. *Kyphosus analogus* * Gill. *M.*, *P.****(Pimelepterus elegans* Peters.)Cape San Lucas (*Xantus*); Mazatlan (*Peters*); Porto Escondido (*Nichols*); Chiapam, Panama (*Gthr.*).**236. *Kyphosus lutescens* * Jordan & Gilbert.**Socorro Island (*Nichols*).**237. *Kyphosus ocyurus* * Jordan & Gilbert. *P.***

Family 39.—CIRRHITIDÆ.

106. CIRRHITES Lacépède.

- 238.
- Cirrhitès rivulatus*
- * Valenciennes.
- M.*

(Cirrhitès betaurus Gill.)Cape San Lucas (*Xantus*); Galapagos Islands (*Val.*).

Family 40.—APPOGONIDÆ.

107. APOGON Lacépède.

- 239.
- Apogon retrosella*
- * Gill.

Cape San Lucas (*Xantus*).

- 240.
- Apogon dovii*
- * Günther.
- M., P.*

Panama (*Gthr.*).

Family 41.—MULLIDÆ.

108. UPENEUS Cuvier.

- 241.
- Upeneus grandisquamis*
- , * Gill.
- M., P.*

(Upeneus tetraspilus Gthr.)Panama (*Dow*; *Gthr.*; *Steind.*).

- 242.
- Upeneus dentatus*
- * Gill.

Cape San Lucas (*Xantus*).

Family 42.—SCIÆNIDÆ.

109. SCIÆNA Linnaeus.

- 243.
- Sciæna oscitans*
- * Jordan & Gilbert.
- P.*

- 244.
- Sciæna*
- , * sp. indescr.
- P.*

- 245.
- Sciæna ericymba*
- * Jordan & Gilbert
- P.*

- 246.
- Sciæna fürthi*
- * Steindachner.
- P.*

Panama (*Steind.*).

- 247.
- Sciæna typica*
- * Gill.
- P.*

(Corvina ophioscion Gthr.; *Ophioscion typicus* Gill.)Panama (*Gill*).

- 248.
- Sciæna imiceps*
- * Jordan & Gilbert.
- P.*

- 249.
- Sciæna chrysoleuca*
- * Günther.
- P.*

(? Sciæna aluta Jordan & Gilbert.)Panama (*Gthr.*); La Union (*Nichols*).

- 250.
- Sciæna sciera*
- * Jordan & Gilbert.
- M., P.*

Punta Arenas (Gill.).

- 251.
- Sciæna vermicularis*
- * Günther.
- P.*

Panama (*Gthr.*).

252. *Sciæna armata* * † Gill. *P.*
(*Corvina acutirostris* Steind.)

Panama (*Gill*; *Steind.*); Punta Arenas (*Gilb.*).

253. *Sciæna icistia* * Jordan & Gilbert. *M.*

254. *Sciæna ensifera* * Jordan & Gilbert. *P.*
(*Corvina fulgens* Vaillant & Bocourt.)

Punta Arenas (*Gilb.*); La Union (*Boc.*).

255. *Sciæna*, * sp. indescr.

256. *Sciæna macrops* * Steindachner. *P.*

Panama (*Steind.*).

110. ODONTOSCION Gill.

257. *Odontoscion archidium* * Jordan & Gilbert. *P.*

111. LARIMUS Cuvier.

258. *Larimus breviceps* * † Cuvier & Valenciennes. *M., P.*

Punta Arenas (*Gilb.*); Panama (*Gthr.*); West Indies.

259. *Larimus argenteus* * Gill. *P.*

Panama (*Dow.*).

112. EQUES Bloch.

260. *Eques*, sp. indescr * *P.*

113. POLYCIRRHUS Bocourt.

261. *Polycirrhus dumerili* * Bocourt. *P.*

(*Genyonemus fasciatus* Steind.)

Panama (*Steind.*); La Union (*Boc.*).

114. MICROPOGON Cuv. & Val.

262. *Micropogon altipinnis* * Günther. *P.*

Panama, Chiapam, San José (*Gthr.*).

263. *Micropogon ectenes* * Jordan & Gilbert. *M.*

115. UMBRINA Cuvier.

264. *Umbrina xanti* * Gill. *M., P.*

(*Umbrina analis* *Gthr.*)

Cape San Lucas (*Xantus*); Punta Arenas (*Gilb.*); Panama (*Gthr.*).

265. *Umbrina dorsalis* * Gill. *M.*

Cape San Lucas (*Xantus*).

116. MENTICIRRUS Gill.

266. *Menticirrus nasus* * Günther. *M., P.*

Panama (*Gthr.*).

267. *Menticirrus panamensis* * Steindachner. *M., P.*

Panama (*Steind.*).

268. *Menticirrus elongatus* * Günther. *M.*

Chiapam (*Gthr.*).

117. **PARALONCHURUS** Bocourt.269. *Paralonchurus petersi* * Bocourt. *P.*270. *Paralonchurus*, sp. indescr. *P.*118. **NEBRIS** Cuvier.271. *Nebris microps* *† Cuv. & Val. *P.*Panama (*Steind.*); West Indies.119. **CYNOSCION** Gill.272. *Cynoscion reticulatum* * Günther. *M., P.*Acapulco (*Nichols*); San José, Chiapam, Panama (*Gthr.*).273. *Cynoscion xanthulum* * Jordan & Gilbert. *M.*274. *Cynoscion album* * Günther. *P.*Chiapam (*Gthr.*); Panama (*Gthr.*; *Steind.*).275. *Cynoscion stolzmanni* * Steindachner. *P.*Tumbez (*Steind.*).276. *Cynoscion parvipinne* * Ayres.(*Otolithus magdalene* Steind.)Gulf of California (*Nichols*); Magdalena Bay (*Steind.*); California.277. *Cynoscion*, * sp. indescr. *P.*278. *Cynoscion phoxocephalum* * Jordan & Gilbert.279. *Cynoscion othonopteron* * Jordan & Gilbert. *P.*Guaymas (*Nichols*); Gulf of California (*Streets*).280. *Cynoscion squamipinne* * Günther.La Union (*Nichols*); Panama (*Gthr.*; *Steind.*).120. **ANCYLODON** Cuvier.281. *Ancylodon jaculidens* *† Cuv. & Val. *P.*

Brazil.

121. **ISOPISTHUS** Gill.282. *Isopisthus remifer* * Jordan & Gilbert. *P.*Family 43.—**GERRIDÆ.**122. **GERRES** Cuvier.283. *Gerres gracilis* * Gill. *M., P.*Guaymas (*Nichols*); Cape San Lucas (*Xantus*); West Indies.284. *Gerres dowi* * Gill. *P.*Panama (*Dow*); Panama, Callao, and Galapagos Islands (*Steind.*).285. *Gerres californiensis* * Gill. *M.*Guaymas (*Nichols*); Cape San Lucas (*Xantus*).

286. *Gerres cinereus* * † Walbaum. *M.*, *P.*

Chiapam, Panama (*Gthr.*), West Indies.

287. *Gerres aureolus* * Jordan & Gilbert. *P.*

288. *Gerres peruvianus* * Cuvier & Valenciennes. *M.*, *P.*

Punta Arenas (*Gilb.*); Payta (*C. & V.*); Chiapam (*Gthr.*); Salina Cruz (*Nichols*).

289. *Gerres lineatus* * Humboldt. *M.*

(*Gerres axillaris* *Gthr.*)

Acapulco (*Humboldt*; *Bradley*); San Blas (*Nichols*); Chiapam (*Gthr.*).

290. *Gerres brevimanus* * Günther.

Chiapam (*Gthr.*).

Family 44.—LABRIDÆ.

123. BODIANUS Bloch.

291. *Bodianus diplotænia* * Gill.

Cape San Lucas (*Xantus*).

292. *Bodianus pectoralis* * Gill.

Cape San Lucas (*Xantus*); Panama (*Dow*) (male of the preceding ?).

124. PLATYGLOSSUS Bleeker.

293. *PlatyGLOSSUS dispilus* * Günther. *M.*

Panama (*Gthr.*); Acapulco (*Steind.*).

294. *PlatyGLOSSUS nicholsi* * Jordan & Gilbert.

Socorro Island (*Nichols*).

125. PSEUDOJULIS Bleeker.

295. *Pseudojulis notospilus* * Günther. *M.*, *P.*

Panama (*Gthr.*).

126. THALASSOMA Swainson.

296. *Thalassoma lucasanum* * Gill. *M.*

Cape San Lucas (*Xantus*).

297. *Thalassoma melanocheir* Bleeker. ?

Acapulco (*Steind.*); (Sandwich Islands).

127. XYRICHTHYS Cuvier.

298. *Xyrichthys mundiceps* * Gill.

Cape San Lucas (*Xantus*).

299. *Xyrichthys mundicorpus* * Gill.

Cape San Lucas (*Xantus*).

128. SCARUS Forskål.

300. *Scarus perrico* * Jordan & Gilbert. *M.*, *P.*

301. *Scarus*, * sp. indescr. *P.*

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Family 45.—POMACENTRIDÆ.

129. POMACENTRUS Lacépède.

302. *Pomacentrus rectifrænum* Gill. *M., P.*Cape San Lucas (*Xantus*).303. *Pomacentrus flavilatus* * Gill. *M.*Cape San Lucas (*Xantus*).304. *Pomacentrus quadrigutta* * Gill.Cape San Lucas (*Xantus*).

130. GLYPHIDODON Lacépède.

305. *Glyphidodon saxatilis*† *troscheli* * Gill. *M., P.*Cape San Lucas (*Xantus*).306. *Glyphidodon declivifrons* *† Gill. *M.*(*Euschistodus concolor* Gill.)San Salvador (*Dow*); West Indies.

131. CHROMIS Cuvier.

307. *Chromis atrolobatus* * Gill. *P.*Cape San Lucas (*Xantus*).

Family 46.—EPHIPPIDÆ.

132. PARAPSETTUS Steindachner.

308. *Parapsettus panamensis* * Steindachner. *P.*Panama (*Steind.*).

133. CHÆTODIPTERUS Lacépède.

309. *Chætodipterus faber*† *zonatus* * Girard. *M., P.*San Diego (*Grd.*).

Family 47.—CHÆTODONTIDÆ.

134. CHÆTODON Linnæus.

310. *Chætodon humeralis* * Günther. *M., P.*Colima (*Xantus*); Panama (*Gthr.*).311. *Chætodon nigrirostris* * Gill.Cape San Lucas (*Xantus*).

135. HOLACANTHUS Lacépède.

312. *Holacanthus strigatus* * Gill.Cape San Lucas, Colima (*Xantus*).

136. **POMACANTHUS** Lacépède.

313. *Pomacanthus zonipectus** Gill.

(*Pomacanthus crescentalis* Jordan & Gilbert.) *M., P.*

San Salvador (*Dow*).

Family 48.—**ACANTHURIDÆ**.

137. **TEUTHIS** Linnæus.

314. *Teuthis tractus** Poey. *M., P.*

(West Indies.)

138. **PRIONURUS** Lacépède.

315. *Prionurus punctatus** Gill.

Cape San Lucas (*Xantus*).

Family 49.—**MALACANTHIDÆ**.

139. **CAULOLATILUS** Gill.

316. *Caulolatilus princeps** Jenyns.

(*Caulolatilus affinis* Gill.)

Cape San Lucas (*Xantus*); Galapagos Islands (*Jenyns*); California.

Family 50.—**GOBIIDÆ**.

140. **GOBIOMORUS** Lacépède.

317. *Gobiomorus lateralis** Gill.

Panama (*Dow*); Colima (*Xantus*); Cape San Lucas (*Xantus, Belding*).

141. **DORMITATOR** Gill.

318. *Dormitator latifrons** Richardson. *M.*

(*Dormitator microphthalmus* Gill.)

Salina Cruz (*Nichols*); Cape San Lucas (*Xantus*); Colima (*Xantus*); Panama (*Dow*).

142. **ELEOTRIS** Bloch & Schneider.

319. *Eleotris pisonis* Gmelin.

(*Eleotris picta* Kner & Steind.)

Rio Bayano (*Kner & Steind.*).

320. *Eleotris æquidens** Jordan & Gilbert. *M.*

Colima (*Xantus*); Cape San Lucas (*Belding*).

143. **GYMNELEOTRIS** Bleeker.

321. *Gymneleotris seminuda* Günther.

Panama (*Gthr.*).

144. **Gobius** Linnæus.

322. *Gobius banana* * Cuv. & Val.
Cape San Lucas (*Belding*).
323. *Gobius soporator* *† Cuv. & Val. *M. P.*
Everywhere. (West Indies.)
324. *Gobius sagittula* * Günther. *M. P.*
Panama (*Gthr.*).
325. *Gobius paradoxus* * Günther. *P.*
Panama (*Gthr.*).
326. *Gobius seminudus* * Günther. *P.*
Panama (*Gthr.*).
327. *Gobius emblematicus* * Jordan & Gilbert. *P.*

145. **Gobiosoma** Girard.

328. *Gobiosoma histrio* * Jordan.
Guaymas (*Emeric*).
329. *Gobiosoma zosterurum* * Jordan & Gilbert. *M.*
330. *Gobiosoma longipinne* Steindachner.
Las Animas Island, Gulf of California (*Steind.*).

146. **Tyntlastes** Günther.

331. *Tyntlastes brevis* Günther.
Panama (*Gthr.*).
332. *Tyntlastes sagittta* Günther.
California (*Gthr.*).

Family 51.—**SCORPÆNIDÆ**.147. **Sebastopsis** Gill.

333. *Sebastopsis zyris* * Jordan & Gilbert.
Cape San Lucas (*Xantus*).

148. **Scorpæna** Linnæus.

534. *Scorpæna plumieri* *† Bloch. *M., P.*
Common.

Family 52.—**TRIGLIDÆ**.149. **Prionotus** Lacépède.

335. *Prionotus birostratus* * Richardson. *P.*
Gulf of Fonseca (*Rich.*).
336. *Prionotus horrens* Richardson.
Gulf of Fonseca (*Rich.*).

Family 53.—GOBIESOCIDÆ.

150. GOBIESOX Lacépède.

337. *Gobiesox rhessodon* Rosa Smith.Gulf of California (*Lock.*); San Diego.338. *Gobiesox adustus* * Jordan & Gilbert. *M.*339. *Gobiesox zebra* * Jordan & Gilbert. *M.*340. *Gobiesox rhodospilus* Günther.Panama (*Gthr.*).341. *Gobiesox erythrops* * Jordan & Gilbert. *M.*Tres Marias Islands (*Gilbert*).343. *Gobiesox eos* * Jordan & Gilbert. *M.*

Family 54.—BATRACHIDÆ.

151. BATRACHOIDES Lacépède.

3 c *hoides pacifici* * Günther. *P.*Panama (*Gthr.*).345. *Batrachoides surinamensis* † Bloch.Panama (*Gthr.*) (West Indies).

152. PORICHTHYS Girard.

346. *Porichthys margaritatus* * Richardson. *P.*

Common. (Apparently in deep water southward; a shore fish northward.)

153. THALASSOPHRYNE Günther.

347. *Thalassophryne reticulata* * Günther.Panama. (*Günther, Bradley*).348. *Thalassophryne*, sp. indescr. *P.*

Family 55.—LEPTOSCOPIDÆ.

154. DACTYLOSOPUS Gill.

349. *Dactyloscopus mundus* * Gill.Cape San Lucas (*Xantus*); Panama (*Bradley*).350. *Dactyloscopus pectoralis* * Gill.Cape San Lucas (*Xantus*).

155. MYXODAGNUS Gill.

351. *Myxodagnus opercularis* * Gill.Cape San Lucas (*Xantus*).

Family 56.—OPISTHOGNATHIDÆ.

156. GNATHYPOPS Gill.

352. *Gnathypops rhomaleus* * Jordan & Gilbert.
Gulf of California (*Nichols*).

157. OPISTHOGNATHUS Cuvier.

353. *Opisthognathus punctata* * Peters. *P.*
Mazatlan (*Peters*).

Family 57.—BLENNIIDÆ.

158. OPHIOBLENNIUS Gill.

354. *Ophioblennius webbi* * Valenciennes.
Navidad (*Steind.*); Tres Marias Islands (*Steind.*); (Canary Islands).

159. HYPSOBLENNIUS Gill.

355. *Hypsoblennius brevipinnis* * Günther. *M.*
Panama (*Gthr.*).

356. *Hypsoblennius gentilis* * Girard.
Cape San Lucas (*Xantus*) (California).

357. *Hypsoblennius striatus* * Steindachner. *P.*
Panama (*Steind.*).

160. SALARIAS Cuvier.

358. *Salarias rubropunctatus* * Cuv. & Val.
Panama, Callao (*Bradley*); Peru (*C. & V.*).

161. RUPISCARTES Swainson.

359. *Rupiscartes chiostictus* * † Jordan & Gilbert. *M.*
360. *Rupiscartes atlanticus* * † Cuv. & Val. *M.*
San Cristobal Bay (*Townsend*); Cape San Lucas (*Xantus*); West Indies.

162. EMBLEMARIA Jordan & Gilbert.

361. *Emblemaria nivipes* * † Jordan & Gilbert.
Pearl Island (*Bradley*); Pensacola (*Stearns*).

163. LABROSOMUS.

362. *Labrosomus nuchipinnis* † *xanti* * Gill. *M.*
Cape San Lucas (*Xantus*); San Cristobal Bay (*Townsend*).
363. *Labrosomus zonifer* * Jordan & Gilbert. *M.*
364. *Labrosomus macrocephalus* * Günther.
Panama (*Gthr.*, *Bradley*).

164. **TRIPTERYGIUM** Risso.

365. *Tripterygion carminale* * Jordan & Gilbert. *M.*

165. **CREMNOBATES** Günther.

366. *Cremnobates monophthalmus* * Günther. *P.*

367. *Cremnobates integripinnis* * Rosa Smith. *M.*

San Cristobal Bay (*Townsend*); California.

368. *Cremnobates altivelis* Lockington.

Gulf of California (*Lock.*).

166. **APODICHTHYS** Girard.

369. *Apodichthys univittatus* Lockington.

Gulf of California (*Lock.*).

167. **PHOLIDICHTHYS** Bleeker.

370. *Pholidichthys anguilliformis* Lockington.

Amortignado Bay; Gulf of California (*Lock.*).

Family 58.—**CERDALIDÆ**.

168. **CERDALE** Jordan & Gilbert.

371. *Cerdale ionthas* * Jordan & Gilbert. *P.*

169. **MICRODESMUS** Günther.

372. *Microdesmus dipus* Günther.

Panama (*Gthr.*); Gulf of California (*Lock.*).

373. *Microdesmus retropinnis* * Jordan & Gilbert. *P.*

Family 59.—**FIERASFERIDÆ**.

170. **FIERASFER** Cuvier.

374. *Fierasfer dubius* * Putnam.

(*Fierasfer arenicola* Jordan & Gilbert.) *M.*

Pearl Islands (*Bradley & Putnam*).

Family 60.—**BROTULIDÆ**.

171. **DINEMATICHTHYS** Bleeker.

375. *Dinematichthys ventralis* * Gill. *M.*

Cape San Lucas (*Xantus*).

Family 61.—PLEURONECTIDÆ.

172. **PLATOPHRYS** Swainson.

- 376.
- Platophrys leopardinus*
- * Günther.

Guaymas (*Emeric*).173. **CITHARICHTHYS** Bleeker.

- 377.
- Citharichthys latifrons*
- * Jordan & Gilbert.
- P.*

- 378.
- Citharichthys ovalis*
- * Günther.
- M., P.*

Panama (*Gthr.*).

- 379.
- Citharichthys panamensis*
- * Steindachner.
- P.*

Panama (*Steind.*).

- 380.
- Citharichthys*
- , * sp. indescr.
- M., P.*

- 381.
- Citharichthys spilopterus*
- * † Günther.
- M., P.*

(West Indies.)

174. **ETROPUS** Jordan & Gilbert.

- 382.
- Etropus crossotus*
- Jordan & Gilbert.
- M., P.*

(Gulf of Mexico.)

175. **PARALICHTHYS** Girard.

- 383.
- Paralichthys adspersus*
- , * Steindachner.
- M., P.*

Peru (*Steind.*).176. **HIPPOGLOSSINA** Steindachner.

- 384.
- Hippoglossina macrops*
- Steindachner.

Mazatlan (*Steind.*).177. **ANCYLOPSETTA** Gill.

- 385.
- Ancylopsetta*
- , * sp. indescr.
- P.*

Family 62.—SOLEIDÆ.

178. **ACHIRUS** Lacépède.

- 386.
- Achirus mazatlanus*
- * Steindachner.
- M.*

(*Solea pilosa* Peters.)Mazatlan (*Steind. ; Peters*).

- 387.
- Achirus klunzingeri*
- * Steindachner.
- P.*

Peru (*Steind.*).

- 388.
- Achirus scutum*
- Günther.

Panama, Gulf of Fonseca (*Gthr.*).

- 389.
- Achirus fimbriatus*
- Günther.

Gulf of Fonseca (*Gthr.*).

- 390.
- Achirus fonsecensis*
- Günther.

Gulf of Fonseca (*Gthr.*).

179. **APHORISTIA** Kaup.

- 391.
- Aphoristia elongata*
- * Günther.

Panama (*Gthr.*).

- 392.
- Aphoristia atricauda*
- * Jordan & Gilbert.

Cape San Lucas (*Belding*).Family 63.—**ANTENNARIIDÆ**.180. **ANTENNARIUS** Lacépède.

- 393.
- Antennarius sanguineus*
- * Gill.

(*Antennarius leopardinus* *Gthr.*)Panama (*Gthr.*; *Bradley*); Cape San Lucas (*Xantus*).

- 394.
- Antennarius strigatus*
- * Gill.

(*Antennarius tenuifilis* *Gthr.*)Panama (*Gthr.*; *Bradley*); Cape San Lucas (*Xantus*).Family 64.—**MALTHIDÆ**.181. **MALTHE** Cuvier.

- 395.
- Malthe elater*
- * Jordan & Gilbert.
- M.*

Family 65.—**BALISTIDÆ**.182. **BALISTES** Linnaeus.

- 396.
- Balistes polylepis*
- * Steindachner.
- M., P.*

Magdalena Bay, Mazatlan, Acapulco (*Steind.*).

- 397.
- Balistes capistratus*
- * Shaw.
- M.*

(*Balistes mitis* Bennett.)Acapulco (*Steind.*).

- 398.
- ¹
- Balistes mento*
- * Jordan & Gilbert.

Clarion Island.

Family 66.—**TETRODONTIDÆ**.183. **TETRODON**.

- 399.
- Tetrodon politus*
- * Ayres.
- M.*

(San Diego.)

- 400.
- Tetrodon testudineus*
- * † L.
- P.*

(*Tetrodon annulatus* Jenyns; *Tetrodon heraldi* Günther.)Panama and southward (*Gthr.*) (West Indies).

¹ In the original description this species is erroneously said to have but two dorsal spines. The third spine, which is very small, was overlooked by us.

- 401.
- Tetrodon fürthi*
- * Steindachner.
- P.*

Panama (*Steind.*).

- 402.
- Tetrodon angusticeps*
- * Jenyns.

(*Canthogaster lobatus* Steind.)Panama (*Bradley*); Altata (*Steind.*); Galapagos (*Jenyns*).184. **AROTHRON** Müller.(*Ovum* Bloch & Schneider; preoccupied.)

- 403.
- Arothron erethizon*
- * Jordan & Gilbert.
- P.*

Panama (*Bradley*).185. **PSILONOTUS** Swainson.

- 404.
- Psilonotus punctatissimus*
- * Günther.

(*Tetrodon oxyrhynchus* Lockington.)Cape San Lucas (*Xantus*); Panama (*Gthr.*); Gulf of California (*Lockington*).Family 67.—**DIODONTIDÆ**.186. **DIODON** Linnæus.

- 405.
- Diodon hystrix*
- * † Linnæus.
- M.*

(West Indies, &c.)

- 406.
- Diodon liturosus*
- * † Shaw.

Lower California.

Family 68.—**ORTHAGORISCIDÆ**.187. **MOLA** Cuvier.

- 407.
- Mola mola*
- * † Linnæus.
- M.*

Common.

OBSERVATIONS.

According to the above list it appears that of 407 species of fishes, now known from the Pacific coasts of Mexico and Central America, 71 species or $17\frac{1}{2}$ per cent. are found also on the Atlantic coasts. If we add to this some 800 species, now known from the Caribbean Sea and adjacent shores, we have about 6 per cent. of the whole number known, as common to the two coasts. This number, 71, is not very definitely ascertained, as there must be considerable difference of opinion as to the boundaries of species, and as several of these species regarded as common are open to doubt and need verification. I believe, however, that fuller investigations will not increase the proportion of common species, and, if it does not, the two faunæ show no greater resemblances than the similarity of physical conditions on the two sides would lead us to expect.

This conclusion is opposed to those of Dr. Günther (Fishes of Central

America, 1869, 397). Dr. Günther assumes that nearly one-third of the total number of species of marine fishes on the two shores of tropical America will be found to be identical. Hence he infers that there must have been, at a comparatively recent date, a depression of the isthmus, producing an intermingling of the two faunæ.

This discrepancy arises from the comparatively limited representation of the two faunæ at the disposal of Dr. Günther. He enumerates 193 marine or brackish-water species, as found on the two coasts, 59 of which are regarded by him as specifically identical—this being 31 per cent. of the whole. But in 30 of these 59 cases I regard the assumption of complete identity as erroneous, so that taking the number 193, as given, I would reduce the percentage to 15. But these 193 species form but a fragment of the total fauna, and any conclusions based on such narrow data are certain to be misleading.

Of the 71 identical species admitted in our list, several (*e. g.*, *Mola*, *Orcynus*) are pelagic fishes common to most warm seas. Still others (*e. g.*, *Trachurus*, *Caranx*, *Diodon*, sp.) are almost cosmopolitan in the tropical waters. Most of the others (*e. g.*, *Gobius*, *Gerres*, *Centropomus*, *Galeichthys* sp., &c.) often ascend the rivers of the tropics, and we may account for their diffusion perhaps, as we account for the dispersion of fresh-water fishes on the isthmus, on the supposition that they may have crossed from marsh to marsh at some time in the rainy season.

In very few cases are representatives of any species from opposite sides of the isthmus exactly alike in all respects. These differences in some cases seem worthy of specific value, giving us "representative species," on the two sides. In other cases, the distinctions are very trivial, but in most cases, they are appreciable, especially on fresh specimens.

I am therefore brought to the conclusion that the fish faunæ of the two shores of Central America are substantially distinct, so far as species are concerned, and that the resemblance between them is not so great as to necessitate the hypothesis of the recent existence of a channel across the isthmus, permitting the fishes to pass from one side to the other.

INDIANA UNIVERSITY, *July* 18, 1885.

NOTE ON SOME LINNÆAN NAMES OF AMERICAN FISHES.

By DAVID S. JORDAN.

In the current volume of these Proceedings (pp. 193–208) is a very useful "contribution to the stability of American ichthyological nomenclature," entitled "On the American Fishes in the Linnæan Collection," by Messrs. Goode and Bean.

Most of the changes suggested in this paper are well founded, and some of them have already been adopted by the writer from verbal statements of Dr. Bean. A few seem to need further discussion.



Jordan, David Starr. 1885. "A list of the fishes known from the Pacific coast of tropical America, from the Tropic of Cancer to Panama." *Proceedings of the United States National Museum* 8(526), 361–394.

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