

17.—NOTES ON FISHES COLLECTED IN FLORIDA IN 1892.

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During the months of January, February, and March, 1892, the writer was engaged in collecting a series of the salt-water fishes of Florida for use in preparing the exhibit of the U. S. Fish Commission at the World's Columbian Exposition, Chicago, 1893.

Most of the fishes were procured from the fishermen at Tampa and Key West. As it was intended to make gelatin casts of those obtained, only adult examples were collected, comprising the larger forms, especially those known as food-fishes; consequently such small species as cyprinodonts, sardines, anchovies, silversides, etc., were not embraced in the collection.

Each fish was taken fresh from the water, frozen in a refrigerator, and then carefully wrapped in soft, white paper, and sewed up in cheese cloth. They were then packed in ice and shipped to Washington by express, where they arrived in excellent condition. Those shipped from Key West were re-iced en route at Port Tampa.

Casts were made of most of the species, which were painted in oil from fresh examples or color sketches and exhibited at the World's Fair, where they were very much admired and presented so lifelike an appearance that most visitors mistook them for real fishes.

The fishing in the vicinity of Tampa is all done by means of haul seines on the sandy beaches of the islands and bays of the mainland. The first pound net on the west coast of Florida was put in operation in Sarasota Bay during my visit, from which I secured many fine specimens.

The coralline formation of the Florida keys and reefs renders the use of seines and nets impossible, so that all of the market fishing at Key West is done with hook and line. Most of the fish are bottom fish, and are caught in the channels between the keys, the fleet of small smacks (known as "smackees") going out every morning and returning in the afternoon. The fish, consisting of grunts, snappers, groupers, porgies, etc., are brought to market alive in the wells of the smackees. The principal and favorite bait is the sea crawfish (*Palinurus* sps.), but such small fry as pilchards, sardines, anchovies, etc., are also used.

A fleet of larger smacks, mostly schooner-rigged, engage in trolling along the keys and reefs for the larger surface-feeding fishes, as kingfish, Spanish mackerel, jacks, albacore, bonito, etc. The troll used is usually a piece of bacon rind cut in the semblance of a fish. The catch is taken to market fresh, but not alive, as the severe ordeal of being hooked and hauled in while under sail is usually sufficient to cause the death of the fish in a short time. They are, therefore, rapped on the head and killed outright as soon as they are brought aboard.

The following list of 131 species comprises the collection under consideration. As their specific characterizations are published elsewhere, the annotations are from an economic standpoint entirely, it being the intention to give only such information as relates to their habitat, abundance, size, habits, and their comparative value as food-fishes. The vernacular names given are those used by the fishermen.

SPHYRNIDÆ.

1. *Sphyrna tiburo* (Linn.). *Bonnet-head Shark*. This curious shark is common about the Florida keys and at the passes and inlets of both coasts. It grows to about 6 feet in length. It is of no economic importance. I obtained several small examples about 3 feet long at Tampa and Key West.

PRISTIDIDÆ.

2. *Pristis pectinatus* Latham. *Sawfish*. Common on both coasts of Florida in the bays and along the keys. It grows to a length of 20 feet. No use is made of it except that its saw is preserved and sold as a curiosity. It is viviparous, the young being some 2 feet in length when born. It does considerable damage to turtle nets and other set nets by becoming entangled in the meshes, and is capable of inflicting severe wounds with its saw, if interfered with. On this account it is always killed by the fishermen when captured; but the prevalent stories of the books alleging that the sawfish uses its saw as an offensive weapon in procuring food by cutting, slashing, and tearing other fishes must be taken *cum grano salis*. I have seen hundreds of sawfishes, big and little, engaged in procuring food by raking the sand of the bottom, but I have never observed them using the saw to disable other fishes. The character of its minute teeth indicates that its food consists of small organisms. It is a bottom feeder, like all of the rays. I obtained a specimen 8 feet in length at Tampa.

RHINOBATIDÆ.

3. *Rhinobatus lentiginosus* Garman. *Electric-fish*. Not uncommon about the Florida keys. It grows to several feet in length. It is called the "electric fish" by the fishermen, who ascribe to it considerable electric powers. I failed to secure a living specimen in order to test the matter, though I obtained several adult examples about 2 feet long at Key West and one at Tampa.

DASYATIDÆ.

4. *Pteroplatea maclura* (Le Sueur). *Butterfly Ray*. Common in the bays of the west coast. It is of no economic importance. I obtained several specimens a foot or two in diameter in Sarasota Bay.
5. *Dasyatis centrura* (Mitchill). *Stingaree*. Common in the bays of both coasts. The fishermen dread the largest ones, as its "sting" (serrated spine) is supposed to be poisonous. At all events it is capable of causing a very serious wound. I procured several examples at Tampa, and one in Sarasota Bay that measured 6 feet across the pectorals.
6. *Dasyatis sayi* (Le Sueur). *Stingaree*. Not uncommon about the southern keys and the inlets of the coasts. I obtained one at Mullet Key, near the entrance to Tampa Bay. The sting-rays are not utilized in any way in Florida.
7. *Dasyatis sabina* (Le Sueur). *Stingaree*. Common in the bays and lagoons of both coasts, often running up the streams to fresh water. I obtained several small ones in Tampa and Sarasota bays.

MYLIOBATIDÆ.

8. *Stoasodon narinari* (Euphrasen). *Whip Ray*. Not uncommon on the west coast. It is a very handsome ray, being dark brown and thickly covered with white spots a half inch to an inch in diameter. The long tail is preserved as a curiosity. I procured a fine example, some 4 feet in diameter, from Sarasota Bay.

SILURIDÆ.

9. *Galeichthys felis* (Linn.). *Catfish*. Abundant everywhere along the coasts, in the bays and streams, and is everywhere considered a nuisance. It spawns in summer. Its eggs are as large as cherries, and are incubated in the mouth and throat of the male. Specimens from Tampa.
10. *Ælurichthys marinus* (Mitchill). *Catfish*. Not nearly so common as the preceding species, being more of a deep-water fish. Specimens from Key West. The sea-catfishes are not used for food in Florida, being universally despised and detested where so many better fishes abound.

ALBULIDÆ.

11. *Albula vulpes* (Linn.). *Bonefish*. Common along the southern keys, and at the passes and inlets of the coasts. It is a graceful, silvery fish, shuttle-shaped, and quite a good food-fish, though bony. It is, moreover, a good game-fish, readily taking the fly or bait, and gives the angler more sport, for its size, than any of the marine fishes. It grows to 2 feet in length. Specimens from Key West and Tampa.

ELOPIDÆ.

12. *Elops saurus* Linn. *Ten-pounder*. Not quite so common as the bonefish, which it resembles in general conformation, color, and size. It is of no economic importance. Examples obtained at Key West and Tampa.
13. *Megalops thrissoides* (Bloch & Schneider). *Tarpon*. Common on both coasts, in the bays and lagoons, especially in summer, the smaller ones, of from 5 to 40 pounds, ascending the streams. It is a noble, handsome fish with very large scales, resembling frosted silver, which, on account of their size and brilliancy, are preserved as curiosities. It grows to an immense size—some 200 pounds. It is not a food-fish, its flesh being coarse and stringy and of the color of veal. It breeds in Cuba, and is supposed to breed in Florida, but in all of my collecting, with fine-meshed seines, I have never seen one less than a foot in length. It is very fond of the sun-light, and will lie under the mangroves for hours, perfectly motionless, basking in the sun. At other times they disport themselves on the surface of deeper water, in schools, like porpoises. It is universally called "tar-pon'," in both singular and plural, by the native fishermen.

The tarpon, owing to its great size and its habit of continually leaping from the water when hooked, has become a noted game-fish, and is much sought after by Northern anglers, who congregate mostly about the lower part of Charlotte Harbor, near Punta Rassa, and at Fort Myers, 20 miles above, on the Caloosahatchee River. The largest examples so far taken on the rod of the angler weighed, respectively, 196 and 205 pounds, the latter being taken by Mrs. George T. Stagg, of Kentucky, the former by Mr. McGregor, of New York. The skins of these two fine specimens, having been prepared and mounted, were exhibited at the World's Columbian Exposition, where they commanded the wonder and admiration of all, especially of the foreign visitors. The tarpon is taken by the natives of Florida by means of the fish spear or "grains" (in the use of which they are very expert) when it is basking in the sun in shallow water. I obtained a very fine specimen, 6½ feet long and weighing 125 pounds, in Sarasota Bay, though at the time of my visit the water was unusually cold and tarpon consequently very scarce.

CLUPEIDÆ.

14. *Alosa sapidissima* (Wilson). *Shad*. I saw this fine food-fish in January at Jacksonville and St. Augustine, it having been taken in the St. Johns River. They were mostly of small size.
15. *Brevoortia tyrannus* (Latrobe). *Herring*. I obtained a number of examples of the menhaden at Tampa (where it is called "herring"), which I believe is the first instance of its being collected on the Gulf coast by any naturalist. It is, however, known from the mouth of the St. Johns River on the Atlantic coast. The southern form, *B. patronus* Goode, is common in the Gulf.

SYNODONTIDÆ.

16. *Synodus foetens* (Linn.). *Lizard-fish*. Common on both coasts and along the keys in sandy situations. Grows to a foot or more in length. Not used as food. I obtained specimens at Key West and Tampa.

MURÆNIDÆ.

17. *Gymnothorax funebris* Ranzani. *Green Moray*. Not uncommon about the Florida keys. It grows to 6 or 8 feet in length, is very strong and vigorous, and as active and slippery as an eel. It is much dreaded by the fishermen when caught on their lines, being very ferocious and combative. It has been known to drive a man overboard to escape its terrible teeth, its bite being believed to be poisonous. It is never eaten. Its beautiful bright green coloration resides in the slime with which it is covered, and which disappears when this is removed, leaving the skin of a muddy, brownish-black color. I obtained three specimens at Key West, each some 5 feet in length, one of which was caught with hook and line from the wharf.
18. *Gymnothorax moringa* (Cuvier). *Speckled Moray*. Rather common along the Florida keys. Does not grow so large as the green moray, and is not held in such common detestation, perhaps owing to its beautiful coloration, which, while varying somewhat in different specimens, is always pretty in the variegated spots, reticulations, and markings. I obtained several examples at Key West, from 2 to 3 feet in length.

SCOMBERESOCIDÆ.

19. *Tylosurus raphidoma* (Ranzani). *Hound*. Common along the keys and reefs. Grows to a length of 3 or 4 feet. It obtains the name of "hound" from its habit of running in schools and leaping along the surface of the water. It is larger than the other species of the genus, and, like the others, is a fair food-fish, though seldom utilized in Florida. Specimens from Key West.
20. *Tylosurus notatus* (Poey). *Needle-fish*. Very common along the coasts and keys in schools. Grows to 2 feet in length. Specimens from Key West and Tampa.
21. *Hemiramphus balao* Le Sueur. *Ballyhoo*. Abundant about Key West and along the coasts, running in schools. It reaches a length of 15 to 18 inches, and is a fair food-fish, though no use is made of it in Florida. The other species of "half-beaks" are also abundant, and all are called "ballyhoo" by the fishermen. Specimens from Key West.

SYNGNATHIDÆ.

22. *Hippocampus hudsonius* De Kay. *Sea Horse*. Common in the shallow bays of the west coast in grassy situations. Grows to a length of 6 or 7 inches. I procured several large examples at Tampa. Rings, 11 + 32. Dorsal fin with 18 rays, covering 3½ rings.

MUGILIDÆ.

23. *Mugil cephalus* Linnæus. *Mullet*. Very abundant on all shores of Florida. I obtained some fine large specimens at Tampa, whence large quantities are shipped on ice during the winter, principally to the Southern States. In Florida it is esteemed very highly in the autumn, when in roe, and all things considered is the most important food-fish of the State. At the fishing ranches of the west coast it is cured and salted in the fall and early winter, and shipped to Key West and Cuba. It reaches a weight of several pounds, and spawns principally in November. I have often watched them coming in the passes and inlets on the flood tide, feeding along the shore like droves of hogs. Their manner of feeding is peculiar. They move slowly along, never stopping, taking a mouthful of sand from the sharply cut banks of the inlets, and blowing it out again, retaining the minute organisms contained therein. They also feed about the sand banks and mud flats of the bays and streams.
24. *Mugil curema* Cuvier & Valenciennes. *Silver Mullet*. Not nearly so common as the preceding species, and frequents deeper water. It spawns somewhat later in the season than the common mullet, and is its equal if not its superior as a food-fish. Specimens from Tampa.

25. *Mugil trichodon* Poey. *Fantail Mullet*. Common about Key West, being more of a salt-water than a brackish-water species. It is smaller than either of the preceding species, reaching a length of about 12 inches, but is more robust, and with a broader, fan-like caudal fin. Also a good food-fish. Examples from Key West.

SPHYRÆNIDÆ.

26. *Sphyræna guaguanche* Cuvier & Valenciennes. *Sennet*. Not common, and is found in deeper water than the *S. picuda*, and is a much smaller species. The coloration is also quite different, having dark blotches or patches along the lateral line. Examples from Key West.
27. *Sphyræna picuda* Bloch & Schneider. *Barracuda*. Abundant along the keys. It reaches a length of 6 or 7 feet, and is a very fierce, voracious fish, of pike-like habits. It is esteemed as a good food-fish at Key West. It is usually "grained" in the shallow bays by the fishermen. I have seen them fully 6 feet in length in such situations. Several specimens from Key West.

ECHENEIDIDÆ.

28. *Echeneis naucrates* Linnaeus. *Suckfish*. Common everywhere in Florida. Nearly every shark or ray when caught has from one to a half dozen attached. The host suffers no inconvenience whatever from this curious fish, which finds abundant food in the crumbs from the shark's table, whether from fragments cut off by the shark's teeth while feeding or when ejected from an overcharged stomach. It often attaches itself to the bottom of vessels, when it is easily caught with hook and line, it being very voracious. It has no more especial fondness or affinity for sharks or other large fishes than for the keel of a boat; it is merely a matter of convenience. I know nothing of its qualities as a food-fish. Specimens were procured at Key West.

ELACATIDÆ.

29. *Elacate canada* (Linn.). *Cobia*. Not common about the keys or on the west coast. It is a very fierce and rapacious fish. It is not used for food in Florida. I obtained a fine example at Key West about 5 feet long. It is called "cobi-o" by the fishermen.

XIPHIIDÆ.

30. *Istiophorus americanus* Cuvier & Valenciennes. *Spikefish*. Rare. I obtained a fine specimen at Key West about 8 feet in length. The immense dorsal fin folds like a fan and is received in a groove along the dorsum. Coloration was bluish brown, with very dark round spots on dorsal fin. The fishermen call it "pikefish" and "spikefish," from the resemblance of the "sword" to a pike. They also affirm the prevalent idea, that the dorsal fin is used as a sail.

SCOMBRIDÆ.

31. *Scomberomorus maculatus* (Mitchill). *Spanish Mackerel*. Abundant in the spring along the keys and coast, swimming in schools at the surface. In the bays it is usually accompanied by schools of sea trout (*Cynoscion nebulosus*), feeding on the small fry of pilchards, anchovies, silversides, etc. It spawns in the spring. It is one of the best food-fishes, and many from Florida now find their way to the New York markets. I saw a Cape Ann schooner engaged in taking Spanish mackerel with seine boat and mackerel purse seine. It is one of the most graceful and typical fishes, and withal is a good game-fish, taking the fly or bait at the surface very readily and greedily, and when hooked gives considerable sport to the angler. It grows to a length of 2 feet. Specimens were obtained at Key West and Tampa.
32. *Scomberomorus cavalla* (Cuvier). *Kingfish*. Common along the keys and reefs, where it is taken by the fishermen by trolling from the fishing smacks under sail. It is esteemed as the best food-fish taken to Key West. It runs usually from 8 to 10 pounds, but occasionally reaches 40 pounds in weight and 5 feet in length. The entire catch is consumed at Key West, except a few that are shipped on ice to Havana. A few are now finding their way to eastern markets, where the fish will in time become deservedly popular. I obtained specimens at Key West, where it was brought in such quantities at one time that a 10-pound fish sold for 15 cents.

33. *Scomberomorus regalis* (Bloch). *Spotted Kingfish*; *Cero*. Not common. Occasionally brought in by the smacks with the *S. cavalla*, and is more frequently called "kingfish" than "cero." It grows to nearly the same size, and is equally valued as a food-fish. I obtained two specimens at Key West, and saw but few more out of hundreds of the common kingfish (*S. cavalla*).
34. *Sarda sarda* (Bloch). *Bonito*. Not uncommon along the keys and reefs. Sometimes taken by the kingfishermen on their trolling lines. Is a fair food-fish, but is not much esteemed at Key West, the meat being dark and with a pungent flavor. It grows to 15 or 20 pounds occasionally. It is readily known by the oblique stripes along the sides. Specimens from Key West.
35. *Euthynnus alliteratus* (Rafinesque). *Ocean Bonito*. Not common. Is taken on the trolling lines of the kingfishermen occasionally. It is not favorably considered as a food-fish and is seldom brought to market. It is easily distinguished from the preceding "bonito," by its stripes being horizontal or longitudinal. It is one of the large species of fishes, reaching 30 to 50 pounds occasionally. Example from Key West.

CARANGIDÆ.

36. *Caranx bartholomæi* Cuvier & Valenciennes. *Yellow Jack*. Not common. Occasionally taken by the fishermen of Key West. Color olivaceous with golden or bronze reflections and yellow fins, hence "yellow jack." It is one of the prettiest "jacks," though of small size. Probably a fair pan-fish. Specimens obtained at Key West.
37. *Caranx chrysois* (Mitchill). *Runner*. Common along the keys. Taken with hook and line by boys from the wharves of Key West frequently. It is the best of the "jacks" as a food-fish, as it is the most graceful in shape and appearance. It is also the most "silvery" of the jacks, the others having a more or less golden or bronze sheen. It is much esteemed at Key West. Examples from Key West.
38. *Caranx latus* Agassiz. *Horse-eye Jack*. Common. Often taken from the wharves of Key West by boys. Grows to about a foot in length. Not much considered as a food-fish. Called "horse-eye," owing to its peculiarly large, adipose eyelid. Examples from Key West.
39. *Caranx hippos* (Linn.). *Jack*; *Cavalla*. Common in the channels about the keys and at the inlets and passes of both coasts. It is the "jack" *par excellence*. It grows to a large size, reaching sometimes 25 or 30 pounds and 3 or 4 feet in length. It is a tolerably fair food-fish, not thought much of in Florida, but is shipped to some extent from Tampa with mullet, redfish, sea trout, etc. It is a fine game-fish, being strong and vigorous on the hook, and takes the fly or a troll, or even a bit of white rag, quite readily. Examples from Tampa and Key West.
40. *Caranx crinitus* (Mitchill). *Sunfish*. Not very common. It is usually found in deep water, where it floats on its side at the surface, basking in the sunshine, from which habit it derives the name of "sunfish." I know nothing of its food qualities. Coloration brilliantly silvery. Examples from Key West.
41. *Selene vomer* (Linn.). *Moonfish*. Not uncommon. This well-known and curious species is said to be a good food-fish, but there is very little of it, being so thin or compressed. It is pressed, dried, and preserved as a curio. Grows to a foot in length occasionally. Adult specimens were obtained at Key West and Tampa.
42. *Trachinotus carolinus* (Linn.). *Pompano*. Common along the keys and inlets of both coasts. The most esteemed of all the food-fishes of Florida, and is, undoubtedly, the best that swims. It finds a ready sale at good prices, most of the catch in the winter, however, being consumed at the hotels of Florida. It grows to a pound or two in weight, and is mostly taken by haul seines on the outside beaches of the keys of the west coast at flood tide, where it is found feeding on beach fleas and the little "pompano-shell" mollusks. Specimens obtained at Tampa and Key West.
43. *Trachinotus rhodopus* Gill. *Permit*. Not uncommon along the keys and the west coast. This is the largest of our pompanos. It is not esteemed as a food-fish, though the smaller ones sometimes have the dark borders of the dorsal and caudal fins clipped by unscrupulous dealers and are sold with the "pompano" as the simon-pure, original Jacobs. The "permit" grows to a large size, 25 or 30 pounds. Examples were obtained at Tampa and Key West.
44. *Trachinotus glaucus* (Bloch). *Old Wife*. Not very common. Found about the Florida Keys. The "Old Wife" ranks with the "permit" as a food-fish, though it is of small size, the smallest of the pompanos. It is a pretty fish, silvery, with several vertical dark bars on its sides, being the only pompano with distinct markings. Examples from Key West.

45. *Seriola dumerili* (Risso). *Almicore*. Not common. Occasionally taken by fishermen when trolling for kingfish along the Florida keys. Said to be a fair food-fish, but not utilized at Key West. Grows to 50 pounds or more. One specimen from Key West.
46. *Seriola lalandi* Cuvier & Valenciennes. *Amber Jack*. Not common along the keys and reefs, where it is taken by kingfishermen, trolling. It is a tolerably fair food-fish and grows very large, 75 pounds or more. Examples secured at Key West.
47. *Oligoplites saurus* (Bloch & Schneider). *Leather Jack*. Common at Key West, where it is caught from the wharves by boys with hook and line. The smallest of the "jacks." It is a pretty, graceful, and lively fish, but of no importance economically. The name "leather jacket" has somehow crept into the books as the name of this fish, but it is never called so in Florida; that name is sometimes applied to species of *Balistidae*, but *O. saurus* is always "leather jack." Specimens from Key West.

POMATOMIDÆ.

48. *Pomatomus saltatrix* (Linn.). *Bluefish*. Not common on the west coast, but rather common on the east coast of Florida. It is shipped to a limited extent from Tampa during the winter, and finds a ready sale, as it is considered a fine food-fish. It is of finer flavor in Florida than in northern waters. Specimens from Tampa.

CORYPHÆNIDÆ.

49. *Coryphæna hippurus* Linn. *Dolphin*. Not uncommon along the reefs of Florida. I secured several fine examples at Key West, but at a time when the supply of ice was exhausted for a few days, in consequence of which they reached Washington too soft for molding.

HOLOCENTRIDÆ.

50. *Holocentrus ascensionis* (Osbeck). *Squirrel-fish*. Not common. Occasionally taken along the keys. It is a good food-fish, but not plentiful enough to be of any importance. It is a very handsome fish, being bright crimson, with brilliant silver stripes along the sides. Several examples obtained at Key West.

CENTROPOMIDÆ.

51. *Centropomus undecimalis* (Bloch). *Snook; Rovallia*. Common in bays and estuaries of both coasts and ascending streams. A voracious fish, growing to a weight of 25 or 30 pounds. A fairly good table fish, but is not held in much esteem in Florida. Unless skinned, it is apt to have a soapy or slimy taste. It is a good game-fish, readily taking a gaudy fly, troll, or natural bait, and is a vigorous fighter when hooked. Coloration bright silvery, greenish on dorsum, with a broad black stripe along the lateral line. Examples from Tampa.

SERRANIDÆ.

52. *Centropristis striatus* (Linn.). *Blackfish*. Rare on the west coast, but not uncommon on the east coast of Florida. I secured two specimens at Tampa, where it is occasionally brought by the fishermen.
53. *Diplectrum formosum* (Linn.). *Sandfish*. Common about the southern keys. A pretty little pan-fish of good quality, but too small to be sought after. Examples from Key West.
54. *Promicrops guttatus* (Linn.). *Spotted Jewfish*. Common along the Florida keys. Grows to an enormous size, reaching, it is said, 500 pounds. An excellent food-fish, and one much esteemed at Key West, where it is sold in steaks, which are fried in batter. Usually brought to market weighing from 20 to 150 pounds. I had not seen this "jewfish" before, my former experience being confined to the black jewfish (*E. nigritus*). At Key West I saw some twenty examples, ranging from 20 to 200 pounds, and shipped two to Washington of 60 and 100 pounds, respectively.
55. *Mycteroperca falcata* (Poey). *Scamp*. Common along the Florida keys, and considered a good food-fish. It is taken by trolling along the keys and by bait fishing on the snapper banks. It averages about 6 pounds, often reaching 10. Specimens from Key West.

56. *Mycteroperca microlepis* (Goode & Bean). *Gag*. Common along the Florida keys and not uncommon on west coast. Taken by trolling, also by bait fishing on the "banks." It is a fair food-fish, averaging 6 or 8 pounds, sometimes reaching 25 or 30. The "gag" and "scamp," and all of the "groupers" are skinned usually when dressed for cooking; not skinned like an eel or catfish, but "pared," like a potato, with a very sharp knife. Examples from Key West.
57. *Mycteroperca bonaci* (Poey). *Black Grouper*. Common along the Florida keys and rocky places on the coast. Taken by trolling or still fishing. A fair food-fish, averaging 12 or 15 pounds, but reaching a weight of 40. It is a gamy, hard-pulling fish on the hook, and is a favorite with the "still-fishing" angler. The "groupers" all spawn in spring. I obtained specimens at Key West.
58. *Mycteroperca venenosa* (Linn.). *Rockfish*. The var. *venenosa* is not uncommon about the southern keys. It averages 5 to 7 pounds, reaching 12 pounds occasionally. Said to be a fair food-fish, and is certainly a handsome one, its colors being quite variegated.
59. *Epinephelus morio* (Cuvier & Valenciennes). *Red Grouper*. Very common about Key West and on the banks. One of the principal food-fishes. Taken by trolling or still fishing. A gamy, vigorous fish, averaging 6 or 8 pounds, but grows to 20 or more. Specimens from Key West.
60. *Epinephelus striatus* (Bloch). *Nassau Grouper*. Not uncommon about the southern keys, and is considered an excellent food-fish. It averages 18 to 24 inches in length and 6 or 8 pounds in weight, sometimes reaching 20 pounds. It is a handsomely marked fish, and finds a very ready sale in the market. Example from Key West.
61. *Epinephelus catus* (Cuvier & Valenciennes). *Red Hind*. Not uncommon at Key West. A very handsome species, of beautiful coloration, and said to be a good food-fish, though small, seldom reaching a foot in length or much more than a pound in weight. Taken by still fishing in the channels. Examples from Key West.
62. *Epinephelus adscensionis* (Osbeck). *Rock Hind*. Not uncommon about Key West. Is much esteemed as a food-fish, though not at all plentiful. It is a beautiful fish, profusely covered with large red spots. It averages a pound or two in weight, and is taken in the channels by still fishing. Specimens from Key West.
63. *Epinephelus flavolimbatus* Poey. *Yellow-finned Grouper*. Not common. One specimen from Key West. A fair food-fish, averaging 6 pounds, but said to reach 15 pounds in weight. The coloration is very gay.
64. *Bodianus cruentatus* (Lacépède). *Coney*. Not uncommon about the southern keys and reefs. A small but beautiful species, and much esteemed as a food-fish. It rarely exceeds a pound in weight or 10 inches in length. Loves rocky situations, like the "Coney" of Holy Writ, where it is taken by still fishing.
65. *Bodianus fulvus* (Linn.). *Nigger-fish*. Not uncommon at Key West. A very gaily-colored pan-fish, though not very plentiful. There seem to be several varieties, of which the brown (*punctatus*) is the commonest, and of which examples were obtained at Key West.
66. *Rypticus bistrispinnis* (Mitchill). *Soapfish*. Not common. I caught one small example with hook and line from the steamer wharf, which answered fairly well to the description of this species. The coloration was chestnut-brown, with whitish stellate spots. Fins all a beautiful, intense ultramarine blue. Specimen 6 inches long.

PRIACANTHIDÆ.

67. *Priacanthus catalufa* Poey. *Glass-eye Snapper*. Not common. I obtained but one specimen of this beautiful species at Key West, where it is not often seen. I know nothing of its food qualities. Coloration brilliantly scarlet. Eye very large, half as long as head.

LOBOTIDÆ.

68. *Lobotes surinamensis* (Bloch). *Black Snapper*. Not common. I secured a large specimen at Tampa, where it is known as "black snapper."

SPARIDÆ.

69. *Lutjanus caxis* (Bloch & Schneider). *Schoolmaster*. Not uncommon at Key West. A fair food-fish, growing to about a foot in length and a pound or two in weight. Examples from Key West.

70. *Lutjanus jocu* (Bloch & Schneider). *Dog Snapper*. Not uncommon at Key West, where I obtained specimens. A pretty fair food-fish, growing somewhat larger than the preceding species. Both are handsome fishes.
71. *Lutjanus griseus* (Linn.). *Gray Snapper*. Abundant along Florida keys and islands on both coasts, especially where the mangrove abounds, and on this account often called "mangrove snapper." It is a fair food-fish, rarely exceeding a foot in length or 2 pounds in weight. It is a fine game-fish with light tackle, rising well to the artificial fly and taking bait readily. It is, however, very shy, and must be fished for cautiously and warily.
72. *Lutjanus synagris* (Linn.). *Lane Snapper*. Abundant at Key West, and one of the common pan-fishes sold in market. It is much esteemed. Does not often exceed 6 inches in length and seldom reaches a pound in weight. A beautiful little fish, the smallest of the "snappers."
73. *Lutjanus blackfordii* Goode & Bean. *Red Snapper*. Abundant on the "banks." This well-known dinner fish is now shipped all over the country in the winter and spring from Tampa and Pensacola. It reaches 20 pounds in weight and is a fairly good food-fish, bearing transportation well, being hard and firm of flesh. Examples from Tampa.
74. *Lutjanus analis* (Cuvier & Valenciennes). *Mutton-fish*. Abundant at Key West. A food-fish of good size and fair quality, and sells well in the market. It reaches a length of 2 feet or more and averages 6 or 8 pounds, though sometimes weighing 20. Fine examples from Key West.
75. *Ocyurus chrysurus* (Bloch). *Yellow-tail*. Abundant along southern keys. A very common and esteemed pan-fish at Key West. A very pretty and well-marked species; seldom grows to exceed a foot in length or a pound in weight. Examples from Key West.
76. *Orthopristis chrysopterus* (Linn.). *Pig-fish*. Very common on west coast and not uncommon at Key West. A good pan-fish, though not utilized owing to its small size, its average length being 6 inches. Specimens from Key West.
77. *Anisotremus virginicus* (Linn.). *Pork-fish*. Common at Key West. A handsome and beautifully marked species and a good pan-fish, sometimes reaching a pound or two in weight, though usually of about half a pound. Examples from Key West.
78. *Hæmulon rimator* Jordan & Swain. *Tom Tate*. Common at Key West, though not much esteemed, being the smallest of the "grunts," rarely reaching a half-pound in weight, but a pretty little fish. Examples from Key West.
79. *Hæmulon flavolineatum* (Desmarest). *French Grunt*. One of the smaller "grunts," but not common at Key West, where it is occasionally sold with the commoner forms. Specimen from Key West.
80. *Hæmulon plumieri* (Lacépède). *Grunt*. Very abundant at Key West, where it is the favorite and staple breakfast fish, being sold in bunches of half a dozen for from 5 to 10 cents a bunch. It is related of an old and wealthy citizen of Key West that while sojourning for a time at a fashionable New York hotel, and where he was living on the fat of the land, that his constant and only regret was that he could not procure "fried grunts" for his breakfast. Indeed, many of the inhabitants of Key West live almost exclusively upon "grunts," seldom eating meat of any kind, except when occasionally they indulge in turtle-steak. The common grunt seldom exceeds a pound in weight, usually being of half that size, or even less, as found in the market. It is sometimes called "sow grunt," the *H. sciurus* being thought by some to be the male and called "boar grunt." The "grunt" is also found at rocky places on the west coast, though not in abundance. Examples from Key West.
81. *Hæmulon sciurus* (Shaw). *Yellow Grunt*. Common at Key West, though much less so than the *H. plumieri*, with which it is sold in the market. It is the handsomest of the "grunts," the sides of the body as well as the head being ornamented with beautiful blue and old-gold stripes. It is equally esteemed as a pan-fish with the common grunt, and rarely exceeds a length of 12 inches or a weight of 1 pound, the average being 6 inches and 4 ounces. I believe I was the first to collect this species in Florida, in 1878. Examples from Key West.
82. *Hæmulon parra* (Desmarest). *Sailor's Choice*. This is another of the smaller "grunts," and sometimes sold with them, though it is not at all common in the market, probably owing to its small size. It is a good pan-fish, however. Examples from Key West.
83. *Hæmulon album* (Cuvier & Valenciennes). *Margate Fish*. Common at Key West. The largest of the "grunts," growing to 2 feet or more and to 8 or 10 pounds. It is an esteemed food-fish. Examples from Key West.

84. *Calamus proridens* Jordan & Gilbert. *Little-head Porgy*. This and the following "porgies" are fair food-fishes, and are sold in large quantities as pan-fish at Key West, and are quite common along the southern keys. This is one of the prettiest porgies, being silvery with beautiful, iridescent tints; it is also one of the smallest, seldom exceeding 6 to 8 inches in length. It is called "little-head" in contradistinction to the "big-head" or "jolt-head" porgy. Examples from Key West.
85. *Calamus calamus* (Cuvier & Valenciennes). *Saucer-eye Porgy*. Not so common as the other porgies, and seldom grows beyond a pound in weight or 12 inches in length. It has a large, round eye, hence "saucer-eye." Specimens from Key West.
86. *Calamus bajonado* (Bloch & Schneider). *Jolt-head Porgy*. Very common at Key West. The most important of the porgies, growing to a larger size, almost 2 feet occasionally, and to 6 or 8 pounds in weight. A fair food-fish, selling largely in the market. Examples from Key West.
87. *Calamus penna* (Cuvier & Valenciennes). *Sheepshead Porgy*. Not uncommon at Key West. It ranks with the other porgies as a pan-fish. It grows to nearly a foot in length and to more than a pound in weight. It resembles somewhat the common "sheepshead" (*Archosargus probatocephalus*) in its barred sides, also in the conformation of its body. Specimens from Key West.
88. *Calamus arctifrons* Goode & Bean. *Grass Porgy*. Not uncommon at Key West. It is the most distinctly marked and the handsomest of the porgies. It is not so common as the others, and grows to about the same size as the "saucer-eye" and "little-head" porgies. Examples obtained at Key West.
89. *Lagodon rhomboides* (Linn.). *Brim*. Abundant on both coasts and common at Key West. A graceful, pretty fish; a fair food-fish, though not much utilized, owing to its small size. Average size, 6 inches. Examples from Tampa.
90. *Archosargus probatocephalus* (Walbaum). *Sheepshead*. Very abundant in bays and lagoons of both coasts, and ascending streams to fresh water, even to the springs at the fountain head. It swarms about barnacle-covered piles, wharves, wrecks, oyster banks, mangroves, etc., on the mainland, but is not often seen near the southern keys. It is the most abundant food-fish on the west coast, with the exception of the mullet. It is not nearly so much esteemed as a food-fish in Florida as at the North, nor is it of so good a flavor as at the North, nor does it grow so large, about 6 pounds being its maximum weight in Florida. It is largely cured at the fishing ranches, with the mullet, and is shipped on ice from Tampa with mullet, redfish, etc. It is a fair game-fish, biting freely at clam or crab bait, and is quite vigorous on the hook, but, like all bottom fish, never rises to the surface.
91. *Diplodus holbrooki* (Bean). Not uncommon at Tampa, but of small size and seldom used for food. Average length, 6 inches. Examples from Tampa.
92. *Kyphosus sectatrix* (Linn.). *Chub*. Common at various locations on the west coast. Rather a deep-water fish. At Mullet Key, at lower end of Tampa Bay, I caught 10 chub in 10 minutes with fiddler-crab bait, in water 20 feet deep, alongside of the piles of the quarantine station, where it was feeding on the barnacles. It is an excellent pan-fish, averaging 6 to 8 inches in length.

SCIÆNIDÆ.

93. *Pogonias cromis* (Linn.). *Drum*. Common in bays of both coasts, especially about oyster reefs and mangrove islands, but does not frequent the southern keys. It is not much esteemed as a food-fish, though it is shipped to some extent from Tampa during the winter. It grows to a large size, 40 or 50 pounds occasionally. It is a vigorous, hard-pulling fish on the hook, but not very "gamy." Its "drumming" is constantly heard near the oyster beds. Examples from Tampa.
94. *Sciæna ocellata* (Linn.). *Bass; Redfish*. Abundant in bays of both coasts in both salt and brackish water, and often ascending streams. It is a good fish and is shipped in large quantities, on ice, from Tampa. It grows to a large size, 50 or 60 pounds occasionally. It is a free-biting, vigorous game-fish, taking live or cut bait, and small ones rise pretty well to the fly. It gives considerable sport when hooked. It is, all things considered, the best food and game fish of the drum family. Fine specimens were obtained at Tampa.
95. *Leiostomus xanthurus* Lacépède. *Spot*. Common in bays of both coasts. It is a good pan-fish and takes a bait readily. It averages 6 to 8 inches in length. Specimens were obtained at Tampa.

96. *Micropogon undulatus* (Linn.) *Croaker*. Very common in bays of the west coast. A fair pan-fish when just out of the water, but not much utilized. Average length 8 inches. Examples from Tampa.
97. *Menticirrus saxatilis* (Bloch & Schneider). *Whiting*. Not common on the west coast. Occasionally brought to market by the fishermen of Tampa. It is a fair food-fish if just out of the water, but deteriorates rapidly. Grows to about a length of 18 inches and a pound or two in weight. A few examples were procured at Tampa.
98. *Cynoscion nothum* (Holbrook). *Summer trout*. Not very common. Brought to Tampa occasionally by the fishermen, who call it "summer trout," it being more common in the summer season; it resorts to deeper water than the regular "trout" (*C. nebulosus*), but grows to about the same size and is equally esteemed as a food-fish. It spawns a little later, also, than the next species. Examples from Tampa.
99. *Cynoscion nebulosus* (Cuvier & Valenciennes). *Trout*. Abundant in bays of the west coast and common on the east coast. An important food-fish of good quality when fresh, and shipped in large quantities, on ice, from Tampa in the winter and spring. When long out of water it becomes soft and loses its flavor. It grows to a length of 2 or 3 feet. It is a fine game-fish, being a surface feeder, and rises readily to the artificial fly. It spawns in the spring. Fine specimens were obtained at Tampa.

GERRIDÆ.

100. *Gerres cinereus* (Walbaum). *Broad Shad*. Not uncommon at Key West, but more abundant on the coasts of the mainland. It is utilized to some extent as a food-fish at Key West. Grows to 15 or 18 inches in length. Examples obtained at Key West.
101. *Gerres gula* Cuvier & Valenciennes. *Shad*. Common at Key West and at inlets of the coast. It is not used for food, averaging only about 6 inches in length. Examples from Key West.

LABRIDÆ.

102. *Lachnolaimus maximus* (Walbaum). *Hogfish*. Common at Key West, where it is considered a good food-fish. It reaches a weight, sometimes, of 8 or 10 pounds, though usually from 2 to 6. The male and female vary considerably in coloration. It is a fish of singular and characteristic appearance. Male and female examples obtained at Key West.
103. *Halichoeres radiatus* (Linn.). *Pudding Wife*. Not uncommon along the southern keys. It is sometimes eaten at Key West, but it is not generally esteemed as a food-fish. It is interesting chiefly on account of its gay coloration, in which blue and bright green predominate. It grows to nearly 2 feet in length. Examples from Key West.
104. *Sparisoma flavescens* (Bloch & Schneider). *Pug*. Not uncommon about Key West. Like most of the "parrot" fishes it is not used for food, and like them is admired only for its bright coloration. It sometimes reaches a foot in length. Examples obtained at Key West.
105. *Scarus cœruleus* Bloch & Schneider. *Blue Pug*. Not uncommon at Key West, where specimens were secured.
106. *Scarus guacamaia* Cuvier. *Parrot-fish*. Rather common at Key West. This is the largest of the parrot-fishes, growing to a length of 2 feet. Specimens from Key West.

EPHIPPIDÆ.

107. *Chætodipterus faber* (Broussonet). *Angel-fish*. Abundant on the west coast. It is a most excellent food-fish, though not generally appreciated. It is shipped from Tampa in large quantities with sheepshead, etc. It is usually 8 or 10 inches long, sometimes reaching a foot in length. Examples from Tampa.

CHÆTODONTIDÆ.

108. *Holacanthus ciliaris* (Linn.). *Yellow Angel*. Not uncommon along the southern keys and reefs. A good food-fish, but not common enough to be of economic importance. A beautiful, gaily-colored fish. Grows to a foot in length. Fine specimens obtained at Key West.

109. *Pomacanthus aureus* (Bloch). *Black Angel*. Rather common along the reefs and keys. Also a good food-fish, but not plentiful enough to be utilized. A handsome, showy fish, growing to a foot in length and nearly as deep. Examples from Key West.

ACANTHURIDÆ.

110. *Acanthurus hepatus* (Linn.). *Tang*. Not uncommon about the southern line of keys and the outer reefs. Called "tang" because of the lancet-shaped spine or tang on each side of the tail, and which gives this fish the name of "surgeon" and "doctor" in other localities. Examples obtained at Key West.
111. *Acanthurus cœruleus* Bloch. *Blue Tang*. Found in the same situations as the preceding species—the common tang. A much prettier fish than the last, the coloration being very bright and varied. Both species grow to 18 inches in length. Used somewhat as food-fishes. From Key West.

SCORPÆNIDÆ.

112. *Scorpæna plumieri* Bloch. *Sea Toad*. Not uncommon about the southern keys. One of the most bizarre fishes of the Florida fauna. To the fishermen it is rather repulsive, as it is thought to be poisonous. But it is very beautiful, if a brilliant and highly-varied coloration and ornamental appendages of fringes, tabs, and streamers can make it so. Grows to a foot in length. Not used for food. Several specimens were obtained at Key West.
113. *Scorpæna grandicornis* Cuvier & Valenciennes. *Sea Toad*. Found in same localities with *S. plumieri*, but less common. It is not as gorgeously colored as that species, but grows to about the same size and is held by the fishermen in as much disfavor. Example from Key West.

TRIGLIDÆ.

114. *Prionotus tribulus* Cuvier & Valenciennes. *Sea Robin*. Not uncommon about the coasts. It is not used for food. One specimen from Tampa.

BATRACHIDÆ.

115. *Batrachus tau* (Linn.). *Toadfish*; *Oyster-fish*. Common in the bays of both coasts, especially about oyster beds. Supposed to be poisonous by the fishermen and of course detested. Grows to a foot in length. Examples from Tampa.
116. *Batrachus pardus* Goode & Bean. *Toadfish*. Found with preceding species, *B. tau*; but not so common. Equally abhorred by fishermen. From Tampa.

PLEURONECTIDÆ.

117. *Syacium micrurum* Ranzani. *Window Pane*. Not uncommon at Key West. A small species, averaging about 6 inches. Color olivaceous, with body and fins profusely spotted. The flat-fishes are not valued as food-fishes at Key West, where I obtained examples.
118. *Paralichthys lethostigma* Jordan & Gilbert. *Flounder*. Common in bays of west coast. Not valued as a food-fish in Florida. Grows to 18 inches in length. Examples from Tampa.
119. *Ancylopsetta quadrocellata* Gill. *Spotted Flounder*. Common in bays and lagoons of west coast. A fair food-fish, but not utilized as such in Florida. The largest seen were a foot in length. Specimens from Tampa.

MALTHIDÆ.

120. *Malthe vespertilio* (Linn.). *Batfish*. Not common at Key West, but common in bays of both coasts. Grows to a length of 6 inches. Not used for food, being very repulsive in appearance to most people. Specimens from Tampa.
121. *Malthe radiata* (Mitchill). *Batfish*. Common in bays and lagoons of both coasts. Grows to 6 inches in length. Is very similar to *M. vespertilio*, but with much shorter rostral process, and the red color of belly is constantly of a lighter shade. Examples from Tampa.

OSTRACIIDÆ.

122. *Ostracion trigonum* Linn. *Shellfish*. Not uncommon on shores of keys in grassy situations. It is said to be an excellent food-fish when roasted or baked "in the shell." It is dried and preserved as a curiosity. The coloration of all the cowfishes is very pretty. Specimens from Key West.
123. *Ostracion tricorne* Linn. *Cowfish*. Common in grassy bights of the keys, and in the coves of all bays on the mainland. The cowfishes grow to about 10 inches in length. They are very sensitive to cold; after the unusually cold snap in Florida, in January, 1886, I saw hundreds of dead and dried cowfish washed up on the beaches. Examples from Tampa.

BALISTIDÆ.

124. *Balistes vetula* Linn. *Ocean Turbot*. Not common. Found occasionally along the reefs and southern keys. It is the handsomest of the "trigger-fishes." Grows to a larger size, also, some 2 feet in length. I know nothing of its food qualities. Several specimens from Key West.
125. *Balistes carolinensis* Gmelin. *Turbot*. Common at Key West and vicinity. It is considered a good food-fish and sells readily in the market. It is always skinned, or rather "pared," before cooking. It averages about 12 inches in length. It is called "turbot" by all Key West people. Examples from Key West.
126. *Monacanthus ciliatus* (Mitchill). *Leather-fish*. Common at Key West and vicinity. Not used for food. The male has stiff bristles or spines in the tail. Less than a foot in length. Specimens obtained at Key West.
127. *Monacanthus hispidus* (Linn.). Also common at Key West and vicinity. Grows to 8 or 10 inches in length. Not used for food. Examples from Key West.
128. *Alutera schœpfi* (Walbaum). *Long-tail Leather-fish*. Not uncommon along the keys and at rocky situations on the coast. Grows to 18 inches in length. Not used as food. Examples obtained at Key West and Tampa.

TETRODONTIDÆ.

129. *Spheroides spengleri* (Bloch). *Swellfish*. Common along the keys and both coasts. Grows to a foot or more in length. Of no importance, except as a curio. Examples from Tampa.

DIODONTIDÆ.

130. *Diodon hystrix* Linn. *Porcupine-fish*. Not common. Occasionally taken along the southern keys and reefs, and always dried and preserved as a curiosity. I obtained a dried specimen at Key West.
131. *Chilomycterus schœpfi* (Walbaum). *Swell-toad*. Common on both coasts of Florida. Grows to 8 or 10 inches in length. Not used as food. Inflated, dried, and sold as a curio. Examples from Tampa.