

35.—THE FISHES OF FLORIDA KEYS.

By DAVID S. JORDAN.

I spent three weeks in active work on the island of Key West, using the seine daily through the forenoon, and availing myself of the important help of the many hook-and-line fishermen for information in regard to the fishes of the deeper waters. My list numbers one hundred and seventy-five species. The great majority of these are forms more or less common in the West Indies, but rare or absent even so far north as Pensacola and Cedar Keys. A few Northern species, as the Sheeps-head, occur at Key West, and do not cross the channel to Havana, but the number of such is very small. One remarkable species, the "Hard-head" (*Chriodorus atherinoides* Goode and Bean), is very abundant about Key West, but has never been noticed elsewhere. I have also found about fifteen species of small fishes which seem to be new to science. Most of these will doubtless be found in the West Indies when the seaweed fauna of that region is better known.

All the market fishing at Key West is done with hook and line. The great supply comes from the bottom-fishing, but some kinds, as the King-fish (*Scomberomorus cavalla*), and frequently the Dolphin (*Coryphæna hippurus*), the Barracuda (*Sphyræna picuda*), the Amber-jack (*Seriola lalandi*), the "Albicore" (*Seriola dumerili*), the Jack (*Caranx*), and the "Bonito" (*Euthynnus alliteratus*), are taken in the winter in large numbers by trolling. With these are occasionally found the Spike-fish (*Histiophorus*) and the Wahoo (*Acanthocybium solandri*). From the 1st of December to April is the "King-fish" season, and then that large and handsome Mackerel is brought every day to the market, and is generally preferred to the "bottom-fish."

The "bottom-fish" are those taken with hook and line, at moderate depths, from the vessel while at anchor in the channels. Of these, the most abundant species, doubtless exceeding in quantity all other species combined, is the common Grunt or "Ronco Grande" (*Hæmulon plumieri*). Next to this comes the Red Grouper (*Epinephelus morio*), and then in varying number come the different snappers (*Lutjanus*), groupers (*Epinephelus*), porgies (*Calamus*), and grunts (*Hæmulon*), there being some eight or ten species more or less common in each of these groups.

The common Snappers are the following, arranged in order of abundance: *L. caballerote*, the Gray Snapper or Mangrove Snapper; *L. chrysurus*, the Yellow-tail; *L. synagris*, the Lane Snapper; *L. analis*, the Mutton-fish; *L. caxis*, the Schoolmaster, and *L. jocú*, the Dog Snapper. Of the groupers, besides the Red Grouper (*Epinephelus morio*), we have the Nassau Grouper (*E. striatus*); the Gag (*E. microlepis*); the Black Grouper or Bonaci (*E. bonaci*); the Scamp (*E. falcatus*); the Rock-

hind (*E. ascensionis*), and the Coney (*Epinephelus guttatus*). The common "Porgies" are the Jolt-head Porgy (*Calamus bajonado*); the Little-head Porgy (*C. pennatula*); the Saucer-eye (*C. calamus*); the Little-mouth Porgy (*C. penna*); and the Shad or Grass Porgy (*C. arctifrons*.)

Among the Grunts, besides the common *Hæmulon plumieri*, we find the Sailors' Choice or Ronco prieto (*Hæmulon parrae*); the Yellow Grunt or Ronco Amarillo (*H. scinrus*); the Tom-tate (*H. aurolineatum*), and the French Grunt or Open-Mouth Grunt (*H. flavolineatum*). The little Striped Grunt (*H. tæniatum*), although common enough, is not brought into the market. The Hog-fish (*Lachnolæmus suillus*), the Pork-fish (*Pomadasy's virginicus*), the Turbot (*Balistes carolinensis*), the Jack (*Caranx hippos*), the Horse-eye Jack (*Caranx latus*), and the Runner (*Caranx chrysos*), are also rarely wanting from the market.

Other "bottom-fish" less abundant, but still frequently seen in the markets, are the Pudding Wife (*PlatyGLOSSUS radiatus*); the Spanish Hogfish (*Bodianus rufus*); the Tangs (*Acanthurus chirurgus tractus* and *cæruleus*); the Black Angel (*Pomacanthus aureus*); the Yellow Angel, (*Holacanthus ciliaris*); the Goat-fishes (*Upeneus balteatus* and *U. maculatus*); the Breems (*Diplodus unimaculatus* and *D. rhomboides*); the Sheepshead (*Diplodus probatocephalus*); the Whiting (*Pomadasy's chrysopterus*); the Blue-fish (*Pomatomus saltatrix*); the Old-wife (*Trachynotus glaucus*); the Pompano (*Trachynotus carolinus*); the Pampa or Permit (*T. rhodopus*); the Round Pompano or Palometa (*T. rhomboides*); the Sun-fish (*Caranx crenatus*); the Moon-fish (*Selene vomer*); the Robalo ("Ravallia") or Snooks (*Centropomus undecimalis*); the Sand-fish (*Serranus formosus*); the Cavia (*Elacate canada*); the Spanish Mackerel or Pintadilla (*Scomberomorus regalis* and *S. maculatus*); the Silver fish (*Trichiurus lepturus*); the Hound fish (*Tylosurus crassus*); the Moray (*Sidera moringa*), and the Ten-Pounder (*Elops saurus*).

All these fishes are brought to the market alive in the wells of the smacks. When a bargain is made, the fish is taken out with a scoop-net and killed with a blow on the head, or by an iron spike being driven into the brain. It is then strung on a strip of palmetto leaf and delivered to the purchaser. Fish are very cheap at Key West; three grunts usually sell for a dime, and it takes a fish of considerable size to be worth ten cents. King-fish, worth \$1.50 to \$2 at the beginning of the run, fall to one-tenth that sum before the end of the season.

In deeper water the larger smacks make a somewhat different catch and, these large fishes are usually taken alive to Havana instead of being sold at Key West. With these vessels the Red Grouper (*Cherna americana*) is the leading fish. Next in importance comes the Red Snapper (*Lutjanus campechianus*), the Black Grouper (*Epinephelus bonaci*), the "Gag" (*Epinephelus microlepis*), the Margate-fish (*Hæmulon gibbosum*), the Rock-fish (*Epinephelus venenosus*), and the Gigantic Jew-fish or Guasa (*Epinephelus itaiara*).

No seining is done at Key West, not a seine being owned on the island. Some fishing with cast-nets is done during the time of the mullet runs, the following species being mainly taken: The Callifaver Mullet (*Mugil albula*); the Blue-back Mullet (*Mugil brasiliensis*); the Fantail Mullet (*Mugil liza*?); the Bone-fish (*Albula vulpes*); the Broad Shad (*Gerres cinereus*); the Balao (*Hemirhamphus balao*), and occasionally some Grunts and Gars. Cast-nets are used also for securing bait; the species mostly taken being the "Pilchard" (*Clupea pensacola*), and the "Sardines" (*Stolephorus browni* and *Atherina stipes*). King-fish flesh is considered good bait.

Among the fishes frequently taken, but for one reason or another not considered food-fishes, may be mentioned the following: The Swelling-fish (*Tetrodon nephelus*); the Shell-fish (*Ostracium trigonum*); the Cow-fish (*O. tricorne*); the Leather-fish (*Monacanthus hispidus*, and *M. ocellatus*); the Parrot-fishes (*Scarus cœruleus*, *S. guacamaia*, *S. croicensis*, and others); the common Shad (*Gerres gula*); the Slippery Dick (*Platygllossus bivittatus*); the Toad-fishes (*Batrachus tau*, *Scorpæna grandicornis*, *S. stearnsi*, and *S. plumieri*); the Squirrel (*Holocentrum*); the Leather-jacket (*Oligoplites saurus*); the Hard-head (*Chriodorus*); the Gar-fish (*Tylosurus notatus*); the Balaós ("Ballahóo") (*Hemirhamphus balao* and *unifasciatus*); the Green Moray (*Sidera funebris*); the Tarpum (*Megalops atlanticus*); the Miller's Thumb (*Synodus cubanus*); the Catfish (*Arius felis*); and several kinds of Sharks and Rays. Sharks swarm about the wharves, feeding on refuse fishes, every fish which dies in the wells being thrown overboard by the fishermen. Especially abundant are *Carcharias lamia*, *C. brevirostris*, *C. punctatus (terræ-novæ)*, and *Sphyrna tiburo*.

The names applied to the different species have at Key West a fixity of meaning which is not usual along the American coast. Generally each name used is applied to a single species and to no more, and most of these names have a high antiquity. They are now used for the same species in the Bahamas (whence most of the Key West fishermen have come), and the same names were in use there more than one hundred and fifty years ago at the time of the visit there of Mark Catesby. The Hogfish, the Margate-fish, the Tang, the Shad, the Pilchard, the Bone-fish, the Lane Snapper, the Mutton-fish, the Mangrove Snapper, the Pudding Wife, are still commonly known here by the names given by Catesby, although these names are seldom applied to the same fishes elsewhere along the coast of the United States. From the catalogue of the fishes of the Bermudas, by Professor Goode, it appears that the same general nomenclature of the species is current in the Bermudas. From this, the common origin of the fishermen of the Bahamas, Bermudas, and Florida Keys is naturally to be inferred.

There are but few Cuban fishermen in Key West, but as fully half of the customers at the wharf are Cubans, a Spanish nomenclature is also current. As this agrees fully with that given by Professor Poey, as in use at Havana, I need say little in regard to it, except that it, too,

runs back far into the last century, the names given to the plates of Parra being still current. A few names, not given by Professor Poey, may be noticed. The "Scamp" (*Epinephelus falcatus*) is here "Bacalao" instead of "Abadejo," both words meaning codfish. The Sheepshead, not mentioned in Cuban lists, although certainly sometimes sent from here to the Havana market, is "Sargo Raiado." The Red Snapper here, as with the Spanish fishermen on the Texas coast, is "Pargo Colorado." The name, "Sailor's Choice," is one having a singular variety of meanings. Northward along our coast it is sometimes applied to the fish here known as Bream (*Diplodus rhomboides*). At Jacksonville, Fla., the Sailor's Choice is *Pomadasys chrysopterus*, known at Key West as "Whiting," while at Cedar Key the choice of the sailor falls on *Diplodus holbrookii*. In Key West the Sailor's Choice is a kind of Grunt (*Hæmulon parræ*).

KEY WEST, FLA., December 20, 1883.

36.—FOOD QUALITIES OF TARPUM (MEGALOPS).

By C. J. KENWORTHY.

[From a letter to Prof. S. F. Baird.]

I would respectfully suggest the propriety of your directing the attention of fishermen and fish dealers to the edible qualities of the Tarpum. As a food-fish it is excelled by but few; and as it exists in great numbers it should be utilized.

JACKSONVILLE, FLA., December 25, 1883.

37.—OCCURRENCE OF MULLET IN FRESH WATER.

By WALTER HOXIE.

[From a letter to Prof. S. F. Baird.]

I was hunting on Edding's Island a few days since, and found Mullet in large quantities in a fresh-water pond. This pond was flooded with salt water about three years ago, and the Mullet must have been there ever since; but now it is perfectly fresh, and does not taste in the least brackish. I have never seen this fish living in fresh water before, so I communicate the fact to you, thinking it may be of interest. If they will breed in fresh-water ponds they would, it seems to me, be a valuable fish for stocking purposes.

FROGMORE, BEAUFORT COUNTY, S. C.,

January 18, 1884.