

GREAT INTERNATIONAL FISHERIES EXHIBITION.

LONDON, 1883.

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UNITED STATES OF AMERICA.

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F.

CATALOGUE

OF THE

COLLECTIONS OF FISHES

EXHIBITED BY THE

UNITED STATES NATIONAL MUSEUM.

BY

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UNITED STATES NATIONAL MUSEUM.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1883.



## INTRODUCTION.

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The collection of fishes in alcohol includes about 450 species and is composed of the following elements: Fishes of Alaska, species found in the Gulf of Mexico and East Florida, the genera of fresh-water fishes of the United States and Alaska, and the salmonoids of North America, exclusive of Greenland.

It was originally intended to add to the above the fishes of the Pacific coast of the United States and those of New England; but, as the amount of labor involved in the preparation of an exhibit so extensive would have been too great for the time allowed, it was thought best to limit the work as indicated above, especially as the New England species and those of our west coast have already been extensively distributed to museums in Europe.

The species exhibited at this time constitute nearly one-third of the whole number known to exist in North America north of Mexico. They are almost exclusively littoral species or those occurring in moderate depths.

In selecting the representatives of the fresh-water genera, I have endeavored, whenever possible, to obtain the type species of the genus and one of the types of the species. When this could not be spared, I have taken individuals identified by Professor Jordan and afterward verified by myself by means of the original descriptions and those published by Jordan and Gilbert in Bulletin No. 16, U. S. National Museum, and elsewhere. It is hoped, therefore, that the names employed to designate species may be relied upon as properly belonging to them. In some cases I have treated as distinct species certain forms which are now included under one name by other writers; this course seemed to me to be justified by the material examined, and will, doubtless, stand or fall upon its merits.

As to the specific names used, they are supposed to be the oldest legitimate ones. In the interpretation of generic characters I cannot always agree with some of my contemporaries, and these differences of opinion are reflected in the names employed.

The principal common names of the species are given in some detail; it is impracticable to fix upon any one appellation which is everywhere applied to a species; indeed, names of widely different signification are attached to fishes in the various portions of their habitat.

It is attempted to state the geographical distribution of species as fully and clearly as our knowledge of the literature and the fishes will permit. In many instances the limits of a species are not definitely

determined, but this catalogue deals with established facts of distribution as far as these are known to the writer.

The maximum size of the species, its importance as food or bait, and its reproductive habits, are briefly touched upon.

By far the greater portion of the fishes in alcohol are duplicates, and may be exchanged for other species of the same class which are desired in the Museum; a few, owing to their rarity, or to the circumstance of their being typical of the species, should be returned after the close of the Exhibition; these are plainly marked (R) after the catalogue number of the species.

From these general remarks we may pass on to a brief survey of the several groups of fishes exhibited, beginning with

#### THE ALASKAN FISHES.

The whole number of species at present known from this Territory is 123. These are, almost without exception, littoral species and inhabitants of moderate depths; deep-sea exploration in Alaska has not yet been attempted. The only species that may be considered along with those of the deep water are the following: *Eumicrotremus spinosus*, *Triglops pingelii*, *Alepidosaurus asculapius*, *Alepidosaurus borealis*, *Chimæra collei*, the species of *Raia* (*binoculata* and *parmifera*), and *Squalus acanthias*.

In a Preliminary Catalogue of the Fishes of Alaskan and Adjacent Waters\* I have recorded 116 species as occurring in Alaska. Five of these are not definitely known to exist now in the Territory; they are the following: *Pleuronectes franklinii*, *Muraenoides dolichogaster*, *Salmo irideus*, *Acipenser medirostris*, and *Raia batis* Pall. *Pleuronectes franklinii* is, in my opinion, identical with *P. glacialis* Pall. *Muraenoides dolichogaster* has not been found by any collector within the last twenty years. *Salmo irideus* seems to be identical with *S. gairdneri*.

The example of *Acipenser medirostris* referred to by me was from the Sacramento River; no sturgeon is yet reported from Alaska. *Raia batis* of Pallas (not of Linné) may be *R. parmifera* Bean.

The following species are to be added to the catalogue; they were collected mainly by Capt. Henry E. Nichols, U. S. N.:

*Psettichthys melanostictus* (Grd.).

*Parophrys ischyurus* Jor. & Gilb.

*Xiphister mucosus* (Grd.) Jordan.

*Delolepis virgatus* Bean.

*Chirolophus polyactocephalus* (Pall.).

*Potamocottus gulosus* (Grd.).

*Sebastichthys nigrocinctus* (Ayres) Jor. & Gilb.

*Sebastichthys nebulosus* (Ayres) Jor. & Gilb.

*Micrometrus aggregatus* Gibbons.

\* Proc. U. S. Nat. Mus., iv, pp. 239-272, December 24, 1881.



*Stenodus mackenzii* Rich.

*Coregonus* sp. indet.

*Somniosus microcephalus* (Bl. Schn.) Gill.

*Galeorhinus zyopterus* Jor. & Gilb.

*Triglops pingelii*, which was prematurely recorded by me from off Point Bingham, Gulf of Alaska, has recently been obtained in South-eastern Alaska by Capt. Henry E. Nichols, his example, which is large, does not differ from our numerous Atlantic specimens.

*Delolepis virgatus*, the scaled genus of *Cryptacanthidae*, is now known to extend southward to Washington Territory.

*Chirolophus polyactocephalus* has been taken by Mr. E. W. Nelson only.

*Potamocottus gulosus* (Grd.) (*Cottopsis gulosus* Girard) was obtained in a mountain lake near Mount Tongass, Southeastern Alaska, by Captain Nichols.

*Stenodus mackenzii* has long been expected from Alaska, but was only recently received from Mr. Nelson; it is abundant in the Yukon, and is the largest white-fish in the Territory.

The humpback white-fish of the Yukon resembles *Coregonus syrolo* C. & V., but appears to be an undescribed species.

We have *Somniosus microcephalus* jaws now from Southeastern Alaska and from Saint Michael's.

About three-fifths of the Alaskan fishes are useful for food and bait, and more than one-half of the number are well adapted to the uses of man. At least 40 of the species are widely distributed, and about 50 others are found in great abundance, where they occur at all.

The flounders and flat-fishes (*Pleuronectidae*) are represented around the whole coast, one species extending from Colville River throughout Alaska, and south to San Luis Obispo, California, being the most widely distributed flounder known to me. From Unalashka north the number of species is smaller than in the Gulf of Alaska and around the Aleutians. All the species are suitable for food, and most of them are excellent. The halibut is especially good, even plumper than its Atlantic congener, and reaches a weight of 300 pounds. It is exceedingly abundant wherever fur-seals and other fish-eating pinnipeds do not annihilate its young, living as far north as Saint Michael's. In the Gulf of Alaska it is everywhere plentiful, and is destined to become the source of an important industry. The single large *Pleuronectes* is *P. stellatus*, which is extremely abundant and important for food. The small *Pleuronectes glacialis*, which abounds from Saint Michael's northward, makes up in numbers what it lacks in size, and forms a valuable addition to the food supply of travelers by sea. The common *Lepidopsetta bilineata* exists in great numbers over a wide area; it is a food-fish of great excellence. *Limanda aspera* and *Hippoglossoides classodon* are good, but, occurring at greater depths than the last, they have much less importance.

The cod-fishes (*Gadidæ*) are equally represented in Northern and Southern Alaska, those of the latter division excelling the others in size. The most important species, commercially, is the common cod (*Gadus morrhua*), which is exceedingly plentiful on certain banks in the Gulf of Alaska and in the vicinity of the islands of the Aleutian chain. This fish will some day be as valuable in the Pacific as it is now in the Atlantic; it must wait until the west coast rivals the east in population, and then its importance will be appreciated. The Alaskan pollock (*Pollachius chalcogrammus*) has no value as food, but is one of the best baits for the cod. The "wachna" (*Tilesia gracilis*), though comparatively small, seldom exceeding a foot in length, is a very useful fish in Northern Alaska, where it is caught by natives in immense numbers. The burbot (*Lota maculosa*), though reaching five feet in length, is not a food-fish of much consequence.

Of the sculpins (*Cottidæ*) about a dozen species are used for food. The scaled sculpins (*Hemilepidotus*) are especially good.

Seven species of *Sebastichthys* are now known to inhabit Alaskan waters, being confined, so far as we are informed, to the Gulf of Alaska. All of these are excellent for food, and they seem to be sufficiently common.

The "rock cods" (species of *Hexagrammus*) are quite as good as the *Sebastichthys*, and they are more widely spread. One species has been found as far north as Port Clarence, and either the same or a closely related form frequents the entire coast southward to Sitka. *Hexagrammus superciliosus* extends westward to Attu. In the Gulf of Alaska at least three species are extremely abundant and constitute an important part of the food supply. A marked peculiarity of *H. ordinatus*, which is very common at Unalashka, is its green flesh, from which it has derived the name "green fish;" the green color disappears in the process of cooking, and the flesh is excellent. The same fish is remarkable for its beautiful smoky brown ova. Another very important, and perhaps the most important, member of this family of *Chiridæ* is the "Atka fish," "Atka Mackerel," or "Yellow fish" (*Pleurogrammus monopterygius*), a species which is extremely plentiful off Atka and the Shumagin islands and elsewhere in Alaska. This species is a good substitute for the mackerel (*Scomber scombrus*), resembling it in taste after salting, as well as in size and movements. It can be taken in purse seines and treated in nearly all respects just like the common mackerel. As a bait for cod it has no superior at the Shumagins. A small market is beginning to develop in San Francisco for this estimable fish, and in the future it will achieve the commercial importance which it so richly deserves. The largest species of this family, *Ophiodon elongatus*, reaches a weight of 30 pounds, and is valued for food. In Alaskan waters *Anoplopoma fimbria* is said to possess good qualities, while in the markets of San Francisco the same fish is considered quite inferior.

*Bathymaster signatus*, a little-known species of the family of *Trachi-*

*nida*, is called "cusk" at the Shumagins, where it is highly esteemed as a bait for the cod.

The common species of lant (*Ammodytes personatus* Girard) is found abundantly throughout the Territory and is largely used as bait by native fishermen for catching cod, species of *Hexagrammus*, *Sebastichthys*, etc., in hook fishing. The movements of the cod are influenced to a considerable extent by the presence of this little fish, so that fishermen recognize a "lant" school among others.

The pike (*Esox lucius* L.), according to Mr. Dall, is common in all the lakes and ponds of Northern Alaska, but is not found in the rivers. The U. S. National Museum has recently obtained it from the island of Kodiak through Mr. W. J. Fisher. In Northern Alaska it is used principally for dog-food.

A small, but very important, fish belonging to the family of *Umbri-dæ* is *Dallia pectoralis*, the "black-fish" of Northern Alaska, a species literally swarming in the innumerable fresh-water lagoons. Professor Nordenskjöld found it at Port Clarence and Bannister, Turner and Nelson sent down many individuals from Saint Michael's.

The family *Microstomatidæ* is represented in Alaska by the smelts (*Osmerus dentex* and *spirinchus*), the surf smelts (*Hypomesus olidus* and *pretiosus*), the capelin (*Mallotus villosus*), and the eulachon (*Thaleichthys pacificus*). The smelts are found chiefly northward, no specimens being recorded from any part of the Gulf of Alaska. It may be that there is really only one *Osmerus* in Alaska, as the *spirinchus* type may be simply the spent condition of *dentex*; of this, however, we cannot now be certain. *Osmerus dentex* resembles our Atlantic *mordax* in general appearance and size; it is abundant and forms an important source of food both fresh and in the dried state. The capelin is everywhere plentiful and is a valuable food for cod; it is extensively eaten by salmon also. From the stomach of a single small cod caught on Portlock Bank I took upwards of 40 capelin. In sheltered coves near the mouth of Cook's Inlet salmon were observed in pursuit of the dense schools of capelin which swarmed in those waters. In Plover Bay, Siberia, and at Cape Lisburne we found young capelin abundant in the month of August. The species of *Hypomesus* appear to be not widely distributed in Alaska. *H. pretiosus* is the larger and southern one and, doubtless, the more important as a food-fish. *H. olidus* is little known in the Territory; unlike *pretiosus*, it spawns in fresh-water ponds; its size is small, and it has been obtained from only one collector, Mr. Turner. The eulachon frequents the Gulf of Alaska, ranging westward to Shelikoff strait. Salted eulachon are sent from Katmai to Kodiak, and they are said to possess excellent table qualities.

The white-fishes (*Coregonidæ*) are among the most important food-fishes in Alaska. Six species of *Coregonus* are found, one of which reaches Kodiak southwardly. In Northern Alaska the largest species exist; one of these is generally supposed to be identical with the common



white-fish of the Great Lake region, *O. clupeiiformis*. In the Yukon this species is said to reach the weight of 30 pounds; it is, in all probability, the "broad white-fish" of Mr. Dall,\* which, he says, "is usually very fat and excellent eating. It abounds in both winter and summer, spawning in September in the small rivers falling into the Yukon." The species for which Milner proposed the name *O. kennicottii* is similar to the last in most respects; it grows to a large size and is a valuable food-fish. There are two other white-fish whose size is comparatively small, but they are abundant and very important as food; these are *C. laurette* and *C. quadrilateralis*, the former being especially plentiful in Arctic Alaska, while the latter ranges farther to the south and east. These two are about equal in size, neither of them exceeding 16 inches in length and 4 inches in depth. In shape and proportions *C. laurette* resembles the common *O. artedi* of the Great Lake region. It is worthy of mention that the *C. quadrilateralis* of Alaska shows considerable differences from that which we know as *quadrilateralis* in New England and in the eastern portion of its habitat generally. The "humpback white-fish" is not identical with *C. syrok* O. & V., to which it bears a close resemblance. It is not valued as food for man, but is used for dogs. The smallest of the white-fish, and the least valuable, is the "Nulatoski eiga" of the Russians, a species closely allied to, if not identical with, *C. merkiti* Günther. Mr. Dall speaks of it as "a small, thin, bony species common near Nulato, on the Yukon, and \* \* \* rarely more than half a pound in weight. It is of little use as food and is principally abundant in summer." Capt. C. L. Hooper obtained numerous examples of this small species from Eskimo in Kotzebue Sound during the summer of 1880. In this region and farther to the northward Eskimo carry great numbers of these little fish on their voyages, notwithstanding their poor quality. By far the finest of all white-fish is the "Inconnu" (*Stenodus mackenzii* Rich.), which is known to reach 4 feet in length and 50 pounds in weight. Both Mr. Dall and Mr. Nelson have seen examples of this size. Mr. Dall has written concerning it as follows: "This enormous white-fish is the finest of its tribe both in size and flavor. It is found in the rivers most of the year, but is most plentifully obtained and is in its best condition about the months of June and July. \* \* \* It is full of spawn from September to January, when it disappears."\*

Another important species of the *Coregonidae* is the grayling or blanket-fish (*Thymallus signifer* Rich.). This is the most beautiful of all the grayling, and is moderately valuable as a food-fish. Mr. Dall has mentioned it as the only fish in the Yukon territory which will take the hook. Mr. Nelson secured a number of very fine specimens of this grayling. It frequents the small, rapid rivers and is especially abundant in the spring.†

\* Rep. Comm. Agric., 1870, p. 386.

† Dall, *op. cit.*, p. 387.

The greatest fish wealth of Alaska, so far as the shore fisheries are concerned, lies in the abundance of salmon of the genus *Oncorhynchus*, which is represented by five species—*chouicha*, *keta*, *kisutch*, *nerka*, and *gorbuscha*. The first three of these are the largest, the whole series being named in the order of their size. *O. chouicha* is the giant of the group, and is the most important commercially; it attains to its greatest size in the large rivers, which it ascends long distances in its spawning season. In Alaska it is known to extend as far north as Bering Strait, and it is especially abundant in Cook's Inlet and in the Yukon. Individuals weighing nearly 100 pounds are occasionally reported from these waters, and even in the Columbia. The finest product of this salmon is the salted bellies, which are prepared principally on the Kenai, Kassilov, and Yukon Rivers; the fame of this luxury once extended to the center of Government in Russia. The well-known "quinnat salmon" is the same species; its importance, as evidenced by the efforts of the United States Fish Commission and other commissions towards its propagation and distribution, is too well understood to require additional mention. The great bulk of the salted salmon exported from Alaska are the small "red fish," *O. nerka*; and this species is sought after simply on account of the beautiful color of the flesh and not for its intrinsic value, which is far below that of most of the other species. All the salmon extend northward to Bering Strait, but only one, *gorbuscha*, is reported as occurring north of the Arctic Circle; *gorbuscha* is said by trustworthy parties to reach the Colville River. In the early part of its run the flesh of this little "humpback" seems to me to be particularly good. Other members of the family of *Salmonidae*, and very important ones, are the species of *Salmo* (*purpuratus* and *gairdneri*) and *Salvelinus malma*, two of which reach a large size in Alaska. The first two are not known to exist much to the northward of Unalashka, while *malma* is believed to extend to the Colville. *S. gairdneri* resembles the Atlantic salmon in size and shape, but its habits are different; it is found filled with mature eggs in June. I have not seen any very large examples of *S. purpuratus* from the Territory, but the species is extremely abundant and valuable for food. The red-spotted char, *S. malma*, is everywhere plentiful and is highly esteemed as a food-fish; it grows much larger in Northern Alaska than in California, and has some commercial value as an export in its sea-run condition under the name of "salmon trout." Natives of Alaska make water-proof clothing from the skins of this fish.

The total amount of salmon exported in 1880 from the fisheries on the Kenai, Kassilov, and Karluk Rivers is reported to have been 2,089 barrels, estimated to contain the products of 1,982,000 pounds of fish in the fresh state. The exports of 1882 are shown in a table prepared by Mr. Wm. J. Fisher, tidal observer for the United States Coast and Geodetic Survey at Kodiak. Mr. Fisher confirms what I have said elsewhere about the good qualities of the *gorbuscha* sal-

mon. He writes as follows "Here at Saint Paul and vicinity the run of Garbushe has been unprecedentedly large. This fish is not used by our fisheries for export, but the natives prefer this kind, both in the shape of ukali or salted, to the other kinds." Other items of interest in Mr. Fisher's letter\* are well worth recording. He says: "The run of king salmon (chowichee) at Kassilov and Kenai—Kenai Peninsula, Cook's Inlet—has not been as large during the past season as in prior years, the fish having taken a new departure over to the rivers on the opposite side of the inlet, where the supply has been very plentiful. The run of 'Garbushe,' humpback salmon, has been larger than in any preceding year. At Karluk the run of red (*O. nerka*) and silver salmon (*O. kisutch*) has been very large. During the last season two canneries have been established in this district, one at the Kassilov River and the other at the Karluk, but neither of them has come up to its expectations this season."

The statement of the amount of salmon taken is here appended.

*Statement regarding the catch of the salmon fisheries on Kodiak Island and in Cook's Inlet, Alaska Territory, during the year 1882.*

Time during which fishery was in operation.	Names of companies engaged.	Vessels employed.				Men employed.			Red salmon.	
		Number.	Name.	Tons.	Number of crew.	White.	Native.	Chinese.	Barrels.	Cases of 48 lbs.
	FISHERIES AT KARLUK, KODIAK ISLAND.									
April 15-Oct. 5	Western Fur and Trading Company, San Francisco.					6	12		2,150	
April 5-Oct. 15	Alaska Commercial Company, San Francisco.	1	Sch. Mary	15	3	3	8		900	
April 5-Oct. 15	Smith, Hirsh & Co., San Francisco.	1	Sch. Calistoga	30	4	10	22	25	1,500	4,800
	FISHERY AT KENAI, COOK'S INLET.									
June-Sept.....	Alaska Commercial Company, San Francisco.					1	6	1		
	CANNERY AT KASSILOV RIVER, COOK'S INLET.									
May-Sept.....	Cutting & Co., San Francisco.	1	Bk. Courier	600	10	21		59		

\* To Prof. S. F. Baird, October 27, 1882.



Statement regarding the catch of the salmon fisheries on Kodiak Island and in Cook's Inlet, Alaska Territory, during the year 1882—Continued.

Time during which fishery was in operation.	Names of companies engaged.	King salmon.		Disposition of catch.	Remarks.
		Barrels.	Cases of 48 lbs.		
	FISHERIES AT KARLUK, KODIAK ISLAND.				
April 15—Oct. 5	Western Fur and Trading Company, San Francisco.	.....	.....	Shipped to San Francisco.	35,000 pounds dried fish, for use of native hunting parties. 15,000 pounds dried fish, for use of native hunting parties.
April 5—Oct. 15	Alaska Commercial Company, San Francisco.	.....	.....	do .....	
April 5—Oct. 15	Smith, Hirsh & Co., San Francisco.			do	
	FISHERY AT KENAI, COOK'S INLET.				
June—Sept .....	Alaska Commercial Company, San Francisco.	250	.....	Shipped to San Francisco.	
	CANNERY AT KASSILOV RIVER, COOK'S INLET.				
May—Sept.....	Cutting & Co., San Francisco.	.....	6,000	Shipped to San Francisco.	

SAINT PAUL, KODIAK ISLAND, ALASKA,  
October 28, 1882.

The herring of Alaska, *Clupea mirabilis* Girard, resembles *C. harengus* pretty closely in most respects. It is just as abundant in the waters of that Territory as *harengus* is in the Atlantic, and it has the same good qualities; widely distributed and excessively abundant, invaluable both for bait and for food, it must be considered as one of the most important species in Alaska. No finer herring exist than those that may be seined at Iliuliuk, and sometimes near Saint Paul, Kodiak, or in Prince Frederick Sound. They are as plentiful as menhaden were in the early days of that fishery in Peconic Bay, Long Island; vessels have sailed for hours through their immense schools; acres of grass are sometimes covered with eggs deposited by the fish, which are carried beyond the usual tide-level by an extraordinary flood and then left on the land by the receding waters. An accident of this kind occurred early in July, 1880, under my own observation, on a sand-spit in Chugachik Bay, Cook's Inlet. *Clupea mirabilis* has been found as far north as Port Clarence; it is, however, most abundant in the Gulf of Alaska. In 1880 the Western Fur and Trading Company sent down to San Francisco five hundred boxes of smoked herring, 6 quarter-barrels, and 18 full barrels of salt herring, by way of experiment. A very important industry may be established with this species when a sufficient demand arises for its products.

The family *Catostomidae* is represented by the common long-nosed sucker, *Catostomus longirostrum* Le Sueur, which cannot be called an

important food-fish even in Alaska, although the heads and roes are used in making soup. "This fish is abundant in the Yukon and other large rivers in Northern Alaska. It is of moderately large size, reaching five pounds in weight. \* \* \* These fish are filled with spawn in April, a period when other fish appear to be out of season."\* Recently Mr. William J. Fisher has sent us this sucker from the island of Kodiak, where its existence was previously unknown to ichthyologists.

The lamprey known from the Yukon, *Ammocætes aureus* Bean, is extremely abundant and is eaten by the natives.

From the foregoing account it will be seen that Alaska is well supplied with food-fishes. All parts of the coast have an abundance of edible species. Even where the number of species is small the number of individuals is extremely large. Every male native of the proper age devotes a portion of his time to fishing, and employs the best apparatus and expedients in his possession for the capture and preservation of fish, because his existence depends in a great measure upon this source of food. Women and children aid the men by carrying, or half floating in, salmon and other species caught in the seines. They may be seen wading along near the water's edge, pulling vigorously at the great strings of fish which are to be cleaned and otherwise prepared for drying at the villages. According to a preliminary report made by Ivan Petroff, for the Tenth Census, there are about 30,000 inhabitants in Alaska. More than one-sixth of these are adult males, and are to be considered as fishermen. Considering the great abundance of fish everywhere, and the wasteful habits of the people, who learn nothing profitable from experience, no matter how bitter, we will be prepared to form an adequate idea of the vast quantities taken in the Territory. No fewer than 28,000 people depend largely upon fish for their subsistence, eating them fresh during their season, and in the form of *ukali* for the rest of the year. We have no records which give the actual number caught, and must depend upon estimates made by persons who are familiar with the natives and their supplies. Mr. William J. Fisher, of Kodiak, has investigated this matter very carefully, and has received much information from parties who are engaged in preparing *ukali* (dried fish) for the winter supply of the natives. According to Mr. Fisher's estimate, each person will consume at least 750 fish annually, whose united weight will be certainly not less than 3,750 pounds in the fresh state. At this rate 28,000 people will consume 105,000,000 pounds of fish, the first cost of which is about one-half cent per pound, and their total value about \$525,000. In my opinion this is below rather than above the actual value of the yearly supply of food-fishes in Alaska.

#### THE AMERICAN SALMONOIDS.

In the series of salmonoids will be found 38 nominal species; it should be stated, however, that some of these are mentioned under separate

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\* Dall, in Rep. Comr. Agric. for 1870 (1871), p. 388.

names merely to give them a prominence which they would not secure if they were merged with the typical forms under which they would be considered in a systematic treatise. Such are the following:

*Coregonus artedi* subsp. *sisco*.

*Salmo salar* subsp. *sebago*.

*Salmo spilurus* subsp. *pleuriticus*.

*Salmo purpuratus* subsp. *virginalis*.

*Salmo purpuratus* subsp. *henshawi*.

*Salvelinus namaycush* subsp. *siscowet*.

The following species are not included in the collection:

*Osmerus attenuatus*.

*Hypomesus olidus*.

*Argentina syrtensium*.

*Coregonus kennicottii*.

*Coregonus tullibee*.

*Salmo stomias*.

*Salvelinus naresii*.

*Salvelinus arcturus*.

*Salvelinus rossii*.

*Salvelinus nitidus*.

*Salvelinus stagnalis*.

*Osmerus attenuatus* is not represented in the United States National Museum by a single authenticated example. There are two headless specimens from San Francisco, which have been identified with Lockington's species. Certain others from Washington Territory, which were labeled "*Osmerus attenuatus*," are certainly *Hypomesus pretiosus*. We have also two smelt from San Francisco, which are marked "*Osmerus elongatus* Ayres." It appears to me that *Osmerus attenuatus* Lockington is very doubtfully distinct from *Hypomesus pretiosus* (Girard), if not identical with that species. Again, it has not been proven that *O. elongatus* is identical with *H. pretiosus*, and I have reason to believe that if an *Osmerus* different from *thaleichthys* and *pretiosus* is found in the San Francisco markets, it will prove to be *elongatus* of Ayres, and Lockington's *attenuatus* will become a synonym of *elongatus*.

*Hypomesus olidus* is exhibited in the Alaskan series; it is not well represented in the collection, only one person having obtained a few examples.

*Argentina syrtensium* is known from the type specimen only, and this was ejected from a fish stomach.

*Coregonus kennicottii* is one of the large white-fishes of Alaska; it is closely related to *C. clupeiformis*, the common species of the Great Lake region, differing from this chiefly in having the head somewhat shorter, with shorter jaws, and in the greater number of scales. Mr. Dall states that it abounds in both winter and summer, spawning in September in the small rivers falling into the Yukon.\*

\* Rep. Comr. Agric., 1870 (1871), p. 386.



*Coregonus tullibee* is rare in this Museum; I can find only one example of it at present. It is said to be somewhat common in the waters of the Hudson Bay region. Although a handsome species, it is not equal to the lake herring (*C. artedi*) in flavor. Our specimen was sent here by Mr. E. G. Blackford, of New York, who wrote that the tullibee is found in lakes in the extreme north of Minnesota, and also in Manitoba. This was in December, 1877, since which time no examples have been received.

*Salmo stomias* is conjectured by Jordan and Gilbert to be a variety of *S. purpuratus*. It is said to extend from Kansas River to the Upper Missouri, and to reach a length of 24 inches.

*Salvelinus naresii* (Günther) has recently been referred by Jordan and Gilbert to *S. oquassa* (Girard). This action is based upon examination of the descriptions only, and we must not consider that the identity of the two is yet established.

The remaining four species of *Salvelinus* (*arcturus*, *rossii*, *nitidus*, and *stagnalis*) are known to us only from the published descriptions. They inhabit the extreme northeastern portions of North America and the adjacent Arctic regions.

#### FISHES OF THE GULF OF MEXICO AND EAST FLORIDA.

The whole number of species now recorded from this region is about 380, and nearly 300 of these are in the list published by Goode & Bean July 29, 1882,\* of the fishes of the Gulf of Mexico. A catalogue of the fishes of East Florida, prepared by Mr. G. Brown Goode in 1879,† contains the names of 223 species, all but 80 of which are mentioned in the catalogue of fishes of the Gulf of Mexico.

One hundred and fifty-nine of the species recorded in these two lists are exhibited in the series prepared for the London Exhibition. An examination of the catalogues will show that about 90 families are represented. Of these families the following have a comparatively large number of species: *Diodontidæ*, *Tetodontidæ*, *Balistidæ*, *Syngnathidæ*, *Soleidæ*, *Pleuronectidæ*, *Ophidiidæ*, *Blenniidæ*, *Gobiidæ*, *Triglidæ*, *Labridæ*, *Pomacentridæ*, *Chaetodontidæ*, *Xiphiidæ*, *Scombridæ*, *Carangidæ*, *Sciænidæ*, *Sparidæ*, *Pristipomatidæ*, *Centrarchidæ*, *Serranidæ*, *Belonidæ*, *Cyprinodontidæ*, *Clupeidæ*, and *Munrænidæ*. The fishes of commercial importance are to be found in the families *Pleuronectidæ*, *Labridæ*, *Chaetodontidæ*, *Xiphiidæ*, *Scombridæ*, *Carangidæ*, *Sciænidæ*, *Sparidæ*, *Pristipomatidæ*, *Centrarchidæ*, *Serranidæ*, and *Clupeidæ*, and even from this list one may subtract the first four without much diminishing the total.

\* Proc. U. S. Nat. Mus., v, pp. 234-240.

† Proc. U. S. Nat. Mus., ii, pp. 108-121, September 19, 1879.

Among the species most important for food or bait are the following :

<i>Paralichthys dentatus.</i>	<i>stearnsii.</i>
<i>Lachnolæmus falcatus.</i>	<i>blackfordii.</i>
<i>Scomberomorus maculatus.</i>	<i>Diabasis plumieri</i> (= <i>formosus</i> ) and
<i>regalis.</i>	other species of <i>Diabasis.</i>
<i>Caranx hippos.</i>	<i>Anisotremus virginicus.</i>
<i>Trachynotus carolinus.</i>	<i>Micropterus salmoides.</i>
<i>ovatus.</i>	<i>Lepomis</i> (several species).
<i>goreënsis.</i>	<i>Chænobryttus gulosus.</i>
<i>glaucus.</i>	<i>Ambloplites rupestris.</i>
<i>Seriola stearnsii.</i>	<i>Pomoxys sparoides.</i>
<i>lalandii.</i>	<i>Epinephelus drummond-hayi.</i>
<i>falcata.</i>	<i>morio.</i>
<i>Stromateus alepidotus.</i>	<i>nigrinus.</i>
<i>Cynoscion maculatum.</i>	<i>guasa.</i>
<i>nothum.</i>	<i>Trisotropis falcatus.</i>
<i>Pogonias chromis.</i>	<i>stomias.</i>
<i>Micropogon undulatus.</i>	<i>Serranus atrarius.</i>
<i>Liostomus xanthurus.</i>	<i>Diplectrum fasciculare.</i>
<i>Sciæna punctata.</i>	<i>Roccus saxatilis.</i>
<i>ocellata.</i>	<i>Centropomus undecimalis.</i>
<i>Menticirrus alburnus.</i>	<i>Chaetodipterus faber.</i>
<i>nebulosus.</i>	<i>Pomatomus saltatrix.</i>
<i>littoralis.</i>	<i>Elacate canada.</i>
<i>Lagodon rhomboides.</i>	<i>Lobotes surinamensis.</i>
<i>Sparus pagrus.</i>	<i>Mugil albula.</i>
<i>Diplodus probatocephalus.</i>	<i>brasiliensis.</i>
<i>Pomadasyis fulvomaculatus.</i>	<i>Elops saurus.</i>
<i>Rhomboplites aurorubens.</i>	<i>Clupea sapidissima.</i>
<i>Lutjanus caris.</i>	<i>Anguilla rostrata.</i>

Those of the above which have great commercial importance are :

*Scomberomorus maculatus*, *Trachynotus carolinus*, *Cynoscion maculatum*, *Micropogon undulatus*, *Sciæna ocellata*, *Lutjanus blackfordii*, the species of *Epinephelus*, *Trisotropis stomias*, and *T. falcatus*, *Roccus saxatilis*, *Centropomus undecimalis*, and *Pomatomus saltatrix*.

The fauna of the Gulf of Mexico has within the last year been increased by the addition of about 50 species which were previously unknown to science. The collections made by Mr. Silas Stearns at Pensacola and other points in Florida, and by Prof. D. S. Jordan at Galveston, New Orleans, and Pensacola, have stimulated the investigation of the fauna, with the result of bringing forward a great many new and interesting forms. These discoveries represent 22 distinct families, and simply indicate the unfinished condition of explorations in that region. Indeed, since the publication of the latest lists and descriptive papers, Mr. Silas Stearns has secured a number of undescribed

fishes at Pensacola, and has given us the material wherewith we are enabled to extend the range of many species. Some of the most interesting of the recent additions are the following: *Hippocampus zostera*, *H. stylifer*, *Siphostoma zatropis*, *Baostoma brachiale*, *Etropus crossotus*, *Gonypterus omostigma*, *Cremnobates marmoratus*, various species of *Blenies*, *Opisthognathus lonchurus*, *O. scaphiurus*, *Porichthys plectrodon*, *Ioglossus calliurus*, *Chromis enchrysurus*, *Gerres olisthostoma*, *Stenotomus caprinus*, *Tylosurus gladius*, *Cyprinodon mydrus*, *Fundulus ocellaris*, *F. xenicus*, *Conger caudicula*, *Sphagebranchus teres*, *Letharchus velifer*, and *Myrophis lumbricus*.

A comparison of the lists will show that the littoral fishes of the Gulf of Mexico, or at least that portion of it recently investigated, are largely the same as those which inhabit the east coast of the Southern United States. The large admixture of West Indian forms will also be apparent.

#### THE GENERA OF FRESH-WATER FISHES.

The series of fresh-water fishes embraces 173 species, representing nearly all the genera and subgenera at present recognized by the majority of ichthyologists in the United States. The forms not represented by specimens in alcohol are the following:

##### ETHEOSTOMATIDÆ.

*Ioa*.

*Hypohomus* (subgenus of *Hadropterus*).

*Alvarius* (subgenus of *Pæclichthys*).

##### AMBLYOPSIDÆ.

*Chologaster*.

##### ESOCIDÆ.

*Mascalongus* (subgenus of *Esox*). A cast and a photograph are exhibited.

##### CYPRINODONTIDÆ.

*Pæcilia*.

*Adinia* (subgenus of *Fundulus*). Exhibited in the Gulf of Mexico series.

##### COREGONIDÆ.

*Allosomus* (subgenus of *Coregonus*).

##### CLUPEIDÆ.

*Pomolobus* (subgenus of *Clupea*). Exhibited in the Gulf of Mexico series.

##### CATOSTOMIDÆ.

*Lipomyzon* (subgenus of *Catostomus*).

*Placopharynx*.

*Quassilabia*.



## CYPRINIDÆ.

- Coliscus.*  
*Tirodon.*  
*Hemitremia.*  
*Protoporus.*  
*Agosia.*  
*Leucosomus* (subgenus of *Semotilus*).  
*Symmetrurus.*  
*Trycherodon.*  
*Meda.*

## SILURIDÆ.

- Gronias.*  
*Schilbeodes* (subgenus of *Noturus*).  
*Lepidosteus* (subgenus including *L. osseus*, which is represented by a cast).

As already stated, I have tried to present the type species of the genus and one of the typical specimens of the species whenever that could be done without risk to the Museum collection. The series exhibited includes all of the genera properly belonging to the fresh waters, with the exceptions above noted. There are certain gobies which enter fresh waters, but they have not the same claims of consideration in the exhibition series as *Gobiosoma*, for instance, and need only be enumerated. They are: *Gobiomorus* (= *Philypnus*) *dormitator*, *Eleotris gyrinus*, *Dormitator maculatus*, *Gobius lyricus*, and *Culius amblyopsis*. *C. amblyopsis* is shown in the Gulf of Mexico series.

Under each of the economic species will be found some remarks concerning its importance, but it may prove convenient to have a separate list of the food fishes of this series, and I have accordingly introduced it here. It will serve at least to show the great majority of the general which afford food species.

## PARTIAL LIST OF ECONOMIC FRESH-WATER FISHES.

<i>Pomoxys sparoides.</i>	<i>Esox americanus.</i>
<i>Archoplites interruptus.</i>	<i>lucius.</i>
<i>Ambloplites rupestris.</i>	<i>Dallia pectoralis.</i>
<i>Chænobryttus gulosus.</i>	<i>Osmerus mordax.</i>
<i>Lepomis auritus.</i>	<i>Thaleichthys pacificus.</i>
<i>pallidus.</i>	<i>Thymallus tricolor.</i>
<i>gibbosus.</i>	<i>Coregonus williamsonii.</i>
<i>Micropterus dolomiei.</i>	<i>clupeiformis.</i>
<i>Perca americana.</i>	<i>artedi.</i>
<i>Stizostethium vitreum.</i>	<i>Salmo salar.</i>
<i>Roccus saxatilis.</i>	<i>Oncorhynchus kisutch.</i>
<i>chrysops.</i>	<i>Salvelinus fontinalis.</i>
<i>americanus.</i>	<i>Clupea vernalis.</i>

<i>Clupea mediocris.</i>	<i>Pogonichthys macrolepidotus.</i>
<i>sapidissima.</i>	<i>Mylochilus caurinus.</i>
<i>Ictiobus bubalus.</i>	<i>Mylopharodon conocephalus.</i>
<i>Bubalichthys urus.</i>	<i>Ptychochilus oregonensis.</i>
<i>Carpiodes cyprinus.</i>	<i>Squalius atrarius.</i>
<i>Cycleptus elongatus.</i>	<i>gibbosus.</i>
<i>Catostomus tahoensis.</i>	<i>Cyprinus carpio.</i>
<i>commersonii.</i>	<i>Carassius auratus.</i>
<i>Chasmistes liorus.</i>	<i>Leptops olivaris.</i>
<i>Minytrema melanops.</i>	<i>Amiurus catus.</i>
<i>Moxostoma macrolepidotum.</i>	<i>Ictalurus punctatus.</i>
<i>duquesnii.</i>	<i>Anguilla rostrata.</i>
<i>Ceratichthys biguttatus.</i>	<i>Acipenser rubicundus.</i>
<i>Semotilus corporalis.</i>	

A glance at the list will show that a small number of families furnish nearly all our food-fishes. They are as follows: *Centrarchidæ*, *Percidæ*, *Labracidæ*, *Esocidæ*, *Umbridæ*, *Salmonidæ*, *Clupeidæ*, *Catostomidæ*, *Cyprinidæ*, *Siluridæ*, *Anguillidæ*, and *Acipenseridæ*. As would be expected, the *Labracidæ*, *Esocidæ*, *Salmonidæ*, and *Clupeidæ* have the greatest commercial value. A singular fact is the importance of a species belonging to the family *Umbridæ*, which otherwise includes only a few worthless little species, known as mud-minnows, or mud-fish, and the Austrian dog-fish. An interesting account of the qualities of the edible species in question is given by Professor Nordenskjöld in the Narrative of the Vega Expedition. Mr. E. W. Nelson also has prepared a paper on the "Black-fish" (*Dallia pectoralis*) in Northern Alaska, in which he sets forth its great value to the natives. This contribution will appear in the Fisheries Report now being printed by the United States Fish Commission.

It is remarkable that no cyprinoid fish has yet been recorded from Alaska; one would certainly expect to find *Platygobio*, *Ptychochilus*, *Aerochilus*, *Mylochilus*, and *Richardsonius*. We must bear in mind, however, that inland exploration has not been extensive in that Territory, and many large bodies of fresh water have never been properly investigated.

# CATALOGUE OF FISHES IN ALCOHOL.

## FISHES OF ALASKA.

### GASTEROSTEIDÆ.

**1. *Gasterosteus cataphractus* (Pall.) Tilesius.** STICKLEBACK;  
SALMON-KILLER.

San Francisco and Puget Sound (Jordan & Gilbert);  
coast and islands of Alaska; Bering Island (Stejneger);  
Kamtchatka (Pallas).

27998. (5 spec.) Saint Paul Island, Alaska, August 6, 1880. Dr. T. H. Bean.

**2. *Gasterosteus microcephalus* Girard.** NAKED STICKLE-  
BACK.

Tulare County, California (Cooper); San Pedro, Monterey Bay, and San Francisco, California (Jordan & Gilbert); Puget Sound (Jordan & Gilbert); Southern Alaska west to Unalaska.

At Sitka, Clark's Trout (*Salmo purpuratus*) was found feeding upon this species.

28016. (5 spec.) Saint Paul, Kodiak, July 13, 1880. Baker & Bean.

**3. *Gasterosteus pungitius* (Linn.) subsp. *brachypoda* Bean.**

Ten-spined Stickleback.—Northern North America on both sides; on the east coast coming as far South as Labrador; on the west coast to Unalaska, the Shumagins, and Kodiak.

23997. (4 spec.) Saint Michael's, Alaska, 1876. L. M. Turner.

### PLEURONECTIDÆ.

**4. *Lepidopsetta bilineata* (Ayres) Gill.** FLAT-FISH; WOWCK  
(Kodiak).

Monterey Bay and San Francisco, California (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Alaska north at least to Saint Paul Island.

In Alaska this is an excellent food-fish and is very abundant, being speared in large numbers in shallow water near the shore on the rising tide, especially towards evening.

27942. Port Chatham, Cook's Inlet, July 6, 1880. Dr. T. H. Bean.

**5. *Limanda aspera* (Pallas) Bean. ROUGH FLOUNDER.**

Oceano orientali (Pall.); De Castries Bay (Steind. & Kner); Alaska north to Port Clarence; Eastern Siberia.

Very abundant throughout the Gulf of Alaska. A food fish of excellent flavor. At the Shumagins, late in July, females have the ovaries well developed.

27944. Sitka, Alaska, June 13, 1880. Dr. T. H. Bean.

**6. *Pleuronectes glacialis* Pallas. ARCTIC FLOUNDER.**

? *Pleuronectes cicatricosus* Pall., Zoog. Ross.-Asiat., iii., p. 424—"marium inter Camtschatcam et Americam."

River Obi (Pallas); Northern Alaska from Saint Michael's northward.

A small species, but abundant and extremely important to the coast Eskimo in their voyages.

27947. Kotzebue Sound, Alaska, September 2, 1880. Dr. T. H. Bean.

**7. *Pleuronectes stellatus* Pallas. STELLATE FLOUNDER.**

San Luis Obispo, Monterey, and San Francisco (Jordan & Gilbert); Columbia River and Puget Sound (Jordan & Gilb.); Coppermine River (Rich.); Anderson River (Baird); De Castries Bay (Steind.); Plover Bay (Bean).

The Anderson River specimen is still in the U. S. National Museum. This is perhaps the most widely distributed, in latitude, of all the flounders; it reaches a large size and has considerable economic importance.

28012. Yakutat Bay, Alaska, June 24, 1880. Dall & Bean.

**8. *Hippoglossoides classodon* Jor. & Gilb.**

Puget Sound to Unalashka. Common northward.

This is a food-fish of some value; the same is true of nearly all the species of *Pleuronectidae* in Alaska.

27939. Unalashka, Alaska, July 28, 1880. Dall & Bean.

**9. *Hippoglossus vulgaris* Fleming. HALIBUT; KAMBALA; PALTOOSE.**

Sea between Kamtschatka and America (Pallas); San Francisco to Puget Sound (Jordan & Gilbert); the whole coast of Alaska as far north as Saint Michael's.

Sold sparingly in San Francisco markets, where it is brought from Vancouver Island. Experimentally canned near Sitka in 1879 and smoked at Kodiak later. The halibut in Alaska reaches a weight of 250 pounds, and is one of the most important sources of fish-food for the natives.

27707. Port Althorp, Alaska, June 20, 1880. T. H. Bean.



## GADIDÆ.

**10. *Pollachius chalcogrammus*** (Pall). Jor. & Gilb. POL-  
LACK; WHITING; SILVER HAKE.

Monterey Bay, California (Jor. & Gilb.); Puget Sound;  
Gulf of Alaska; Unalashka; Okhotsk and Kamt-  
chatka Seas (Pallas).

Very abundant around the Shumagin Islands, where  
it is one of the most important baits for cod.

27742. Popoff Island, Shumagins, July 19, 1880. E. P. Herendeen.

**11. *Boreogadus saida*** (Lepech.) Bean. POLAR COD.

Northern Alaska south to Saint Michael's; Eastern  
Siberia; Northern Atlantic.

A small species, but, because of its great abundance, a  
very important food-fish.

32432. Ooglaamie, Alaska. U. S. Signal Service.

**12. *Gadus morrhua*** Linné. COD; TRESKA (Russian); AH-MO-DOC  
(Kodiak).

Puget Sound northward and westward to the ice line  
in Bering Sea, and the Okhotsk; DeCastries Bay  
(Steind.).

The principal fishing grounds are at the Shumagins and  
in the Okhotsk. The species is widely distributed in  
Alaska, very abundant, and finds plenty of suitable  
food and spawning-grounds.

29125. Kaigan Strait, Alaska, September 1, 1881. Capt. H. E. Nichols.

**13. *Microgadus proximus*** (Girard) Gill. TOMCOD.

Monterey and San Francisco (Jor. & Gilb.); Puget  
Sound (Jor. & Gilb.); Gulf of Alaska.

A small species, sold in large numbers in San Francisco  
markets. Its distribution in Alaska is not fully  
known.

27982. Yakutat Bay, Alaska, June 24, 1880. Dr. T. H. Bean.

**14. *Tilesia gracilis*** (Tiles.) Swainson. WACHNA.

Cook's Inlet to Saint Michael's, in Alaska; Kamt-  
chatka.

Excessively abundant in October and November, when  
they are caught through holes in the ice with a hook  
made of white walrus ivory. A very important source  
of food for the natives as well as their dogs.

9286. Saint Michael's, Alaska. H. M. Bannister.

**15. *Lota maculosa*** (Le Sueur) Rich. LOSH; NALIME (Russian); BURBOT.

New England; Great Lake Region; Pennsylvania; Ohio; Missouri; Montana; British America; Kodiak Island; and northern part of Alaska.

Little used as food except in Montana and in northern regions. Reaches its largest size in the Yukon River.

32458. Kodiak, Alaska. W. J. Fisher.

LYCODIDÆ.

**16. *Gymnelis viridis*** (Fabr.) Reinhardt.

Northern Atlantic and Pacific, on the east coast of North America, extending as far south as the Gulf of Saint Lawrence; on the west coast reaching the Shumagin Islands.

Young individuals, 104 millimeters in length, were found in Plover Bay, Siberia, September 14, 1880.

24001. Unalashka, Alaska. W. H. Dall.

**17. *Lycodes turnerii*** Bean. TURNER'S LYCODES.

Northern Alaska and Eastern Siberia. Known from Saint Michael's and Plover Bay.

Young examples, 34 millimeters long, were dredged in Plover Bay August 13, 1880; they show distinctly the cross bands characteristic of the adult.

27552. Plover Bay, East Siberia. Dall & Bean.

CRYPTACANTHIDÆ.

**18. *Delolepis virgatus*** Bean. SCALED WRYMOUTH.

Washington Territory to Southern Alaska.

This remarkable genus was discovered by Capt. Henry E. Nichols, U. S. N., during the summer of 1880. Judge J. G. Swan has recently forwarded the species from Port Townsend, Washington Territory, where it was obtained from the stomach of a seal.

29149. (R.) Head of Kingcombe Inlet, B. C., August 2, 1881. Capt. H. E. Nichols.

STICHÆIDÆ.

**19. *Stichæus punctatus*** (Fabr.) Reinhardt.

Arctic seas; on the east coast of North America extending south to Halifax; in Alaska, known to occur southward to Kodiak Island, where it is not uncommon.

24012. Saint Michael's, Alaska. H. M. Bannister.



**20. *Lumpenus anguillaris* (Pallas.) Girard.**

San Francisco to Bellingham Bay (Cooper); Bellingham Bay (Suckley); Puget Sound (Jordan & Gilbert); coast of Alaska at least as far north as Saint Michael's and westward along the Aleutians; Kamtchatka (Pallas); Eastern Siberia (Bean).

The young, apparently of this species, was taken at Belcher Point, Arctic Ocean, August 27, 1880, by Dall & Bean.

29802. Sitka, Alaska, September 13, 1881. Capt. H. E. Nichols.

**21. *Notogrammus rothrockii* Bean.**

Arctic Alaska and Eastern Siberia.

The species is known only from specimens not longer than 35 millimeters, which are probably young. It is sufficiently common in the regions where it was observed.

27573. Cape Lisburne, Arctic Ocean, August 21, 1880. Dr. T. H. Bean.

## XIPHISTERIDÆ.

**22. *Muraenoides ornatus* (Girard) Gill.**

*Centronotus latus* Cope, Proc. Amer. Phil. Soc., XIII, 1873, p. 27.

Puget Sound to Alaska, known to be abundant around the Gulf of Alaska and the whole Aleutian chain; not yet recorded farther north than the Bristol Bay region.

27916. Iliuliuk, Unalashka, August 2, 1880. Dr. T. H. Bean.

**23. *Xiphister chirus* Jordan & Gilbert.**

Monterey Bay and Puget Sound (Jor. & Gilb.); Aleutian Islands.

Known from Alaska by only a few individuals which are more elongate than typical *X. chirus* and may eventually be considered as representing a distinct species.

23958. Adakh, Alaska. W. H. Dall.

**24. *Xiphister rupestris* Jor. & Gilb.**

Monterey Bay (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Vancouver Island to Southeastern Alaska. Not yet received here from farther north than Sitka.

32407. Alert Bay, Alaska, February, 1882. Dr. Wm. Jones.

**25. *Anoplarchus atropurpureus* (Kittlitz) Gill.**

Monterey Bay and Puget Sound (Jor. & Gilb.); Vancouver Island and Fraser's River (Günther); the coast and islands of Alaska north to Norton Sound.

29820. Atka Island, Alaska, June 11, 1879. L. M. Turner.

## ANARRHICHADIDÆ.

**26. *Anarrhichas lepturus* Bean.**

Norton Sound, Alaska; the specimens obtained are all from Saint Michael's.

29910. (261) Saint Michael's, Alaska, May 23, 1881. E. W. Nelson.

## TRACHINIDÆ.

**27. *Bathymaster signatus* Cope. CUSK of the Shumagins; RONQUIL.**

Washington Territory northward to Unalashka. Very abundant at the Shumagin Islands. Not used as food; a valuable bait for cod.

27924. Sitka, Alaska, June 7, 1880. Dr. T. H. Bean.

## TRICHODONTIDÆ.

**28. *Trichodon stelleri* Cuv. & Val. SAND-FISH.**

Occasional at San Francisco; northward to Bering Sea; abundant in the Gulf of Alaska and the eastern Aleutians.

This species secrets itself in the sand for the capture of small crustaceans.

23933. Unalashka, Alaska. W. H. Dall.

## LIPARIDIDÆ.

**29. *Liparis pulchellus* Ayres.**

Monterey to Puget Sound (Jordan & Gilbert); northward to Kodiak and Unalashka in Alaska.

This is one of the largest species of the genus.

30317. Saint Paul, Kodiak Island, Alaska. W. J. Fisher.

**30. *Liparis cyclopus* Günther.**

Monterey (?) to Puget Sound (Jordan & Gilbert); Esquimault Harbor (Günther); southeastern part of Bering Sea.

24046. Unalashka, Alaska. W. H. Dall.

**31. *Liparis gibbus* Bean.**

Unalashka to Eastern Siberia.

27545. Plover Bay, Eastern Siberia, August 13, 1880. Dr. T. H. Bean.

**32. *Liparis calliodon* (Pallas) Günther.**

Shumagin Islands; Aleutians; Eastern Siberia; Kamtchatka. (Pallas).

23966. (2 spec.) Adakh, Alaska. W. H. Dall.

## CYCLOPTERIDÆ.

**33. Eumicrotremus spinosus** (Müller) Gill. SPINY LUMP-FISH.

Iceland (Faber); Spitzbergen (Krøyer); Greenland (specimen in U. S. National Museum); south to Massachusetts Bay (U. S. Fish Commission); Eastern Siberia (Dall and Bean); Unalashka (Bean); Vancouver Island (Günther, as *Cyclopterus orbis*).

27505. Iliuliuk, Unalashka, October, 1880. Dr. T. H. Bean.

## AGONIDÆ.

**34. Podothecus acipenserinus** (Pallas) Gill. ALLIGATOR-FISH.

Washington Territory northward to Unalashka, not uncommon in Alaska.

The young individuals from Cape Lisburne doubtfully referred by me to this species (Proc. Nat. Mus., vol. iv, p. 248) are probably different.

32481. Kodiak, Alaska, 1882. W. J. Fisher.

**35. Siphagonus barbatus** Steind.

Gulf of Alaska and north to Port Clarence (Bering Strait); "Eismeer, zunächst der Behringsstrasse" (Steind.); Hakodadi and Nagasaki, Japan (Steind.).

Found to be rather common at Port Clarence in September, 1880.

28052. Port Mulgrave, Alaska, June 24, 1880. T. H. Bean.

## COTTIDÆ.

**36. Cottus polyacanthocephalus** Pallas.

Puget Sound (Jordan & Gilbert); everywhere abundant throughout the Gulf of Alaska and the Aleutians. Not yet certainly made out from farther north than Unalashka.

This is the largest of all the species of *Cottus*, reaching fully 30 inches in length.

27643. (1 spec.) Iliuliuk, Unalashka, July 28, 1880. Dr. T. H. Bean.

27946. (2 spec.) Iliuliuk, Unalashka, October 6, 1880. Dall & Bean.

**37. Cottus niger** Bean. BLACK SCULPIN.

Kodiak Island; Shumagin Islands; Saint Paul Island; probably north to Saint Michael's.

Very large individuals were collected at Kodiak in 1880 by Dall & Bean, and others of great size have recently come in from Wm. J. Fisher, of the same island.

27952. Saint Paul Island, Alaska, August 6, 1880. Dr. T. H. Bean.

**38. *Cottus humilis* Bean.**

Northern Alaska, Saint Michael's to Kotzebue Sound and, probably, to Belcher Point.

At Saint Michael's this is used by the natives for food.

21521. Saint Michael's, Alaska, June 11, 1875. L. M. Turner.

**39. *Ceratocottus diceraus* (Pallas) Gill.**

Southern Alaska; Kamtchatka. (Pallas.)

32015. Fort Tongass, Alaska, July, 1882. Capt. H. E. Nichols.

**40. *Uranidea microstoma* Lockington.**

Known from Sitka, Kodiak, and Unalashka.

The typical specimen was sent from Kodiak by Wm. J. Fisher, and was incorrectly credited (in Proc. Nat. Mus. iv., p. 249) to Mr. Lockington.

28083. (2 spec.) Unalashka, Alaska, August 1, 1880. S. Bailey.

**41. *Gymnacanthus galeatus* Bean.**

Unalashka; Steamer Bay (Southeastern Alaska).

Capt. Henry E. Nichols, U. S. N., discovered this interesting species in Steamer Bay, thus considerably extending its range in Alaska.

28097. Unalashka, Alaska, July 30, 1880. Dr. T. H. Bean.

**42. *Artedius fenestralis* Jordan & Gilbert.**

*Artedius notospilotus* Bean, Proc. Nat. Mus. iv, p. 250 (not of Girard).

Puget Sound (Jor. & Gilb.); Shumagin Islands; Unalashka.

This is the northern representative of *A. notospilotus*, differing from it in having a lower spinous dorsal and in the greater extent of the scales on the back.

23934. Unalashka, Alaska. W. H. Dall.

**43. *Hemilepidotus trachurus* (Pall.) Günther.**

San Francisco and Puget Sound (Jor. & Gilb.), Gulf of Alaska, Unalashka.

This species is most abundant in the southern part of its range.

27901. Sitka, Alaska, 1880. L. A. Beardslee.

**44. *Hemilepidotus jordani* Bean.**

Gulf of Alaska, Unalashka, and other Aleutian Islands, Eastern Siberia.

A food-fish of excellent quality. Abundant in the western part of the Gulf of Alaska and in Cook's Inlet.

27612. Popoff Island, Alaska, July 17, 1880. Dr. T. H. Bean.



**45. *Leptocottus armatus* Girard.**

Coast of California (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Gulf of Alaska.

The species is common as far west as Kodiak, whence Mr. William J. Fisher has sent a number of fine examples.

27968. Sitka, Alaska, May 31, 1880. Dr. T. H. Bean.

**46. *Oligocottus maculosus* Girard.**

Coast of California (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Vancouver Island; east coast of Gulf of Alaska, north to Cook's Inlet.

Alaskan examples show certain differences from the typical form which may require for them a separate subspecific name.

27514. (2 spec.) Sitka, Alaska, June 3, 1880. Dr. T. H. Bean.

**47. *Oligocottus globiceps* Girard.**

Monterey Bay and San Francisco (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Gulf of Alaska and Aleutian Islands.

23959. Adakh, Alaska. W. H. Dall.

**48. *Blepsias cirrhosus* (Pallas) Günther.**

San Francisco (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Gulf of Alaska; Aleutian Islands; Saint Paul Island.

Messrs. Dall & Bean found it to be very abundant at Port Mulgrave and Unalashka in 1880; only young individuals were obtained.

28051. Port Mulgrave, Alaska, June 24, 1880. Dr. T. H. Bean.

**49. *Blepsias bilobus* Cuv. & Val.**

Gulf of Alaska (Kodiak); Kamtchatka (Günther).

In the National Museum specimens are known only from Kodiak. The species seems to be rare.

28061. (R.) Saint Paul, Kodiak Island, Alaska. W. J. Fisher.

**50. *Nautichthys oculofasciatus* Girard.**

San Francisco (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Kodiak; Unalashka; and other Aleutians.

All the Alaskan examples received so far are young.

23941. Alaska. W. H. Dall.

## SCORPÆNIDÆ.

**51. Sebastichthys ciliatus** (Tiles.)

Gulf of Alaska; Aleutians (Pallas, as *Perca variabilis*).  
The species is known to us from Southeastern Alaska  
and the island of Kodiak.

32008. Mary Island, Alaska, July, 1882. Capt. H. E. Nichols.

## CHIRIDÆ.

**52. Hexagrammus asper** Steller.

San Francisco and northward (Jor. & Gilb.); coast of  
Alaska north to Port Clarence.

The young of this species were obtained in Cook's Inlet  
in July, 1880, and at Port Clarence in September of  
the same year by Messrs. Dall & Bean.

27650. Unalashka, Alaska, July 31, 1880. Dr. T. H. Bean.

**53. Hexagrammus ordinatus** (Cope) Bean. GREEN-FISH;  
TORPOOG (Russian).

This is an excellent food-fish, called green-fish because  
the flesh is naturally green, though white and very  
palatable after cooking. Gravid females were seined  
at Unalashka July 28, 1880; the eggs are brown.

27649. Iliuliuk, Unalashka, July 31, 1880. Dr. T. H. Bean.

**54. Hexagrammus decagrammus** (Pall.) Jor. & Gilb.

Coast of California (Jor. & Gilb.); Puget Sound (Jor.  
& Gilb.); off Mount Saint Elias (Pallas); Gulf of  
Alaska; Unalashka.

The species is abundant in Southeastern Alaska, and  
is an important article of food.

29134. Sitka, Alaska, September 13, 1881. Capt. H. E. Nichols.

**55. Pleurogrammus monopterygius** (Pallas) Gill. ATKA  
FISH; ATKA MACKEREL; STRIPED FISH; YELLOW  
FISH.

Western part of Gulf of Alaska; Aleutian Islands.

This species is common in great schools in deep water  
about the Shumagins, and is the finest known bait  
for cod; it is even more abundant off Atka; it can  
be taken in purse seines like the mackerel, which it  
resembles in shape and, after cooking, in taste. This  
fish is certain to become very important commer-  
cially.

27930. Iliuliuk Unalashka, October 7, 1880. Robert King



- 56. *Anoplopoma fimbria*** (Pallas) Gill. BESHOWE; COAL FISH.  
Coast of California (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Southeastern Alaska.

This species is common and little esteemed in San Francisco markets, but highly prized in the Puget Sound region; it grows to a length of more than two feet.

32003. Hassler Harbor, Alaska, August, 1882. Capt. H. E. Nichols.

### AMMODYTIDÆ.

- 57. *Ammodytes alascanus*** Cope.

Southeastern Alaska; Unalashka.

Specimens agreeing with Cope's description of the above species are infrequent among the numerous representatives of *Ammodytes* in the collections of the U. S. National Museum.

24034. Unalashka, Alaska. W. H. Dall.

- 58. *Ammodytes personatus*** Girard. SAND LAUNCE; LANT.

Monterey Bay and Puget Sound (Jor. & Gilb.); entire coast of Alaska north to Point Belcher; Eastern Siberia.

This little fish plays a very important part in the cod fishery, because of its great abundance and the greediness with which cod feed upon it.

28024. (2spec.) Port Clarence, Alaska, September 6, 1880. Dall & Bean.

### UMBRIDÆ.

- 59. *Dallia pectoralis*** Bean. BLACK FISH.

Northern Alaska in the vicinity of Bering Strait. Recorded from Port Clarence by Smitt as *Dallia delicatissima*.

This is a food-fish of small size, but great importance; it is greatly esteemed and exceedingly abundant.

6661. (c.) Saint Michael's, Alaska. H. M. Bannister.

### SALMONIDÆ.

- 60. *Osmerus dentex*** Steind. SMELT.

Alaska, in the vicinity of Bering Strait; De Castries Bay, Siberia (Steind.).

This is an important food-fish both in the fresh and the dried state.

21527. Saint Michael's, Alaska, February, 1877. L. M. Turner.

**61. *Mallotus villosus* (Müller) Cuv.** CAPELIN; SHE-GAKH (Kodiak).

Entire coast of Alaska, Aleutian Islands, and Kamtchatka (Pallas).

The species is very important in the cod fishery. It occurs in immense schools in the Gulf of Alaska. Fully forty capelin were taken from the stomach of a ten-pound cod off Kodiak, July 8, 1880. The young were abundant in Plover Bay (Siberia) and at Cape Lisburne (Alaska) in August, 1880.

32424. Ooglaamie, Alaska. U. S. Signal Service.

**62. *Hypomesus olidus* (Pallas) Gill.** POND SMELT.

Saint Michael's, Alaska; streams and lakes of Kamtchatka (Pallas); De Castries Bay (Kner, as *Osmerus oligodon*).

This species is said to spawn in fresh-water ponds.

23973. Saint Michael's, Alaska, May 20, 1877. L. M. Turner.

**63. *Hypomesus pretiosus* (Girard) Gill.** SURF SMELT.

Coast of California from San Francisco northward; Puget Sound (Jor. & Gilb.); Southeastern Alaska.

An account of its spawning habits and of Indian methods of capturing it is given by Mr. J. G. Swan in Proc. U. S. Nat. Mus., vol. iii, p. 43.

27995. Port Mulgrave, Alaska, June 24, 1880. Dr. T. H. Bean.

**64. *Thaleichthys pacificus* (Rich.) Girard.** EULACHON; CANDLE-FISH.

Columbia River and Puget Sound (Jor. & Gilb.); Vancouver Island (Günther); Gulf of Alaska west to Katmai, on Shelikoff Strait.

An important food-fish, both fresh and dried. The manufacture of oil from this species has become an industry of some importance. The oil is used as a substitute for butter, and attempts have been made to introduce it to take the place of cod-liver oil.

24111. Wrangel, Alaska. R. D. Crittenden.

**65. *Stenodus mackenzii* Rich.** INCONNU; NAYLIMA (Russian).

Mackenzie's River and its tributaries; Yukon River.

A food-fish of great excellence, growing to a large size, four feet in length, and reaching 50 pounds in weight.

"It is full of spawn from September to January, when it disappears."—Dall.

29889 (255). Nulato, Alaska, March, 1881. E. W. Nelson.

**66. *Coregonus laurettae* Bean.** ? MORSKOI CIGA (Russian).

Yukon River, and northward to Point Barrow, Alaska. This species is not large, rarely exceeding three pounds in weight, but it is a very important source of food on the Yukon and northward.

27695. (R.) Point Barrow, Alaska, 1880. Capt. C. L. Hooper.

**67. *Coregonus merkiti* Günther.** Subsp.

Yukon River; Hotham Inlet; Kolima and other Siberian rivers (Pallas, as *Salmo clupeioides* fide Günther). A small species, rarely exceeding a half pound in weight; little used as food in Alaska.

27698. (2 spec.) Hotham Inlet, Alaska, 1880. Capt. C. L. Hooper.

**68. *Coregonus quadrilateralis* Richardson.** ROUND WHITE-FISH. (?) KRUG (Russian).

Lakes of New England; Upper Great Lakes; Slave Lake; Kodiak; Yukon River; rivers of Arctic North America (Günther).

A species of wide distribution and variability; of rather small size, but excellent quality.

32469. Kodiak, Alaska. W. J. Fisher.

**69. *Salvelinus malma* (Walb.) Jor. and Gilb.** BROOK TROUT; DOLLY VARDEN; SALMON TROUT (sea-run condition); GOLETZ (Russian).

Northern California, west of the Cascade Range; Puget Sound (Jor. & Gilb.); throughout the Aleutian Islands and the mainland of Alaska north to Colville River; Eastern Siberia (Bean).

This species sometimes reaches a weight of 12 pounds, being more abundant and of the largest size in the northern part of its range. The typical "Dolly Varden" condition is best known in McCloud River, California. As "Salmon Trout" at Kodiak it is an important article of commerce in the salted state.

27599. Old Sitka, Alaska, June 2, 1880. Dr. T. H. Bean.

**70. *Salmo purpuratus* Pallas.** CLARK'S TROUT; SALMON TROUT.

Rocky Mountain and Cascade regions (Jor. & Gilb.); Monterey Bay, San Francisco, Columbia River (Jor. & Gilb.); Puget Sound (Jor. & Gilb.); Southern Alaska; Kodiak; Unalashka.

A variable species of wide range, reaching a weight of 20 pounds; quite abundant in lakes at Sitka.

27903. Sitka, Alaska, June 3, 1880. W. M. Noyes.

**71. *Salmo gairdneri*** Richardson. GAIRDNER'S TROUT; STEEL HEAD; AH-SHUT (Sitka).

Monterey Bay, Sacramento River, Columbia River (Jor. & Gilb.); Puget Sound; Southern Alaska (Sitka to Kodiak).

This trout is the famous Edgecumbe trout of Sitka; it reaches the weight of 20 pounds, and then resembles the Atlantic Salmon in shape. Gravid females were obtained by me in Sitka, June 9-10, 1880. I am unable to detect specific differences between this trout and the *Salmo irideus* of Gibbons.

32460. Kodiak, Alaska. W. J. Fisher.

**72. *Oncorhynchus chouicha*** (Walb.) Jor. & Gilb. QUINNAT SALMON; KING SALMON; CHOWICHEE; CHINNOCK SALMON.

West coast of the United States from Monterey Bay northward, ascending the Sacramento, Columbia, and other rivers in great numbers; northward to Bering Strait.

The largest of all the salmon, reaching a hundred pounds in weight. The principal fisheries for this species are in the Sacramento, Columbia, Kasilov, Kenai, and Yukon rivers. The salted bellies of Yukon Chowichee are in especial favor.

27680. (Mounted half skin.) Kasilov R., Alaska. W. J. Fisher.

**73. *Oncorhynchus keta*** (Walb.) Gill & Jor. HOI-KOH; DOG SALMON.

West coast of the United States from San Francisco northward; around the coast of the mainland of Alaska, north to Hotham Inlet.

The reproductive organs of this salmon were found well developed in Cook's Inlet and at Kodiak in July, 1880.

27688. Hotham Inlet, Alaska, 1880. Capt. C. L. Hooper.

**74. *Oncorhynchus nerka*** (Walb.) Gill & Jordan. RED-FISH; KRASNOI RIBA (Russian).

West coast of North America, from Columbia River northward, ascending far up the streams; in Alaska north at least to the Yukon.

On account of the beautiful color of its flesh this inferior and abundant little salmon is more important for export from Alaska than any other. Natives prepare a large portion of their ukali from this fish. The principal fisheries for it in Alaska are at Karluk, on the island of Kodiak.

32539. Kodiak, Alaska. W. J. Fisher.



**75. *Oncorhynchus kisutch*** (Walb.) Jor. & Gilb. SILVER SALMON; KEEZITCH (Russian).

West coast of North America from San Francisco northward; in Alaska north to Bering Strait.

The first silver salmon made their appearance at Sitka in 1880, early in June, and by the middle of the month they were comparatively abundant there. Early in October of the same year spent fish were seen in large numbers near Iliuliuk, Unalashka, in a shallow, rapid stream which falls into Nateekin Bay. Indians at Sitka catch many of the silver salmon by trolling with herring bait (*Clupea mirabilis* Girard).

27929. Iliuliuk, Unalashka, October 6, 1880. Dr. T. H. Bean.

**76. *Oncorhynchus gorbuscha*** (Walb.) Gill & Jordan. GORBUSCHA; LITTLE HUMPBACK SALMON; DOG SALMON.

West coast of North America, from the Sacramento northward; extending in Alaska to the Colville River; Eastern Siberia.

Before it begins to "dog" this is an excellent fish, more like a trout than a salmon in flavor. Late in July the species is scarcely fit to be eaten. In the Yukon the spawning season is a little later.

27744. Saint Paul, Kodiak, Alaska, July 11, 1880. Dr. T. H. Bean.

### CLUPEIDÆ.

**77. *Clupea mirabilis*** Girard. HERRING.

The whole west coast of North America from San Diego northward; in Alaska found as far north as Port Clarence and said to occur at the mouth of Colville River; Kamtchatka (Pallas).

Everywhere abundant; destined to be important in the cod fishery; especially fine herrings are caught at Unalashka. Early in July, 1880, great quantities of stranded herring were found to have deposited their eggs on a spit in Cook's Inlet.

27717. Unalashka, Alaska, July 31, 1880. S. Bailey.

31976. Port Wrangel, Alaska, October, 1882. Capt. H. E. Nichols.

## CATOSTOMIDÆ.

**78. *Catostomus longirostrum* Le Sueur. LONG-NOSED SUCKER.**

Great Lake region northwestward to the Yukon in Alaska; Kodiak.

This species is very abundant in the Yukon, and has recently been sent down from the island of Kodiak; it is too full of small bones to be an important food-fish.

32465. Kodiak, Alaska. W. J. Fisher.

## CHIMÆRIDÆ.

**79. *Chimæra colliei* Bennett. RAT-FISH; ELEPHANT-FISH.**

Pacific coast of North America from Monterey to Southeastern Alaska.

The male has been known to cause a serious wound by means of its cephalic appendage.

24041. Alaska.

## GALEORHINIDÆ.

**80. *Galeorhinus zyopterus* Jor. & Gilb. OIL SHARK.**

Coast of Southern California from San Francisco to Cerros Island (Jor. & Gilb.); Southeastern Alaska.

The oil shark is valued for the oil in its liver; the Chinese make a soup from the fin-rays of this species.

5593. Sitka, Alaska. F. Bischoff.

## SPINACIDÆ.

**81. *Squalus acanthias* Linn. SPINED DOG-FISH; PICKED DOG-FISH; DOG-FISH.**

Atlantic and Pacific coasts of North America, very abundant in the Gulf of Alaska.

At present this dog-fish is simply a nuisance to fishermen in the Gulf of Alaska, its liver not being utilized as it is on the coast of New England.

29120. Red Bay, Alaska, August 14, 1881. Capt. H. E. Nichols.

## AMERICAN SALMONIDS.

## ARGENTININÆ.

**1. *Mallotus villosus* (Müller) Cuv. CAPELIN.**

North Atlantic and Pacific; in the Pacific known as far south as Sitka, in the Atlantic said to reach Cape Cod.

The young are found abundantly in late summer northward.

21209. ♂ & ♀. Newfoundland, — Harvey.

27564. Juv. Plover Bay, Siberia, August 12, 1880. Dr. T. H. Bean.

**2. *Thaleichthys pacificus* (Rich.) Girard.** EULACHON; CANDLE-FISH.

Columbia River and Puget Sound (Jordan and Gilbert); Vancouver Island (Günther); known from various localities in the Gulf of Alaska, extending to Katmai on the peninsula of Aliaska.

The eulachon ascends the rivers in immense schools in the spring. It is an excellent food fish, both fresh and salted, and is the source of an oil or fat which has some commercial importance and is much used by natives.

27297. Frazer's River, British Columbia, Jordan & Gilbert.

**3. *Osmerus mordax* (Mitch.) Gill.** SMELT.

Atlantic coast from Nova Scotia to Virginia, entering streams and becoming land-locked, especially in lakes of Maine and New Hampshire; reaches a large size in Lake Champlain.

14797. Eastport, Maine, U. S. Fish Commission.

**4. *Osmerus dentex* Steindachner.** NORTHERN SMELT.

Eastern Siberia and Northern Alaska, not yet observed south of Saint Michael's, representing, in the North Pacific, *O. eperlanus* and *O. mordax* of the Atlantic.

29937 (223). Saint Michael's, Alaska, August 20, 1880, E. W. Nelson.

**5. *Osmerus thaleichthys* Ayres.** EULACHON SMELT.

Coast of California from Monterey northward. Rather common in San Francisco market.

27019. Monterey, California, Jordan & Gilbert.

**6. *Hypomesus pretiosus* (Grd.) Gill.** SURF SMELT.

This species derives its name from its habit of spawning in the surf. Its known range is from San Francisco to Yakutat Bay, Alaska.

All the examples of *Osmerus attenuatus* Lockington, so called in the National Museum collection, appear to me to be *Hypomesus pretiosus*, and the description of *O. attenuatus* fits the surf smelt very well.

27276. Puget Sound, 1880, Jordan & Gilbert.

**7. *Hyphalonedrus chalybeius* Goode.**

Atlantic Ocean, in deep water, off the coast of Rhode Island and southward to about N. lat. 38° 30'; first observed in the summer of 1880.

29062. N. lat. 38° 31', W. long. 73° 21', 156 fathoms, October 18, 1881. U. S. Fish Commission.

## COREGONINÆ.

**8. *Coregonus williamsonii* Girard. ROCKY MOUNTAIN WHITE-FISH.**

*Coregonus couesii* MILNER, Report U. S. Fish Comm. (1872-1873) 1874, p. 88.

"Clear streams and lakes from the Rocky Mountains to the Pacific; abundant in the Sierra Nevada." Recently received from Mill Creek, Oregon, whence it was sent by Col. I. R. Moores.

10608. Provo River, Utah. Dr. H. C. Yarrow.

**9. *Coregonus quadrilateralis* Rich. SHAD WAITER; ROUND-FISH.**

Lakes of New England; Upper Great Lakes; north-westward to Alaska; recently sent from Kodiak Island in the Gulf of Alaska.

23494. Mackinaw Straits. L. Kumlien.

**10. *Coregonus clupeiformis* (Mitch.) Milner. COMMON WHITE-FISH.**

Great Lakes; British America; Alaska, growing to a very large size in the Yukon.

The most important of all the species of white-fish, now reproduced artificially in great numbers.

10574. Juv. Sand Island, Lake Superior. J. W. Milner.

28569. Ad. Detroit River. Frank N. Clark.

**11. *Coregonus labradoricus* Rich. LAKE WHITING.**

Great Lake Region; lakes of the Adirondacks, of mountains of New England and northeastward, preferring clear, cold lakes.

16867. Lake Winnipisogee, New Hampshire. W. W. Fletcher.

**12. *Coregonus hoyi* (Gill) Jordan. LAKE MOON-EYE; CISCO (Lake Michigan); SMELT (Western New York).**

Lake Michigan and Lake Ontario, in deep water; lakes of Western New York, where it sometimes dies mysteriously in great numbers.

32165. Skaneateles, New York. J. C. Willetts.

**13. *Coregonus merkii* Günther, subsp. MERK'S WHITE-FISH; NULATOSKI CIGA (Russian).**

Known from Yukon River and Hotham Inlet, Alaska. A small species, thin and bony, of little use as food. It differs from typical *merkii* in several particulars.

27698. Hotham Inlet, Alaska, 1880. Capt. C. L. Hooper.



**14. *Coregonus artedi* Le Sueur.** LAKE HERRING; MICHIGAN HERRING.

Great Lakes and northeastward to Labrador, the eye becoming larger and certain other characters varying to the northeastward.

10258. Ecorse, Michigan. J. W. Milner.

**15. *Coregonus artedi* var. *sisco* Jordan.** CISCO.

Small lakes of Michigan, Wisconsin, and Indiana.

A form of the preceding modified by residence in small deep lakes.

21501. Geneva Lake, Wisconsin, June 13, 1878. A. E. Lytle.

**16. *Coregonus nigripinnis* (Gill) Jor.** BLUE-FIN; BLACK-FIN.

Lake Michigan, in deep water; deep lakes of Wisconsin, known from the vicinity of Madison, Wisconsin, whence it has been sent by Fish Commissioner Welsh.

10257. Grand Haven, Michigan. J. W. Milner.

**17. *Thymallus signifer* Richardson.** BLANKET-FISH; GRAYLING.

British America and Alaska, abundant northward.

The dorsal fin of males and females is much higher than in the next species.

32582. Nulato, Yukon R., Alaska. E. W. Nelson.

**18. *Thymallus tricolor* Cope.** MICHIGAN GRAYLING.

*Thymallus montanus* MILNER, Rept. U. S. Fish Comr. (1872-1873) 1874, p. 741.

Streams of the southern peninsula of Michigan, abundant in Ausable River; headwaters of the Missouri in Montana.

A game fish of great beauty.

11115. Ausable River, Michigan. J. W. Milner.

**19. *Stenodus mackenzii* Rich.** INCONNU.

*Luciotrutta Mackenzii* GÜNTHER, Cat. Fish. Brit. Mus, vi, 1866, p. 164.

Mackenzie's River and its tributaries; Yukon River, Alaska.

A food-fish of great value; the largest of the white-fishes.

10573. Nulato, Yukon River, Alaska, April 2, 1867. W. H. Dall.

## SALMONINÆ.

**20. *Oncorhynchus chouicha* (Walb.) Jor. & Gilb. QUINNAT SALMON; KING SALMON.**

*Salmo quinnat* RICH., F. B.-A., iii, p. 219.

*Oncorhynchus quinnat* GÜNTHER, Cat. Fish. Brit. Mus., vi, 1866, p. 158.

Ascends the large rivers of California and northward to the Yukon in Alaska.

This is the largest and most important of all the salmon, reaching a weight of 100 pounds. It is the principal species of the canneries and of the artificial hatching establishments of the United States Fish Commission on the Pacific coast.

27357. Sacramento River, California, 1880. Jordan & Gilbert.

**21. *Oncorhynchus keta* (Walb.) Gill & Jor. DOG SALMON; HOI-KO (Russian).**

Pacific coast from San Francisco northward to Hotham Inlet, Alaska.

27689. Hotham Inlet, Alaska, 1880. Capt. C. L. Hooper.

**22. *Oncorhynchus nerka* (Walb.) Gill & Jor. RED-FISH.**

Pacific coast from Columbia River to the Yukon in Alaska; Bering Island (Stejneger).

Salted in immense numbers on the island of Kodiak and in Cook's Inlet. A very important source of food for the natives of Alaska, especially on Kodiak and in Cook's Inlet.

32566. ♂ Wallowa Lake, Oregon. Capt. Charles Bendire, U. S. A.

32569. ♀ Wallowa Lake, Oregon. Capt. Charles Bendire, U. S. A. August 31, 1880.

**23. *Oncorhynchus kisutch* (Walb.) Jor. & Gilb. SILVER SALMON; KEEZITCH (Russian).**

San Francisco northward to the Yukon River; Bering Island (Stejneger).

27066. Puget Sound, 1880. Jordan & Gilbert.

**24. *Oncorhynchus gorbuscha* (Walb.) Gill & Jor. LITTLE HUMPBACK SALMON; GORBUSCHA (Russian).**

San Francisco to Puget Sound (Jordan & Gilbert); coast of Alaska north to Colville River; Eastern Siberia (Steindachner; Bean); Bering Island (Stejneger).

A small salmon of excellent flavor when it first comes from the sea.

29890. St. Michael's, Alaska. July 27, 1880. E. W. Nelson.

**25. *Salmo salar* Linn. SALMON.**

North Atlantic, ascending rivers in Northern Europe and America.

On the western Atlantic side extended, by the efforts of the United States Fish Commission, as far south as the Susquehanna River. The young of this, or the land-locked form next to be mentioned, have been found in abundance even in North Carolina, where the Commission introduced the species.

10295. Bucksport, Maine. C. G. Atkins.

**26. *Salmo salar* supsb. *sebago* Girard. SEBAGO SALMON; LAND-LOCKED SALMON.**

Saint Croix River and lakes of Maine. Extensively introduced into other lakes and into streams southward.

10543. Grand Lake, Maine. M. C. Edmonds.

**27. *Salmo gairdneri* Rich. GAIRDNER'S TROUT; STEEL-HEAD; HARD-HEAD; SALMON TROUT; AH-SHUT; EDGE-CUMBE TROUT.**

Sacramento River and northward at least to Kodiak, Alaska.

A very large species, reaching 20 pounds in weight. Gravid females were seen at Sitka in June. In my opinion this and the next species are identical, but, as I cannot now publish my reasons for this belief, I continue for the present to use both names.

32577 (220). Oregon, 1880. Capt. Charles Bendire, U. S. A.

**28. *Salmo irideus* Gibbons. RAINBOW TROUT.**

Streams west of the Sierra Nevada, from near the Mexican line (Rio San Luis Rey) to Oregon (Jordan & Gilbert).

Reared artificially in large numbers by the United States Fish Commission on the McCloud River in California, and thence distributed eastward and across the Pacific.

27356. Monterey, California. Jordan & Gilbert.

15491. McCloud River, California, L. Stone.

32518. (Thirty months old.) Artificially reared at Northville, Michigan. Frank N. Clark.

32519. Same age and history as the preceding.

32526. (Eighteen months old.) Same history as 32518 and 32519.

32527. (Eighteen months old.) Same history as the last.

**29. *Salmo spilurus* Cope. RIO GRANDE TROUT.**

Upper Rio Grande and Basin of Utah, frequenting mountain streams (Jordan & Gilbert).

16757. Brazos River, New Mexico. Dr. H. C. Yarrow.

**30. *Salmo pleuriticus* Cope.**

Rio Grande; Utah Basin.

According to Jordan & Gilbert this trout is a variety of the last-named species, differing in its smaller scales and darker coloration.

17070. Pogosia, Colorado. C. E. Aiken.

15806. Rio Grande, Colorado. Dr. J. T. Rothrock.

**31. *Salmo purpuratus* Pallas. CLARK'S TROUT; COLUMBIA RIVER SALMON TROUT; YELLOWSTONE TROUT; ROCKY MOUNTAIN BROOK TROUT.**

Common in the Rocky Mountain region and the Cascades; northward to Cook's Inlet and Unalashka, in Alaska.

27259. Puget Sound, 1880. Jordan & Gilbert.

27904. Sitka, Alaska, May, 1880. Dr. T. H. Bean.

**32. *Salmo virginalis* (Girard). UTAH LAKE TROUT; BROOK TROUT; SPECKLED TROUT.**

Utah Basin.

A nominal species, according to Jordan & Gilbert, now merged into *S. purpuratus*.

16000. Provo, Utah.

**33. *Salmo henshawi* Gill & Jordan. "LAKE TAHOE TROUT; SILVER TROUT; BLACK TROUT."**

Lake Tahoe, California; Pyramid Lake, Nevada; streams of the Sierra Nevada.

This trout is now considered by Jordan & Gilbert to be a variety of the last. It is common in San Francisco markets, where individuals weighing 15 pounds or more are frequently seen.

32550. California. U. S. Fish Commission.

**34. *Salvelinus namaycush* (Walb.) Goode. MACKINAW TROUT; LAKE TROUT; TOGUE.**

Great Lakes; lakes of Northern New York, New Hampshire, Maine, and northeastward.

The largest of the trout, reaching a length of 3 feet and a weight of 40 pounds; varying greatly in coloration.

32583. Michigan. Frank N. Clark.



**35. *Salvelinus namaycush*, subsp. *siscowet* Agassiz. SISCOWET.**

Lake Superior.

The *siscowet* differs from the *namaycush* in the greater width of its head and body, smaller size, and limited distribution.

23493. Straits of Mackinaw. L. Kumlien.

**36. *Salvelinus equassa* (Grd.) Gill & Jor. OQUASSA TROUT; BLUE-BACK TROUT.**

Lakes in Western Maine.

According to a note recently published by Professor Jordan this species includes *Salmo naresii* Günther, and its range would thereby be extended to Arctic America.

27688. Oquassa Lake, Maine. E. G. Blackford.

**37. *Salvelinus malma* (Walb.) Jor. & Gilb. DOLLY VARDEN TROUT; SALMON TROUT; MALMA; GOLETZ.**

Northern California, west of the Cascade Range; northward to Colville River, in Alaska; abundant throughout the Aleutians; Bering Island (Stejneger); Plover Bay (Bean).

This trout reaches its largest size northward; it is extensively salted at Kodiak, where it is called salmon trout (in the sea-run condition).

27726. Unalashka, Alaska, July 28, 1880. Dr. T. H. Bean.

**38. *Salvelinus fontinalis* (Mitch.) Gill & Jor. BROOK TROUT.**

Rivers and lakes of British America and of the northern parts of the United States and Appalachian Range (Goode). Introduced westward and southward artificially.

A species closely resembling this has been received here from Greenland. In the sea-run condition this is *Salmo immaculatus* H. R. Storer and *S. canadensis* Hamilton Smith.

16626. Wood's Holl, Massachusetts, December 14, 1875. V. N. Edwards.

20991. Bushwick, Long Island. E. G. Blackford.

32591. ♂. New York market. E. G. Blackford.

32592. ♀. New York market. E. G. Blackford.

32533. (22 months old.) Artificially reared at Northville, Michigan, by Frank N. Clark.

32534. Same age and history as 32533.

## FISHES OF THE GULF OF MEXICO AND EAST FLORIDA.

## MALTHEIDÆ.

**1. Malthe vespertilio** (L.) Cuv. BAT-FISH.

The species is credited to Newfoundland, where its occurrence was probably accidental; it belongs to the region of the southern United States, especially those bordering on the Gulf of Mexico.

20485. Pensacola, Florida.

**2. Malthe cubifrons** Rich. SEA BAT.

Described from an example which was said to have been taken off the coast of Labrador, but not since recorded from that region. Not uncommon on the east coast of Florida.

16727. Saint Augustine, Florida, December 7, 1875. Dr. J. M. Laing, U. S. A.

## DIODONTIDÆ.

**3. Chilomycterus geometricus** (L.) Kaup. SPINY BOX-FISH; RABBIT-FISH; SWELL TOAD.

East coast of the United States from Southern Massachusetts to Texas; West Indies.

Common about Galveston, Texas, according to Jordan and Gilbert.

21492. Pensacola, Florida. Silas Stearns.

**4. Diodon liturosus** Shaw. PORCUPINE-FISH.

*Diodon novemmaculatus* CUV., Mém. Mus. Hist. Nat., iv, 1818, p. 136.

*Diodon maculatus* GÜNTHER, Cat. Fish Brit. Mus., viii, 1870, p. 307.

Tropical seas; San Diego (Jor. & Gilb.).

6150. Garden Key, Florida.

## TETRODONTIDÆ.

**5. Tetrodon nephelus** Goode and Bean. ROUGH SWELL-FISH; PUFFER; BLOWER; SWELL TOAD.

Gulf of Mexico, abundant; east coast of Florida (Indian River).

This is the southern representative of *Tetrodon turgidus*, from which it differs notably in having fewer and larger spines on the upper parts and in its larger dorsal fin.

9909. Key West, Florida. William Stimpson.

**6. *Tetrodon testudineus* Linné. GLOBE-FISH.**

West Indies; East Florida; Gulf of Mexico. Only occasionally found on the coast of the United States.

3268. Indian River, Florida. Gustavus Würdemann.

## OSTRACIONTIDÆ.

**7. *Ostracion quadricorne* Linné. CUCKOLD; COW-FISH.**

Tropical Atlantic, northward on the east coast of the United States to South Carolina; not abundant in the Gulf of Mexico.

5775. Mississippi.

**8. *Ostracion triquetrum* Linné**

West Indies; Southern Florida.

Judging from the collection in the National Museum, this species is uncommon in the Gulf of Mexico.

5989. Garden Key, Florida. Whitehurst.

**9. *Ostracion trigonum* Linné. TRUNK-FISH; BOX-FISH.**

West Indies; Southern Florida; occasional on the east coast of the United States north to Vineyard Sound, Massachusetts.

Mr. V. N. Edwards has obtained the young at various times in the vicinity of Wood's Holl, Massachusetts.

6596. Tortugas, Florida. J. B. Holder.

## BALISTIDÆ.

**10. *Monacanthus occidentalis* Günther. FILE-FISH.**

West Indies; Southern United States; not uncommon about the Florida Keys.

5906. Indian Key, Florida. Gustavus Würdemann.

**11. *Balistes capriscus* Linné. EUROPEAN FILE-FISH; TURBOT (Bermuda); DUSKY FILE-FISH; TRIGGER-FISH; LEATHER-JACKET.**

Mediterranean; Bermuda; east coast of North America from Nova Scotia (?) to the Gulf of Mexico, where it is common.

The species is represented in the Colonial Museum at Halifax by a specimen said to have been taken on the coast of Nova Scotia. It has occurred several times at Wood's Holl, Massachusetts, and at Newport, Rhode Island.

32624. Charlotte Harbor, Florida. Dr. J. A. Henshall.

## HIPPOCAMPIDÆ.

**12. *Hippocampus zosterae*** Jor. & Gilb. PIGMY SEA-HORSE.

West coast of Florida; common at Pensacola.

This interesting species, first discovered at Pensacola in March, 1882, by Professor Jordan, is remarkable for its small size and its few-rayed dorsal fin.

31920. ♂ and ♀. Pensacola, Florida, 1882. Silas Stearns.

## SYNGNATHIDÆ.

**13. *Siphostoma affine*** (Gthr.) Jor. & Gilb.

East and west coasts of Florida, abundant at Pensacola; Texas (Jordan).

30827. ♂ and ♀. Pensacola, Florida. Jordan & Stearns.

**14. *Siphostoma floridae*** Jor. & Gilb. FLORIDA PIPE-FISH.

East coast of the United States from North Carolina (Jordan & Gilbert) to Florida; Gulf of Mexico. Abundant in Pensacola Bay (Jordan & Gilbert).

30826. Pensacola, Florida. Jordan & Stearns.

## SOLEIDÆ.

**15. *Aphoristia plagiusa*** (L.) Jor. & Gilb.

Atlantic and Gulf coasts of the United States, extending northward to Cape Hatteras.

30204. Pensacola, Florida. Silas Stearns.

**16. *Achirus brownii*** Günther. SOLE.

Gulf of Mexico.

This species replaces in the Gulf *A. lineatus* of the Northern United States; the differences between the two forms are constant, and appear to me to warrant the use of distinct names.

21496. Pensacola, Florida. Silas Stearns.

**17. *Etropus crossotus*** Jor. & Gilb.

South Atlantic coast of the United States, South Carolina to Florida; Gulf of Mexico; Mazatlan; Panama. Not uncommon in the Gulf of Mexico and on the east coast of Florida.

18054. Saint John's River, Florida. Prof. S. F. Baird.



## PLEURONECTIDÆ.

**18. *Paralichthys dentatus* (L.) Jor. & Gilb. COMMON FLOUNDER.**

Gulf of Mexico; Atlantic coast of the United States from Massachusetts to Florida, everywhere abundant. This is one of the largest of the inshore flounders, and, in the northern portion of its habitat, is a food-fish of considerable importance. Professor Jordan found it abundant in the markets of Galveston, New Orleans, and Pensacola in March, 1882.

31028. Galveston, Texas. Prof. D. S. Jordan.

**19. *Paralichthys squamilentus* Jor. & Gilb. PALE FLOUNDER.**

Pensacola Bay, Florida.

This species, recently made known from examples taken at Pensacola by Professor Jordan, is represented in the National Museum collection by a moderate number of small individuals secured at Pensacola mainly by Mr. Stearns.

32585. Pensacola, Florida. Silas Stearns.

**20. *Hemirhombus pætulus* Bean.**

West coast of Florida, known from the Red Snapper banks near Pensacola.

All but one of the examples of this species so far sent from Pensacola were taken from stomachs of the Red Snapper (*Lutjanus blackfordii*). The adult has the interorbital space much wider than in the young, and the upper pectoral rays more developed.

30689. Pensacola, Florida. Silas Stearns.

## OPHIDIIDÆ.

**21. *Ophidium beanii* Jor. & Gilb.**

*Ophidium graëllsi* GOODE & BEAN, Proc. U. S. Nat. Mus., v, p. 235; JOR. & GILB., *op. cit.*, p. 301 (with description); not *Ophidium Graëllsi* Poey.

West Florida.

The species is known from a few individuals obtained at Pensacola, none of which reach 6 inches in length.

30791. Pensacola, Florida. Silas Stearns.

## BLENNIIDÆ.

**22. *Blennius asterias* Goode & Bean. STELLATE BLENNY.**

Southern Florida.

The species has not recently been obtained, perhaps for the reason that collections have not been made in the region from which the types are recorded.

6596. (R.) Tortugas, Florida. J. B. Holder. (?)

**23. *Chasmodes boscianus* (Lac.) C. & V. BOSC'S SHANNY.**

East coast of the United States from New York to Florida, exceedingly rare northward, but abundant from Cape Hatteras southward; Gulf of Mexico.

5721. Fort Morgan, Alabama. Gustavus Würdemann.

**24. *Chasmodes saburra* Jor. & Gilb. SMALL-MOUTHED SHANNY; ROCK SHANNY.**

Gulf of Mexico, known definitely only from Pensacola, where it was discovered in March, 1882, by Professor Jordan.

30824. Pensacola, Florida. Jordan & Stearns.

**25. *Isesthes ionthas* Jor. & Gilb.**

West Florida, known from specimens obtained in Pensacola Bay.

30856. Pensacola, Florida. Jordan & Stearns.

**26. *Cremnobates marmoratus* Steind.**

Saint Thomas (Steindachner); Florida Keys (Bean).

30467. South Florida Silas Stearns.

## OPISTHOGNATHIDÆ.

**27. *Opisthognathus maxillosus* Poey.**

Cuba; Garden Key, Florida.

The species is known to us only from specimens which have long been in the Museum.

5866. Garden Key, Florida.

**28. *Opisthognathus scaphiurus* Goode & Bean.**

Garden Key and Pensacola, Florida.

The type of this *Opisthognathus* was taken many years ago by Dr. Whitehurst. Mr. Stearns has recently rediscovered the species and thus determined with certainty something concerning its habitat.

31902. Pensacola, Florida. Silas Stearns.

## BATRACHIDÆ.

**29. *Batrachus tau* L. subsp. *beta* Gthr.** OYSTER-FISH; TOAD-FISH; SARPO.

Gulf of Mexico.

This is the common form of toad-fish in shoal water, replacing the typical *B. tau* of more northern waters; it does not nearly equal *B. pardus* in size. The species is abundant at Pensacola.

30811. Pensacola, Florida. Jordan & Stearns.

**30. *Batrachus pardus* Goode & Bean.** SARPO; TOAD-FISH; DEEP-WATER TOAD-FISH.

West Florida.

The species, which differs decidedly from the preceding in size, coloration, flabbiness, and habitat, is occasionally sent from Pensacola by Mr. Stearns; no small examples are known.

29886. Pensacola, Florida. Silas Stearns.

**31. *Porichthys plectrodon* Jor. & Gilb.**

Gulf of Mexico; South Carolina.

The species was first described from Galveston, Texas, where it is not rare according to Jordan & Gilbert; it has recently been found at Charleston by Professor Gilbert, and still more recently at Pensacola by Mr. Silas Stearns.

30894. Galveston, Texas. Prof. D. S. Jordan.

## URANOSCOPIDÆ.

**32. *Astroscopus y-graecum* (C. & V.) Gill.** STAR-GAZER.

West Indies; Atlantic coast of Southern United States; Gulf of Mexico.

This species is said to possess electric powers in life; it has recently been confounded, by Jordan & Gilbert, with *A. anoplus*, from which it differs widely in the size of its scales, form of the naked postocular area, and in coloration. These differences may readily be observed by any one who has adult specimens before him.

30851. Pensacola, Florida. Jordan & Stearns.

## GOBIESOCIDÆ.

**33. *Gobiesox virgatulus* Jor. & Gilb.**

*Gobiesox virgatulus* JOR. & GILB., Proc. U. S. Nat. Mus., 1882 (August 15), p. 293.

*Gobiesox nudus* GÜNTHER; not *Cyclopterus nudus* Linné.

Gulf of Mexico, occasionally taken at Pensacola and known from several examples obtained at Biloxi.

32625. Biloxi, Mississippi.

## GOBIIDÆ.

**34. *Gobiosoma boscii* (Lac.) Jor. & Gilb.**

*Gobius alepidotus* BL. & SCHN., Syst. Ichth., 1801, p. 547.

*Gobiosoma molestum* GIRARD, Proc. Acad. Nat. Sci. Phila., 1858, p. 169, and U. S. & Mex. Bound. Surv., Fishes, p. 27, pl. xii, fig. 14. GÜNTHER, Cat. Fish. Brit. Mus., iii, 1861, p. 556.

If the synonymy here given be correct, the range of this little goby is from Buzzard's Bay, Massachusetts, to Texas. The species has been found in the Potomac River, and the Gulf form is said to have been taken at the falls of the Ohio River.

30768. Pensacola, Florida. Silas Stearns.

**35. *Gobius saporator* C. & V.**

*Gobius catulus* GIRARD, U. S. & Mex. Bound. Surv., Fishes, 1859, p. 26, pl. xii, figs. 9, 10.

Atlantic coast of the Southern United States; Gulf of Mexico; Caribbean Sea; West Indies; Mediterranean?

This species has been found in large numbers at Pensacola by Mr. Stearns. The close resemblance of *G. catulus* to *G. saporator* was pointed out by Dr. Günther in 1861 (Cat. Fish. Brit. Mus., iii, p. 549.)

30755. (2 spec.) Pensacola, Florida. Silas Stearns.

**36. *Gobius boleosoma* Jor. & Gilb.**

*Gobius boleosoma* JORDAN & GILBERT, Proc. U. S. Nat. Mus., v, p. 295 and Bull. 16, U. S. Nat. Mus., 1883, p. 946.

Known only from Pensacola, Florida, where it is not uncommon.

30860. (2 spec.) Pensacola, Florida. Jordan & Stearns.

**37. *Culius amblyopsis* Cope.**

*Culius amblyopsis* COPE, Trans. Amer. Phil. Soc. Phila., 1870, p. 473.

Atlantic coast of Southern United States; Gulf of Mexico; Surinam; West Indies.

One specimen has recently been taken at Charleston, South Carolina, by Mr. C. C. Leslie and another by Prof. C. H. Gilbert, in July or August, 1882.

32853. Pensacola, Florida. Silas Stearns.



**38. *Ioglossus calliurus* Bean.**

*Ioglossus calliurus* BEAN, in GOODE & BEAN, Proc. U. S. Nat. Mus. v, p. 236 (name only); also in JOR. & GILB., *op. cit.*, p. 297; and pp. 419-421 (full description).

This singular species is known from several specimens obtained in deep water off Pensacola by Mr. Silas Stearns and Prof. D. S. Jordan.

30867. Pensacola, Florida. Jordan & Stearns.

## TRIGLIDÆ.

**39. *Prionotus tribulus* C. & V. SEA-ROBIN.**

Atlantic coast of the Southern United States; Gulf of Mexico.

The species is abundant southward; specimens of very large size (more than a foot long) have been received from Pensacola, Florida.

31053. Galveston, Texas. Prof. D. S. Jordan.

## SCORPÆNIDÆ.

**40. *Scorpæna plumieri* Bloch. RASCACIO; SEA TOAD.**

West Indies; Bermuda (Jones); both coasts of Mexico (Jor. & Gilb.); Gulf of Mexico; Caribbean Sea.

Richardson records an example, which is said to belong to this species, as having been procured at Newfoundland by Mr. Audubon.

6777. Fort Jefferson, Florida.

## SCARIDÆ.

**41. *Scarus squalidus* Poey. *Vieja mugre*.**

West Indies; Florida Keys.

The species has not recently been received from Florida.

5995. (R.) Garden Key, Florida.

## LABRIDÆ.

**42. *PlatyGLOSSUS caudalis* (Poey) Gthr. DONCELLA.**

*Julis caudalis* POEY, Mem. Hist. Nat. Cuba, ii, p. 213.

*PlatyGLOSSUS caudalis* GÜNTHER, Cat. Fish. Brit. Mus., iv, 1862, p. 166; JORDAN & GILBERT, Proc. U. S. Nat. Mus. v, p. 286; also in Bull. 16 U. S. Nat. Mus., 1883, pp. 937-938.

Cuba; Surinam; Pensacola Bay.

31928. Pensacola, Florida. Silas Stearns.

**43. *PlatyGLOSSUS radiatus* (L.) Jor. & Gilb.**

*Sparus radiatus* LINNÉ, Syst. Nat., ed. xii, 1766, p. 472.

*Julis humeralis* POEY, Mem. Hist. Nat. Cuba, ii, p. 212.

*PlatyGLOSSUS florealis* JOR. & GILB., Proc. U. S. Nat. Mus., v. p. 287.

Atlantic coast of the Southern United States; Gulf of Mexico; Surinam.

5853. Fort Jefferson, Florida. Whitehurst.

30213. Pensacola, Florida. Silas Stearns.

**44. *Xyrichthys lineatus* (Gmel.) Jor. & Gilb. RAZOR-FISH.**

West Indies; west Florida; not common on our coasts.

31925. Pensacola, Florida. Silas Stearns.

**45. *Xyrichthys vermiculatus* Poey.**

West Indies; Florida Keys.

It may be that this form and the last are identical, but the rather small points of dissimilarity appear to be constant.

5815. (R.) Garden Key, Florida. Whitehurst.

## POMACENTRIDÆ.

**46. *Pomacentrus leucostictus* Müll. & Trosch.**

West Indies; Gulf of Mexico.

The species is moderately abundant on the west coast of Florida.

6116. Fort Jefferson, Florida. Silas Stearns.

**47. *Chromis enchrysurus* Jor. & Gilb.**

*Chromis enchrysurus* JORDAN & GILBERT, Proc. U. S. Nat. Mus. v, p. 286, and Bull. 16 U. S. Nat. Mus., 1883, p. 940.

Pensacola Bay, Florida.

The greater portion of the specimens secured by Mr. Stearns and Professor Jordan were "spewed up" by *Lutjanus blackfordii*. The species is well represented in the National Museum collection.

30793. Pensacola, Florida. Silas Stearns.

## POLYNEMIDÆ.

**48. *Polynemus octonemus* Girard.**

West Florida to Texas.

Mr. Stearns has obtained several examples of this fish at Pensacola, where its occurrence was only recently noticed.

22823. Pensacola, Florida. Silas Stearns.

## ACANTHURIDÆ.

**49. *Acanthurus chirurgus*** Bl. & Schn. SURGEON-FISH; DOCTOR-FISH; BARBERO.

Bermudas; West Indies; occasional on the Atlantic coast of the southern United States.

3424. Garden Key, Florida.

## CHÆTODONTIDÆ.

**50. *Chatodon capistratus*** Linné.

West Indies; Florida Keys.

Mr. J. Matthew Jones reports having collected this species in the Bermudas.

6624. Fort Jefferson, Florida.

**51. *Pomacanthus arcuatum*** (L.) Cuv.

*Pomacanthus paru* GÜNTHER, Cat. Fish. Brit. Mus., iii, 1861, p. 55.

West Indies; Garden Key, Florida.

3172. Garden Key, Florida. Whitehurst.

## TRICHIURIDÆ.

**52. *Trichiurus lepturus*** Linné. SILVERY HAIR-TAIL; SCAB-BARD-FISH; SABRE-FISH; SILVER EEL.

Warm seas. On the east coast of the United States north to Cape Cod; on the Pacific coast of America north to Lower California.

20556. Jacksonville, Florida. P. McQuaid.

## SCOMBRIDÆ.

**53. *Scomberomorus maculatus*** (Mitch.) Jor. & Gilb. SPANISH MACKEREL; BAY MACKEREL.

East coast of the United States from Cape Cod south to Florida; Gulf of Mexico.

The species is not abundant north of the New Jersey coast; it commands a much higher price in New York market than it does in the market of Washington.

32622. Charlotte Harbor, Manatee Co., Florida. Dr. J. A. Henshall.

**54. *Orcynus alliteratus*** (Raf.) Gill. LITTLE TUNNY; ALBICORE.

Atlantic Ocean; occasionally found on the New England coast.

Several specimens have been taken at Pensacola by Mr. Stearns.

30156. Pensacola, Florida. Silas Stearns.

## CARANGIDÆ.

**55. *Vomer setipinnis* (Mitch.) C. & V. HORSE-FISH.**

Tropical America; not uncommon on the east coast of the United States even as far north as Cape Cod, Massachusetts, and said to have been taken on the coast of Maine.

30696. Pensacola, Florida. Silas Stearns.

**56. *Selene argentea* (Lac.) Brevoort. SILVER MOON-FISH; LOOK DOWN; HORSEHEAD; JOROBADO (Cuba).**

West Indies; Gulf of Mexico; Atlantic coast of the United States to as far north as Cape Cod, Massachusetts; on the Pacific coast north to Lower California.

If the transformations of this species are those believed in by some excellent ichthyologists we must extend its range northward to Halifax, Nova Scotia, where the *Argyreiosus vomer* stage has been obtained by Mr. J. Matthew Jones. I am not satisfied that *A. vomer* and *S. argentea* are different ages of the same fish.

30174. Pensacola, Florida. Silas Stearns.

**57. *Decapterus punctatus* (Mitch.) Gill. DOTTED SCAD; ROBIN (Bermudas); CIGAR-FISH (Pensacola).**

Bermudas; West Indies; Brazil; Gulf of Mexico; east coast of the United States north to Cape Cod, Massachusetts.

The species has been taken at Wood's Holl by the U. S. Fish Commission. It seems to be rare on our Atlantic coast, but is common at Pensacola, Florida.

30787. Pensacola, Florida. Silas Stearns.

**58. *Caranx chrysus* (Mitch.). CREVALLÉ; YELLOW CREVALLÉ; COJINUA (Cuba); JACK, BUFFALO JACK (Bermudas).**

Bermudas; West Indies; Brazil; Gulf of Mexico; Atlantic coast of the United States north to Cape Ann. A single individual of this species was taken in a net off Gloucester, Massachusetts, Sept. 18, 1878. The fish is abundant, but has little commercial importance, at least, so far as the Northern States are concerned.

21257. Pensacola, Florida. Silas Stearns.



- 59. *Caranx hippus* (L.) Gill.** CREVALLÉ; JACK-FISH; YELLOW MACKEREL; HORSE CREVALLÉ; JIGUAGUA (Cuba).

West Indies; Gulf of Mexico; Atlantic coast of the United States north to Cape Cod, and, occasionally, to Massachusetts Bay.

This species sometimes exceeds 25 pounds in weight; it is occasionally taken at Wood's Holl, where it is readily sold.

30154. Pensacola, Florida. Silas Stearns.

- 60. *Chloroscombrus chrysurus* (L.) Gill.** CASABE (Cuba).

West Indies; Gulf of Mexico; Atlantic coast of the Southern United States; said to occur in the Pacific north to Lower California, also in India.

This is a beautiful species, but has no commercial importance.

30704. Pensacola, Florida. Silas Stearns.

3091. Garden Key, Florida. Whitehurst.

- 61. *Trachynotus ovatus* (L.) Gthr.** SHORT POMPANO; PALORRIETA (Cuba).

West Indies; Gulf of Mexico; Atlantic coast of the United States north to Cape Cod.

Young individuals have several times been taken at Wood's Holl and also at Vineyard Haven, Massachusetts, in midsummer. This is a food-fish of great excellence.

32621. Lake Worth, Dade Co., Florida, Dr. J. A. Henshall.

- 62. *Trachynotus carolinus* (L.) Gill.** COMMON POMPANO; CAVALLÉ; POMPYNOSE.

West Indies; Gulf of Mexico; Atlantic coast of the United States north to Cape Cod.

The young are usually abundant in midsummer at Wood's Holl, Massachusetts. This is one of the most highly esteemed of all our food-fishes, sometimes bringing one dollar per pound in New York market. The species reaches a large size.

7167. Florida. Gustavus Würdemann.

22854. Pensacola, Florida. Silas Stearns.

- 63. *Seriola carolinensis* Holbrook.** RUDDER-FISH.

Atlantic coast of the Southern United States; Gulf of Mexico.

This species reaches a length of 30 inches, or more. The young have dark bands, which are not present in the adult.

22902. Pensacola, Florida. Silas Stearns.

**64. *Oligoplites occidentalis* (L.) Gill.** YELLOW JACKET;  
YELLOW TAIL.

Both coasts of Central America (Jor. & Gilb.); Pacific ocean north to Lower California (Jor. & Gilb.); West Indies; Gulf of Mexico; Atlantic coast of the United States north to Cape Cod.

5962. Garden Key, Florida. Whitehurst & Baker.

**65. *Elagatis pinnulatus* Poey.** RUNNER.

West Indies; Southern Florida. This is, apparently, a rare species.

4609. Florida. Gustavus Würdemann.

CORYPHÆNIDÆ.

**66. *Coryphæna punctulata* (C. & V.) Gthr.** SMALL DOLPHIN.

Pelagic; common in the Gulf of Mexico and not rare on the Atlantic coast of the Southern United States. Until it is determined whether or not we have two dolphins on our east coast the above name may as well be used as any other.

30148. Pensacola, Florida. Silas Stearns.

STROMATEIDÆ.

**67. *Stromateus paru* Linné.** HARVEST FISH.

New Jersey to South America; abundant southward. This is a small but valued food-fish, which finds its way in moderate numbers even to Washington market.

12871. Fernandina, Florida. L. W. Ledyard.

NOMEIDÆ.

**68. *Nomeus gronovii* (Gmel.) Gthr.**

Tropical Atlantic, north to Florida.

This beautiful species is occasionally sent from Pensacola by Mr. Stearns. Young examples, about 25 millimeters in length, were obtained.

3425. Garden Key, Florida.

SCIÆNIDÆ.

**69. *Pareques acuminatus* (Schn.) Gill.** CARRUB (Bermudas).

Bermudas; West Indies; Brazil; Gulf of Mexico.

This is a species of small size, and is not valued for food.

26575. Key West, Florida. Silas Stearns.

**70. *Cynoscion maculatum*** (Mitch.) Gill. SALMON-TROUT;  
SPOTTED SEA TROUT; SPECKLED TROUT.

Atlantic coast of the United States, from Virginia southward; Gulf of Mexico.

This species is everywhere considered a valuable food-fish; it reaches a weight of about ten pounds, thus rivaling *C. regalis* in size. In the Washington markets this fish is quite common; in the Gulf of Mexico it is very abundant.

30832. Pensacola, Florida. Jordan & Stearns.

**71. *Pogonias chromis*** (L.) Cuv. DRUM; TAMBORO

Atlantic coast of the United States, from Cape Cod to Florida; Gulf of Mexico; West Indies.

This is perhaps the largest fish of the family to which it belongs, sometimes reaching the weight of 50 pounds. Its flesh, however, is coarse and less valued than that of nearly all the other sciaenoids. The species is abundant southward, and affords much sport to the angler.

18036. Matanzas River Inlet, Florida. J. C. Willetts.

**72. *Liostomus xanthurus*** Lac. SPOT; LAFAYETTE; GOODY,  
OLDWIFE; CHUB; ROACH; YELLOW-TAIL.

Atlantic coast of the United States, from Cape Cod to Florida; Gulf of Mexico.

The species is abundant from Virginia southward, and is everywhere valuable for food. It seldom exceeds a foot in length.

632. Santiago, Texas. Lieutenant D. N. Couch.

21478. Pensacola, Florida. Silas Stearns.

**73. *Stelliferus lanceolatus*** (Holbrook) Gill.

Atlantic coast of the United States from Virginia to Florida; Gulf of Mexico.

18038. Matanzas River Inlet, Florida. J. C. Willetts.

**74. *Sciaena chrysur*** (Lac.) Jor. & Gilb. SILVER PERCH;  
YELLOW-TAIL; MADEMOISELLE.

*Bairdiella argyroleuca* (Mitch.).

*Bodianus argyroleucus* MITCHILL, Trans. Lit. & Phil. Soc. N. Y., 1814, p. 417, pl. 6, fig. 3.

Atlantic coast of the United States from Cape Cod to Florida; Gulf of Mexico.

The species is abundant southward; its size is small, but the quality of the flesh is good.

31037. Galveston, Texas. Prof. D. S. Jordan.

- 75. *Sciaena ocellata* (L.) Gthr.** CHANNEL BASS; RED-FISH; POISSON ROUGE; PEZ COLORADO; BASS; RED BASS; SEA-BASS; SPOTTED BASS.

Cape Cod to Florida; Gulf of Mexico.

This is a rival of the drum in size and is vastly more important as a food-fish. Professor Jordan records it as "the most important food-fish of the Texas coast, the amount taken exceeding that of all other species combined."

30845. Pensacola, Florida. Jordan & Stearns.

- 76. *Menticirrhus alburnus* (L.) Gill.** WHITING; CAROLINA WHITING; GROUND MULLET.

Atlantic coast of the United States from Cape Hatteras to Florida; Gulf of Mexico.

A food-fish of good quality; its size is rather small, the length averaging scarcely one foot. The closely allied *M. nebulosus* has been taken several times at Gloucester, Massachusetts, off Cape Ann.

31051. Galveston, Texas. Prof. D. S. Jordan.

- 77. *Menticirrhus littoralis* (Holbr.) Gill.** SHORE WHITING; SURF WHITING.

Atlantic coast of the United States from Cape Hatteras to Florida; Gulf of Mexico.

This is a common species southward, and it is a good food-fish.

18040. Matanzas River Inlet, Florida. J. C. Willetts.

- 78. *Micropogon undulatus* (L.) C. & V.** CROAKER; RONCO; VERRUGATO (Cuba).

Atlantic coast of the United States from Cape Cod to Florida; Gulf of Mexico; West Indies.

This is a food-fish of small size but good quality; it is not uncommon in Washington market, where it comes from Norfolk, Virginia. In the Southern States it is abundant.

22906. Arlington, Florida. F. C. Goode.

## GERRIDÆ.

- 79. *Gerres homonymus* (Goode & Bean) Jor. & Gilb.**

*Diapterus homonymus* GOODE & BEAN. Proc. U. S. Nat. Mus., ii, p. 390.

*Eucinostomus argenteus* GIRARD, U. S. and Mex. Bound. Surv., 1859, Fish., p. 17, pl. ix, figs. 9-12 (not of B. & G.).

Gulf of Mexico.

The species is known from young specimens only.

26597. Cedar Keys, Florida. Silas Stearns.



**80. *Gerres olisthostoma* Goode & Bean. IRISH POMPANO.**

*Gerres rhombeus* POEY (part), Syn. Pisc. Cub., 1858, p. 32; not *Gerres rhombeus* C. & V., Hist. Nat. Poiss., v, p. 459.

Mr. Earll found the species sufficiently common and reaching a large size in Indian River.

25118. Indian River, Florida. R. E. Earll.

## SPARIDÆ

**81. *Lagodon rhomboides* (L.) Holbr. SAILOR'S CHOICE; PIN-FISH; BREAM; SARGO (Cuba); CHOPA SPINA.**

Atlantic coast of the United States from Cape Cod to Florida; Gulf of Mexico; West Indies.

This fish has several times been obtained at Wood's Holl, Massachusetts; it is abundant southward, and, though comparatively small, is an important food-fish.

31052. Galveston, Texas. Prof. D. S. Jordan.

**82. *Diplodus probatocephalus* (Walb.) Jor. & Gilb. SHEEPS-HEAD.**

Atlantic coast of the United States from New York to Florida (occasionally farther north); Gulf of Mexico.

This is one of the best known and most esteemed of our food-fishes; it reaches a weight of twelve pounds; it is a formidable enemy of the oyster.

18030. Matanzas River Inlet, Florida, J. C. Willetts.

**83. *Pagellus milnerii* Goode & Bean.**

West Florida.

The species is known from a few individuals only; it belongs to the genus *Calamus* Swainson. None of our examples reach a foot in length.

26565. Pensacola?, Florida. Silas Stearns.

## PRISTIPOMATIDÆ.

**84. *Diabasis fremebundus* (Goode & Bean) Jor. & Gilb.**

South and west Florida.

The species is represented in the Museum by several young specimens; the adult form is unknown.

3093. Garden Key, Florida. Whitehurst.

**85. *Diabasis chrysopterus* (L.) Jor. & Gilb. MARGATE-FISH.**

*Hæmulon chrysopterus* HOLBROOK, Ichth. South Carolina, 1860, p. 121. pl. XVII, fig. 1.

Atlantic coast of the southern United States; Gulf of Mexico; Bermudas (Goode).

32170. Key West, Florida.

**86. *Diabasis plumieri* (Lac.) Jor. & Gilb. RED-MOUTH GRUNT.***Hemulon arcuatum* HOLBROOK, Ichth. S. C., 1860, p. 124, pl. XVII, fig. 2.

Atlantic coast of the United States from South Carolina to Florida; Gulf of Mexico.

32601. Key West, Florida. Dr. J. A. Henshall.

**87. *Diabasis aurolineatus* (C. & V.) Jor. & Gilb.**Said by Jordan & Gilbert to be the same as number 85 (*H. chrysopterum* Holbr.)

West Indies; Gulf of Mexico.

The species is not uncommon in deep water in Pensacola Bay; most of the examples forwarded by Mr. Stearns were ejected by "red snappers" (*Lutjanus blackfordii*).

30794. Pensacola, Florida. Silas Stearns.

**88. *Diabasis elegans* (C. & V.) Jor. & Gilb.**

West Indies; Gulf of Mexico.

This beautiful species has never been abundant in the collections of the U. S. National Museum.

32603. Key West, Florida. J. A. Henshall.

**89. *Diabasis chromis* (Brouss.) Jor. & Gilb.**

West Indies; Florida Keys.

3386. Garden Key, Florida. Whitehurst.

**90. *Diabasis jeniguano* (Poey) Goode & Bean.**

Cuba; Florida Keys.

3103. Garden Key, Florida. Whitehurst.

**91. *Orthopristis fulvomaculatus* (Mitch.) Gill. PIG-FISH.**

Atlantic coast of the United States from Virginia to Florida; Gulf of Mexico.

This is a food-fish of small size and comparatively little importance; its flesh, however, is good; the species is common from Norfolk, Virginia, southward.

31034. Galveston, Texas. Prof. D. S. Jordan.

**92. *Anisotremus virginicus* (L.) Gill.**

Atlantic coast of the southern United States; Gulf of Mexico.

This is a beautiful fish, but it is, apparently, not sufficiently plentiful on our coast to have commercial importance.

21428. Key West, Florida. Wm. Stimpson.

**93. *Lutjanus blackfordii*** Goode & Bean. RED SNAPPER;  
PARGO COLORADO.

*Lutjanus campeachianus* JOR. & GILB. (not of Poey).

Gulf of Mexico.

This fine fish reaches a weight of 35 pounds; it is the most important species of the Pensacola market; in New Orleans, according to Jordan & Gilbert, it is sold in greater quantities than all other species combined. The Red Snapper has, within the last few years, become well known in New York, and even in Washington markets.

30681. Pensacola, Florida. Silas Stearns.

**94. *Lutjanus caxis*** (Schn.) Poey. GRAY SNAPPER; BLACK SNAPPER; LAWYER; YELTING; GLASS-EYED SNAPPER (Bermudas).

? Atlantic coast of the southern United States; Gulf of Mexico; Caribbean Sea; West Indies; Bermudas.

This fish is said to reach a length of four feet at the Bermudas (Goode), where it is much esteemed as a food-fish. It is everywhere extremely difficult to catch by any ordinary means.

30168. Pensacola, Florida. Silas Stearns.

**95. *Lutjanus synagris*** (L.) Poey.

*Mesoprion uninotatus* POEY, Syn. Pisc. Cub., p. 294; GÜNTHER, Cat. Fish. Brit. Mus., i, p. 202.

West Indies; Gulf of Mexico.

The species is not rare on the west coast of Florida.

30173. Pensacola, Florida. Silas Stearns.

**96. *Lutjanus stearnsii*** Goode & Bean. MANGROVE SNAPPER.

Gulf of Mexico; East Florida.

This species is not uncommon at Pensacola, and Mr. Earll found it about the same in Indian River. Our largest examples in the Museum are nearly two feet long.

25121. Indian River, Florida. R. E. Earll.

CENTRARCHIDÆ.

**97. *Lepomis punctatus*** (C. & V.) Jordan. CHINQUAPIN PERCH.

*Lepiopomus apiatus* GOODE, Proc. U. S. Nat. Mus., II, p. 114, Sept. 19, 1879.

Known from streams of Florida only.

18481. Saint John's River, Florida. G. Brown Goode.

**98. *Lepomis auritus* (L.) Raf. subsp. *solis* C. & V. RED-BELLIED PERCH; LONG-EARED SUNFISH.**

In all streams east of the Alleghanies, from Virginia southward, extending into Louisiana; everywhere abundant and reaching a larger size than the northern *auritus*.

17949. Saint John's River, Florida. Prof. S. F. Baird.

**99. *Lepomis pallidus* (Mitch.) Gill. & Jor. BLUE SUNFISH; COPPER-NOSED BREAM; DOLLARDEE.**

*Lepioplomus incisus* GOODE, Proc. U. S. Nat. Mus., vol. II, p. 114, Sept. 19, 1879.

Great Lakes to Florida on both sides of the Alleghanies; Mexico (McKay).

Abundant and exceedingly variable, growing larger and more changeable southward.

21289. Saint John's River, Florida, April, 1878. G. Brown Goode.

**100. *Lepomis holbrookii* (C. & V.) McKay. SOUTHERN BREAM.**

*Pomotis speciosus* HOLBROOK, Journ. Acad. Nat. Sci. Phila., 1855, p. 48.

*Pomotis microlophus* GÜNTHER, Cat. Fish. Brit. Mus., I, 1859, p. 264.

All streams from South Carolina to Florida.

This bream is very common in Florida and grows to a length of nearly one foot.

21292. Saint John's River, Florida, April, 1878. G. Brown Goode.

**101. *Micropterus salmoides* (Lac.) Henshall. TROUT; BAYOU BASS; LARGE-MOUTHED BLACK BASS.**

Red River of the North; rivers and lakes of the United States from the Great Lakes to Florida and Texas.

This species is generally abundant and grows to a larger size than the small-mouthed bass; it is especially common west of the Alleghanies and in the Southern States; it is an important food-fish and affords considerable sport to anglers.

32628. Wekiwachee River, Florida. Dr. J. A. Henshall.

SERRANIDÆ.

**102. *Epinephelus morio* (C. & V.) Gill. RED GROUPER; CHERNA DE VOVERO (Cuba).**

West Indies; Atlantic coast of the Southern United States; Gulf of Mexico.

This is a food-fish of large size, reaching 30 pounds in weight.

32604. Key West, Florida. Dr. J. A. Henshall.



**103. *Trisotropis stomias* Goode & Bean. BLACK GROUPEE.**

Gulf of Mexico.

Specimens of this species have been obtained from the markets of New York and Washington, but all of them, doubtless, came from Pensacola. The fish reaches the weight of 40 pounds; it is abundant, and has some commercial importance.

30683. Pensacola, Florida. Silas Stearns.

**104. *Serranus atrarius* (L.) Jor. & Gilb. SEA BASS; BLACK WILL.**

*Centropristis atrarius* (L.) Barn.

South Carolina to Florida.

This is the southern form of the Sea Bass; the differences between it and *S. nigricans* of the northern coast, which were formulated by Holbrook, are real and make it necessary to consider the two forms under different names. *S. atrarius* is a food-fish of comparatively small size but excellent quality.

18033. Matanzas River Inlet, Florida. J. C. Willetts.

**105. *Serranus trifurcus* (L.) Jor. & Gilb.**

Atlantic coast of the United States from South Carolina to Florida; Gulf of Mexico. Nowhere common so far as known.

The Pensacola specimens are taken mostly on the "Red Snapper" banks off Pensacola; they show some differences from Charleston examples.

30713. Pensacola, Florida. Silas Stearns.

**106. *Diplectrum fasciculare* (C. & V.) Holbrook. SQUIRREL-FISH; SERRANO (Cuba).**

West Indies; Gulf of Mexico; Atlantic coast of the United States from South Carolina to Florida.

This is a beautiful food-fish, of rather small size, but comparatively common.

6021. Florida. J. Gilliss.

## EPHIPPIIDÆ.

**107. *Chætodipterus faber* (Brouss.) Jor. & Gilb. MOON-FISH; ANGEL-FISH; 3-BANDED SHEEPHEAD; 3-TAILED PORGY; PORGEE.**

Atlantic coast of the United States from New York to Florida; Gulf of Mexico; West Indies; warm portions of the Pacific north to San Diego (Jordan & Gilbert).

A fine food-fish, which grows to the length of two feet; within the last two years it has greatly increased in the markets of Washington and is now quite popular.

30186. Pensacola, Florida. Silas Stearns.

## POMATOMIDÆ.

- 108. Pomatomus saltatrix** (L.) Gill. BLUEFISH; GREEN-FISH; SKIPJACK; SALT-WATER TAILOR; HORSE-MACKEREL; SNAPPING-MACKEREL.

Atlantic coast of the United States north to Maine; Gulf of Mexico.

This is a food-fish of great importance; it is a predaceous species which destroys large quantities of other fishes, particularly the menhaden.

18046. Saint John's River, Florida. Prof. S. F. Baird.

21776. Pensacola, Florida. Silas Stearns.

## ELACATIDÆ.

- 109. Elacate canadus** (L.) Holbrook. CRABEATER; BONITO; COBIA; SERGEANT-FISH; SNOOKS; LING.

Atlantic coast of the United States from Cape Cod to Florida; Gulf of Mexico; West Indies.

This species reaches a length of 5 feet; on the coast of Virginia it is one of the important food-fishes (McDonald).

30150. Pensacola, Florida. Silas Stearns.

## ECHENEIDIDÆ.

- 110. Echeneis naucrates** Linné. REMORA; SUCKER-FISH; PEGADOR.

Seas of the temperate and tropical regions; on the coast of the United States it is recorded as far north as the mouth of the Merrimac River, Northern Massachusetts (Putnam).

32598. Big Sarasota Bay, Florida. Dr. J. A. Henshall.

## MUGILIDÆ.

- 111. Mugil albula** Linné. STRIPED MULLET.

Atlantic coast of the United States from Cape Cod to Florida; recorded once at Provincetown, Massachusetts; Gulf of Mexico.

This fish is everywhere abundant from Cape Cod southward and is much esteemed in the Southern States. If, as Jordan & Gilbert state, *M. mexicanus* Steind. is not different from *M. albula*, the above distribution must be enlarged to include the "Pacific coast, chiefly south of Point Concepcion."

21235. Saint John's River, Florida. G. B. Goode.

**112. *Mugil brasiliensis* Agassiz. WHITE MULLET; LIZA.**

Atlantic coast from Cape Cod to South America; recorded by Jordan & Gilbert in the Pacific north to Lower California.

This species does not reach as large size on the east coast as *M. albula*.

25122. Indian River, Florida. R. E. Earll.

## ATHERINIDÆ.

**113. *Menidia dentex* Goode & Bean. FRIAR; SILVERSIDES.**

Atlantic coast of the Southern United States, entering streams.

The types are from Saint John's River, Florida; the species extends farther north. This is considered by Jordan & Gilbert to be identical with *M. boscai* (C. & V.). I cannot agree with them in this belief. The silversides are excessively numerous and serve as food for larger fishes.

18051. Saint John's River, Florida. S. F. Baird.

**114. *Menidia peninsulae* (Goode & Bean) Jor. & Gilb. FRIAR; SILVERSIDES.**

Florida.

The range of this species northward is not known to be so far as that of *M. dentex*; the fish is abundant at Pensacola.

30772. Pensacola, Florida. Silas Stearns.

**115. *Menidia vagrans* (Goode & Bean) Jor. & Gilb. SILVERSIDES; FRIAR.**

Atlantic coast of the United States from Virginia to Florida; Gulf of Mexico.

30918. Galveston, Texas. D. S. Jordan.

**116. *Atherina velieana* Goode & Bean.**

Florida Keys, Gulf of Mexico.

Some fine examples of this species remained in the National Museum undescribed for many years, and were not observed until after Dr. Velie's small specimen from Clear Water Harbor had served as the basis of a description.

1755. Garden Key, Florida. Captain Woodbury.

## BELONIDÆ.

**117. Tylosurus marinus** (Bl. Schn.) Jor. & Gilb. GAR-FISH;  
BILL-FISH; NEEDLE-FISH; SILVER GAR-FISH.

*Belone longirostris*, GOODE, Proc. U. S. Nat. Mus. ii, p. 116, September 19, 1879.

Atlantic coast of the United States from Maine to Florida, southward to Brazil; Gulf of Mexico.

This species ascends far up the streams. It reaches a length of nearly 4 feet. In Washington market it is occasionally offered for sale without the head; but the green bones make it unpopular.

32516. Florida. J. W. Milner.

**118. Tylosurus notatus** (Poey) Jor. & Gilb.

West Indies; Gulf of Mexico.

32600. Charlotte Harbor, Florida. J. A. Henshall.

## SCOMBRESOCIDÆ.

**119. Exocoëtus mesogaster** Bloch. FLYING-FISH.

*Exocoëtus hillianus* GOSSE, Nat. Sojourn Jam., p. 11, tab. 1, fig. 1.

West Indies; Gulf of Mexico; Atlantic coast of the United States, north to South Carolina.

This species is not uncommon at Pensacola; judging from the museum collections it is more abundant there than any other species.

31907. Pensacola, Florida. Silas Stearns.

**120. Hemirhamphus unifasciatus** Ranz.

Atlantic coast from Cape Cod to Panama; common on the coast of the Southern United States; Gulf of Mexico.

26566. Florida. Silas Stearns.

## ESOCIDÆ.

**121. Esox americanus** Gmel. BANDED PICKEREL.

United States east of the Alleghanies from Massachusetts to Florida, generally abundant.

This is one of the small pickerel, not much exceeding 12 inches in length.

32626. Elbow Creek, trib. of Indian River, Florida. Dr. J. A. Henshall.



## CYPRINODONTIDÆ.

**122. *Jordanella floridae*** Goode & Bean.

East Florida, not collected in abundance anywhere.

32257. Jupiter Inlet, Dade Co., Florida. Dr. J. A. Henshall.

**123. *Cyprinodon variegatus*** Lac.

Atlantic coast of the United States from Cape Cod to Florida, entering streams, everywhere abundant.

32594. Jupiter Inlet, Dade Co., Florida. Dr. J. A. Henshall.

**124. *Cyprinodon gibbosus*** Baird & Girard.

Gulf of Mexico, abundant.

30758. Pensacola, Florida. Silas Stearns.

**125. *Cyprinodon elegans*** Baird & Girard.

Rio Grande River, Texas.

This species has not been obtained recently by collectors; it must, however, be plentiful where it was originally discovered.

21321. Camanche Springs, N. Rio Grande. J. H. Clark.

**126. *Cyprinodon mydrus*** Goode & Bean.

Gulf of Mexico.

This species was first obtained at Pensacola by Mr. Stearns; it does not seem to be abundant.

31931. Pensacola, Florida. Silas Stearns.

**127. *Fundulus majalis*** (Walb.) Günther. KILLIFISH; MUMMICHOG; MAY-FISH; BASS-FRY; ROCK-FISH.

Atlantic coast of the United States from Salem, Massachusetts, to Florida.

This species is very abundant in shallow and brackish waters. It is the largest of the cyprinodonts.

8186. Indian River, Florida. Gustavus Würdemann.

**128. *Fundulus similis*** (B. & G.) Gthr.

Atlantic coast of the United States from South Carolina southward; Gulf of Mexico; ascending streams.

As suggested by the name there is no difference in the colors of the sexes.

30780. Pensacola, Florida. Silas Stearns.

**129. *Fundulus seminolis*** Girard. FLORIDA MUMMICHOG; MINNOW.

East Florida.

This handsome species appears to be uncommon in collections. The National Museum has seldom received it from its collectors in Florida.

18067. Lake Monroe, Florida. Prof. S. F. Baird.

**130. *Fundulus grandis*** Baird & Girard. KILLIFISH; MUMMICHOG; SALT-WATER MINNOW.

Atlantic coast of Southern United States, chiefly southward; Gulf of Mexico.

This may be only a large race of *F. heteroclitus* (L.) Gthr., the common killifish of the Northern United States; but it differs constantly from this in the small dorsal fin, size, and other characters.

30834. Pensacola, Florida. Jordan & Stearns.

**131. *Fundulus ocellaris*** Jor. & Gilb.

Gulf of Mexico; known from Pensacola Bay, where it is abundant.

30781. Pensacola, Florida. Silas Stearns.

**132. *Fundulus xenicus*** Jor. & Gilb.

*Adinia multifasciata*, GIRARD. Proc. Acad. Nat. Sci. Phila., 1859, p. 117.

Gulf of Mexico.

This is a small, but elegant, species not much resembling in general appearance the other members of the genus; "locally very abundant in shallow lagoons" (Jordan & Gilbert).

30841. Pensacola, Florida. Jordan & Stearns.

**133. *Zygonectes craticula*** Goode & Bean.

Southern United States, from Georgia to Florida.

This beautiful little species is evidently very closely related to *Z. zonatus* (Mitch.)—*Haplochilus zonatus* (Günther)—and may not be distinct from it. We know too little about *Z. zonatus*, however, to determine this matter at present.

31439. (1 of the type specimens.) Tributary of Indian River, Florida. J. A. Henshall.

**134. *Zygonectes henshallii*** Jordan.

Streams of East Florida.

This, the largest species of the genus, was made known by Prof. Jordan in January, 1880, from examples collected in San Sebastian River by Dr. Henshall; it bears a very close resemblance to *Z. rubrifrons*, described in the same paper, but the dentition and coloration are said to be different. The single typical example of each of these species in the Museum are not sufficient to determine their relations, which deserve further investigation.

32627. Elbow Creek, trib. of Indian River, Florida. Dr. J. A. Henshall.

**135. *Lucania goodei* Jordan.**

Streams of East Florida.

23505. (2 of the type specimens.) Saint John's River, Florida. G. B. Goode.

**136. *Lucania venusta* Girard.**

Gulf coast of the United States.

This species may be readily distinguished from the more northern *L. parva* by the larger number of rays in its dorsal and anal fins.

30714. Pensacola, Florida. Silas Stearns.

**137. *Gambusia patruelis* (B. & G.) Girard.***Heterandria holbrookii* AGASSIZ MSS.*Gambusia holbrookii* GIRARD, Proc. Acad. Nat. Sci. Phila., 1859, p. 61; GÜNTHER, Cat. Fish. Brit. Mus., vi, 1866, p. 334.

United States from Maryland to Texas, mostly in brackish water; ascending streams; credited also to Mexico.

"The young are produced in early summer, when about one-third of an inch long" (Jordan &amp; Gilbert).

32596. Jupiter Inlet, Dade County, Florida. Dr. J. A. Henshall.

**138. *Mollienesia latipinna* Le Sueur.***Pocilia lineolata* GIRARD, U. S. & Mex. Bound. Surv., Ichth., 1859, p. 70.*Limia matamorensis* GIRARD, Proc. Acad. Nat. Sci. Phila., 1859, p. 116.

Florida to Mexico; abundant in brackish water and ascending streams.

32595. Jupiter Inlet, Dade County, Florida. Dr. J. A. Henshall.

**139. *Girardinus formosus* Agassiz.**

Southern United States from South Carolina to Florida.

This is said to be the smallest of known fishes.

23506. Saint John's River, Florida. G. B. Goode.

## SYNODONTIDÆ.

**140. *Trachinocephalus myops* (Forster) Gill.**

Atlantic coast of the United States from Cape Cod to Florida Keys; tropical parts of the Atlantic.

This species has occasionally appeared as far north as Wood's Holl, Massachusetts; it is rare on our Atlantic coast.

5833. (R.) Garden Key, Florida. Whitehurst.

## ALBULIDÆ.

**141. *Albula vulpes* (L.) Goode.** LADY-FISH; BONE-FISH.

Pelagic; tropical and subtropical seas.

On our Atlantic coast the lady-fish has been taken as far north as Wood's Holl, Cape Cod; it is abundant southward; reaches a length of two feet; but is not an important food-fish.

30158. Pensacola, Florida. Silas Stearns.

**142. *Elops saurus* Linné.** BIG-EYED HERRING; LADY-FISH.

Tropical and subtropical seas. On the Atlantic coast of the United States it ranges north to Cape Cod occasionally; southward to Gulf of Mexico.

We have received examples nearly two feet long. It is not a food-fish; but at Pensacola it is extensively salted as bait for the Red Snapper (*Lutjanus blackfordii*).

30149. Pensacola, Florida. Silas Stearns.

## CLUPEIDÆ.

**143. *Brevoortia tyrannus* (Latrobe) Goode.** MENHADEN; BUG-FISH; MOSSBUNKER; BONY-FISH; POGIE.

Atlantic coast of the United States from Maine to East Florida.

A species of great commercial importance on account of its excellence as bait and as affording oil and a basis of fertilizers; the young are extensively canned as sardines. This species is quite distinct from the next as will be evident to any one who has a sufficient series for examination.

32610. Florida. J. W. Milner.

**144. *Brevoortia patronus* Goode.** GULF MENHADEN; ALE-WIFE; BUG-FISH.

Gulf of Mexico.

This species is smaller than the last and has no economic importance; its maximum length is little more than a foot so far as we can determine from our material.

22808. Pensacola, Florida. Silas Stearns.

**145. *Harengula pensacolæ* Goode & Bean.**

Gulf of Mexico. Mr. Silas Stearns has recently sent a great number of examples of this species from Pensacola.

5999. Garden Key, Florida. Whitehurst.



**146. *Clupea chrysochloris* (Raf.) Jor. & Gilb.** OHIO SHAD;  
SKIPJACK; BLUE HERRING.

Gulf of Mexico; Mississippi Valley, and from thence through the canals into Lake Erie (Jor. & Gilb.) and Lake Michigan (Jor. & Gilb.).

The species is not rare in the Gulf of Mexico; Mr. Stearns has found it in moderate numbers at Pensacola.

30159. Pensacola, Florida. Silas Stearns.

DOROSOMATIDÆ.

**147. *Dorosoma cepedianum* (Le S.) Gill.** GIZZARD SHAD;  
MUD SHAD; HICKORY SHAD; TOOTHED HERRING.

The United States from the Mississippi Valley eastward; north to Cape Cod, south to Texas and extending into Mexico; becoming land-locked in ponds and introduced through canals into Lakes Erie and Michigan.

The species has no commercial value.

31035. Galveston, Texas. Prof. D. S. Jordan.

CATOSTOMIDÆ.

**148. *Erimyzon goodiei* Jordan.**

Rivers and lakes of Florida.

This is a handsome species which was found several years ago by Mr. Goode; it is abundant; the largest examples received are nearly a foot in length.

31383. Lake Monroe, Florida. R. E. Earll.

CYPRINIDÆ.

**149. *Notemigonus americanus* (L.) Jordan.** SOUTHERN  
BREAM; SHINER; ROACH.

Rivers of the South Atlantic States.

The species of *Notemigonus* are useful as bait; they are exceedingly variable and unsatisfactory to determine.

32599. San Sebastian River, Florida. Dr. J. A. Henshall.

SILURIDÆ.

**150. *Arius felis* (L.) Jor. & Gilb.** SEA CAT-FISH; BLUE CAT.

Atlantic coast of the United States from Cape Cod to Florida; Gulf of Mexico.

The species is quite uncommon northward and common in the southern portion of its habitat; it reaches a length of two feet.

32619. Florida. J. W. Milner.

## ANGUILLIDÆ.

**151. *Neoconger mucronatus* Girard.**

Coast of Texas.

The species has not been obtained by recent collectors.

861. (R.) (One of the five types of the species.) Saint Joseph's Island, Texas. G. Würdemann.

**152. *Anguilla rostrata* (Le S.) DeKay. COMMON EEL; FRESH-WATER EEL.**

Atlantic coast of the United States ascending streams; Mississippi Valley; Gulf coast and southward to Mexico; introduced into California.

The U. S. National Museum has an example from the Potomac River 41 inches long and 11 inches in circumference.

32609. Florida. J. W. Milner.

## MURÆNIDÆ.

**153. *Crotalopsis mordax* (Poey) Goode & Bean.**

West Indies; Gulf of Mexico.

23635. Clear Water Harbor, Florida. Dr. J. W. Velie.

**154. *Sphagebranchus teres* Goode & Bean.**

Gulf of Mexico.

The types of the species have been in the Museum many years; but were only recently described.

31457. (R.) (One of three typical examples.) West Florida. Kaiser & Martin.

**155. *Letharchus velifer* Goode & Bean.**

Gulf of Mexico.

The species was collected many years ago, but has been only recently described. Collectors have not lately obtained it.

31458. (R.) (One of the four typical specimens.) West Florida. Kaiser & Martin.

**156. *Gymnothorax ocellatus* Agassiz.**

Gulf of Mexico and southward.

The species is not uncommon at Pensacola and is found in stomachs of the Red Snapper.

5160. West Florida. Kaiser & Martin.

## TRYGONIDÆ.

**157. *Trygon sabina* Le Sueur.**

East Florida; not uncommon in Lake Monroe in fresh water; Gulf of Mexico.

31045. Galveston, Texas. Prof. D. S. Jordan.

## SPHYRNIDÆ.

**158. *Reniceps tiburo* (L.) Gill.** SHOVEL-NOSE SHARK; BONNET HEAD.

Atlantic Ocean, abundant off the coast of the Southern United States; the species ranges northward to Cape Cod.

30687. Pensacola, Florida. Silas Stearns.

## GALEORHINIDÆ.

**159. *Scoliodon terre-novae* (Rich.) Gill.** SHARP-NOSED SHARK.

Atlantic Ocean from Newfoundland to South America; abundant off the coast of the Southern United States. The species was originally described from Newfoundland, but has not recently been observed so far north. This is one of the small sharks.

30706. Pensacola, Florida. Silas Stearns.

## GENERA OF FRESH-WATER FISHES.

## SYNGNATHIDÆ.

Genus SIPHOSTOMA Rafinesque.

**1. *Siphostoma affine* (Günther) Jor. & Gilb.** PIPE-FISH.

Saint John's River, East Florida; Gulf of Mexico.

30827. ♂ & ♀. Pensacola, Florida. Jordan & Stearns.

## GASTEROSTEIDÆ.

Genus GASTEROSTEUS Linné.

Subgenus GASTEROSTEUS.

**2. *Gasterosteus microcephalus* Girard.** NAKED STICKLEBACK.

Pacific coast of the United States; Alaska north to Unalashka; everywhere ascending streams.

At Sitka we found *Salmo purpuratus* in a small lake feeding upon this species.

7814. San Francisco, California. W. H. Dall.

Subgenus EUCALIA Jordan.

**3. *Gasterosteus inconstans* Kirtland. BLACK STICKLEBACK;  
BROOK STICKLEBACK.**

*Eucalia inconstans* JORDAN, Proc. Acad. Nat. Sci. Phila., 1877, p. 65.

Northern United States from New York westward to Kansas and Wisconsin; north-eastward to Greenland.

The species is confined to fresh water and is subject to considerable variation.

20430. Waukegan, Illinois. J. W. Milner.

Subgenus PYGOSTEUS Brevoort.

**4. *Gasterosteus pungitius* Linné. TEN-SPINED STICKLEBACK.**

*Gasterosteus nebulosus* AGASSIZ, Lake Superior, 1850, p. 310.

Upper Great Lakes; westward to the Saskatchewan and Great Bear Lake.

This is simply the common *G. pungitius*, slightly modified by long-continued residence in fresh water. It is abundant in some parts of the Great Lakes.

10559. Bayfield, Wisconsin. J. W. Milner.

## SOLEIDÆ.

Genus ACHIRUS Lacépède.

**5. *Achirus lineatus* (L.) Cuv. FLAT-FISH; FLOUNDER; AMERICAN SOLE; CALICO-BACK; HOG-CHOKER.**

Atlantic coast of the United States from Massachusetts Bay to North Carolina, ascending streams to a distance from salt water.

This is a handsome species, but is not generally used for food; according to Dr. Yarrow it is considered a valuable food-fish at Beaufort, North Carolina.

26429. Saint Jerome's Creek, Maryland. John A. Ryder.

## GADIDÆ.

Genus LOTA Cuvier.

**6. *Lota maculosa* (Le Sueur) Richardson. BURBOT; MARTHY; METHY; LOSH; LA LOCHE; EEL-POUT; DOG-FISH; CHUB-EEL; LING; LAWYER; LAKE CUSK; FRESH-WATER COD; ALEBY TROUT; MOTHER OF EELS.**

North America south to the Susquehanna River in the East and Kansas City, Missouri, in the West; recently found on Kodiak Island, Alaska.

The Burbot spawns in late winter or early spring; it reaches the largest size in the Yukon; in most sections it is considered unfit for food.

20977. Outer Island, Lake Superior. J. W. Milner.



## GOBIIDÆ.

Genus GOBIOSOMA Girard.

**7. Gobiosoma boscii** (Lac.) Jor. & Gilb.*Gobius alepidotus* BL. & SCHN., 1801, p. 547.*Gobiosoma molestum* GIRARD, Proc. Acad. Nat. Sci. Phila., 1858, p. 169;

GÜNTHER, Cat. Fish. Brit. Mus., iii, 1861, p. 556.

Atlantic coast of the United States, ascending streams;  
Gulf of Mexico; reported to have been taken once at  
the Falls of the Ohio.

30251. Potomac River (Gunston's). Col. M. McDonald.

## COTTIDÆ.

Genus URANIDEA De Kay.

**8. Uranidea marginata** Bean.

Washington Territory.

24197. (One of the typical specimens.) Walla Walla, Washington Territory. Capt. Charles Bendire, U. S. A.

Genus COTTOPSIS Girard.

**9. Cottopsis semiscaber** Cope.

Idaho (Cope); Utah Lake (Jordan).

30808. Utah Lake, Utah. Peter Madsen.

Genus POTAMOCOTTUS Gill.

**10. Potamocottus punctulatus** Gill.

Wyoming Territory.

22110. Fort Bridger, Wyoming. F. Hirst.

Genus TRIGLOPSIS Girard.

**11. Triglopsis thompsoni** Girard.

The Great Lakes, in deep water.

This apparently rare species has not, for many years,  
been received by the U. S. National Museum. Good  
specimens are greatly desired.

15032. Racine, Lake Michigan. Dr. P. R. Hoy.

## CICHLIDÆ.

Genus HEROS Heckel.

**12. Heros cyanoguttatus** (B. & G.) Günther.*Herichthys cyanoguttatus* B. & G., Proc. Acad. Nat. Sci. Phila., 1854, p. 25.

Rivers of Texas and Mexico.

850. (R.) (One of the types of the species.) Devil's River (Rio Grande), Texas. J. D. Graham.

## EMBIOTOCIDÆ.

Genus HYSTEROCARPUS Gibbons.

**13. Hysteroecarpus traskii** Gibbons.

Rivers of Central California, locally abundant (Jordan &amp; Gilbert).

This is the only American *Embiotocoid* that is known to inhabit fresh waters.

27013. Sacramento River, California. Prof. D. S. Jordan

## SCIÆNIDÆ.

Genus HAPLOIDONOTUS Rafinesque.

**14. Haploidonotus grunniens** Rafinesque. FRESH-WATER SHEEPSHEAD; DRUM; WHITE PERCH; CROAKER; THUNDER-PUMPER; GASPERGOU.

Great Lakes; Mississippi Valley; Texas.

This is an abundant, but comparatively worthless fish, which grows to the weight of about 60 pounds; the flesh of the adult is coarse and tough, and in the Great Lake region is disliked; the young, however, are more esteemed, especially southward.

10542. Ecorse, Michigan. J. W. Milner.

## ELASSOMATIDÆ.

Genus ELASSOMA Jordan.

**15. Elassoma zonatum** Jordan.

Sluggish streams and bayous from South Illinois to Texas and Alabama (Jordan &amp; Gilbert), also in rivers that are not sluggish.

Specimens from Louisiana show considerable variation in colors and proportions from the types of the species. This little fish is rare in collections.

32423. New Orleans, Louisiana, November 16, 1882. Dr. R. W. Shufeldt.

## CENTRARCHIDÆ.

Genus CENTRARCHUS Cuv. &amp; Val.

**16. Centrarchus macropterus** (Lac.) Jordan. SHINING BASS.

North Carolina to Illinois and southward to Alabama and Florida.

This attractive fish is frequently seen in Washington markets in winter, coming here from North Carolina with *Pomoxys*, *Channobryttus*, and species of *Lepomis*.

20395. Kinston, North Carolina. H. W. Welsler.

Genus *POMOXYS* Rafinesque.**17. *Pomoxys sparoides* (Lac.) Girard.** STRAWBERRY BASS;  
GRASS BASS; CALICO BASS; BARFISH; GOGGLE-  
EYE; GOGGLE-EYE PERCH; STRAWBERRY PERCH.

Great Lakes and Upper Mississippi Valley, southward to Louisiana; in the Eastern United States from New Jersey to Florida.

This species reaches a length of one foot and is esteemed as a food-fish.

30313. Fulton Market, New York. E. G. Blackford.

Genus *ARCHOPLITES* Gill.**18. *Archoplites interruptus* (Girard) Gill.** SACRAMENTO  
PERCH.

Sacramento and San Joaquin Rivers (Jordan & Gilbert).

This species rivals the preceding in size and is, likewise, a food-fish. It is "the only fresh-water percoid west of the Rocky Mountains" (Jordan & Gilbert).

27137. San Francisco, California. Jordan & Gilbert.

Genus *AMBLOPLITES* Rafinesque.**19. *Ambloplites rupestris* (Raf.) Gill.** ROCK BASS; RED-EYE;  
GOGGLE-EYE.

Eastern United States from Vermont southward; Great Lake region, and west to Manitoba; Mississippi Valley south to Louisiana.

This is a food-fish of some importance. An example 14 inches long was received April 13, 1882, from J. W. Bronaugh of Manchester, Virginia.

10549. Buffalo, New York. J. W. Milner.

Genus *CHÆNOBRYTTUS* Gill.**20. *Chænobryttus gulosus* (C. & V.) Jordan.** WAR-MOUTH;  
RED-EYED BREAM; WAR-MOUTH PERCH; YAW-  
MOUTH.

Eastern United States from Virginia to Florida and extending, in the Gulf States, to Texas.

The species is small, reaching 9 inches in length, but is extensively sold in the markets.

23509. McBean, Georgia. A. Graves.

## Genus ACANTHARCHUS Gill.

**21. Acantharchus pomotis** (Baird) Gill. MUD SUN-FISH.

Eastern United States from New York to South Carolina, in sluggish streams.

This is a small, but handsome species, reaching 5 inches or more in length; it is too small to have much value as a food-fish.

24774. Kinston, North Carolina. H. W. Welsher.

## Genus ENNEACANTHUS Gill.

**22. Enneacanthus pinniger** Jordan.

North Carolina, in streams near the coast.

The typical *pinniger* from North Carolina is, in my opinion, sufficiently distinguished from the New Jersey form to retain the name proposed for it by Prof. Jordan. The intergradation between the two has not yet been shown.

20491. Kinston, North Carolina. Mason & Quinn.

## Genus MESOGONISTIUS Gill.

**23. Mesogonistius chaetodon** (Baird) Gill. BLACK-BANDED SUN-FISH.

New Jersey to Maryland, in sluggish streams (Jor. & Gilb.).

20354. Trenton, New Jersey. Dr. C. C. Abbott.

## Genus LEPOMIS Rafinesque.

## Subgenus APOMOTIS Rafinesque.

**24. Lepomis cyanellus** Raf. RED-EYE; BLUE-SPOTTED SUN-FISH.

*Apomotis cyanellus* JORDAN, Man. Vert. E. U. S., ed. 2, p. 239.

Great Lake Region; Mississippi Valley and southward to Mexico.

20052. Cumberland River, Tennessee. A. Winchell.

## Subgenus LEPOMIS Rafinesque.

**25. Lepomis auritus** (L.) Raf. LONG-EARED SUN-FISH.

Eastern United States east of the Alleghanies from Maine to Florida.

The species is everywhere abundant, and though seldom exceeding 8 inches in length, it is extensively eaten.

4306. Bucks County, Pennsylvania. J. H. Richard.



## Subgenus XENOTIS Jordan.

**26. *Lepomis megalotis* (Raf.) Cope. LONG-EARED SUN-FISH.***Xenotis megalotis* JORDAN, Man. Vert. E. U. S., ed. 2, p. 242.

Mississippi Valley.

It is claimed that this variable species includes fully a dozen other forms which have received distinct names, as may be seen by referring to Proc. U. S. Nat. Mus., iv, p. 89, or to Bull. 16, U. S. Nat. Mus., 1883, p. 478.

20150. White River, Indiana. Prof. D. S. Jordan.

## Subgenus HELIOPERCA Jordan.

**27. *Lepomis pallidus* (Mitch.) Gill & Jordan. BLUE SUN-FISH; COPPER-NOSED BREAM; DOLLARDEE; BLUE-NOSED BREAM.**

Great Lakes; Mississippi Valley; southeastern United States to Florida; southward to Mexico.

This species is very abundant and exceedingly variable; it reaches 8 inches in length and is largely eaten.

8410. Pine Lake, Ingham County, Michigan.

## Subgenus XYSTROPLITES Jordan.

**28. *Lepomis heros* (B. & G.) McKay.***Xystroplites heros* JORDAN, Man. Vert. E. U. S., ed. 2, p. 244.

Originally known from Texas.

In December, 1879, the U. S. National Museum received four individuals of a sun-fish from Georgia (one of them is in the collection exhibited) which appear to me to agree with the types of *Pomotis heros*. If my determination be correct, we must extend the range of the species eastward to Georgia.

23510. McBean, Georgia. A. Graves.

## Subgenus EUPOMOTIS Gill &amp; Jordan.

**29. *Lepomis gibbosus* (L.) McKay. COMMON SUN-FISH; BREAM; PUMPKIN-SEED; SUNNY; RUFF; MOCCASIN; TOBACCO-BOX; POND-FISH.***Eupomotis aureus* Auctorum.

Eastern United States, east of the Alleghanies, from Maine to Florida; Great Lake region; Upper Mississippi Valley.

This is a beautiful little fish, the cherished victim of the youthful angler.

4163. Root River, Wisconsin. Prof. S. F. Baird.

## Genus MICROPTERUS Lacépède.

**30. *Micropterus dolomieu* Lacépède. SMALL-MOUTHED BLACK BASS.**

Great Lake region ; Mississippi Valley south to Arkansas ; introduced into the eastern United States and now becoming abundant from New England to South Carolina.

This is a beautiful and hardy game fish, extensively taken by artificial as well as natural baits, and largely sold in the markets.

20549. Scioto River, Ohio.

PERCIDÆ.

Genus PERCA Linné.

**31. *Perca americana* Schranck. YELLOW PERCH ; AMERICAN PERCH ; RINGED PERCH ; YELLOW NED.**

Great Lake region and west to Manitoba ; eastern United States from New England to Florida, east of the Alleghanies.

This is a food-fish of considerable importance ; in the region near the mouth of the Susquehanna River it comes into the creeks in February to spawn, finishing in March, when it departs to the "flats" ; it reaches 2 pounds in weight.

20456. Susquehanna River. Wilkes-Barre, Pennsylvania. Dr. L. H. Taylor.

Genus STIZOSTEDIUM Rafinesque.

Subgenus STIZOSTEDIUM Rafinesque.

**32. *Stizostedium vitreum* (Mitch.) Jordan & Copeland. Var. *salmonicum* Raf. BLUE PIKE.**

Ohio and southward, in the Mississippi Valley, to Louisiana.

The "blue pike" is smaller than typical *vitreum*, and takes its name from its color ; it is an abundant and excellent food-fish.

31464. Valley Falls, Kansas. J. L. Whitman.

Genus AMMOCRYPTA Jordan.

**33. *Ammocrypta pellucida* (Baird) Jor. & Gilb. SAND DARTER.**

*Etheostoma pellucidum* BAIRD MSS. ; *Pleurolepis pellucidus* AGASSIZ, Bull. Mus. Comp. Zoöl., I, 1863, p. 5 ; JORDAN, Man. Vert. E. U. S., ed. 2, p. 219.

Ohio Valley and northwestward ; abounding in clear sandy streams (Jordan & Gilbert).

20127. White River, Indiana. Prof. D. S. Jordan.

Genus BOLEOSOMA De Kay.

**34. *Boleosoma elmstedii* (Storer) Agassiz. TESSELLATED DARTER.**

Great Lake region; Eastern United States from Massachusetts to Georgia.

17823. Susquehanna River, Bainbridge, Pennsylvania. Dr. T. H. Bean.

Genus VAILLANTIA Jordan.

**35. *Vaillantia chlorosoma* Hay.**

? *Vaillantia camura* (FORBES) *fide* JORDAN.

Ohio Valley; Mississippi Valley.

The above is the correct distribution if *camura* and *chlorosoma* are identical, and the proper name would be *Vaillantia camura* (Forbes) Jordan.

27428. Tusculumbia River, Mississippi. O. P. Hay.

Genus ULOCENTRA Jordan.

**36. *Ulocentra stigmæa* Jordan. SPECK.**

"Georgia to Louisiana; rather common in the ponds and streams of the hill country" (Jordan & Gilbert).

31108. Etowah River, Georgia. Jordan & Brayton.

Genus DIPLESIUM Rafinesque.

**37. *Diplesium blennioides* (Raf.) Jordan. GREEN-SIDED DARTER.**

Mississippi Valley; said to include *Pileoma cymatogramma* Abbott, *Hystema blennioperca* Cope, and *H. newmani* Agassiz, in which case the distribution must be extended to include the Eastern United States from Pennsylvania southward.

1307. Black River, Ohio. Prof. S. F. Baird.

Genus COTTOGASTER Putnam.

**38. *Cottogaster copelandii* Jordan.**

*Theocrypta copelandii* JORDAN, Bull. U. S. Nat. Mus. No. 10, 1877, p. 9, also, in Man. Vert. E. U. S., p. 222.

"White River, Indiana; abundant near Indianapolis" (Jordan & Gilbert).

20143. (R.) (One of the types.) White River, Indiana. D. S. Jordan.

Genus IMOSTOMA Jordan.

**39. *Imostoma shumardii* (Girard) Jordan.**

*Hadropterus shumardi* GIRARD, Proc. Acad. Nat. Sci. Phila., 1859, p. 100; JORDAN, Man. Vert., ed. 2, p. 222.

Wabash, Illinois, and Arkansas Rivers (Jordan & Gilbert).

17852. Wabash River, Indiana. Prof. D. S. Jordan,

## Genus PERCINA Haldeman.

**40. Percina caprodes** (Raf.) Girard. LOG PERCH; ROCK-FISH; HOG MOLLY; HOG-FISH.

Great Lake region; Mississippi Valley southward to Texas; Eastern United States south at least to Potomac River.

This is the largest of the Darters.

1317. Yellow Creek, Ohio. Prof. S. F. Baird.

## Genus ALVORDIUS Girard.

## Subgenus ALVORDIUS Girard.

**41. Alvordius macrocephalus** (Cope) Jordan.

*Etheostoma macrocephalum* COPE, Trans. Amer. Phil. Soc., 1866, p. 401;

*Alvordius macrocephalus*, JORDAN; Man. Vert. E. U. S., ed. 2, p. 220.

Ohio Valley.

1194. Foxburg, Pennsylvania. Prof. S. F. Baird.

## Subgenus ERICOSMA Jordan.

**42. Alvordius evides** Jordan & Copeland.

*Ericosma evides* JORDAN, Bull. U. S. N. M., No. 10, 1877, p. 8.

White River, Indiana.

20119. White River, Indiana. D. S. Jordan.

## Genus HADROPTERUS Agassiz.

## Subgenus HADROPTERUS Ag.

**43. Hadropterus nigrofasciatus** Agassiz. CRAWL-A-BOTTOM.

Rivers of the Southern United States from South Carolina to Louisiana (Jordan & Gilbert).

1197. Mobile, Alabama. Prof. L. Agassiz.

## Genus NOTHONOTUS Agassiz.

**44. Nothonotus maculatus** (Kirt.) Agassiz.

*Etheostoma maculata* KIRTLAND, Bost. Jour. Nat. Hist., 1840, page 276.

Yellow Creek and Mahoning River, Ohio.

1319. Yellow Creek, Ohio. Prof. S. F. Baird.

## Genus NANOSTOMA Putnam.

**45. Nanostoma thalassinum** Jordan & Brayton.

*Nothonotus thalassinus* JORD. & BRAYTON, Bull. U. S. N. M., No. 12, p. 13, 1878.

Rivers of South Carolina.

31122. (R.) (One of the types.) Saluda River, South Carolina. Jordan & Brayton.

## Genus ETHEOSTOMA Rafinesque.



**46. *Etheostoma lineolatum* (Ag.) Jordan. STRIPED DARTER.**

*Catonotus lineolatus* AGASSIZ, Amer. Jour. Sci. Arts, 1854, p. 305.

Upper Mississippi Valley (Minnesota to Indiana);  
"abounding in clear and rocky streams" (Jordan & Gilbert).

1281. Oconomowoc River, Wisconsin. Prof. S. F. Baird.

Genus PÆCILICHTHYS Agassiz.

Subgenus PÆCILICHTHYS Agassiz.

**47. *Pæcilichthys spectabilis* Agassiz. RAINBOW DARTER.**

Mississippi Valley.

Professors Jordan and Gilbert think it probable that this may be a brook variety of *P. cæruleus* (Storer) Agassiz.

20111. White River, Indiana. Prof. D. S. Jordan.

Subgenus BOLEICHTHYS Girard.

**48. *Pæcilichthys exilis* (Girard) Jor. & Gilb.**

*Boleichthys exilis* GIRARD, Proc. Acad. Nat. Sci. Phila., 1859, p. 103.

The distribution is not yet known to extend beyond the locality of the original types.

1336. (R.) (One of the types.) Little Muddy River, tributary of Upper Missouri. Dr. Suckley.

Genus MICROPERCA Putnam.

**49. *Microperca punctulata* Putnam. LEAST DARTER.**

Clear streams of the Mississippi Valley southward to Indiana.

20132. Wabash River, Indiana. Prof. D. S. Jordan.

## LABRACIDÆ.

Genus ROCCUS Mitchill.

Subgenus ROCCUS Mitchill.

**50. *Roccus saxatilis* (Bl. Schn.) Jor. & Gilb. STRIPED BASS; ROCK; ROCK-FISH.**

*Roccus lineatus* (Bl. Schn.) Gill.

Atlantic coast from the Saint Lawrence to Florida; Gulf of Mexico; ? Lower Mississippi Valley (Bean); everywhere entering rivers.

This is one of the most important of our food-fishes, reaching a length of 4 feet and the weight of 60 pounds; it is a famous game fish.

30375. Chesapeake Bay, March, 1882. U. S. Fish Commission.

32560. Potomac River, March 23, 1883. Dr. T. H. Bean.

Subgenus LEPIDEMA Raf.

- 51. *Roccus chrysops*** (Raf.) Gill. WHITE BASS; CISCO BASS.  
Mississippi Valley; Great Lakes, and northward.  
This is a game fish, important as food, reaching a length of 15 inches and weighing as much as 10 pounds.

10326. Sandusky, Ohio. J. W. Milner.

Subgenus MORONE Gill.

- 52. *Roccus americanus*** (Gmelin) Jor. & Gilb. WHITE PERCH.  
Atlantic coast of the United States from Cape Cod to Florida; occasional in Massachusetts Bay.  
The White Perch is abundant, ascending streams, and is everywhere esteemed; it seldom exceeds a foot in length, but has considerable commercial value.

1750. Sing Sing, New York. Prof. S. F. Baird.

### APHREDODERIDÆ.

Genus APHREDODERUS Le Sueur.

- 53. *Aphredoderus sayanus*** (Gilliams) De Kay. PIRATE PERCH  
The United States from New York southward; west to and throughout the Mississippi Valley.  
This species is remarkable for the variations in the position of its vent (see Jordan, Bull. Ill. Lab. Nat. Hist., II, 1878, p. 48), the young having it behind the ventrals, while in the adult it is at the throat.

32197. Vaughan's, Mississippi. O. P. Hay.

### ATHERINIDÆ.

Genus MENIDIA Bonaparte.

- 54. *Menidia dentex*** Goode & Bean.  
East Florida.

18051. Saint John's River, Florida. Prof. S. F. Baird.

Genus LABIDESTHES Cope.

- 55. *Labidesthes sicculus*** Cope. BROOK SILVERSIDE; SKIPJACK; SILVER SKIPJACK.  
Upper Mississippi Valley southward to Tennessee, in ponds and sluggish streams.

17871, White River, Indiana. Prof. D. S. Jordan.

## BELONIDÆ.

Genus TYLOSURUS Cocco.

**56. Tylosurus marinus** (Bl. Schn.) Jor. & Gilb. SILVER GAR-FISH; SOFT GAR; BILL-FISH; NEEDLE-FISH.

Atlantic coast of the United States from Maine to Florida; Gulf of Mexico; south to Brazil.

This species ascends rivers far above tide-water; it reaches a length of 4 feet; it is sometimes offered for sale, in Washington market, with the head cut off.

For the embryology of this gar see Ryder, Bull. U. S. Fish Com., I, p. 283.

12960. Potomac River, Washington, D. C. P. L. Jouy.

## AMBLYOPSIDÆ.

Genus AMBLYOPSIS De Kay.

**57. Amblyopsis spelæus** De Kay. BLIND FISH.

Indiana and Kentucky, in subterranean streams.

5863. (R.) ? Mammoth Cave, Kentucky.

Genus TYPHLICHTHYS Girard.

**58. Typhlichthys subterraneus** Girard.

Kentucky, Tennessee, and Alabama, in subterranean streams.

8563. (R.) Bowling Green, Kentucky. J. E. Younglove.

## ESOCIDÆ.

Genus ESOX Linné.

Subgenus PICORELLUS Rafinesque.

**59. Esox americanus** Gmelin. BANDED PICKEREL; PIKE.

United States east of the Alleghanies from Massachusetts to Florida.

In length this pickerel seldom exceeds one foot.

1587. Piermont, New York. Prof. S. F. Baird.

Subgenus ESOX Linné.

**60. Esox lucius** Linné. PIKE; LAKE PIKE; GRASS PIKE.

Northern North America, Europe, and Asia; in the Mississippi Valley extending south to Illinois River; its distribution northeastward along the Atlantic side is unknown.

This is a well-known game fish and is very important commercially. The supply for the Washington markets is brought mostly from the Great Lakes.

11142. Sandusky, Ohio. J. W. Milner.

32584. Michigan. Frank N. Clark.

## UMBRIDÆ.

Genus UMBRA Müller.

**61. Umbra pygmæa** (De Kay). MUD DACE; PIGMY DACE; MUD MINNOW; DOG-FISH.

Eastern United States from New York to South Carolina. This mud minnow is quite distinct from *U. limi* (Kirt.) and should not be confounded with it.

20008. Kinston, North Carolina. J. W. Milner.

Genus DALLIA Bean.

**62. Dallia pectoralis** Bean. BLACK-FISH.

Northern Alaska (Saint Michael's and Port Clarence). This is a food-fish of great importance, on account of its good qualities and enormous abundance; it inhabits boggy places where there is little depth of water and is little affected by freezing.

6661. (One of the type specimens.) Saint Michael's, Alaska. H. M. Bannister.

## CYPRINODONTIDÆ.

Genus JORDANELLA Goode &amp; Bean.

**63. Jordanella floridae** Goode & Bean.

Streams of Central and East Florida, originally known from Lake Monroe.

32557. Jupiter Inlet, Florida, 1882. Dr. J. A. Henshall.

Genus CYPRINODON Lacépède.

**64. Cyprinodon variegatus** Lac. MUMMICHOG; SHEEPSHEAD KILLIFISH.

Atlantic coast of the United States from Cape Cod to Florida.

The male of this species may readily be distinguished by its deeper body and the black bar near the margin of the caudal.

13987. Noank, Connecticut, 1874. U. S. Fish Commission.

Genus FUNDULUS Lacépède.

Subgenus FUNDULUS Lacépède.

**65. Fundulus diaphanus** (Le Sueur) Agassiz. SPRING MINNOW; BARRED KILLIFISH.

Tributaries of the Great Lakes; Upper Mississippi Valley, west to Colorado; ponds and streams of the Eastern and Middle States.

30232. Cherrystone, Virginia, January 18, 1882. Col. M. McDonald.



## Subgenus HYDRARGYRA Lacépède.

**66. Fundulus similis** (B. & G.) Günther.

Atlantic coast of the United States from South Carolina to Florida; Gulf of Mexico.

30780. Pensacola, Florida. Jordan & Stearns.

## Subgenus XENISMA Jordan.

**67. Fundulus stellifer** Jordan. SPOTTED STUD-FISH.

Alabama River, in clear streams and springs (Jordan & Gilbert).

31070. Cave Spring, Georgia. Jordan & Brayton.

## Genus ZYGONECTES Agassiz.

**68. Zygonectes notatus** (Raf.) Jordan. TOP MINNOW.

Michigan, and southward through the Mississippi Valley to Alabama and Texas. Abundant in ponds and canals (Jordan & Gilbert).

32259. Grenada, Mississippi. O. P. Hay.

## Genus LUCANIA Girard.

**69. Lucania venusta** Girard.

*Limia venusta* GIRARD, U. S. & Mex. Bound. Surv. Ichth., 1859, p. 71.

Gulf of Mexico; abundant at Pensacola.

This small species is quite readily distinguished from *L. parva* by its larger dorsal and different proportions.

30819. Pensacola, Florida. Jordan & Stearns.

## Genus GAMBUSIA Poey.

**70. Gambusia patruelis** (B. & G.) Girard. TOP MINNOW.

*Heterandria patruelis* B. & G., Proc. Acad. Nat. Sci. Phila. 1853, p. 390.

Southern United States, from Virginia to Texas; southward to Mexico, abounding in lowland streams.

Females distended with young were obtained by Colonel McDonald in August, 1881.

29109. Cherrystone, Virginia. Col. M. McDonald.

## Genus MOLLIENESIA Le Sueur.

**71. Mollienesia latipinna** Le Sueur.

Southern United States bordering on the Gulf of Mexico; southward to Mexico; abundant in lowland streams.

18061. Lake Monroe, Florida. Prof. S. F. Baird.

## Genus GIRARDINUS Poey.

**72. Girardinus formosus** Girard.

South Carolina to Florida, in streams.

The maximum size of this fish is said to be one inch.

23506. Saint John's River, Florida. G. Brown Goode.

## CHARACINIDÆ.

## Genus TETRAGONOPTERUS Cuvier.

**73. Tetragonopterus argentatus** (B. & G.) Jor. & Gilb.

*Astyanax argentatus* B. & G., Proc. Acad. Nat. Sci. Phila., 1854, p. 27.

Lower Mississippi Valley, from Arkansas southward and extending into Mexico.

This is the only *Characinid* in the United States.

869. (Two of the types of the species.) Rio Nueces, Texas. Col. J. D. Graham.

## PERCOPSIDÆ.

## Genus PERCOPSIS Agassiz.

**74. Percopsis guttatus** Agassiz. TROUT-PERCH.

The middle United States southward to the Potomac River, westward to Kansas, and northward at least to the Hudson Bay region; Great Lakes.

The trout-perch spawns in spring; it is frequently mistaken for a young salmon; its maximum length appears to be about 6 inches.

10452. Lapointe, Lake Superior. J. W. Milner.

## SALMONIDÆ.

## Genus OSMERUS Linné.

**75. Osmerus mordax** (Mitch.) Gill. SMELT; FROST-FISH.

Atlantic coast of North America from Nova Scotia to Cape Hatteras, entering streams; land-locked in many lakes, especially in New England, and running into nearly intangible varieties.

This is a food-fish of great excellence; the largest individuals we have seen were from lakes in Maine, their length being more than one foot.

32565. Lake Champlain, March, 1873. M. C. Edmunds.

15180. New Brunswick, New Jersey, 1875. J. R. Shotwell.

## Genus HYPOMESUS Gill.

**76. Hypomesus olidus** (Pallas) Gill. POND SMELT.

*Osmerus oligodon* KNER, Denkschr. Kais. Akad. Wiss. Wien., xxiv, 1865, p. 9, taf. iv, fig. 1.

Northern Alaska; Eastern Siberia; Kamtchatka.

This seems to be the smallest of the smelts and is the least known; it has not been found at Saint Michael's since Mr. Turner obtained it in May 1877.

23973. (R.) Saint Michael's, Alaska (in ponds). L. M. Turner.

## Genus THALEICHTHYS Girard.

**77. Thaleichthys pacificus** (Rich.) Girard. EULACHON; CANDLE-FISH.

Pacific coast of North America from Oregon northward to the Gulf of Alaska, in which it extends westward to Katmai on the peninsula of Alaska; ascending streams in spring in immense schools.

This is an excellent food-fish; the manufacture of eulachon oil is becoming an important industry, though, as yet, little developed.

27297. Frazer's River, British Columbia. Jordan & Gilbert.

## Genus THYMALLUS Cuvier.

**78. Thymallus tricolor** Cope. MICHIGAN GRAYLING; MONTANA GRAYLING.

*Thymallus montanus* MILNER, Rept. U. S. Comm. Fish., for 1872-1873 (1874), p. 741.

Streams of the southern peninsula of Michigan and thence westward to the headwaters of the Missouri.

11087. Au Sable River, Michigan. J. W. Milner.

## Genus COREGONUS Linné.

## Subgenus PROSOPIUM Milner.

**79. Coregonus williamsonii** Girard. ROCKY MOUNTAIN WHITE-FISH; CHIEF MOUNTAIN WHITE-FISH.

*Coregonus conesi* MILNER, Rept. U. S. Comm. Fish. for 1872-1873 (1874), p. 88.

Clear streams and lakes from the Rocky Mountains to the Pacific, northward to Oregon; found also in tributaries of the Saskatchewan and of the upper Missouri.

This is an abundant and valuable food-fish.

30305. Garrison Creek, Washington Territory, May 9, 1881. Capt. Chas. Bendire, U. S. A.

Subgenus *COREGONUS* Linné.

**80. *Coregonus clupeiformis*** (Mitch.) Milner. COMMON WHITE-FISH.

Great Lakes northwestward to the Yukon River in Alaska, where it reaches a weight of at least 20 pounds.

This is the most important of all the white-fishes; it has been extensively reared by artificial methods and distributed as widely as New Zealand.

10568. Lake Champlain (Alburgh Springs), 1872. R. Marfil.

Subgenus *ARGYROSONUS* Agassiz.

**81. *Coregonus artedii*** Le Sueur. LAKE HERRING; CISCO; MICHIGAN HERRING.

Great Lakes northeastward to Labrador; represented in small lakes of Indiana and Wisconsin by the variety *cisco* of Jordan.

This species has considerable commercial importance.

17009. Lake Champlain. M. E. Hall.

Genus *SALMO* Linné.

**82. *Salmo salar* L.** subsp. *sebago* Girard. SEBAGO SALMON; LAND-LOCKED SALMON.

Saint Croix River and Sebago Lake; introduced into other lakes of New England and New York, also into streams as far south as North Carolina.

This is a beautiful game fish, highly esteemed by anglers and receiving considerable attention to its artificial propagation and distribution from the United States Fish Commission.

10543. Grand Lake, Maine. Senator M. C. Edmunds.

Genus *ONCORHYNCHUS* Suckley.

**83. *Oncorhynchus kisutch*** (Walb.) Jor. & Gilb. SILVER SALMON; KISUTCH; SKOWITZ; HOOPID SALMON; COHO SALMON; BIELAYA RIBA (Russian).

Pacific coast of North America from San Francisco northward to Bering Strait; Bering Island (Stejneger).

This is one of the smallest of the *Oncorhynchi*, reaching a length of only two feet and seldom exceeding 10 pounds in weight. It ascends streams a short distance in the fall.

At Unalashka I found it past the breeding season on the 8th of October, 1880.

21921. Neah Bay, Washington Territory, September 14, 1878. J. G. Swan.



Genus SALVELINUS Richardson.

**84. Salvelinus fontinalis** (Mitch.) Gill & Jor. BROOK TROUT;  
SPECKLED TROUT.

Rivers and lakes of British North America northward to the Arctic Circle; United States westward to Dakota and southward to North Carolina, principally east of the Alleghanies.

This is a very abundant, widely distributed, and beautiful game fish; the object of much care on the part of State fish commissions and fish culturists for its preservation and multiplication. Like its relative *S. malma* of the west, it grows largest in cold northern waters.

16098. Luzerne County, Pennsylvania. Dr. L. H. Taylor.

20950. Ridgewood, Long Island. E. G. Blackford.

## HYODONTIDÆ.

Genus HYODON Le Sueur.

**85. Hyodon alosoides** (Raf.) Jor. & Gilb. MOON-EYE.

*Hyodon chrysopsis* RICH., F. B.—A., III, 1836, p. 232.

Upper Mississippi Valley northward to the Saskatchewan.

8443. Red River of the North. R. Kennicott.

## CLUPEIDÆ.

Genus CLUPEA Linné.

Subgenus MELETTA Valenciennes.

**86. Clupea vernalis** Mitchill. ALEWIFE; BRANCH HERRING;  
GASPEREAU.

Atlantic coast of North America from Newfoundland to Florida, ascending far up the streams; land-locked in Cayuga, Seneca, and other lakes of Western New York; Lake Ontario (probably introduced with shad), and now appearing in myriads in the Upper Saint Lawrence River.

This is a food-fish of great importance. It is distinguished from the Glut Alewife or Herring by its higher fins, pale peritoneum, and larger eye.

32562. (Two spec.) North Carolina, March 23, 1883. Dr. T. H. Bean.

**87. *Clupea mediocris* Mitchill.** HICKORY SHAD; TAILOR HERRING; FALL HERRING; MATTOWACCA; SEA SHAD; SHAD.

Atlantic coast of North America from Newfoundland to Florida, entering streams.

This is a comparatively poor fish, yet it is largely sold by unprincipled persons as the true shad, which it approaches in size, though by no means in quality; it reaches a length of 16 inches.

32561. Potomac River, March 23, 1883. Dr. T. H. Bean.

Subgenus *ALOSA* Cuvier.

**88. *Clupea sapidissima* Wilson.** SHAD.

Atlantic coast of North America from Newfoundland to Florida, ascending rivers to spawn, many adults dying after the reproductive act; Gulf of Mexico, ascending rivers of the Mississippi Valley (since its introduction by the U. S. Fish Commission); Pacific coast of the United States from California to Oregon (introduced from the East), now so abundant that the young scarcely more than 6 inches long are offered for sale in the markets of San Francisco.

This is one of the most important of our fresh-water food-fishes.

32563. North Carolina, March 23, 1883. Dr. T. H. Bean.

DOROSOMATIDÆ.

Genus *DOROSOMA* Rafinesque.

**89. *Dorosoma cepedianum* (Le S.) Gill.** MUD SHAD; GIZZARD SHAD; HICKORY SHAD; WINTER SHAD.

Atlantic coast of the United States from Cape Cod to Florida, entering all streams and frequently landlocked in ponds. The western variety *D. heterurum* occurs throughout the Mississippi Valley, and has been introduced into the Great Lakes.

The species is scarcely fit for food, and yet it is sold rather freely in Washington markets.

20928. James River, Virginia, June 28, 1877. Dr. T. H. Bean.

## CATOSTOMIDÆ.

Genus ICTIOBUS Rafinesque.

Subgenus ICTIOBUS Rafinesque.

**90. Ictiobus bubalus** (Raf.) Agassiz. RED-MOUTH BUFFALO-FISH.

Mississippi Valley; generally abundant in the larger streams (Jordan & Gilbert).

This is a species which attains to a very large size—3 feet in length—and sometimes weighs as much as 30 pounds.

8676. Mississippi Valley, United States.

**91. Bubalichthys urus** Agassiz. BIG-MOUTHED BUFFALO; BUFFALO CARP.

Mississippi Valley, in the larger streams (Jordan & Gilbert).

This species, also, reaches a large size; an individual from Madison, Indiana, which has been identified with it weighed 43 pounds; a cast of this fish is shown.

24741. Montgomery, Alabama, February, 1880. Col. M. McDonald.

Subgenus CARPIODES Rafinesque.

**92. Carpiodes cyprinus** (Le S.) Agassiz. LONG-FINNED CHUB SUCKER; SILVER CARP SUCKER; AMERICAN CARP.

Eastern United States from New York to Alabama, east of the Alleghanies.

This is a handsome and readily salable fish, although its quality is inferior.

32552. Havre de Grace, Maryland, June 9, 1882. Dr. T. H. Bean.

Genus CYCLEPTUS Rafinesque.

**93. Cycleptus elongatus** (Le Sueur) Agassiz. BLACK-HORSE; GOURD-SEED SUCKER; MISSOURI SUCKER; SUCKEREL.

Alleghany River (Cope); Mississippi Valley.

The Black Horse reaches a length of 30 inches; it is one of the most interesting of all the suckers, and is rare in most collections.

8673. Ohio River,

## Genus PANTOSTEUS Cope.

**94. *Pantosteus platyrhynchus* Cope.**

*Minomus platyrhynchus* COPE, Proc. Amer. Philos. Soc. Phila., 1874, p. 134.

Utah Lake.

Jordan & Gilbert think this species doubtfully distinct from *Catostomus generosus* Girard.

30807. Utah Lake, Utah, June, 1882. Peter Madsen.

Genus CATOSTOMUS Le Sueur.

Subgenus CATOSTOMUS Le Sueur.

**95. *Catostomus tahoensis* Gill & Jordan. LAKE TAHOE SUCKER.**

Known as yet from Tahoe Lake only.

This is a sucker of large size and great abundance.

17109. Lake Tahoe, California. H. W. Henshaw.

Subgenus DECACTYLUS Rafinesque.

**96. *Catostomus commersonii* (Lac.) Jordan. COMMON SUCKER; WHITE SUCKER; BROOK SUCKER; FINE-SCALED SUCKER.**

All streams from Labrador to Florida and westward to the Rocky Mountains.

This is not a good fish, and yet it is sold in large quantities; it grows to 18 inches in length, the average size in Washington market being about one foot.

20344. Potomac River, April 13, 1876. Goode & Bean.

Subgenus HYPENTELIUM Rafinesque.

**97. *Catostomus nigricans* Le Sueur. HOG SUCKER; STONE ROLLER; STONE LUGGER; BANDED SUCKER; MUD SUCKER.**

United States from New York to Florida and westward to Alabama and Kansas; Great Lake region.

The species is said to reach a length of 2 feet; it has no value as food.

10563. Ecorse, Michigan. J. W. Milner.

Genus CHASMISTES Jordan.

**98. *Chasmistes liorus* Jordan. JUNE SUCKER of Utah Lake.**

Not yet known from any other waters than that named.

This is an interesting Sucker of large size, reaching 18 inches in length, and it is abundant in Utah Lake.

28399. Utah Lake, Utah, June 1881. Peter Madsen.



## Genus ERIMYZON Jordan.

**99. Erimyzon sucetta** (Lac.) Jordan. CHUB SUCKER; CREEK; FISH; COMMON MULLET; HORNED SUCKER.

United States from New England to Texas, west to the Rocky Mountains.

A variable species of comparatively small size and little value.

21701. Potomac River. December 3, 1878. C. W. Schuermann.

## Genus MINYTREMA Jordan.

**100. Minytrema melanops** (Raf.) Jordan. SPOTTED MULLET-STRIPED SUCKER.

Great Lake region; Mississippi Valley southward to Texas; Eastern United States to South Carolina.

A large sucker reaching 18 inches in length and sold in great numbers, though of inferior quality.

8434. Mississippi Valley.

## Genus MOXOSTOMA Rafinesque.

**101. Moxostoma macrolepidotum** (Le Sueur.) Jordan. COMMON RED HORSE; MULLET; WHITE SUCKER; LARGE-SCALED SUCKER; STRIPED SUCKER; LAKE MULLET.

Great Lakes; Eastern United States from Vermont to South Carolina.

The species grows very large, reaching nearly 2 feet in length; it is sold in considerable quantities in the markets of Philadelphia and Washington; but is not seen in Baltimore according to Uhler and Lugger.

7995. Eastern United States.

**102. Moxostoma duquesnii** (Le Sueur) Jordan. WESTERN RED HORSE.

Ohio and Mississippi Valleys and southwestward to Arizona.

This may be only a variety of the last, as suggested by Jordan & Gilbert; it has, however, a much larger mouth and a longer head, so that it may readily be distinguished; it is exceedingly abundant, like the last, and is extensively used for food.

8025. Yellow Creek, Ohio. Prof. S. F. Baird.

## CYPRINIDÆ.

Genus CAMPOSTOMA Agassiz.

**103. *Campostoma anomalum*** (Raf.) Agassiz. STONE-ROLLER; STONE-LUGGER; STEELY-BACK MINNOW.

Eastern United States from New York southward to North Carolina; Ohio and Mississippi Valleys southward to Texas, and west to Dakota; Mexico.

This is the most singular and interesting of our *Cyprinidae*, having the air-bladder surrounded by convolutions of the alimentary canal.

8484. Yellow Creek, Ohio. Prof. S. F. Baird.

Genus ACROCHILUS Agassiz.

**104. *Acrochilus alutaceus*** Agassiz & Pickering. HARD-MOUTH.

Columbia River and its tributaries.

This fish derives its name from the presence of a horny plate on each of the jaws; it reaches a length of 12 inches.

30297. John Day River, Oregon, August 5, 1881. Capt. Charles Bendire.

Genus ORTHODON Girard.

**105. *Orthodon microlepidotus*** (Ayres) Girard.

Rivers of California; Great Basin of Utah (Yarrow).

This species reaches a length of 12 inches.

27139. Sacramento River, California, 1880. Jordan & Gilbert.

Genus LAVINIA Girard.

**106. *Lavinia exilicauda*** Baird & Girard.

Rivers of California.

This is equal in size to the last.

19608. California. L. Stone.

Genus CHROSOMUS Rafinesque.

**107. *Chrosomus erythrogaster*** Agassiz. RED-BELLIED DACE.

Eastern New York to Maryland, west to Dakota, and southward to Tennessee.

This is a small, but handsome species, particularly brilliant in spring.

9037. Yellow Creek, Ohio. Prof. S. F. Baird.

## Genus ZOPHENDUM Jordan.

**108. Zophendum siderium** (Cope) Jordan.

*Hyborhynchus siderius* COPE, Zool. Wheeler's Expl. W. 100th Mer., v, p. 670, 1876.

Arizona.

16984. Camp Lowell, Arizona, September, 1874. J. M. Rutter.

## Genus HYBOGNATHUS Agassiz.

**109. Hybognathus regius** Girard. SMELT; SMELT MINNOW.

New Jersey to Maryland and Virginia.

This species is abundant in the Potomac River, and is sometimes sold in early spring as "smelt," to which it bears almost no resemblance except in size and color. The spawning season begins in March or April.

7670. Eastern United States.

**110. Hybognathus nuchalis** Agassiz. SILVERY MINNOW.

New Jersey, Ohio and Mississippi Valleys and southward to New Mexico.

Perhaps identical with the last, as stated by Jordan & Gilbert.

10783. Trenton, New Jersey. C. C. Abbott.

## Genus PIMEPHALES Rafinesque.

**111. Pimephales promelas** Raf. FAT-HEAD; BLACK-HEAD MINNOW.

Ohio Valley westward to the Upper Missouri.

7517. Lake Beaver, Petersburg. Prof. S. F. Baird.

## Genus HYBORHYNCHUS Agassiz.

**112. Hyborhynchus notatus** (Raf.) Agassiz. BLUNT-NOSED MINNOW.

From New York westward to Wisconsin, thence southward to Arkansas; its distribution in the Eastern States imperfectly known.

8682. Yellow Creek, Ohio. Prof. S. F. Baird.

## Genus EXOGLOSSUM Rafinesque.

**113. Exoglossum maxilllingua** (Le Sueur) Haldeman. CUT-LIPS; STONE-TOTER; CHUB; NIGGER CHUB; BUTTER CHUB.

Western New York; the Susquehanna Basin in Pennsylvania (Cope); southward to Virginia.

20404. North Branch of Susquehanna River, Pennsylvania, June 3, 1875, Dr. L. H. Taylor.

## Genus COCHLOGNATHUS Baird &amp; Girard.

**114. Cochlognathus ornatus** Baird & Girard. HARD-MOUTH MINNOW.

Texas.

150. (R.) (One of the types of the species), Brownsville, Texas. Van Vliet.

Genus HEMITREMIA Cope.

Subgenus CHRIOPE Jordan.

**115. Hemitrema maculata** Hay.

Rivers in Mississippi (Hay).

32245. Jackson, Mississippi. O. P. Hay.

Genus CLIOLA Girard.

Subgenus HYBOPSIS Cope.

**116. Cliola taurocephala** (HAY) Jor. & Gilb. BULL-HEAD MINNOW.*Alburnops taurocephalus* HAY, Proc. U. S. N. M., 1880, p. 503.

Rivers in Mississippi (Hay).

32309. Jackson, Mississippi. O. P. Hay.

Subgenus CLIOLA Girard.

**117. Cliola chlora** Jordan.

Upper Missouri region (Jordan &amp; Gilbert).

20193. Northern Boundary Survey. E. Cones.

Subgenus HUDSONIUS Girard.

**118. Cliola storeriana** (Kirt.) Jor. & Gilb.Great Lake region; said to include *Hudsonius amarus* Girard, and to extend southeastward to South Carolina.

11158. Sandusky, Ohio. J. W. Milner.

Subgenus CODOMA Girard.

**119. Cliola iris** (Cope) Jor. & Gilb.*Hypsilepis iris* COPE, Expl. W. 100th, Mer. v, 1876, p. 653.

Upper Rio Grande River, New Mexico.

16977. Pools of Rio Grande River, San Ildefonso, New Mexico. Cope &amp; Yarrow.

**120. Cliola callisema** Jordan.*Episema callisema* JORDAN, Ann. Lyc. Nat. Hist., N. Y., 1876, p. 363.*Codoma callisema* JORDAN, Bull. No. 12, U. S. N. M., 1878, p. 52.

The species is not yet recorded from any other stream than that named below.

17864. Ocmulgee River, Georgia. Prof. D. S. Jordan.



Subgenus *MONIANA* Girard.**121. *Cliola deliciosa* (Grd.) Jor. & Gilb.**

*Moniana proscriptina* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 200.

Streams of the Rio Grande region.

117. (One of the types of the species.) Devil's River, Texas. J. H. Clark.

Subgenus *CYPRINELLA* Girard.**122. *Cliola calliura* Jordan.**

*Cyprinella calliura* JORDAN, Bull. U. S. Nat. Mus., No. 10, p. 61, 1877.

Rivers of Alabama and Louisiana (Jordan & Gilbert).

6865 (R.) (One of the types.) Black Warrior River. Professor Winchell.

Subgenus *PHOTOGENIS* Cope.**123. *Cliola analostana* (Grd.) Jor. & Gilb. SILVER-FIN.**

*Cyprinella analostana* GIRARD, Proc. Acad. Nat. Sci., Phila., 1859, p. 38.

Central New York; Pennsylvania and southward to Virginia; Ohio and Mississippi Valleys.

7476. Yellow Creek, Ohio. Prof. S. F. Baird.

Subgenus *EROGALA* Jordan.**124. *Cliola galactura* (Cope) Jor. & Gilb. MILKY-TAILED SHINER.**

*Hypsilepis galacturus* COPE, Proc. Acad. Nat. Sci., Phila., 1867, p. 160.

Cumberland River, Tennessee, to Savannah River (Jordan & Gilbert).

20049. Cumberland River, Tennessee. A. Winchell.

Genus *MINNILUS* Rafinesque.Subgenus *LUXILUS* Raf.**125. *Minnilus cornutus* (Mitch.) Jor. & Gilb. SHINER; RED-FIN; DACE.**

United States westward to the Rocky Mountains, excluding the South Atlantic States and Texas.

The Shiner is excessively abundant; it reaches a length of 8 inches and is used as bait.

20436. Susquehanna River, Wilkesbarre, Pennsylvania, June 3, 1875. Dr. L. H. Taylor.

## Subgenus ALBURNOPS Girard.

**126. Minnilus blennius** (Grd.) Jor. & Gilb.

*Alburnops blennius* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 194.

The species is not known elsewhere than in the river which furnished the types; it has not been recorded as taken recently.

67. (One of the 12 type specimens.) Arkansas River, near Fort Smith. Dr. Shumard.

## Subgenus "EPISEMA" Cope &amp; Jordan.

**127. Minnilus timpanogensis** (Cope) Jor. & Gilb.

*Hybopsis timpanogensis* COPE, Proc. Amer. Phil. Soc., Phila., 1874, 134;  
COPE & YARROW, Zool. Wheeler's Expl. W. 100th Mer., v, p. 654.

Streams in Utah.

The species is known only from young specimens, and may be a young *Squalius* (Jordan & Gilbert).

15769. Gunnison, Utah. Francis Klett.

## Subgenus LYTHRURUS Jordan.

**128. Minnilus diplamius** (Raf.) Hay. RED-FIN.

*Semotilus diplamius* RAF., Ichth. Ohien.

*Hypsilepis diplamia* COPE, Proc. Acad. Nat. Sci., Phila., 1867, p. 162.

*Lythrurus diplamius* JORDAN, Man. Vert., ed. 2, p. 295.

Ohio Valley; Upper Mississippi Valley; Great Lake region.

8325. Black River. Prof. S. F. Baird.

## Subgenus MINNILUS Raf.

**129. Minnilus scepticus** Jor. & Gilb.

Saluda River, South Carolina; not yet recorded from any other locality.

31081. (Two of the type specimens.) Saluda River, South Carolina. Jordan & Brayton.

## Genus ERICYMBA Cope.

**130. Ericymba buccata** Cope. SILVER-MOUTHED DACE.

Western Pennsylvania; Ohio Valley; Mississippi Valley.

This appears to be a species of wide distribution; it is remarkable for the cavernous bones of its head.

7001. Yellow Creek, Ohio. Prof. S. F. Baird.

27421. Chickasawha River. O. P. Hay.

## Genus PHENACOBIUS Cope.

**131. Phenacobius catostomus** Jordan.

Alabama River (Jordan &amp; Gilbert); Etowah River.

31087. Etowah River. Jordan &amp; Brayton.

## Genus RHINICHTHYS Agassiz.

**132. Rhinichthys atronasmus** (Mitch.) Agassiz. BLACK-NOSED DACE.

Eastern United States from New England to Virginia, and westward to Ohio.

15244. Susquehanna River, Bainbridge, Pennsylvania. Dr. T. H. Bean.

## Genus APOCOPE Cope.

**133. Apocope vulnerata** Cope.

Utah southward to Arizona, and west to California and Oregon.

This is a variable species; it reaches a length of 4 inches or more.

30749. Utah Lake, Utah. Peter Madsen.

## Genus CERATICHTHYS Baird.

**134. Ceratichtys biguttatus** (Kirt.) Girard. RED-SPOTTED CHUB; HORN CHUB; HORNY HEAD; STONY HEAD; RIVER CHUB; JERKER.

From Pennsylvania westward to the Great Basin of Utah; its distribution southward not definitely recorded; not found in the Delaware basin (Cope); Chattahoochee River (Jordan).

The horn chub takes its name from the tubercles extensively developed on the head of the adults in the breeding season; it reaches a length of 9 inches, and is used for food.

16969. Susquehanna River, Bainbridge, Pennsylvania. Dr. T. H. Bean.

## Genus COUESIUS Jordan.

**135. Couesius prosthemi** (Cope) Jordan.*Ceratichtys prosthemi* COPE, Cypr. Penn., 1866, p. 365.*Ceratichtys plumbcus* GÜNTHER, Cat. Fish. Brit. Mus., vii, 1868, p. 442.

Upper Great Lakes.

The species is said to reach a length of 6 inches.

20332. Grand Island, Lake Superior. J. W. Milner.

## Genus PLATYGOBIO Gill.

**136. *Platygobio gracilis* (Rich.) Gill & Jordan. FLAT-HEADED CHUB.**

Rocky Mountain region from the Kansas and Yellowstone Rivers to the Saskatchewan; abundant (Jordan & Gilbert).

Maximum length of specimens observed, 12 inches.

20300. Northern Pacific Railroad Survey. Dr. Suckley.

Genus SEMOTILUS Rafinesque.

Subgenus SEMOTILUS Rafinesque.

**137. *Semotilus corporalis* (Mitch.) Putnam. CHUB; HORNED DACE; LITTLE FALL-FISH; CORPORAALEN.**

United States from Massachusetts southward to Georgia and west to Missouri; not plentiful in Maryland (Uhler & Lugger), but elsewhere generally abundant.

It sometimes reaches 4 pounds in weight, and is a fair food-fish (Cope). The maximum length is said to be 12 inches.

9154. Wisconsin. Prof. S. F. Baird.

Genus POGONICHTHYS Girard.

**138. *Pogonichthys macrolepidotus* (Ayes) Jordan. SPLIT-TAIL.**

*Pogonichthys inaequilobus* B. & G., Proc. Acad. Nat. Sci., Phila., 1854, p. 136.

Rivers of California.

The split-tail is "singularly distinguished from our other *Cyprinidae* by the great development of the upper lobe of the caudal and its rudimentary rays" (Jordan & Gilbert). Our largest examples are 12 inches long. The species is used for food.

12967. Mare Island, California. Dr. T. H. Streets.

Genus MYLOCHILUS Agassiz.

**139. *Mylochilus caurinus* (Rich.) Girard. COLUMBIA CHUB.**

*Cyprinus (Leuciscus) caurinus* RICH., F. B.—A., iii, 1836, p. 304.

Streams chiefly west of the Cascade range, from California to British Columbia, often entering the sea; abundant (Jordan & Gilbert).

This chub reaches a length of 12 inches; it is a food-fish.

27271. Puget Sound. Prof. D. S. Jordan.



## Genus MYLOPHARODON Ayres.

**140. Mylopharodon conocephalus** (B. & G.) Girard.

*Gila conocephala* B. & G., Proc. Acad. Nat. Sci., Phila., 1854, p. 134.

*Mylopharodon robustus* AYRES, Proc. Cal. Acad. Nat. Sci., 1855, p. 33.

Rivers of California.

This species grows very large, reaching 18 inches in length; it is used for food.

6185. (Poor specimen.) Chico Creek, California. J. S. Newberry.

## Genus PTYCHOCILUS Agassiz.

**141. Ptychochilus oregonensis** (Rich.) Girard. SACRAMENTO "PIKE"; "WHITEFISH."

Rivers of the Pacific slope, chiefly west of the Sierra Nevada (Jordan & Gilbert).

This fish is said to reach a length of 5 feet; it is used for food; in cold streams its flesh is excellent, as, for example, in the McCloud, where it sometimes weighs as much as 28 pounds.

32498. Port Townsend, Washington Territory. J. G. Swan.

## Genus GILA Baird &amp; Girard.

**142. Gila robusta** Baird & Girard.

Rio Colorado and Rio Gila and their tributaries.

The species reaches one foot in length.

15805. Zuñi, New Mexico. H. W. Henshaw.

## Genus SQUALIUS Bonaparte.

## Subgenus CLINOSTOMUS Girard.

**143. Squalius elongatus** (Kirt.) Jor. & Gill. RED-SIDED SHINER; RED-SIDED MINNOW.

*Luxilus elongatus* Kirtland, Rept. Zool. Ohio, p. 169, and Boston Journ. Nat. Hist., iii, p. 339.

*Gila elongata* Jordan, Man. Vert. E. U. S., 1876, p. 285.

Western Pennsylvania; Ohio Valley; Great Lakes; Upper Mississippi Valley.

8727. Yellow Creek, Ohio. Prof. S. F. Baird.

## Subgenus TIGOMA Girard.

**144. Squalius aliciae** Jouy.

Known at present from Utah Lake only, where it is abundant.

30805. Utah Lake, Utah. Peter Madsen.

Subgenus *SIBOMA* Girard.**145. *Squalius gibbosus* (Ayres) Jor. & Gilb. MULLET; CHUB.**

*Siboma crassicauda* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 208, and Pac. R. R. Surv., Fish, p. 296.

*Lavinia gibbosa* AYRES, Daily Placer Times & Transcript, Cal., May 30, 1854.

Rivers of California.

The species reaches 12 inches in length.

6729. San Joaquin, California. A. L. Heermann.

Subgenus *SQUALIUS* Bonap.**146. *Squalius atrarius* (Girard) Jor. & Gilb. UTAH MULLET; CHUB of Utah Lake.**

*Siboma atraria* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 203, and Pac. R. R. Surv., x, p. 297.

Utah Basin.

This species reaches a length of 20 inches; it is used as food and is very destructive to young trout.

15995. Denver, Colorado. H. W. Henshaw.

Subgenus *CHEONDA* Girard.**147. *Squalius nigrescens* (Grd.) Jor. & Gilb.**

*Tigoma nigrescens* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 207, and U. S. & Mex. Bound. Surv., Ichth., p. 64.

Boca Grande and Janos Rivers.

220. (R.) Boca Grande. Dr. C. B. Kennerly.

Genus *PHOXINUS* Agassiz.**148. *Phoxinus phlegethontis* (Cope) Jor. & Gilb.**

*Clinostomus phlegethontis* COPE, Proc. Amer. Phil. Soc., Phila., 1874, p. 137.

*Gila phlegethontis* COPE, Zool. Wheeler's Expl. W. 100th Mer., v, p. 657.

Beaver River and Utah Lake.

30804. Utah Lake, Utah. Peter Madsen.

Genus *MYLOLEUCUS* Cope.**149. *Myloleucus formosus* (Girard) Jordan.**

*Algansca formosa* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 183.

*Algansca bicolor* GIRARD, Proc. Acad. Nat. Sci., Phila., 1856, p. 183 (*vide* Jordan & Gilbert).

Rivers of California.

197. (R.) (One of the type specimens.) Mohave River. Heermann.

## Genus OPSOPCEODUS Hay.

**150. Opsopœodus emiliæ** Hay.

Mississippi (Hay).

The example in this collection was identified by Prof. Hay.

3222. Jackson, Mississippi. O. P. Hay.

## Genus NOTEMIGONUS Rafinesque.

**151. Notemigonus chrysoleucus** (Mitch.) Jordan. GOLDEN SHINER; BREAM; ROACH.

United States, from New England west to Dakota; Mississippi Valley south to Texas; in the Eastern States south at least to Delaware.

The species grows to a length of 12 inches. According to Professor Cope it sometimes weighs 1½ pounds. It is used principally for bait.

20248. Riverhead, Long Island. Prof. S. F. Baird.

## Genus RICHARDSONIUS Girard.

**152. Richardsonius balteatus** (Rich.) Girard. RED-SIDED BREAM.

Columbia River region and northward in British America.

27341. Frazer's River, British Columbia. Jordan &amp; Gilbert.

## Genus LEPIDOMEDA Cope.

**153. Lepidomeda vittata** Cope.

Colorado Chiquito River, Arizona (Cope).

15785. (Condition very bad, just as in all of our specimens of this species.) Colorado Chiquito River, Arizona. H. W. Henshaw.

## Genus PLAGOPTERUS Cope.

**154. Plagopterus argentissimus** Cope.

San Luis Valley, Western Colorado (Cope); New Mexico.

15776. Colorado Chiquito River, New Mexico. C. G. Newberry.

Genus *CYPRINUS* Linné.**155. *Cyprinus carpio* Linné. CARP.**

Temperate parts of Asia, in fresh water; introduced into Europe and North America; widely distributed in the United States by the U. S. Fish Commission.

The example shown was hatched at the U. S. Carp Ponds, Washington, in the spring of 1881, and taken out January 10, 1882; it is, therefore, less than one year old.

32556. U. S. Carp Ponds, Washington, D. C. U. S. Fish Commission.

Genus *CARASSIUS* Nilsson.**156. *Carassius auratus* (L.) Bleeker. GOLD-FISH.**

Japan; China; introduced into Europe and the United States; "now naturalized in many of our eastern streams" (Jordan & Gilbert).

This species in the Hudson River is frequently and persistently mistaken for the preceding.

22107. U. S. Carp Ponds, Washington, D. C., January 24, 1878. Wm. Palmer.

Genus *TINCA* Cuvier.**157. *Tinca vulgaris* Cuv. TENCH.**

Europe; introduced into the United States by the U. S. Fish Commission.

The individual exhibited escaped from the U. S. ponds at Washington into the Potomac River. Two of these fishes examined by me have the pharyngeal teeth with all traces of the hook worn off and with a long grinding surface—in remarkable contrast with European examples of like size.

31003 (R.) Potomac River, Washington, D. C., June 24, 1882. Dr. T. H. Bean.

Genus *IDUS* Heckel.**158. *Idus melanotus* Heckel. GOLDEN IDE; NERFLING; ALAND; ORFE.**

Central and northern parts of continental Europe (Günther); introduced into the United States by the U. S. Fish Commission.

In the U. S. Carp Ponds examples 12 inches long have been obtained.

30673. U. S. Carp Ponds, Washington, D. C., May 29, 1882.



## SILURIDÆ.

Genus NOTURUS Rafinesque.

Subgenus NOTURUS Rafinesque.

**159. Noturus flavus** Rafinesque. STONE-CAT; YELLOW STONE-CAT.

Saint Lawrence River to Virginia; westward to Nebraska, and southward to Texas.

This species reaches a length of 12 inches.

1472. Madrid, New York. E. A. Dayton.

Genus LEPTOPS Rafinesque.

**160. Leptops olivaris** (Raf.) Jor. & Gilb. MUD CAT; YELLOW CAT; BASHAW; GOUJON.

Ohio and Mississippi Valleys, in muddy waters.

The mud cat reaches a weight of 75 pounds (Jor. & Gilb.); it is much used as food.

1524. Cincinnati, Ohio. Prof. S. F. Baird.

Genus AMIURUS Rafinesque.

**161. Amiurus catus** (L.) Gill. BULL-HEAD; HORNED POUT; CAT-FISH; SMALL CAT-FISH; SCHUYLKILL CAT.

The Great Lakes; Ohio Valley; Eastern United States from Maine to South Carolina; introduced into California, where it has become very abundant.

This is one of the best known and most esteemed of our cat-fish. It reaches a length of 18 inches; in the markets of Philadelphia, Baltimore, and Washington it is extensively sold, sometimes with the skin removed.

32551. Havre de Grace, Maryland, June 9, 1882. Dr. T. H. Bean.

Genus ICTALURUS Rafinesque.

**162. Ictalurus punctatus** (Raf.) Jordan. CHANNEL CAT; WHITE CAT; BLUE CAT.

Eastern United States from Vermont to Georgia; Ohio and Mississippi Valleys; westward to Montana; southward to Texas and Mexico.

This is a valuable food-fish. It reaches a weight of 20 to 25 pounds and a length of 3 feet. "It has been described under some twenty-three different specific names" (Cope).

17304. Near Montgomery, Alabama, 1876. Dr. T. H. Bean.

## ANGUILLIDÆ.

Genus ANGUILLA Thunberg.

**163. *Anguilla rostrata*** (Le Sueur) De Kay. COMMON EEL.

Atlantic coast of the United States from Maine to Florida, ascending streams; Gulf of Mexico and Mississippi Valley; southward to Mexico; introduced into the Great Lakes and into California.

This is an exceedingly abundant and rather valuable food-fish; it is, however, very destructive to the spawn of shad and other important species, often completely disemboweling fishes caught in gill-nets before they can be taken from the water.

10415. Wood's Holl, Massachusetts. Prof. S. F. Baird.

## AMIIDÆ.

Genus AMIA Linné.

**164. *Amia calva*** Linné. MUD-FISH; DOG-FISH; BOW-FIN GRINDLE; "JOHN A. GRINDLE;" LAWYER.

Great Lakes; Ohio and Mississippi valleys, southward to Texas; Eastern United States from New York to North Carolina; once taken in the Susquehanna; not known from the Delaware nor any other Atlantic stream north of the Roanoke (Cope).

The male reaches 18 inches in length and has a black spot surrounded by a yellow or orange ring; the female reaches 2 feet or more and is without the caudal spot. The fish is of no value as food.

29817. Tributary of Cayuga Lake, New York, December 16, 1881. L. M. Miller.

## LEPIDOSTEIDÆ.

Genus LEPIDOSTEUS Lacépède.

Subgenus CYLINDROSTEUS Rafinesque.

**165. *Lepidosteus platystomus*** Rafinesque. SHORT-NOSED GAR.

Great lakes; rivers of the Ohio and Mississippi Valleys, southward to the Rio Grande; Florida.

17799. Round Lake, near Montgomery, Alabama, July 14, 1876. Kullien & Bean.

Subgenus *ATRACTOSTEUS* Rafinesque.

**166. *Litholepis spatula*** (Lac.). ALLIGATOR GAR.

Rivers of the Southern United States; Cuba; Mexico and Central America.

The species is reported to reach 12 feet in length; it is said to be an implacable foe of the alligator.

32311. Vicksburg, Mississippi, 1882. O. P. Hay.

POLYODONTIDÆ.

Genus *POLYODON* Lacépède.

**167. *Polyodon spathula*** (Walb.) Jor. & Gilb. PADDLE-FISH; SPOON-BILL CAT; DUCK-BILL CAT; SPOON-BILLED STURGEON.

Ohio and Mississippi Valleys, generally abundant.

This singular fish grows to a length of 6 feet; its food consists of minute crustacea which it strains from the mud passed through its gill-rakers (Forbes).

32387. (2 spec.) Illinois River, Illinois, 1882. Wm. McAdams.

ACIPENSERIDÆ.

Genus *ACIPENSER* Linné.

**168. *Acipenser rubicundus*** Le Sueur. LAKE STURGEON; OHIO STURGEON; BLACK STURGEON; STONE STURGEON; ROCK STURGEON; RED STURGEON.

Mississippi Valley; Great Lakes, and northward, usually not descending to the sea (Jordan & Gilbert).

This species is an important food-fish; it reaches a length of 6 feet and a weight of 100 pounds.

3270. Michipicotan, Lake Superior. G. Barnston.

Genus *SCAPHIRHYNCHOPS* Gill.

**169. *Scaphirhynchops platyrhynchus*** (Raf.) Gill. SHOVEL-NOSED STURGEON; WHITE STURGEON.

Ohio and Mississippi Valleys, westward to Montana and southward to Texas.

This species reaches a length of 5 feet.

3255. Cincinnati, Ohio. Prof. S. F. Baird.

## TRYGONIDÆ.

Genus TRYGON Adanson.

**170. Trygon sabina** Le Sueur. STINGAREE; STING-RAY.

Florida.

This species is not uncommon in Lake Monroe, where Professor Baird found it April 2, 1877.

22818. Pensacola, Florida, 1878. Silas Stearns.

## PETROMYZONTIDÆ.

Genus ENTOSPHEMUS Gill.

**171. Entosphenus tridentatus** (Gairdner) Gill. THREE-TOOTHED LAMPREY.

Coast of California and northward, ascending streams. The example shown is referred to in a paper by Bean, Proc. U. S. Nat. Mus., v, p. 93, June 12, 1882.

30295. Fort Walla Walla, Washington Territory. May 6, 1881. Capt. Chas. Bendire, U. S. A.

Genus AMMOCETES Duméril.

**172. Ammocetes niger** (Raf.) Jordan. SMALL BLACK LAMPREY.

Great Lakes; Ohio Valley; Upper Mississippi Valley, ascending streams to deposit its eggs; abundant.

This is a small lamprey, seldom exceeding 10 inches in length and supposed to be identical with the European *A. branchialis*; this, however, is a mere suspicion and not based upon comparison of European with American examples.

12517. Waukegan, Illinois. J. W. Milner.

Genus PETROMYZON Linné.

**173. Ichthyomyzon argenteus** (Kirtland) Girard. SILVERY LAMPREY.

Great Lakes; Mississippi Valley; ascending small streams at the spawning season in spring.

This species reaches a length of 12 inches; it is properly a *Petromyzon*. In the specimens of this species and *I. castaneus* Grd. in the National Museum the difference in the number of mandibular teeth is constant.

7419. Louisville, Kentucky.



# CATALOGUE OF CASTS AND PHOTOGRAPHS OF FISHES.

## LOPHIIDÆ.

1. **Lophius piscatorius** Linné. GOOSE-FISH.

Photograph.

## ORTHAGORISCIDÆ.

2. **Mola rotunda** Cuv. SUN-FISH.

Photograph.

## DIODONTIDÆ.

3. **Chilomycterus geometricus** (L.) Kaup. BUR-FISH.

Cast.

Photograph.

## TETRODONTIDÆ.

4. **Tetrodon lævigatus** (L.) Gill. RABBIT-FISH.

Cast.

Photograph.

## OSTRACIIDÆ.

5. **Ostracion quadricorne** Linné. COW-FISH.

Cast.

Photograph.

## BALISTIDÆ.

6. **Balistes capriscus** Gmelin. LEATHER-JACKET.

Cast.

7. **Balistes vetula** Linné. OLD WIFE.

Cast.

Photograph.

8. **Alutera schœpffi** (Walb.) Goode & Bean. ORANGE FILE-FISH.

Cast.

Photograph.

## SYNGNATHIDÆ.

9. **Siphostoma fuscum** (Storer) Jor. & Gilb. PIPE-FISH.

Photograph.

## SOLEIDÆ.

**10. *Achirus lineatus* (L.) Cuv. AMERICAN SOLE.**

Cast.  
 Photograph.

## PLEURONECTIDÆ.

**11. *Limanda ferruginea* (Storer) Goode & Bean. RUSTY FLOUNDER.**

Cast.  
 Photograph.

**12. *Pleuronectes americanus* Walb. FLATFISH; WINTER FLOUNDER.**

Photograph.

**13. *Pleuronectes stellatus* Pall. STELLATE FLOUNDER.**

Cast.  
 Photograph.

**14. *Lepidopsetta bilineata* (Ayres) Gill.**

Photograph.

**15. *Glyptocephalus cynoglossus* (L.) Gill. POLE FLOUNDER.**

Cast.  
 Photograph.

**16. *Bothus maculatus* (Mitch.) Jor. & Gilb. WINDOW-PANE; SAND FLOUNDER.**

Cast.  
 Photograph.

**17. *Hippoglossoides platessoides* (Fabr.) Gill. SAND DAB.**

Cast.

**18. *Paralichthys dentatus* (L.) Jor. & Gilb. COMMON FLOUNDER.**

Cast.  
 Photograph.

**19. *Paralichthys oblongus* (Mitch.) Jor. & Gilb. FOUR-SPOTTED FLOUNDER.**

Cast.  
 Photograph.

**20. *Psettichthys melanostictus* Girard. CALIFORNIA SPOTTED SOLE,**

Photograph.

**21. Hippoglossus vulgaris** Fleming. HALIBUT.

Cast of young.  
 Cast of adult.  
 Photograph.

**22. Platysomatichtys hippoglossoides** (Walb.) Goode & Bean. TURBOT.

Cast.

## GADIDÆ.

**23. Pollachius carbonarius** (L.) Bon. POLLACK.

Photograph.

**24. Gadus morrhua** Linné. COD-FISH.

Photograph.

**25. Microgadus tomcodus** (Walb.) Gill. TOM COD.

Photograph.

**26. Melanogrammus æglefinus** (L.) Gill. HADDOCK.

Photograph.

**27. Phycis tenuis** (Mitch.) DeKay. SQUIRREL HAKE.

Photograph.

**28. Brosmius brosme** (Müller) White. CUSK.

Photograph.

**29. Lota maculosa** (Les.) Rich. BURBOT.

Photograph.

## MERLUCIIDÆ.

**30. Merlucius bilinearis** (Mitch.) Gill. WHITING.

Photograph.

## AMMODYTIDÆ.

**31. Ammodytes americanus** DeKay. SAND LAUNCE.

Photograph.

## XIPHISTERIDÆ.

**32. Murænooides gunellus** (L.) Goode & Bean. ROCK-EEL.

Photograph.

## ANARRHICHADIDÆ.

**33. Anarrhichas minor** Olafsen. LEOPARD WOLF-FISH.

Photograph.

## BATRACHIDÆ.

- 34. *Batrachus pardus*** Goode & Bean. SARPO.  
Cast.

## CYCLOPTERIDÆ.

- 35. *Cyclopterus lumpus*** Linné. LUMP-FISH.  
Photograph.

## TRIGLIDÆ.

- 36. *Prionotus carolinus*** (L.) Cuv. & Val. SEA ROBIN.  
Photograph.

- 37. *Prionotus evolans*** (L.) Gill. STRIPED SEA ROBIN.  
Photograph.

## COTTIDÆ.

- 38. *Cottus octodecimspinosus*** Mitch. 18-SPINED SCULPIN.  
Photograph.

- 39. *Cottus grœnlandicus*** Cuv. & Val. GREENLAND SCULPIN.  
Photograph.

- 40. *Cottus æneus*** Mitchill. PIGMY SCULPIN.  
Photograph.

## HEMITRIPTERIDÆ.

- 41. *Hemitripterus americanus*** (Gmel.) Cuvier. SEA RAVEN.  
Photograph.

## SCORPÆNIDÆ.

- 42. *Sebastes marinus*** (L.) Lütken. NORWAY HADDOCK.  
Photograph.

- 43. *Sebastichthys rosaceus*** (Girard) Jor. & Gilb. CORSAIR.  
Photograph.

## CHIRIDÆ.

- 44. *Hexagrammus decagrammus*** (Pall.) Jor. & Gilb. ROCK TROUT.  
Photograph.



## LABRIDÆ.

**45. *Tautoga onitis* (L.) Günther. TAUTOG.**

Cast.

Photograph.

**46. *Ctenolabrus adspersus* (Walb.) Goode. CUNNER.**

Photograph.

## EMBIOTOCIDÆ.

**47. *Ditrema laterale* (Ag.) Gthr. BLUE PERCH.**

Photograph.

## XIPHIIDÆ.

**48. *Histiophorus americanus* Cuv. & Val. SAIL-FISH.**

Photograph.

## TRICHIURIDÆ.

**49. *Trichiurus lepturus* Linné. SCABBARD-FISH.**

Cast.

Photograph.

## SCOMBRIDÆ.

**50. *Scomber scombrus* Linné. MACKEREL.**

Cast.

Photograph.

**51. *Sarda mediterranea* (Bl. Schn.) Jor. & Gilb. BONITO.**

Cast.

Photograph.

**52. *Orcynus thynnus* (L.) Goode. HORSE MACKEREL.**

Cast.

Photograph.

**53. *Orcynus alliteratus* (Raf.) Gill. ALBICORE.**

Cast.

Photograph.

**54. *Orcynus pelamys* (L.) Poey. OCEANIC BONITO.**

Cast.

**55. *Scomberomorus maculatus* (Mitch.) Jor. & Gilb. SPANISH MACKEREL.**

Cast.

Photograph.

**56. *Scomberomorus regalis*** (Bloch) Jor. & Gilb. SPOTTED CERO.

Cast.  
Photograph.

**57. *Scomberomorus caballa*** (C. & V.) Jor. & Gilb. SIERRA; CERO.

Cast.  
Photograph.

CARANGIDÆ.

**58. *Selene argentea*** (Lac.) Brevoort. MOON-FISH.

Cast.

**59. *Argyreiosus vomer*** Lac. SILVER FISH.

Cast.  
Photograph.

**60. *Caranx crumenophthalmus*** (Bloch) Lac. BIG-EYED SCAD.

Cast.  
Photograph.

**61. *Caranx pisquetus*** C. & V. CREVALLÉ.

Photograph.

**62. *Caranx hippus*** (L.) Günther. HORSE CREVALLÉ.

Cast.  
Photograph.

**63. *Caranx chrysus*** Mitch. YELLOW MACKEREL.

Photograph.

**64. *Blepharis crinitus*** (Akerly) DeKay. THREAD-FISH.

Photograph.

**65. *Trachynotus carolinus*** (L.) Gill. POMPANO.

Cast.

**66. *Trachynotus ovatus*** (L.) Gthr. ROUND POMPANO.

Photograph.

**67. *Trachynotus goreënsis*** Cuv. & Val. AFRICAN POMPANO.

Cast.

**68. *Seriola zonata*** (Mitch.) Cuv. & Val. BANDED RUDDER-FISH.

Cast.  
Photograph.

**69. *Seriola carolinensis*** Holbrook.

Cast.

**70. *Seriola lalandii* C. & V. AMBER-FISH.**

Photograph.

**71. *Oligoplites saurus* (Bl. Schn.) Jor. & Gilb. LEATHER-JACKET.**

Cast.

Photograph.

## CORYPHÆNIDÆ.

**72. *Coryphæna hippurus* Linné. GREAT DOLPHIN.**

Cast.

Photograph.

## STROMATEIDÆ.

**73. *Stromateus triacanthus* Peck. HARVEST-FISH.**

Photograph.

**74. *Stromateus paru* Linné. SHORT HARVEST-FISH.**

Cast.

## SCIÆNIDÆ.

**75. *Cynoscion regalis* (Bl.) Gill. WEAK-FISH; SQUETEAGUE.**

Photograph.

**76. *Cynoscion maculatum* (Mitch.) Gill. SPOTTED SEA TROUT.**

Photograph.

**77. *Pogonias chromis* Lac. DRUM.**

Photograph.

**78. *Haploidonotus grunnicus* Raf. FRESH-WATER DRUM.**

Photograph.

**79. *Liostomus obliquus* (Mitch.) DeKay. SPOT.**

(Not different from the next.)

Photograph.

**80. *Liostomus xanthurus* Lac. YELLOW-TAILED SPOT.**

Photograph.

**81. *Sciæna chrysuræ* (Lac.) Jor. & Gilb. SILVER-FISH; YELLOW-TAIL.**

Photograph.

**82. *Sciæna ocellata* (L.) Gthr. CHANNEL BASS.**

Photograph.

**83. *Menticirrhus alburnus* (L.) Gill. SOUTHERN KING-FISH.**

Photograph.

84. *Menticirrus nebulosus* (Mitch.) Gill. KING-FISH.

Photograph.

85. *Micropogon undulatus* (L.) Cuv. & Val. CROAKER.

Photograph.

### SPARIDÆ.

86. *Diplodus probatocephalus* (Walb.) Jor. & Gilb. SHEEP'S  
HEAD.

Photograph.

87. *Stenotomus versicolor* (Mitch.) Bean. SCUPPAUG.

Photograph.

### PRISTIPOMATIDÆ.

88. *Lutjanus blackfordii* Goode & Bean. RED SNAPPER.

Photograph.

89. *Anisotremus virginicus* (L.) Gill.

Photograph.

90. *Ocyurus chrysurus* (Bl.) Gill. GOLDEN-TAIL.

Photograph.

### CENTRARCHIDÆ.

91. *Centrarchus macropterus* (Lac.) Jor.

Cast.

92. *Pomoxys sparoides* (Lac.) Girard. GRASS BASS.

Photograph.

93. *Ambloplites rupestris* (Raf.) Gill. ROCK BASS.

Cast.

94. *Lepomis auritus* (L.) Raf. LONG-EARED SUN-FISH.

Cast.

95. *Lepomis gibbosus* (L.) McKay. COMMON SUN-FISH.

Cast.

Photograph.

96. *Micropterus dolomieu* Lac. SMALL-MOUTHED BLACK BASS.

Cast.

97. *Micropterus salmoides* (Lac.) Henshall. LARGE-MOUTHED  
BLACK BASS.

Cast.

Photograph.



## SERRANIDÆ.

- 98. *Epinephelus drummond-hayi*** Goode & Bean. JOHN PAW; SPOTTED HIND.

Cast.

- 99. *Epinephelus morio*** (Cuv.) Gill. RED-BELLIED SNAPPER.

Cast.

Photograph.

- 99 b. *Epinephelus guasa*** (Poey) Jor. & Gilb. GUASA.

Cast.

- 100. *Mycteroperca falcata*** (Poey) Jor. & Gilb. SCAMP.

Cast.

- 101. *Serranus atrarius*** (L.) Jor. & Gilb. SEA BASS.

Cast of male.

Cast of female.

Photograph.

- 102. *Diplectrum fasciculare*** (Cuv. & Val.) Holb. SQUIRREL.

Cast.

Photograph.

## PERCIDÆ.

- 103. *Perca americana*** Schranck. YELLOW PERCH.

Cast.

Photograph.

- 104. *Stizostedium vitreum*** (Mitch.) Jordan & Copeland. YELLOW PIKE PERCH.

Cast.

Photograph.

- 105. *Stizostedium canadense*** (Smith) Jordan. CANADA PIKE PERCH.

Cast.

Photograph.

## LABRACIDÆ.

- 106. *Roccus saxatilis*** (Bl. Schn.) Jor. & Gilb. STRIPED BASS.

Cast.

Photograph.

- 107. *Roccus chrysops*** (Raf.) Gill. WHITE BASS.

Cast.

Photograph.

- 108. *Roccus americanus*** (Gmel.) Jor. & Gilb. WHITE PERCH.

Cast.  
 Photograph.

- 109. *Roccus interruptus*** (Gill) Jor. & Gilb. YELLOW BASS.

Cast.

### EPHIPPIIDÆ.

- 110. *Chætodipterus faber*** (Brouss.) Jor. & Gilb. MOON FISH.

Cast.  
 Photograph.

### LOBOTIDÆ.

- 111. *Lobotes surinamensis*** Cuv. FLASHER.

Cast.  
 Photograph.

### POMATOMIDÆ.

- 112. *Pomatomus saltatrix*** (L.) Gill. BLUE-FISH.

Cast.

### ELACATIDÆ.

- 113. *Elacate canada*** (L.) Gill. COBIA ; CRAB-EATER.

Cast.  
 Photograph.

### PRIACANTHIDÆ.

- 114. *Priacanthus altus*** Gill.

Photograph.

### ECHENEIDIDÆ.

- 115. *Echeneis naucrates*** Linné. REMORA ; SUCKER-FISH.

Photograph.

- 116. *Rhombochirus osteochir*** (Cuv.) Gill. SPEAR-FISH  
 SUCKER.

Photograph.

### SPHYRÆNIDÆ.

- 117. *Sphyræna borealis*** DeKay. BARRACUDA.

Photograph.

### MUGILIDÆ.

- 118. *Mugil albula*** Linné. STRIPED MULLET.

Photograph.

## ATHERINIDÆ.

- 119. Menidia notata** (Mitch.) Jor. & Gilb. SILVERSIDE.  
 Photograph.

## GASTEROSTEIDÆ.

- 120. Gasterosteus pungitius** Linné. 10-SPINED STICKLE-BACK.  
 Photograph.

## BELONIDÆ.

- 121. Tylosurus marinus** (Bl. Schn.) Jor. & Gilb. SILVER GAR-  
 FISH.  
 Photograph.

## ESOCIDÆ.

- 122. Esox americanus** Gmelin. BROOK PICKEREL.  
 Photograph.

- 123. Esox reticulatus** Le Sueur. PICKEREL.  
 Cast.

- 124. Esox lucius** Linné. PIKE.  
 Cast.  
 Photograph.

- 125. Esox nobilior** Thompson. MUSKELLUNGE.  
 Cast.  
 Photograph.

## CYPRINODONTIDÆ.

- 126. Fundulus majalis** (Walb.) Gthr. MAYFISH.  
 Photograph.

## SALMONIDÆ.

- 127. Osmerus mordax** (Mitch.) Gill. SMELT.  
 Cast.  
 Photograph.

- 128. Coregonus clupeiformis** (Mitch.) Milner. WHITE-FISH.  
 Casts (2).  
 Photograph.

- 129. Coregonus quadrilateralis** Rich. ROUND WHITE-FISH;  
 SHAD-WAITER.  
 Cast.  
 Photograph.

**130. *Coregonus artedi* LeS. LAKE HERRING.**

Photograph.

**131. *Thymallus tricolor* Cope. GRAYLING.**

Cast of male.

Cast of female.

Photograph.

**132. *Salmo salar* Linné. ATLANTIC SALMON.**

Casts of land-locked form (2).

Cast of sea-run form.

Cast of breeding male.

Cast of breeding female.

**133. *Oncorhynchus chouicha* (Walb.) Jor. & Gill. QUINNAT SALMON.**

Cast of sea-run form.

Cast of breeding male.

**134. *Salvelinus namaycush* (Walb.) Goode. MACKINAW TROUT.**

Casts of Mackinaw form (2).

Cast of Otsego Lake form.

Cast of Toma.

**135. *Salvelinus fontinalis* (Mitch.) Gill. & Jor. BROOK TROUT.**

Cast of Caledonia Brook form.

Cast of Moosehead Lake form.

Cast of Common form.

## ALBULIDÆ.

**136. *Albula vulpes* (L.) Goode. LADY-FISH.**

Photograph.

## HYODONTIDÆ.

**137. *Hyodon tergisus* LeS. MOON-EYE.**

Photograph.

## ELOPIDÆ.

**138. *Elops saurus* Linné. BIG-EYED HERRING.**

Photograph.

## CLUPEIDÆ.

**139. *Clupea sapidissima* Wilson. SHAD.**

Photograph.

**140. *Clupea vernalis* Mitchill. BRANCH ALEWIFE.**

Photograph.



## ENGRAULIDIDÆ.

- 141. *Stolephorus mitchillii*** (C. & V.) Jor. & Gilb. ANCHOVY.  
Photograph.

## CATOSTOMIDÆ.

- 142. *Cycleptus elongatus*** (LeS.) Ag. BLACK SUCKER.  
Photograph.
- 143. *Catostomus commersonii*** (Lac.) Jordan. COMMON  
SUCKER.  
Photograph.
- 144. *Erimyzon sucetta*** (Lac.) Jordan. CHUB SUCKER.  
Photograph.
- 145. *Moxostoma macrolepidotum*** (LeS.) Jordan. STRIPED  
SUCKER.  
Photograph.

## CYPRINIDÆ.

- 146. *Ptychocheilus oregonensis*** (Rich.) Girard. SACRA-  
MENTO PIKE.  
Photograph.

## SILURIDÆ.

- 147. *Amiurus nigricans*** (LeS.) MISSISSIPPI CAT-FISH.  
Cast.
- 147b. *Amiurus ponderosus*** Bean. GIANT CAT-FISH.  
Cast.
- 148. *Ictalurus punctatus*** (Raf.) Jor. FORK-TAILED CAT-FISH.  
Cast.

## ANGUILLIDÆ.

- 149. *Conger oceanica*** (Mitch.) Gill. CONGER-EEL.  
Cast.  
Photograph.
- 150. *Anguilla rostrata*** (LeS.) DeKay. COMMON EEL.  
Cast.

## AMIIDÆ.

- 151. *Amia calva*** Linné. BOWFIN.  
Cast.  
Photograph.

## LEPIDOSTEIDÆ.

**152. *Lepidosteus osseus* Linné. GAR-PIKE.**

Cast.

## POLYODONTIDÆ.

**153. *Polyodon spathula* (Walb.) Jor. & Gilb. PADDLE-FISH.**

Cast.

Photograph.

## ACIPENSERIDÆ.

**154. *Acipenser oxyrhynchus* Mitch. SHARP-NOSED STURGEON.**

Photograph.

**155. *Acipenser brevirostris* LeS. SHORT-NOSED STURGEON.**

Photograph.

**156. *Acipenser rubicundus* LeS. LAKE STURGEON.**

Photograph.

**157. *Scaphirhynchops platyrhynchus* (Raf.) Gill. SHOVEL-NOSE STURGEON.**

Photograph.

## MYLIOBATIDÆ.

**158. *Myliobatis fremenvillei* LeS. EAGLE RAY.**

Photograph.

**159. *Myliobatis californicus* Gill. CALIFORNIA STING RAY.**

Photograph.

**160. *Rhinoptera quadriloba* (LeS.) Cuv. COW-NOSED RAY; CLAM-CRACKER.**

Cast.

Photograph.

## TRYGONIDÆ.

**161. *Pteroplatea maclura* Müll. & Henle. BUTTERFLY RAY.**

Photograph.

**162. *Trygon centrura* (Mitch.) Gill. STING RAY.**

Cast.

Photograph.

## TORPEDINIDÆ.

**163. *Torpedo occidentalis* Storer. TORPEDO; CRAMP-FISH.**

Photograph.

## RAIIDÆ.

- 164. *Raia erinacea* Mitchill. CLEAR-NOSED SKATE.**

Photograph.

- 165. *Raia lævis* Mitchill. BARN-DOOR SKATE; SHARP-NOSED SKATE.**

Photograph.

## SQUATINIDÆ.

- 166. *Squatina dumerilii* LeS. MONK-FISH.**

Cast.

Photograph.

## LAMNIDÆ.

- 167. *Lamna cornubica* (Gmel.) Fleming. MACKEREL SHARK.**

Cast.

## CARCHARIIDÆ.

- 168. *Carcharias americanus* (Mitch.) Jor. & Gilb. SAND SHARK.**

Cast.

## ALOPIIDÆ.

- 169. *Alopias vulpes* (Gmel.) Bon. THRESHER SHARK.**

Cast.

## SPHYRNIDÆ.

- 170. *Reniceps tiburo* (L.) Gill. SHOVEL-HEAD SHARK.**

Cast.

- 171. *Sphyrna zygaena* (L.) Müll. & Henle. HAMMER-HEAD SHARK.**

Cast.

Photograph.

## GALEORHINIDÆ.

- 172. *Isogomphodon limbatus* (Müll. & Henle) Gill. SPOTTED-FIN SHARK.**

Photograph.

- 173. *Galeocerdo tigrinus* Müll. & Henle. TIGER SHARK.**

Photograph.

- 174. *Mustelus canis* (Mitch.) DeKay. SMOOTH DOG-FISH.**

Cast.

Photograph.

## SPINACIDÆ.

**175. *Squalus acanthias*** Linné. SPINED DOG-FISH.

Photograph.

**176. *Centroscymnus cœlolepis*** Boc. & Cap. BROWN DOG-FISH.

Cast.

## SCYMNIDÆ.

**177. *Somniosus microcephalus*** (Bloch) Gill. SLEEPER SHARK.

Photograph.

## PETROMYZONTIDÆ.

**178. *Petromyzon marinus*** Linné. SEA LAMPREY.

Cast.