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THE NATURAL HISTORY OF THE WEAKFISH

BY THEODORE GILL

Mr. President and Gentlemen of the Society: I did not anticipate being called upon this afternoon, and, consequently, I did not come prepared with my paper, but I will give orally the essentials of what I have written.

Every once in a while I receive a letter asking what is the weakfish; every once in a while in Washington I am appealed to orally to know what the trout is. It is only a few weeks since a lady wrote me saying that her family had a country place in Maryland which they occupied during the summer, and that they could get no fish but so-called trout; she knew what a trout was very well and knew that the fish which they called trout and which sold as trout was not a true trout; and she asked me what it was. I told her. Now the so-called trout of the Southern States and of the Atlantic States from Pennsylvania southward, is not at all related to the true trout, but is a member of an entirely distinct family and even a distinct primary division or order.

Our nomenclature of fishes generally is a very mixed one, and several different modes have been adopted in framing and applying popular names. One (and the most natural one) is to name the fish after that which is—or is supposed to be—most like it. That was the plan adopted especially in the New England States. When the pilgrims proceeded to New England they found a number of fishes which they thought were like the ones they knew at home, and, consequently, they applied the names familiar to them, and misapplied many of them. Many of the names, of course, did fit, such as the trout, codfish, and several others. Naturally they applied because the American fishes were almost the same as, or at least, very closely related to, the fish of England. The trout of our northern waters, indeed,

belongs to a different genus of fish from the English trout; nevertheless, it is so nearly like that it was quite reasonable to name it as such; but when we go southward, the case is very different. The trout of that section, I repeat, is by no means the same as the trout of New England nor that of old England. Such is the first method.

A second method is to apply some name distinctive of quality. The method has been followed in the case of the common fish called in New York the weakfish. Inasmuch as that name is used by a population numbering in round numbers 6,000,000, or nearer 7,000,000 now—that is, in the city of New York and in the immediate vicinity, New Jersey and Long Island—weakfish is the name in most general use.

A third mode of nomenclature is manifest to a more limited extent. It is exemplified by squeteague, supposed to be of Indian derivation and formerly used, it has been claimed, by the Indians of Narragansett Bay, but there is not complete justification for that belief. The derivation appears plausible, but J. Hammond Trumbull, an authority of first rank on Indian philology, was unable to find any instance of the word as an Indian name in any book that he examined. So, therefore, we do not positively know what the origin is. The name squeteague, nevertheless, is at present in most general literary use. It was declared by Goode and others, for example, that squeteague was the best term applicable; consequently, it has been accepted in most of the books on fishes and has been quite generally adopted.

The name "trout" is used universally in the southern Atlantic States, and is practically the only name known there.

Now as to the reasons for these names: "Weakfish" you will find given in sporting books, in the Century Dictionary, and other works, as meaning weak in the mouth. That is, it was apparently applied to the fish because it had

a weak mouth, and consequently could not be held by the hook as well as most fishes.

Another author of very recent date (last August), in one of the sporting papers, contends that "weakfish" was simply derived from "squeteague" by a series of changes, euphonic and otherwise, which I will leave to your imagination.

Another author has said that it was not originally "weakfish," but "wheatfish," and that "weakfish" is a corruption of "wheatfish." As W. H. Herbert says, however, it does not come in the wheat season but in the early spring.

Now, then, what is the derivation of the word "weakfish?" The explanation, after all, is very simple. "Weakfish" is a heritage from our Dutch ancestors of the island of Manhattan, of the New Netherlands. They gave the name "week-vis," and that name was adopted by one Steendam in a poem in praise of the New Netherlands. The poem was published about 1661. There the word is used in the form "week-vis." That is very much like our English word, but "week" does not mean the same thing in Dutch as "weak" in England. "Week" in Dutch means primarily soft or tender. The word "weakfish" indicates, then, a soft and tender fish, and everyone acquainted with the fish will recognize that the term is quite applicable. The name is very easy to trace to its original source, and it is strange it has not been traced before. Nevertheless in the latest dictionaries it is given as "weak" and "fish;" but it is really derived from Dutch, as just explained.

The name "squeteague" is perhaps of Indian origin. Its original use is not known; it does not occur in the earlier works.

The name "trout" was given by the original settlers of Roanoke, Jamestown, etc., and is the one generally used in the south. The common weakfish of the south is spotted somewhat like a trout and as no true trout occurred in the south to compare it with, trout was the name applied to it.

Now this trout of the south, this weakfish of New York,

is one of the most valuable fishes that we have on our Atlantic Coast. It belongs to the family of sciænids, which furnishes in the south more than half of the total catch of fishes for edible purposes along that coast, and the weakfish furnishes more than half of the total number of sciænids. So it is a very important article of food.

I have used the word weakfish in the singular as a generic term. There are really two very distinct species. There is some distinction as to the value of the weakfish of the north and south—that is, the flesh of the weakfish of the south does not seem to be quite as soft nor quite as loosely constructed as that of the north. The southern fish is, therefore, a better one than the northern.

Now to furnish some of the characters. The family of Sciænids is one of the most important of all the families of fishes. It is a very natural family exhibiting a number of osteological characters in common, but they would be too technical to speak of—so I will simply allude to a few.

There are a number of foramina in the upper surface of the skull which furnish exits for blood-vessels and nerves. Such are some of the characters that strike the observer of the skeleton. If you will look at the mouth you will find also a number of characteristics that strike the attention forcibly. There are a number of lobelets and holes along the edge of the head next to the jaws and mouth, but the weakfishes rather differ from others of the family in that they are reduced to the minimum.

The other characteristics are too technical to enter into. I will only state that the natural associates of the family of sciænid fishes are numerous. About twenty species have been recognized and these twenty are all confined to America, north and south. The species are almost entirely tropical and warm-water forms. The weakfish of our northern waters, the common weakfish of New York, is the most northern of all of them.

With respect to the size: probably you have little idea as to the diversity of opinion and the diversity of statements

in books as to the size of the weakfish. The average seems to be somewhere over two pounds. In Massachusetts and Rhode Island much larger ones are caught. Apparently the southern species becomes larger than the northern, so that from two to three pounds is the most correct statement. Sometimes a school of the northern weakfish may be composed of fishes not more than three-quarters of a pound in weight. I now quote Baird who wrote in 1854.

The maximum is difficult to state. As you are aware, there is no definite limit in growth among fishes as there is in warm-blooded animals—birds and mammals.

In some of the statements in the books you will find that the weakfish is put down as attaining a maximum of 30 pounds. Now it is possible that occasionally a weakfish may attain that weight, but I never have seen an authentic case mentioned. The heaviest weakfish that we have authentic information about is one weighing $17\frac{1}{2}$ pounds. The next largest that I know of weighed 14. Many observers who testified in Rhode Island said that the largest they ever knew was under 10; one witness said 9 and another 8. So that although a maximum of 30 pounds is conceivable, it is not probable. We can in fine put the average weight as somewhat over 2 pounds. That I think will be a fair average for the north; it is considerably larger in the south.

The age at which maturity is reached is another question concerning which there are differences of statement. It has been recorded that the weakfish attains its full growth in a year—that is, that a fish that was last year hatched from the egg will mature the present year. That seems to have been based upon the rapidity of growth of the young in the first two months, but I do not think that it will stand the test of observation. More correct probably is the inference that it takes generally nearly three years to mature, that it is only the weakfish of the third year after its escape from the egg that is ready to propagate.

Now I am fearful of going too much into detail and

technicalities, and therefore I think I will stop and be ready to answer any questions that may be asked. The fuller details and a resumé of what is known of the habits of the species will be published later.

DISCUSSION

PRESIDENT: The doctor's explanation of how this fish came to be named "weakfish" was very clear, but from the standpoint of the angler these fish I understand are anything but weak. I never caught one of them, but I am informed that such are the facts of the case.

MR. W. E. MEEHAN, Harrisburg, Pa.: It seems to me that Dr. Gill's estimate of 2 pounds is rather light, at least, for the fish along the Jersey coast and in Florida waters, where I fished for many years. I have caught many weakfish in the Homosassée River, and the average was certainly 3 pounds or more. Fish of 5, 6, 7, and 8 pounds on that river were not uncommon. The heaviest fish I caught on that river was 12½ pounds, and I have caught several ranging from 10 to 12½ pounds. On the Jersey coast, in the bays like Barnegat and around there, the average weight is certainly low—possibly half a pound or three-quarters of a pound, one pound or a pound and a half—but when you get outside, off points like Longport near Atlantic City, where you get among what is commonly known as the tiderunners, the average weight seems to me to be beyond that. I should say an average of about 3 or 3½ pounds, with frequent fish weighing 4 and 5 pounds, and occasionally about 8 pounds. That was about the heaviest that I have caught on the Jersey coast. Dr. Gill's figures are so surprising, so different from what my own experience has been in the catching of this fish that I can hardly understand them.

MR. W. H. BOARDMAN, Central Falls, R. I.: I was surprised at the statement about the size of what we call the squeteague. It is sold to people that do not know much about it as a "bluefish." Of course it is not. Men accustomed to squeteague fishing say 3 pounds is small. I have seen many weakfish weighing 15 and 16 pounds, on the lower bay, especially around Wickford; 8 pounds and 10 pounds is the average weight of the fish; and from that they run up as high as 16 pounds. One day, with Mr. Willard, I went out with the Lewis Brothers and saw them pull one of their traps to show some visitors. I believe there was not a fish in that trap that was of the small size mentioned by the speaker. The small fish were running 8, 9 and 10 pounds, two or three weighing between 15 and 16 pounds. Of course, that is in the lower bay. If you ask anglers how they are running, they call 3 pound squeteague running small. That I know is true with reference to Narragansett Bay; and 5, 6, or 7 pounds is running fair. I have known of fish being caught above Providence Point weighing 13 pounds. Below Providence Point they commence to get larger until you get down to Fox Island, where the Lewis Brothers fish and they get the big ones. Off Nantucket they run 8 or 9 pounds. Fish

in Greenwich Bay I have known in quantities weighing 2 pounds each on an average, but the boys do not consider them worth going after, although sometimes that is all you can get.

DR. GILL: You have a sample here of the variety of opinion there is as to the weakfish. We have had the word "bluefish" as an additional difficulty. The term "bluefish" is misapplied along part of the New Jersey coast, as Mr. Meehan knows. The name "greenfish" is sometimes misapplied. The name "checouts" and variations of it have been applied along the eastern coast of Long Island.

Now as to the average weight. By average weight I mean the average weight of the numerous fishes found along the coast as well as those outside. It has been truly said that the average of the fish that are caught in the outside waters is greater than the general average, or than those that are found in the interior. It is very remarkable that so many fishes as large as 16 pounds have been obtained. In 1871 testimony was taken by the United States Fish Commissioner in Newport, R. I. A number of professional fishermen and owners of pounds testified there and their consensus was that the weight of the weakfish was about 3 or 4 pounds; that is the average maximum or maximum average.

Dr. Baird also made extensive observations on hauls on the coast of New Jersey in 1854 and found among many thousands that the average was a good deal under 5 pounds; so that the experience of anyone finding a number of fishes of 16 pounds weight must be somewhat exceptional. And as to Mr. Meehan's statements, they conflict with what was obtained by Professor Baird and fishermen generally.

I do not deny any of these statements. I am much interested in them; but in my estimates I have been guided by my own observations, and I have never seen in the markets a fish weighing more than 4 pounds. Among the many thousands that I have seen from my youth upward I never saw a weakfish that weighed much over 4 pounds. My observations of the fish in the New York markets commenced as far back as 1854, when I was a youth. I went through the markets daily then, that is Fulton Market and Washington Market, New York, the great fish markets. The weakfish were not then the predominant fish that they are now in New York, but, nevertheless, I saw countless thousands, and I do not recollect of having seen any that was much over 4 pounds. But I wish that that experience could be recorded so that it could be made use of in my article; 17 pounds, of course, is quite possible, I don't deny that at all.

MR. MEEHAN: Twelve and a half pounds was the largest.

DR. GILL: And you weighed them?

MR. MEEHAN: Yes.

MR. BOARDMAN: I saw them weighed a year ago last July, and the fish were running rather high but nothing extraordinary.

DR. GILL: As I stated at the outset, there is no such period of growth for fishes as there is for other animals; so that it is quite possible that there might have been an exceptional run of fishes do not think you could repeat it, and I think I may safely say that your

weighing as much as that, but that must be entirely exceptional and I experience would not be repeated again if you lived to be as old as I am.

DR. B. M. BRIGGS, Brooklyn: My experience is that this year they are running small, and some years ago they ran very large—10 to 12 pounds—off Sheepshead Bay. They appear to run of uniform size when they run in schools, but this year they have been running small and the only way to tell is to take five to seven years and average them. Probably the large ones come in once in five or six years.

DR. GILL: That remark is correct, that is, that they are associated together in schools in approximately the same size. Indeed many schools of fish do that. You will find a school of large and a school of small fish, and the average is that which may be derived from the consideration of the schools of one year in comparison with the schools of another; the average is very often exceeded.

MR. KENNETH FOWLER, New York: The experience in the wholesale fish trade of New York in regard to weakfish I think largely demonstrates that the smaller fish are caught in the coastwise waters, and that the large fish are almost entirely caught in the outside waters. The catch for New York market is made largely by fishing smacks and seining operations in practically the open waters of the ocean. Every year we have large catches of weakfish, 50,000 to 100,000 pounds, seined in the open ocean, and the fish will average from 5 to 7 pounds right through the catch.

Also it is a fact that the size of the weakfish differs in different years, and that has been amply demonstrated by experience in the trade back ten or fifteen years. But this year, notwithstanding the statement of the gentleman who has just preceded me, I think at least one-half of the catch of the weakfish by the seining fleet for the New York market has averaged at least 5 pounds. Our experiences further go to show that the run of particularly small fish comes on in the fall of the year, and that the large fish are caught almost entirely in the early months of the summer, June and July, running until the early part of August, with exceptional runs of large fish in the fall.