



SAIBLING AND BROWN TROUT HYBRID.—3 YRS. OLD. ABOUT 2/3 NATURAL LENGTH.

**SAIBLING AND BROWN TROUT HYBRID.**

The finest and largest series of hybrid trout which we have seen belongs to the United States National Museum, and is the result of crosses between the saibling and the brown trout of Norway, artificially produced at one of the fish-cultural stations in Norway some years previous to the Centennial Exposition at Philadelphia in 1876. These hybrids were exhibited in the Norwegian section at the International Exhibition, and were presented to the National Museum at the close of the Centennial. The collection contains individuals ranging in age from one year to six years, and includes the result of crossing both ways between the two species.

In no instance does the hybrid resemble either parent in general appearance. In shape there is a compromise between the two parent forms. The saibling has a forked tail, while the brown trout has the tail nearly truncate when expanded. In the hybrid, until five years old at least, individuals all have the tail more forked than in the brown trout, and less so than in the saibling. One of the largest six-year-olds has the tail fin truncate, about as it is in the brown trout.

The proportions of the hybrid have already been hinted at above; the height of the body equals more than the length of the head, and is contained four and two-thirds times in the length of the fish measured to the end of the scales. The head is one-fourth of this same length and contains the diameter of the eye about six times. The snout is half again as long as the eye and one-half as long as the upper jaw. The maxilla extends far behind the eye, the length of the upper jaw being somewhat more than one-half the length of the head.

The vomerine teeth are invariably similar to those of the brown trout. In all but six individuals of this large series teeth are present and well developed on the base of the tongue, their absence occurring in both crosses and in specimens five and six years old, although it is more common in yearlings.

The peduncle of the tail is one-third of the length of the head. The first dorsal fin is somewhat in advance of the middle of the total length, its anterior two-thirds being in front of the belly fins. The base of the first dorsal is nearly as long as its longest ray. The anal fin is very long; its longest ray is much longer than the length of its base and somewhat longer than the longest ray of the dorsal fin. The short and stout adipose dorsal fin is placed over the end of the anal. The belly fin reaches almost, or quite, to the vent when laid backward. Its appendage is one-third to two fifths as long as the fin. The breast fin is about three-fourths as long as the head. A six-year old hybrid, produced by fertilizing saibling eggs with milt of the brown trout, has the breast fin of the right side produced into a long tip, 1/2 in. longer than its fellow of the opposite side. There are 142 scales in the lateral line, of which 122 are tube-bearing. There are 14 rows of scales from the end of the anal fin obliquely upward and backward to the lateral line; 16 rows from the end of the adipose fin obliquely downward and backward to the lateral line; 23 rows from the end of the dorsal obliquely downward and backward to the lateral line.

The branchiostegal membrane is supported by 12 rays, the dorsal fin has 10 divided rays, the anal 8, the breast fin 12, and the belly fin 8. The number of gill-rakers is 21, of which 13 are below the angle; the longest raker is nearly one-half as long as the eye. There are 58 pyloric coeca in one individual and 60 in another example crossed the opposite way, that is, by fertilizing saibling eggs with milt of brown trout. The brown trout has 42 coeca and the saibling 42 to 45 in specimens examined.

The general color is vandyke brown, the lower parts lighter. The sides are profusely vermiculated with narrow, pale markings and with small blotches of the same color, the vermiculations or blotches, and sometimes both, extending on the head. The fins are usually pale; occasionally the dorsal and anal have several faint, band-like, brown markings, and the tail fin is inconspicuously banded.

Hybrids one year old, between female saibling and male brown trout, are 4 in. long; between female trout and male saibling they are 3 7/8 to 4 1/2 in. Two-year-olds vary from 6 1/2 in. to 8 1/2 in. Three-year-olds, produced by fertilizing saibling eggs with brown trout milt, measure 9 1/2 in.; the opposite cross of the same age varies from 10 in. to 10 1/2 in. Four-year-olds (saibling mother and brown trout father) range from 11 1/2 to 11 3/4 in.; those crossed the other way are 11 in. long. Five-year-old hybrids, between male saibling and female brown trout, run from 13 in. to 14 in. in length. Six-year-olds, between male saibling and female brown trout, measure from 17 to 19 1/2 in.; those between male brown trout and female saibling are 17 to 18 in.

The figure accompanying this description is from an original drawing made for me by Mr. S. F. Denton; it is about two-thirds of the actual size of a three-year-old fish. None of the specimens examined by me show any de-

velopment of the reproductive organs, and it is probable that this hybrid, although a large and beautiful animal, is uniformly sterile. T. H. BEAN.

**FISHING NEAR NEW YORK.**

VI.—NEW YORK BAY.

EVERY kind of fish that anglers can catch in the salt waters of bays in these latitudes can be taken in New York Bay, but unfortunately not in large numbers. Striped bass are taken at Liberty Island, which is but a short row from the Battery. Weakfish, bluefish, blackfish, sheepshead, plaice, sea bass and other varieties are caught in and about the Narrows, and such small fry as eels, tomcods and flounders may be taken almost anywhere in their respective seasons. For the larger and most gamy fish, with the exception of the striped bass, it is necessary to go some distance down the bay from the city. On the Brooklyn or eastern side of the bay there is little sport fishing anywhere above Bay Ridge, and from this place a row of a mile or two is necessary to reach remunerative fishing grounds.

Taking the eastern shore of New York Bay first, the nearest place to rent boats for a day's good fishing is Fred. Wardell's, along the shore just south of the steamboat landing at Bay Ridge. One can go from foot of Whitehall street to Bay Ridge by boat for 20 cents the round trip, and climb over a rocky road to Wardell's place. Boats leave 8:10, 9:10, 10:10 A. M.; 1:10 P. M. Sundays, 10:10, 11:10 A. M.; 1:10 P. M. The better way to reach this resort, however, is via ferry from foot of Whitehall street to Thirty-ninth street, South Brooklyn, thence a walk of two blocks to the dummy cars which run to Fort Hamilton, and ride to Bay Ridge avenue, from which it is six minutes' walk to the beach. Round trip 30 cents, or 10 cents may be saved by getting off the dummy cars at the city line and walking three blocks extra to Bay Ridge avenue. Wardell has fourteen boats, at \$1 week days, \$1.50 Sundays. Boatman, 25 cents an hour extra. Wardell always keeps clams and sandworms for bait, and will direct fishermen to the best grounds in the vicinity. Blackfish and eels are the only fish caught there now, but there will be fair weakfishing during the latter part of this month. In the fall bluefish (snappers) are quite plenty, and take squid or shedder crabs with avidity. Meals can be obtained in a restaurant near Wardell's.

Ten minutes' walk below Wardell's place is Henry Stillwell's resort, at what is called Owl's Head, on the shore road. Get off the dummy cars at Seventy-ninth street and walk direct to the beach. Stillwell has a sloop in which he takes out fishing parties, and he is generally successful in securing good sport for his patrons.

At Fort Hamilton, the terminus of the dummy car route (round trip fare, 30 cents), there are three resorts within a stone's throw of each other. The one nearest New York is kept by Robert H. Hegeman, who has twenty one boats for hire at \$1 a day both week days and Sundays; boatmen, \$2 a day extra or 50 cents an hour. Hegeman keeps shrimp fresh caught every day, skimmers, clams and sandworms, and he provides tackle for those who do not bring their own. Paul Sieger, one of Hegeman's patrons, caught a six pound blackfish on Tuesday of last week off the "Wreck," a famous angling spot in the vicinity, and the anglers have been very successful in taking sea bass as well as blackfish. Weakfish will be plenty in the vicinity after the middle of this month.

P. and M. Gates keep the fishing resort just below Hegeman's. They have fourteen boats for hire at \$1 every day in the week; boatmen \$2 a day or 25 cents an hour. They keep bait for sale, fiddlers, skimmers, shrimp and sandworms. Fiddlers are 35 cents a hundred, shrimp 20 cents a half pint. Gates recommends the mussel beds or a point to the southeast of Fort Lafayette as the best ground in the vicinity for weakfishing. His patrons have caught plenty of blackfish recently.

Just below Gates' place the angler will find a resort kept by the oldest fishermen in these parts, Adrian Stillwell, who has been forty years in the business of renting boats to fishermen and giving them points about how to fish. Mr. Stillwell is three score years and ten, but he is as hearty as a man of half his age, and there isn't a man along these shores whose advice is of more value to the angler. Mr. Stillwell says he has found that the best all-round bait for these waters is shrimp. Every kind of fish will take shrimp, and take them eagerly, if the bait is properly used. The old gentleman has forty-three boats to let, and as he himself says, "Anybody can rent 'em any day for a dollar, except on the Fourth of July." On the day of Independence Mr. Stillwell celebrates it by charging double. He will provide a boatman, if desired, at \$2 a day or 50 cents an hour, and furnish bait of all kinds except shedder crabs and sandworms at the prevailing prices. On Sunday, May 19, Marcy Finney, one of Mr. Stillwell's customers, caught three sea bass and

ninety pounds of blackfish, and used only one hundred fiddler crabs for bait. Mr. Stillwell favors squid for weakfishing.

To show what the fishing in these waters was some years ago Mr. Stillwell points to the record he made on July 17, 1856, when he caught 104 weakfish in seventy minutes, just about as fast as he could bait his hooks, throw them over and haul in.

At Connolly's, Fort Hamilton, good board can be obtained at reasonable rates.

Taking the western shore of New York Bay we get our first fishing at the vicinity of Liberty Island, where large striped bass are caught both in spring and fall. "The Pot," about half a mile south of the island, is a favorite place, and there is sometimes fair sport angling from the shores of Liberty Island itself. To reach it take steamboat from the Barge Office, foot of Whitehall street, every hour, from 9 A. M. to 5 P. M. Round trip fare, 25 cents. The best way to fish these waters, however, is to hire a boat at the foot of Montgomery street, Jersey City, or take the Central Railroad of New Jersey from foot of Liberty street, to Communipaw station (fare, round trip, 14 cents). A short walk from the station there are boats which may be hired at \$1 a day. Bait should be brought from New York. Near Communipaw in the Bay there are also weakfish, bluefish and blackfish. Trains either way every half hour.

The next point at which to stop on the western Bay shore is Greenville, same route, round trip fare, 17 cents. Walk over to the Idle Hour Hotel, on the banks of the canal. W. H. Durkin, the hotel proprietor, has twelve boats for hire at 50 cents a day; Sundays, \$1. Boatman, \$2 a day extra. Durkin also has three jib and mainsail centerboard skiffs for those who like to sail. Just now fishermen are catching sea bass and blackfish in the vicinity, but the catches are small in numbers. There is good crabbing in front of the hotel in summer and fall. The Idle Hour clambakes, served at 75 cents a head, are famous. Fifty guests can be accommodated at the hotel, and meals obtained at half a dollar. Bait (clams and sandworms) is always kept on hand. One of Durkin's customers caught a sea bass weighing 12 lbs. off Robbin's Reef Light two weeks ago. This is on the authority of Mr. Durkin.

There are no boats now to be hired at Pamrapo, the next station along this route. At Bayonne, however, Alexander Ledoux has twenty-four boats to let right opposite the station. He charges \$1 a day, and does not keep bait, so fishermen must bring their own. It is an easy row from here to Robbin's Reef Light fishing grounds, where blackfish, weakfish and an occasional striped bass may be caught now. Fish to the northward of the Light above the nets set by market fishermen. Ledoux will be found a reliable man, who doesn't exaggerate the size or numbers of fish caught near his place. Round trip fare 20 cents.

Some of the resorts in New York Bay can be reached to advantage from Staten Island. The Staten Island Rapid Transit Railroad on both north and east shores of the Island runs through all the shore towns. The round trip fare is 20 cents to any point, via boat from foot of Whitehall street to St. George, thence cars. At Clifton there are several boatmen who make a business of taking fishermen out to the fishing grounds near the "Monument" in the Lower Bay. John Fence of Clifton has an open sloop carrying ten or twelve persons at \$1 each. He will not take out a party of less than five. Other owners of sailboats here that carry anglers to the Lower Bay are Dan Mullan and Harry Nolan. John Sanford has eight or ten boats for hire at \$1 a day, and a propeller carrying twenty-five people which he charters to fishing parties to go to the Monument or to the Fishing Banks. Fence keeps all kinds of bait, but I am not sure that the others do. The best fishing grounds, besides those at the Monument, are on the mussel beds in the Swash Channel, and at the "Wreck." They are catching sea bass at these places now averaging over a pound in weight.

H. Hanson, at Clifton, has a catboat in which he takes out parties at the same rate as charged by Fence.

Adam Hemmes, 16 New York avenue, Clifton, has an open catboat 25x10.3, the Adele, in which he will take out a party of ten or under for \$6 a day, Sundays \$8, this price including bait, which he supplies. Adam generally fishes the Sandy Hook wrecks, and has the reputation of always bringing in fish.

Edward Hemmes, 46 New York avenue, Clifton, takes out fishermen in his 30ft. cabin centerboard sloop at the same rate as charged by Adam Hemmes above. He also fishes the Sandy Hook wrecks and goes out to the banks. His parties have recently made good catches of sea bass and blackfish.

Michael Lynam, Clifton, has four or five boats to let. When I asked him what his charges were he said that he charged a well-dressed dude \$3 a day, and a poorly-dressed honest man 50 cents a day. Those contemplating