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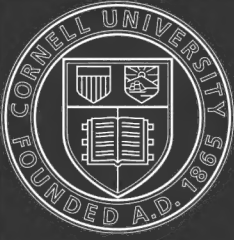
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The basses, fresh-water and marine,



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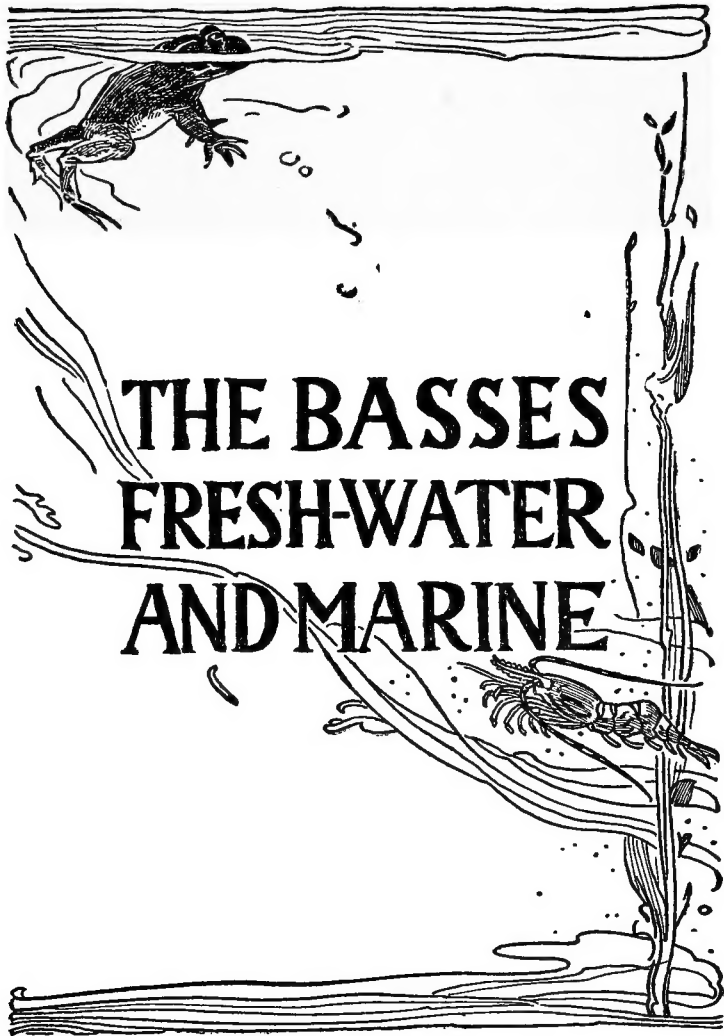


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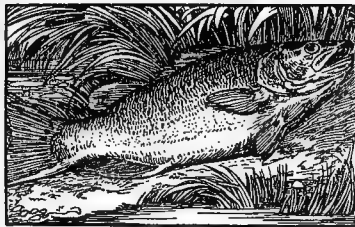
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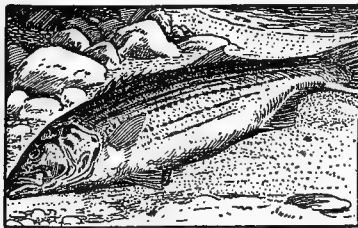
**THE BASSES
FRESH-WATER
AND MARINE**



A Leap for Freedom



THE BASSES
FRESH-WATER
AND MARINE
BY WILLIAM C HARRIS
& TARLETON H BEAN
EDITED & ILLUSTRATED
BY LOUIS RHEAD



FREDERICK · A · STOKES · COMPANY · NEW · YORK

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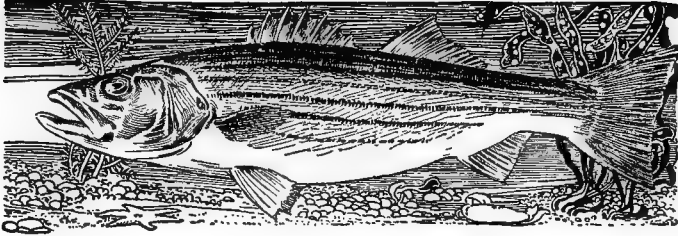
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Published in December, 1905



P R E F A C E

A FEW lines only are necessary to explain the object with which this volume on the Basses is put forth. It is intended as a companion and sequel to the Editor's book on Brook Trout, which from all sources has received a most kindly and flattering reception—a favor he would bespeak for the present issue.

The shortcomings of the previous work have, it is hoped, been obviated in this volume. All the matter has been specially written for it, and a greater number of colored pictures, reproduced by better and later methods, have been used. The main object has been to supply readers with complete information, not only how, when, and where to fish for bass, but also to enable them to find "poetic descriptions, entertaining accounts, and pleasing vicissitudes of angling," so that they may catch a glimpse, if possible, of the glamour and light of nature-study, without which half the delight in fishing would be lost.

So far, little or nothing has been said concerning

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the marine basses, especially that king of marine game-fish, the striped bass; and the Editor is fortunate in securing for this subject such a writer as Dr. Tarleton H. Bean, whose practical angling skill, combined with his well-known scientific knowledge, furnishes the reader with complete information on marine fishing.

It has been thought best to have the matter relating to the fresh-water basses entirely from the pen of one author, and that concerning the marine basses from another, making possible a more complete and satisfactory result. The late William C. Harris's contribution was his last work, his closing chapters having been finished in Saint Vincent's Hospital. Although most of his writings were on trout and trout-fishing, he preferred, and spent many years of his later life in fly-fishing for black bass, and he often expressed a desire to have the chance of writing a complete book on the bass (a subject on which none were more capable). This volume gave him the opportunity in the plenitude of his powers, and he produced what he himself considered the best work of his life. His idea of introducing three anglers, each with a different mode of capture, to tell in their own way how best to angle for the gamy bass, is a happy one, which he had in mind years ago.

As the illustrations of flies for the book on Brook Trout were prepared by an expert, a similar

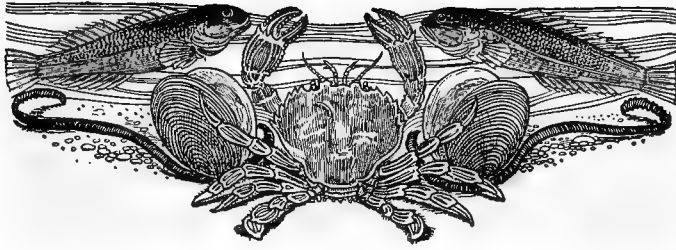
P R E F A C E

collection of bass flies has been tied and arranged especially for this work.

The publishers' devotion to the art of angling can be inferred from the care bestowed on all the little details which only a labor of love can inspire, and which makes beauty and usefulness join hands.

Should "The Basses" meet with an encouraging success, it will be followed by a series of works on angling, under the title of "A Library of Rod and Reel." This will contain volumes individually distinctive, though uniform in size and character, and their titles will be announced in due course.

LOUIS RHEAD

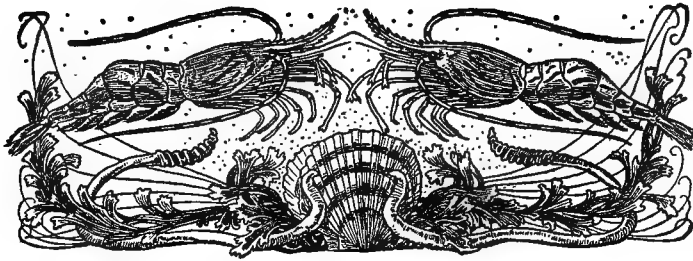


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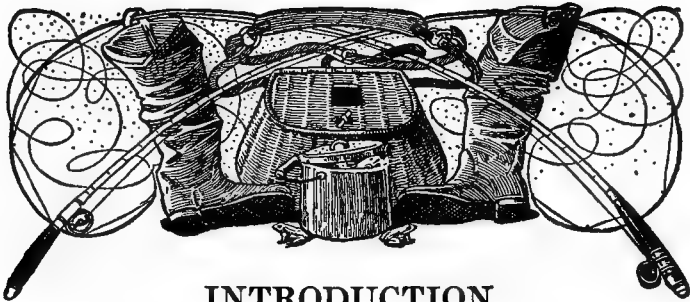


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INTRODUCTION

A NEW book upon the Basses is the gratifying announcement of this introductory chapter. What memories will crowd before the reader at the mere mention of the name! It must have occurred to every one who has examined the index to any general work upon our fishes that the basses in myriad forms have a wide circle of acquaintances, and they certainly may claim a world of devoted friends.

From Manitoba and the St. Lawrence on the north, through the Great Lakes region, the entire extent of the Mississippi basin, and in rivers flowing from both slopes of the Alleghanies, either as natives or by artificial introduction, the fresh-water forms are found in abundance. Men know them under scores of names, and prize them none the less for the endless nomenclature due chiefly to variations of color and form and peculiarities of habit.

The ocean has its own representatives no less

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favorably and widely known; for the giant of the race, the richest prize of the angler on our eastern coast, has been carried, as a tribute of friendship, to the Pacific, and has heartily entered into the spirit of its transportation by adopting its new environment and increasing beyond all expectation. We have sometimes feared that the striped bass is a vanishing element of our angling resources; but Californians are just beginning to enjoy what appears to be a rapidly growing source of supply, thanks to the energy and skill of modern fish-culture, and to the wonderful fitness of the western ocean for the new life consigned to its keeping.

The fresh-water basses are more numerous than the marine forms, but they are pigmies in size compared with the striped bass. It is claimed that the large-mouthed black bass attains a weight of twenty-five pounds in Florida; but its average weight, even in the South, which furnishes conditions most favorable to its growth, does not exceed five pounds. The small-mouthed black bass seldom exceeds eight pounds in weight and averages scarcely more than two and a half pounds. The sea-bass is the smallest of the series, for it reaches a maximum of only six pounds, and this is attained on its offshore feeding-grounds where suitable "banks," rocks, or sunken wrecks occur in deep water.

The striped bass is one of the largest, if not

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the largest, game-fish that ascends rivers from the sea. It is doubtful if even the king-salmon of the Pacific equals it in size. The early writers upon New York fishes made particular mention of this fish, which was remarkable for its size and its excellent qualities for the table. Dr. Mitchill saw a dozen at a time, weighing fifty pounds each, in New York market nearly a century ago. Dr. James Mease published an interesting account of the bass about the same time, in which he referred to individuals weighing sixty pounds. Dr. Capehart took one at Avoca, N. C., scaling ninety-five pounds; but the largest recorded specimen was said to weigh one hundred and twelve pounds.

On the Pacific coast it has not yet demonstrated its full limit of growth, and we seldom hear of one exceeding forty pounds; but there is no doubt that history will repeat itself in those prolific waters. This bass has a long lease of life if we may judge from experience in the New York Aquarium, where many of its kind have flourished in captivity for eleven years or longer.

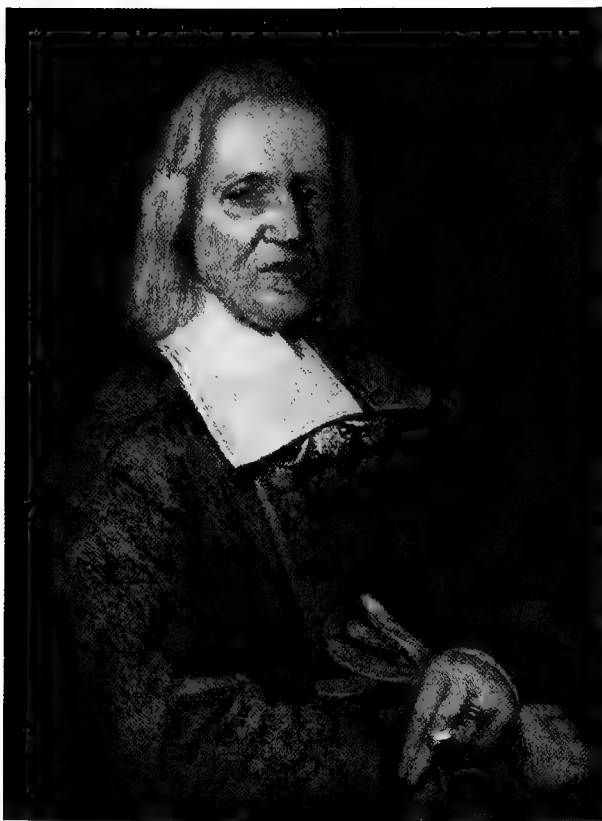
The striped bass has several smaller relatives, the white bass and the yellow bass of the fresh waters, and the white perch of the salt and brackish waters of the Atlantic coast. All of these are game-fish with good food qualities. The white bass has been pronounced almost as good for the table as the black bass. In European seas there is a fish which

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resembles the striped bass pretty closely, but without stripes. It is a highly prized food-fish, especially at the summer resorts on the north coast of France.

Anglers who are familiar with the basses need no argument to convince them of their many virtues. They are all beautiful and shapely fish, they furnish endless sport, and fill an important place in contributing to the food supply. Their flesh is firm, flaky, and toothsome. The reason is not far to seek, for they subsist upon smaller fish, crustaceans, shell-fish, and other delicacies. In the fresh waters they delight in minnows, crayfish, frogs, and insects and their larvæ. In the ocean they find ample supplies of alewives, killies, silver-sides, anchovies, crabs, squid, clams, and mussels. Is it surprising that they rank among the very choicest in our markets and among the best trophies of the angler's skill?

The records of the United States Fisheries Bureau show that it cost less than \$5,000 to transplant shad and striped bass to the Pacific coast, and that the value of the catch of these two fish to the end of 1904 was \$955,000, — a very good return for the investment and a clear illustration of the money value of these two favorite fishes. The striped bass formed a very large share of this total, if we may judge from recent accounts of the fishing. At San Antonio Slough, for example, thirty miles



Isaac Walton
The Father of Anglers

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from San Francisco, ten anglers caught 1,200 pounds of bass on a single tide. One of the party said:

“ I never saw the like ; they fill the water like a drove of sheep. It is dangerous to drive them inshore in shallow water with small boats. . . . Driven to the limit, they turned to seek deeper water, and in their attempts to escape many jumped upon the banks and some into the boats. . . . We had to finally seek deep water for safety,— put to ignominious flight by a horde of striped bass.”

The striped-bass angler on the Atlantic coast is never obliged to apologize for such a commercial catch, as the fish are nowhere plentiful enough to make it possible; but the bass are not always as far away from New York waters as one might suppose, and the initiated know where some of them are to be found even in the winter months.

It is not within the province of this chapter to discuss fishing-grounds and modes of capture of the fresh-water basses: all such topics and more will be handled in his own inimitable style by Mr. William C. Harris, whose name is a sufficient introduction for anything he proposes to write. Neither is it intended to dwell upon the beauties of form, color, and motion to be observed in perfection among the basses: Mr. Rhead will portray these attributes with the same fidelity and affection which characterized his recent work upon that fairy

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among game-fishes, the Brook Trout. There are some characteristic features, however, about the basses, which enhance the interest attached to their study, and which should not be omitted from this preliminary sketch. The marine basses and their fresh-water allies will be presented by the author of this Introduction.

The striped bass, huge as it is, starts from a very small beginning: before fertilization its egg is smaller than that of the shad, increases greatly in size after fertilization, and changes from a beautiful light green to a pale color. Spawning takes place from April to June, either in the rivers or in brackish waters of bays and sounds. The number of eggs is enormous, and yet our waters are nowhere overstocked with the fish, showing that there are many natural as well as artificial checks upon their undue increase. The spawning-grounds in North Carolina have been located, and the conditions necessary to successful artificial hatching are understood. There is no reason why this noble fish should not be started at least on the way to multiplication; and, unless unforeseen natural obstacles intervene, fish-culture should soon score another brilliant success.

The sea-bass, sometimes called blackfish, or black sea-bass in New York, black Will in the Middle States, black perch in Massachusetts, and rock-bass at New Bedford, ranges along the coast

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from Massachusetts to Florida. It reaches a length of eighteen inches and a maximum weight of six pounds, and is considered one of the valuable food-fishes. It has a voracious appetite and takes the hook with great freedom and regularity. Shrimp, crabs, sea-worms, squid, and small fishes form part of its food. Around Cape Cod the sea-bass spawns in June. The egg is one twenty-sixth of an inch in diameter and hatches in five days in water of 59° or 60° F. The young frequent the channels and shallow bays and are often taken in eel-pots. A narrow brown stripe along the middle of the side is a distinguishing mark. The rate of growth is rapid.

Large sea-bass love the vicinity of sunken wrecks and offshore banks where the bottom is rocky. In the breeding-season the adult male is gorgeously colored and wears a great fleshy hump on the nape. There is a decided tendency toward sluggishness among the big ones, and a fondness for hiding in rock crevices in imitation of the tautog.

The large-mouthed black bass is one of the most voracious of the fresh-water fishes, and with its voracity is combined a swiftness of motion which brings disaster to its prey. It feeds both at the surface and on the bottom, varying its diet with small fishes of all kinds, not excepting its own offspring, frogs, insects and their larvæ, and any

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other water animals of proper size. In one of the Government's fish-ponds at Washington, D. C., some years ago, about 100,000 young bass of this kind were being reared artificially. Before these fish were removed in the fall, their number had been reduced by cannibalism to about 30,000. The majority of the young weighed about two or three ounces, but 500 of them weighed nearly half a pound each. When placed in an aquarium, a bass of four and a half inches devoured seven others nearly as large as itself in one week. So much for cannibalism, and so much by way of explanation of the game qualities of the large-mouthed bass.

This bass spawns from April, or earlier, to July. During incubation the eggs adhere to stones in nests prepared by the adults, and are zealously guarded from enemies. Hatching takes place in one week or two weeks according to the temperature of the water. The young remain in the nests for a week or ten days. At the age of two weeks they measure about three quarters of an inch in length. The parents take excellent care of the young as long as they continue to swarm together, but as soon as they begin to separate and seek independence they are more likely to be devoured by their parents than by an outside enemy.

The hibernation which takes place in cold weather has also been observed in aquarium captives, which

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were known to decline food entirely in the winter. In summer the fish loves to lie under overhanging and brush-covered banks or concealed among the water-plants ready to pounce upon its prey.

The small-mouthed black bass is a lover of clear, pure, swift streams from the upper parts of the St. Lawrence basin and the Great Lakes region through the basin of the Mississippi. East of the Alleghanies it is native to the head waters of the Ocmulgee and the Chattahoochee. North of these streams it has been introduced almost everywhere. It has been transplanted to Western States, to England, France, Germany, and Finland, — perhaps without success in the last-named country. This is very good evidence of the esteem in which the small-mouthed bass is held. There is no more popular fish in our fresh waters.

This bass, like its large-mouthed relative, is a nest-builder. Spawning occurs from March to July. The hatching occupies from seven to fourteen days. The eggs are very small and very adhesive; they are bound together in bands or ribbons and adhere to the stones of which the nest is constructed. A single female will yield from 2,000 to 10,000 eggs, which vary from 80,000 to 100,000 to the quart. The nest and young are very carefully protected by both parents until the young cease swarming, after which the adults are not fit company for their own children, because

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they devour them as readily as they would any other little fish.

At the age of three to five days the young are almost colorless, and so small that they can scarcely be seen; their length is only about a quarter of an inch. When about three or four months old their bodies are dull yellowish green, the sides mottled with darker spots which are sometimes arranged in short vertical bars. The tail-fin is yellowish at the base, and bears a broad black band in its middle portion and a bright whitish margin behind.

The adults feed upon crayfish, frogs, insects and their larvæ, minnows, and other aquatic creatures. They swim in schools and often seek the shelter of large rocks or sunken logs. Hibernation takes place in winter, as usual with their race.

With these fragmentary glimpses into the life and home of a *coterie* of game-fishes which stands unexcelled in the esteem of all good fishermen, the reader may confidently pass to the real purpose of this book, which is to remind the angler of happy days on limpid streams or rock-bound ocean shores, breathing pure air, revelling in warm sunshine, cheered by birds' songs, and electrified by the indefinable thrill which foretells glorious victory over a noble foe.

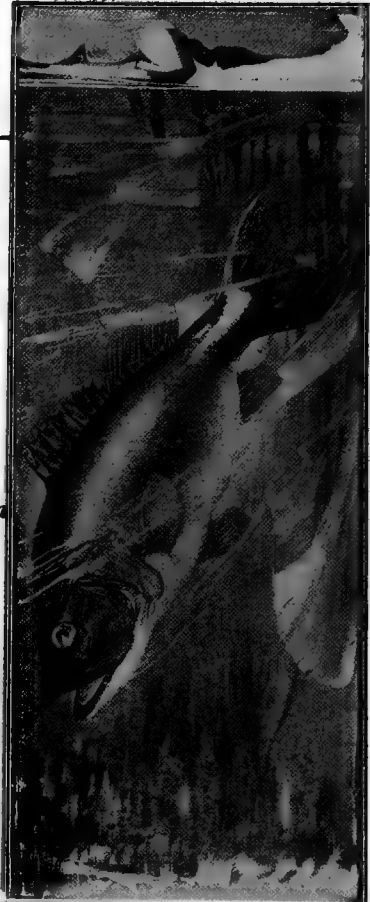
TARLETON H. BEAN

THE SONG OF THE BASS

*When summer nights are hard to bear,
And dog-days come again ;
When fetid grows the city air,
And fagged the weary brain ;
Then free ye from the stifled throng,—
With rod and reel away
To where bright rivers rush along
'Mid flash of rainbow spray!*

*In limpid lakes the lilies blow,
Though breathless be the town ;
On woodland banks wild roses glow,
And silver thistle-down
Caught lightly on the placid stream
Like goblin craft drift by ;
While here and there more subtle gleam
Intrigues the watchful eye.*

*Fresh fern a-plenty for his creel,
A snack within the shade,
A fragrant pipe, a singing reel ;—
The angler's day is made!
And some the lordly salmon praise,
And some the lusty trout ;
To many men are many ways
Of fishing, without doubt.*



THE SONG OF THE BASS

*To many men are many minds
 (Who would dispute or blame?),
And many boasts of many kinds,
 Yet this my modest claim:
In rocky lair the Bass is found,
 Where the swirling eddy dims,
Inch for inch and pound for pound,
 The gamest fish that swims!*

*A doughty knight in armor bright,
 No gage will he let pass.
The artful fly, the helgramite,
 Young frog from swampy grass,
He'll gorge; then, turning, dare his foe
 To equal fight and free,—
Or salt, or fresh, while waters flow,
 No bolder fish than he.*

*He never skulks, he never sulks,
 Above, below the flood,
With valiant lunge and prismsy plunge,
 His challenge he'll make good,
Till every cunning trick is tried,—
 Ye gods! we'll haul him in,
By gaff and net snatched from the tide,
 A vanquished paladin!*

*The night-moth and the dragon-fly
 No more need fear his leap;
No more on balanced fin he'll lie
 Guarding his castle-keep.*

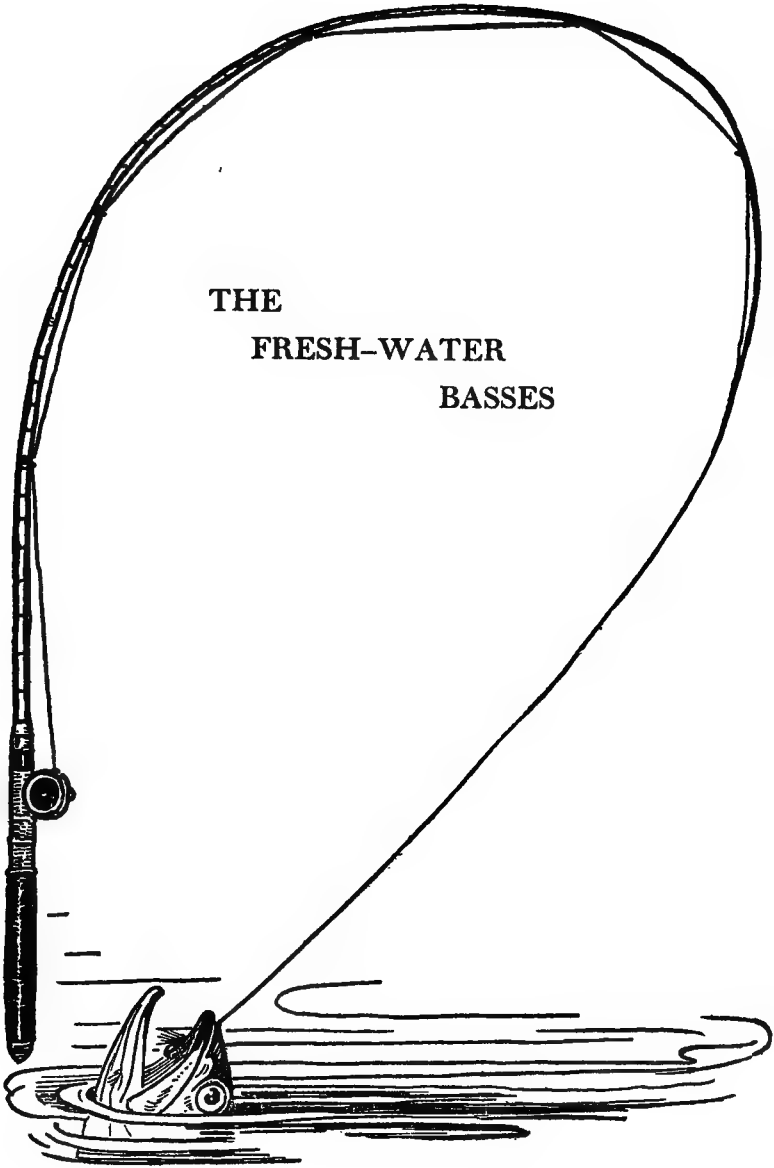
THE SONG OF THE BASS

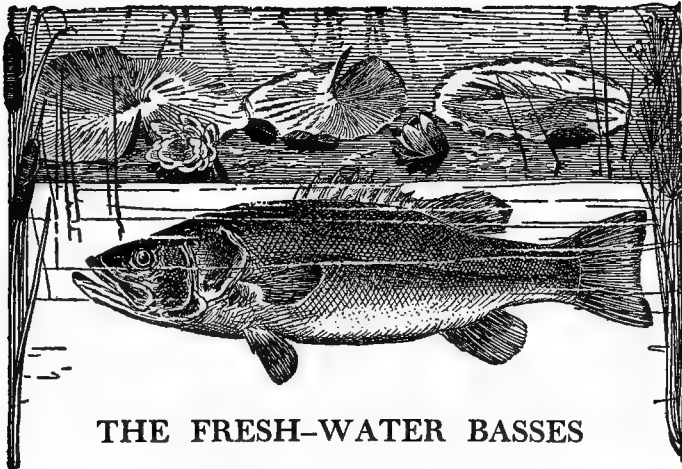
*To many bards are many lays,
Without dispute or doubt ;
And some the lordly salmon praise,
And some the lusty trout.*

*Yet in discourtesy to none,
With due respect to all,
When hotly beats the August sun,
And city pleasures pall,
The Bass, in river, bay, or sound,
My loyal muse still hymns,
Inch for inch and pound for pound,
The gamest fish that swims.*

ALICE CALHOUN HAINES

THE
FRESH-WATER
BASSES





THE FRESH-WATER BASSES

The Study of Fishes

DURING the last quarter of a century there has evidently been among anglers an increasing and cumulative desire to follow their pastime with improved equipments for capture, constructed on more scientific principles, and more deceptive to the fishes they wish to basket. Equally important and much more encouraging to the educated class of Waltonians is the increasing interest taken by the craft at large in acquiring knowledge of the habits and life-histories of the fish they seek to lure. But unfortunately at the threshold of this knowledge there is a drawback to its acquirement, in that they are compelled, in the case of many game-fishes, to learn by rote, as it were, their technical nomencla-

THE BASSES: FRESH-WATER AND MARINE

ture (often given in the dead languages) and the scientific classification laid down in the complicated text-books of the scientists, so that they may be able to differentiate their favorite fishes and assign them to the correct family or species.

This condition will be better understood when it is stated that ichthyologists tell us that —

The black bass is not a bass — it is a sunfish.

The white perch is not a perch — it is a bass.

The rock-bass is not a bass — it is a sunfish.

The wall-eyed pike is not a pike — it is a perch, —

— and so on almost without limit.

These statements are maintained in the face of the fact that in every section of the country the first names above stated are those given to the fish by fishermen, many of whom know no other appellatives for them. Again, the great number of local and popular names applied to one and the same fish in various parts of the United States adds to the confusion in the identification of species. Thus the big-mouthed black bass of Louisiana, among its many other Southern names, is there known as the “green trout,” while in Virginia it is called a “chub”; and the familiar wall-eyed pike or pike-perch is known in Pennsylvania and other waters as “salmon.”

The Fresh-Water Basses

From the above it will be seen how important it is that the student angler, in the early stages of his progress, should have a clear understanding of the proper classification of the basses, and a sufficient knowledge of the anatomical differences between the fishes of the family, to distinguish one from the other when boated or grassed by his rod. The methods by which this is done will be explained under the separate captions, designating each fish then under treatment. In the mean time the angler should make himself thoroughly familiar with the following list, in which are designated all the fishes popularly classed as "basses" and scientifically known as "sunfishes," bearing in mind that the single popular name of each fish has many multiples in nearly every section where it has its habitat.

The fresh-water basses, then, popularly so called, but actually members of the family *Centrarchidæ*, the sunfishes, include the small-mouthed black bass — *Micropterus dolomiei*; the large-mouthed black bass — *Micropterus salmoides*; the rock-bass — *Ambloplites rupestris*; the strawberry-bass (two forms) — *Pomoxis sparoides* and *P. annularis*; and the warmouth bass — *Chænobryttus gulosus*.

The true fresh-water basses that are angled for, and which belong strictly to the bass family —

Serranidæ — are only three in number: the white bass — *Roccus chrysops*; the yellow bass — *Morone interrupta*; and the white perch — *Morone americana*.

The Black Basses

Owing to the almost phenomenal interest taken in fish-culture by the people and by our state and national governments, entailing an annual expenditure equal to the gross appropriations for fish-culture by all other nations, nearly every pond and stream of sufficient area, purity, and depth, has been stocked with either the small-mouthed or large-mouthed black bass. Hence this great game-fish may be said to be living and thriving at the back door of nearly every fisherman resident in the country districts.

About three hundred years ago black bass were found by the Spaniards in the waters of Florida, and in 1721 the Jesuit missionaries caught them in several Canadian lakes. During the early years of the nineteenth century a specimen black bass was sent from the United States to the French ichthyologist Lacépède, who described it and gave it the generic name *Micropterus*, the literal meaning of which is "small fin." This was, however, a misnomer, because the fish sent to Paris had a mutilated dorsal fin, some of the rays of which

THE FRESH-WATER BASSES

were broken off, thus misleading the ichthyologist. Dr. Henshall tells us that this old specimen is preserved in the Museum of Natural History in Paris, and that from a personal examination he found it to be about a pound in weight, a foot in length, and remarkably well preserved.

The black bass is indigenous in waters from "Lake Champlain westward to Manitoba, and southward on both sides of the mountains from James River, Virginia, to South Carolina," in the waters of the Gulf States, and throughout the Mississippi valley. It has been successfully and widely introduced into many waters near to and far from its original habitat, and American anglers may be proud that they have a native game-fish which is said to be almost ubiquitous in our waters, and which, for its size, has no equal on the rod for sturdy resistance and intelligent resources to escape capture.

Species

There are but two species of black bass, — the large-mouthed, *Micropterus dolomieu*, and the small-mouthed, *Micropterus salmoides*. Both frequently inhabit the same waters, but either form can be easily recognized if the angler will expand to the utmost limit the jaws of the fish he has caught.

The large-mouth of five pounds' weight will

THE BASSES: FRESH-WATER AND MARINE

show a swallowing-capacity about equal to engulfing the doubled fist of a five-year-old boy, and the small-mouth of the same weight will exhibit the usual gullet of other scaled fish of similar size. So much to guide at first sight of the captured bass; but, if the fish are biting freely, anglers, as a rule, are so ardent in their sport that classification will not be a factor of enjoyment of the outing. But around the camp-fire or during the "nooning" the fact will doubtless be noticed and discussed that the eye of the small-mouthed black bass is posterior to the angle of the jaws, and that the eye of the big-mouthed species is in front of their posterior termination. It will also be observed that there are only ten rows of scales on the cheek of the latter, and about seventeen on that of the small-mouth.

Coloration

The coloration of the black basses varies in nearly every water in which they are found, and this contrast is sometimes so marked as to create in the minds of many anglers a doubt of the species. In fact, specimens have been taken, particularly from Greenwood Lake, N. Y., which were of a deep yellow color over the entire body. To add to the perplexity, an occasional fish in this lake, which is inhabited by both kinds, partakes of the physical



Large-mouthed Black Bass

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markings of the opposite species, leading many anglers to believe that the two are interbreeding in that water, — a condition not beyond possibility and calling for close investigation. About ten years ago I personally examined a three-pound large-mouthed black bass caught in Greenwood Lake, the eye of which was on a vertical line with the angle of the jaws. The ten scales on the cheek, however, determined its species and settled all doubt.

The small-mouthed black bass in most waters has a bronze lustre which mellows and spreads over the golden green above the lateral line, with here and there dark blotches, particularly on the head. Three bronze bands radiate from the eye across the cheek and gill-covers, and the belly is creamy white, — in some waters of a general pepper-and-salt coloration. As the small-mouth advances in age the pigments lose their strength and the fish becomes of a uniform dead green with a silvery lustre.

The large-mouth is of “a dark green color above and greenish silvery on the sides and below.” (In this connection note the yellowish coloration of the Greenwood Lake bass.) Jordan and Evermann tell us that the blackish blotches along the lateral line, so characteristic of the large-mouthed species, “break up and grow fainter” as they grow older. I have caught many of this

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form of black bass, weighing from three to five pounds each, and failed to recognize any breaking-up of this distinct but irregular and ugly blotchy coloration along the median line. There is, however, hardly a limit to be placed upon the different colorations, even of the same species, and sometimes even of those inhabiting the same waters. The factors producing these variations of color are the nature of the bottoms, light or dark, weedy or rocky; the character of the stream, shaded or otherwise; and the food most abundant. If the latter consists chiefly of crustaceans, the color of the black bass will, as in the case of the trout, become richer and darker. Changes of color in the black bass, as also in the trout, have been seen to occur when the fish moves from one part of the stream to another and remains there a short time under new physical conditions.



THE HABITS OF THE BLACK BASS

FEW fish thrive in such extremes of temperature as the black bass, but sudden changes are apt to be fatal to both species. The large-mouth will live in conditions of water, under high temperature and in stagnant ponds, which ordinarily would be death to all other forms of aquatic life except that of the lowest order. Yet with this fact before them there are some people — anglers, forsooth — who insist that in point of gameness and as a food-fish the big-jawed fellow is equal to the acrobatic small-mouth in running water!

Reproduction

The black bass is endowed with an emotional quality which very closely approaches parental affection. While the salmon, the trout, and other salmonids, as well as most other fishes, leave their eggs, as soon as deposited, to the ravages of the minnow, eel, catfish, and other ravenous spawn-eaters, the parent bass guards the nest with vigilance, and, when the young are hatched, hovers

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around them with the care and motherly solicitude displayed by a hen toward her brood of chicks. But few fishes have this "instinct," which is a convenient word to apply to such a quality, although "hereditary force of reason" or "emotion" would seem to express it more forcibly.

The eggs of the black bass cannot be artificially fertilized; they can be stripped only with great difficulty, and the male must be killed in order to obtain the milt. It is therefore fortunate that the natural increase of the species, when left to their own resources and the happy development of parental care of their young, has been found sufficient to stock waters of any size with this noble game-fish.

The black bass prepares a modest nuptial bed on a gravel, rock, sand, or clay bottom, and in some waters (Greenwood Lake particularly) the nests and young have been seen on the tops of submerged tree-stumps. It is a mooted question as to whether the male or the female prepares the nest. The similarity in the appearance of both sexes would seem to account for the different opinions of fish-culturists on this subject, although the female fish, in her gravid condition, shows, to a more or less degree, a distension of the abdomen. As the spawning-season approaches, which in the South commences as early as March and in the Middle States begins about the 5th of May and extends

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into July, the two fish, according to the reports of the United States Fish Commission, prepare the nest with their tails by cleaning a space of all substances, removing the larger stones on the bed with their heads and mouths.

When the nests are ready for use, both fish, but particularly the male, swim excitedly back and forth about, around, and across the nest. When spawning, as they cross the nest, their bellies lie close together, the female slightly forward of the male, and the eggs and milt are simultaneously voided. The eggs, being viscid, at once become attached to the floor of the nest. The parental solicitude of both fish begins at the moment the eggs are fertilized, one of them hovering over the nest and waving its fins to and fro to keep the eggs free from sediment. The other parent acts as a sentinel and in water of a foot or two swims around the nest at a distance of about ten feet.

The above notes refer exclusively to the spawning habits of the small-mouthed black bass; those of the large-mouth differ but slightly. The latter seem to prefer to make their nests on the roots of water-plants.

At the end of three or four days, or sometimes a week, the fry leave the nest and immediately seek shelter in shallows where vegetation is abundant. They live mainly on minute larval forms,

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although when slightly older small crustaceans seem to be their principal food. At the age of about four or five months they reach a length of four to six inches, increasing, under the most favorable conditions, about a pound a year.

The age at which black bass produce their eggs has always been a matter of interest and is as yet not fully determined. Some years ago Mr. J. J. Stranahan, an Assistant United States Fish Commissioner, stationed at that time on Lake Erie, wrote me from Chagrin Falls, Ohio:

“There are a number of small-mouthed black bass now on their spawning-beds in a pond near town, and among them is the smallest one I ever saw assuming maternal duties. She is not over four or five inches long and will not weigh over two ounces. Her bed is about the size of a tea-saucer and is located about a foot from shore in ten inches of water. It is well covered with eggs, and little Mrs. Bass is looking after them with the greatest care, fanning off the sediment with her tail and driving away all intruding animals. She is much bolder than is usual with her kind, and remains in the bed while visitors, of whom she has had many in the past few days, are standing out four or five feet away. She is, of course, a dwarf, and is probably two, or, more likely, three years old.”

The eggs of the black bass differ greatly in number and size. In a large-mouth weighing two and a half pounds 17,000 eggs have been found, which would average somewhat less than 7,000

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eggs to the pound of fish; but the careful count of the mature eggs showed only an exact aggregate of 2,674 eggs to the pound. This difference can be accounted for only by the large size of the eggs, and the counting of small eggs which were commencing their maturity for the next production.

The Baby Bass

When the young bass reaches a growth of three or four inches they have learned to take care of themselves, and no minnow is so well adapted by its courage and build to do so. Like all other young fish, they may be found in the shallows at all times, but occasionally they venture afar, and it is not unusual, on a baited hook, to catch one three inches long in five or six feet of water. Even those of two inches are fierce and voracious, and seem to be marauders through heredity. When they leave the protecting care of the parent they are about an inch in length, and start out at once on their foraging courses, snapping up every form of insect life in the water, and along the shores one may now and then be seen rising to the surface for an unlucky gnat or small miller. I have seen them routing under small stones for the lesser larvæ of the helgramite, or dobson, and chasing larger minnows than themselves in the small pools near the shores.

I do not think there are young fish of any

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species that can compare, in robustness of form, symmetry of outline, or sheen of coloration, with a young black bass two or less inches in length. It is stout at the shoulders and of unusual depth of body in proportion to its length, and the glint of silver that comes through and illumines the darker coloration of the upper part of its body is constant and beautifully transparent in its diffusion. With this stoutness of body it does not lose in gracefulness of contour, for every line is symmetrical. The spines and rays of the fins are perfect in specific anatomical detail, with not a broken or marred tip or a break here and there in the membrane they support. Its external anatomy has not a flaw, for the bass is a young Hercules in build without a lesion in strength or beauty; with compact scales and sturdy muscles it is the very image and build of his parents, and has the same habits, indomitable courage, voracity, and greed, so far as his growth permits.

Take out of the water where this vigorous little fish lives any other minnow, except the young catfish, and in nine cases out of ten you will find scales sticking to your hands, broken spines or rays, and often bruised noses, with a rip here and there in the membrane of the fins. Still more frequently will you have them flutter and die before the tiny hook can be taken from the jaw. The young bass, although not gifted with the vitality of the minnow

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catfish or bowfin, has this quality of a high grade far beyond that of any of the cyprinoid or carp-like minnows that may be said to pre-empt most of the lowland streams and many of the lower reaches of those of the mountains.

As the young bass passes through the period of adolescence, there are no repellent organic metamorphoses in its life or body. It simply grows in strength, vigor, and audacity, and when mature these inherited qualities, developing normally as they grow, give us a game-fish unequalled, for its size, by any other that lives in the fresh waters of the earth.



QUALITIES OF THE BLACK BASS

Indigenous and Confined to American Waters

IT has been said that the black bass is pre-eminently an American fish. Of this no doubt can exist, for it is American born and bred; its industry in foraging for a living, intelligence of resources to escape capture, and adaptability to any conditions of environment, be it in cold or warm, fresh or salt water, are traits that bring it in line with our fearless and resourceful pioneers of the Western wilds, who were "plucky, game, brave, and unyielding to the last," and with such qualities the small-mouthed black bass is fully endowed.

Weight

The black bass grows to a large size; the record for a small-mouth caught in a lake in Glens Falls, N. Y., is eleven pounds. Several of eight pounds have been taken from Lake Ronkonkoma, L. I. These were all small-mouths, but the authentic maximum weight of the large-mouthed black bass

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is twenty-three and three-quarter pounds, being that of a specimen taken from a lake in Florida. Since this large fish was caught and weighed I have been assured by reliable anglers that large-mouths have been killed on their own rods, of which the weight was within a close call of thirty pounds. There is nothing improbable in such statements, for we all know that fish and other animals, under conditions of abundant food close to their mouths, are likely to fatten as hogs do in the sty.

Edible Qualities

As a table-fish the black bass is held in low esteem by many and highly prized by others. The flesh of the river bass caught in the summer months, when the water is of high temperature and subject to frequent rising and falling by reason of freshets, becomes soft and has a muddy or earthy flavor, while that of the bass living in cold, clear, spring-fed lakes is sweet, flaky, and juicy, particularly when broiled. This method I believe is the only proper way of preserving the excellent flavor of the black bass. If a savorless river bass, when first caught, is placed alive in the running water of a spring-house, and allowed to remain there several days to purge itself of the contaminations acquired in the river, it will be found as sweet and palata-

ble as a mountain-lake fish. The excellence of Philadelphia poultry is well known. Before sending his chickens to the market the Pennsylvania farmer coops them up and feeds them richly for a week or two, that they may gain fat and become free from all barnyard taint. I have read that in Germany, the execrable carp, so popular as a table-fish in that country and so abominated by American fish-eaters, is treated much in the same way as the Pennsylvania farmer treats his chickens.

Many anglers — and I humbly hasten to place myself among them — believe that fishing for black bass is more enjoyable, and can be more frequently indulged in without palling, than even angling for trout, for his big brother, the lordly salmon, or for the acrobatic leviathans of the Southern seas. The only qualification of this opinion I am inclined to make is that fly-fishing for black bass in running water, wading as in trout-fishing, must be understood as the special factor justifying the above sweeping statements.

It will not be amiss, even at the risk of repeating myself from former notes on the black bass, to state more fully the reasons why the black bass is such a favorite fish among anglers.

Strength

The black bass is endowed with strength, for its size, beyond that of most fresh-water fishes; moreover it seems to possess the intelligence (or an acute development of instinct) to use its strength to the best advantage in its efforts to escape from the rod, to throw the hook from its mouth, or to sever the gut of the leader by getting it around jagged and sunken rocks. Frequently it will sink — sullenly, as it were — to the bottom, and nothing will dislodge it except main strength and the utmost strain of the tackle by which it is held in restraint. All the devices of an old salmon-angler will not budge it from its lair: the throwing of stones, lashing of the water, knocking on the butt of the rod, even the jabbing of a stick at him unseen in a pool (but doubtless not touching his body), have failed, as have all other attempts, to make him move an inch. Nothing but a steady strain sufficient to overcome his strength of muscle will have any effect, and frequently even that will be only temporary, as under such conditions the bass will sometimes move but a few feet and then “sulk” again. So persistent and determined is this action of the fish, that one would be inclined to think that he evidently braced his strong pectoral fins on the sides of two stones between which he was “sulk-

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ing," — a term insulting to the majesty of the fish
in his intelligence of resources to escape capture.

Leaping Traits

With many anglers the grade of a fish, when restrained by the rod, is determined by his practice of leaping from the water. I doubt if the salmon of the fresh water, or the tarpon of the ocean, would be so highly esteemed as a game-fish were it not for their leaping qualities. The black bass is an acrobat by heredity. No matter when you fasten one in running water, he will sooner or later come into the air. I have known them to leap from an eddy on the side of a rift (they do not feed in strong rapids) and alight in the boil of the current, and fight there with an apparent knowledge that the swift down-flowing water aided their muscular efforts to escape.

Of the many fishes in American waters there are to my knowledge only twelve that invariably come out of the water when they feel the tension of a restraining line. These are the black bass, the salmon (both sea and landlocked), the rainbow-trout, the unspotted mascalonge of the Northwest, the grayling, and semi-occasionally the black spotted trout of Western waters. These all have a fresh-water habitat, and of them the black bass, the salmon, rainbow-trout, and grayling are the only ones



The best Time for Bass

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known to me that leap into the air on a *slack* line. The Eastern brook-trout (*fontinalis*) seldom, if ever, comes entirely out of the water when hooked, unless it be pulled out by the over-zealous angler. Of the salt-water fishes that leap there are only the tarpon, ladyfish, Spanish mackerel, the large kingfish of Southern seas, and, strange to note, the needle-fish or billfish of Key West, which is the most skilled acrobat of them all in either fresh or salt water. I have seen the latter fish make complete double somersaults, their long, slim bodies, with the sheen of a polished silver lance, looking in the sunlight like a palpable thread of glancing white light in the blue atmosphere of the Keys.

When fish leap from the water it is undoubtedly with a view to escaping from the hook, and with many of them the leap is followed by a vigorous shake of the head. In the case of the black bass the shake involves the entire body from the snout to the tip of the caudal fin. The leap on a slack line, which is never made, so far as I know, by the Spanish mackerel and kingfish (not the "barb" or "kingfish" of Northern waters), is an evidence of superior intelligence or accumulated experience (take your choice) in a fish, for he has evidently found that it is practically impossible to eject a well-entered hook when a taut line holds it firmly in place.

The black bass always leaps on a slack line, and

the angler frequently thinks that the fish has escaped, as the line loops in the water and the strain upon it is no longer felt. But, presto! thirty, forty, or perhaps fifty feet away, his eye catches a gleam of bronze and brass two or three feet above the surface of the water, and he notes with delight the aërial flight of that old bronze-backer, vigorous even in the air, with every muscle in action, frantically shaking its body and almost doubling it up in the frenzy of restrained liberty. And just here, sad to say, comes in the thrill evolved by the hope that the quarry is within possible reach of capture.

The leap of the black bass is always directly upward when hooked, and he generally falls tail first into the water. At times, however, this fish, like the trout, will rise vigorously to the fly, and, missing it, will make a graceful curve in the air ere he quietly returns, head down, to his element. But as a rule the bass rises fiercely and with an accurate aim to the fly, and then starts instantly for his lair, which, when feeding, is most frequently at the foot of the rift flowing into a pool, or just on the edge of the rapid in an eddy made by the swift running water. I have never found bass feeding or loitering in the rapids, and this is not easily accounted for, seeing that in black-bass water the chub, large and small, are always found in swift water. Another coincident condition is that the chub seem to have realized that they are safer from the rav-

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ages of the bass in the swift currents than in the still waters of the pools. I have noted — on the Delaware River particularly — that whereas some twenty-five years ago, before the black bass became sovereigns of that water, the chub swarmed in the pools and large eddies, at the present time a chub can very seldom be taken on hook and line in such waters. As an old angling friend, resident upon the banks of this great black-bass stream, expressed it:

“The chub appear to be stealing up the river by the way of the shallow rapids near the shores, and can never be found when the bass lie in the deep water.”

But the black bass is not to be cheated of his favorite food, for as the shadows fall he may be found lying in wait in the circling eddies on the edge of these rapids, and woe betide the hapless cyprinoid that chances to come within jaw-reaching distance of a ravenous bronze-backer, or within the possible compass of a sudden dash into the tumbling water, in which, however, the black bass does not linger a minute, returning at once to the eddy.



FEEDING-HABITS OF THE BLACK BASS

AS the twilight deepens, the black bass will be found either rising, here and there, to the surface of the deeper water, feeding on the insects that fall upon it (particularly the gloaming-loving moths, which, as a rule, swarm near and upon the rivers containing bass), or, in the shallows along the shores, making the water fairly boil with their dashes into depths of but two or three inches, chasing the minnows ashore by their impetuous rushes. I have actually seen them, in the excitement of thus feeding, with their dorsal fins entirely out of the water. It is at such an hour that the angler meets with the greatest success with the rod, and it matters but little what feathers he uses, or how inexperienced he may be in handling them, provided he makes his cast at least fifty feet in length, and stands in deep water when casting.

I once saw a black bass do a brutal deed that fairly earned for him the title of "tiger," but I doubt not that such actions could be laid to the charge of many other fish. He had chased a chub

FEEDING-HABITS OF THE BLACK BASS

of five or six inches into a hole between the stones of the side wall of a dam, a portion of the body of the victim protruding. Mr. Bass swam quietly up, and, selecting the softest and most delicate part of the chub (the belly), deliberately tore out a mouthful and swam slowly away with what seemed a pleasurable flirt of the tail.

This tiger-like trait of the black bass is not admitted by some angling writers as being constant or natural. A prominent author goes so far in the defence of his favorite fish as to assert that it is less destructive to the life of its fellows than the yellow perch, pike-perch, mascalonge, trout, and other fishes, and bases his belief on the fact that the teeth are weak, closely packed, and present "an even surface as uniform as the surface of a tooth-brush. Such teeth are incapable of wounding, and merely form a secure surface for holding their prey securely." Black-bass anglers everywhere would gladly accept these words as gospel truths; but the fact remains that the black bass, like all other fish known to us, do not masticate their food, but gulp it down whole; and that, their teeth being firm enough to keep their prey from slipping, the strength of the jaws is sufficient to tear out a bit of the tenderest part of a soft-fleshed cyprinoid.

Temperature of Bass-Waters

There is an impression existing among many who are interested in the life-history of the small-mouthed black bass, that they thrive only in clear, rocky, cool streams. Their lusty life and rapid increase in such rivers as the Delaware, Susquehanna, and Potomac would seem to negative such a statement. True, the black bass, like the trout, is ever on the move up the fluvial waters: the latter, from the imperative instinct of reproduction; the black bass, I am led to believe, simply from the need of new feeding-grounds, for they can be found, during the spawning-season, on their beds, in a stretch of more than a hundred miles on the Delaware River in the month of June. Moreover, and again as to their thriving only in cool water, I have frequently stepped into the shallows along the banks of that river, when the water produced a sensation of heat to my feet and ankles, and yet, then and there, a fly-cast made fifty feet away creeled a bass from water hardly more than two feet in depth. In the shallows the degree of heat was certainly 85° to 90° F., and where the fish was hooked it was surely not less than 80°. This experience, many times repeated, was confirmed at East Branch, Delaware County, N. Y., at least 200 miles above tide-water as the river

runs, and where the small-mouthed black bass are numerous and take the feathers, soberly dressed, with frequency and avidity.

Now, there is a peculiar trait of the small-mouthed black bass of that section which I have never seen mentioned in the books or journals devoted to the subject of angling. When the railroad traversing that region took up and vigorously carried to success the idea of stocking the streams of Sullivan County with several species of trout, great fears were felt by anglers that the black bass of the Delaware would eventually find their way into the Beaverkill and Willowemoc and destroy the trout. These fears, after ten years of observation, have proved groundless. The cold waters of the above-named rivers, uniting just below Rockland, seem to be a barrier to the upward progress of the bass, although there are many large and sufficiently deep pools in the lower Beaverkill in which they could live and thrive.

Leaping of the Large-Mouths

Much has been said and written, *pro* and *con.*, as to the large-mouthed black bass leaping into the air when hooked. They certainly do not do so, even semi-occasionally, in my experience, on waters east of the Alleghanies; but they frequently come into

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the air in the waters of the Northwest, and several of my friends who annually visit Florida solely for fishing tell me that in some of the interior lakes of that State the big-mouths not only leap after being hooked, but do so on a *slack* line.



BAIT-FISHING FOR BLACK BASS

Artificial vs. Natural Baits

DOUTBLESS nine tenths of the bass fishermen fish with bait, artificial and natural, and have not as yet reached the higher grade of enjoyment,—that of fly-fishing. Numerous and enjoyable, however, are the methods by which this fish is lured, particularly with natural baits, the latter reaching scores in number. But no artificial lures have yet been made to equal the attraction of a live or even a dead minnow, if hooked properly, especially if a spinner about the size of a ten-cent piece be placed on the line an inch or two above the bait fish.

We think that artificial lures of any description are more attractive to fish that live in running waters than to those which inhabit lakes and ponds. In the former the fish are forced to hustle for food; in the latter, food is, as a rule, more plentiful, and the smaller fishes upon which the bass feed have fewer lairs of security and seem to use less activity in reaching them.

Methods of Bait-Fishing

The methods of fishing for black bass with baits, excluding fly-fishing, are varied, and, I think, require skill in luring beyond that necessary to boat all other fresh-water fishes that take a baited hook.

Still-Fishing

Take the apparently simple one of still-fishing from an anchored boat. In this style of fishing the general rule is to strike at once when a fish plucks fiercely. Not so with the bass; he is most leisurely and lazy when taking the lure in still water, moving off slowly with it, generally down current, and I doubt if ever a bass is hooked under such conditions except by chance. One never knows when to strike. Unlike the pike or pickerel, which take a minnow bait, move off a few feet, stop and apparently turn the minnow and swallow it head foremost, and then give a signal to strike by moving off again, the black bass will at times hold the minnow crosswise in its mouth and go slowly down current sometimes 200 feet before stopping, and even then at times seems to be toying with its prey, for it is frequently found that striking and reeling at that distance will bring the minnow, still alive, back to the boat. This is a daily experience on the upper

waters of the Delaware; on other rivers, where the bass are very numerous and shoulder and fight each other for food, it seldom, if ever, occurs.

Casting the Minnow

The most admired and skilful method, but the least followed on Eastern waters, is that of minnow-casting for bass. Like fly-casting it cannot be taught by description or diagrams. Briefly and rudely told, the angler stands on the bank of a stream or lake, or in a boat, with a rod about seven feet in length, which is held tip-down three or four feet from the body, either to the right or the left, then with an upward swoop brought to about the height of the head, with the tip pointing in the direction of a rising bass or where one is supposed or hoped to be, the line running free from the reel until just a moment before the lure strikes the water, when it is stopped by the thumb of the angler. A few practical lessons on the stream will soon perfect the novice if he has the material in him; if not, he had better stick to his still-fishing or to drifting his minnow bait down stream, with his bait-bucket fumbling between and around his legs.

The merest bungler as a rod-fisher should not be discouraged, for black bass are frequently caught without using rod, line, hook, or bait. In the upper

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waters of our large rivers there are many mud or grassy flats with only a few inches of water on them, sufficient, however, to float a small flat-bottomed boat. It is not an infrequent occurrence, when one of the latter is rowed at night over these bottoms, to have the black bass, thus disturbed in feeding on such fruitful and favorite ground, to jump, in their fright, into the boat. In fact it is of official record that on three consecutive nights one person captured by this unique method 42, 132, and 63 fine bass, some as large as two and a half pounds in weight. The most sensitive humanitarian could not object to this method of fishing, where there is no live bait to impale, or hook to extract from the mouth of a captured quarry.

A Tricky Method

A friend of ours has a tricky way of luring black bass when "off their feed." He hooks a worm in the centre, so that when he puts on a minnow the ends of the worm hang on either side of the head of the fish. His theory is that the bass reasons thus: "That fellow is going off with a prize; if he was not in good health he would scarcely have such a good appetite; therefore it is evident that no fisherman has played tricks with that lusty fellow," — and so Old Fin goes fiercely after the young cyprinoid and our friend's basket is made heavier by another fish.

Chugging

There is a method of trolling which, slightly varied, is known on the Niagara River as "chugging." It is alluded to more particularly for its value to fishermen when first visiting an unknown water, as it enables them to find the favorite feeding-grounds of the black bass. A heavy sinker of four to eight ounces in weight is attached to the line, and about three feet above the sinker a gut leader of three or four feet in length is fastened, and the hook is baited with a live minnow. The boatman is ordered to row slowly, and the sinker is allowed to touch the bottom every now and then, the leader and the minnow extending at an angle of about 45° from the line if the boat is properly and slowly rowed. With this gear you compass the lake or pond, telling your local boatman (who should know the physical character of the water upon which he guides and lives) not to neglect passing over all the relatively shallow flats. When the pluck of a fish is felt, or a bass taken, instruct the boatman to make a wide circle and again pass over, as near as may be, the same spot. If upon his doing so, another bite is felt, circle once more, and if similar results occur you have found a feeding-ground, so anchor and be happy.

Skittering

“Skittering” is an abominable, fatiguing, and (except in skilled hands) uncertain method used by residents in the vicinity of lakes in the northwestern part of the Middle States, and in some of the Southern States, for catching the large-mouthed bass. It consists in using a pole from twelve to twenty feet long, having a line somewhat longer than the pole tied to its tip. The fisherman stands in the bow of the boat and switches the line and bait (usually a frog) to and fro, particularly among the lily-pads or other vegetation along the shores. As the line is usually somewhat longer than the pole, it takes an expert to boat the bass when hooked.

When fishing with crayfish for bait, the angler will be greatly pestered, if not careful, by its crawling under logs or into any crevices it may find. Some fishermen try to prevent this by breaking off one of its claws, but this is merely a partial remedy. Others, with greater success and comfort, keep the crustacean well in hand by lifting it an inch or two from the bottom every minute or so. In hooking a crayfish run the hook in under the tail and bring the barb out through the back. The bass always takes the crayfish tail first, but it is best to allow him several moments to swallow it before striking; in fact this rule is a good one when fishing with



Trolling with live Bait

baits that the bass apparently gulps down. One exception, I think, should prevail: black bass, while seldom, if ever, found feeding in the long and relatively shallow waters of rivers, will frequently be found just at the tail of the rapid water as it pours into and subsides in the deeper waters of the large eddies or pools. These places are grand, fruitful waters for the angler who hooks his minnow through both lips and tosses it into the upper foam, whence it passes into the subsiding current and frequently into the maw of an awaiting and hungry bass. If the angler chances to fish the deeper and quiet waters below, he hooks his minnow in the middle of the back and allows it to wander to and fro in mid-water or near the bottom, having taken care that the hook has not touched the backbone, which would be fatal to the life of the minnow.

Still-Fishing and Trolling Outfit

The outfit for a black-bass fisher who still-fishes or trolls is very simple and includes a moderately stiff rod eight to nine feet long and weighing seven to eight ounces; a No. 6 line and a 100-yard multiplying reel; a supply of Sproat hooks from No. 4 to 1-0 tied on single snells; a small float or cork (if you can permit yourself to use one — I cannot) to prevent the bait from bottom-catching;

THE BASSES: FRESH-WATER AND MARINE

a twelve-inch landing-net, and a box of lampreys, helgramites, or grasshoppers, a live-minnow bucket; and a dozen single-gut leaders, three to nine feet long.

Mr. H. C. McDougall, of Newark, N. J., a few years ago wrote me:

“ I have demonstrated to my own satisfaction that black bass can be attracted to the boat by liberally dropping fresh earth into the water while at anchor.”

When trolling (an abominable habit), when every other device failed, I have always resorted to a trail of six or eight of the largest and gaudiest lake flies, looping them on the leader about eight inches apart, being careful that each should contrast with its neighbor in coloration, and placing the most variegated Dolly Varden feathers as an end fly. With a hundred feet of line out and the boat rowed slowly, failure seldom, if ever, comes to the fisherman.

In trolling with such flies use the rod, line, and reel I have described, and a single-gut leader one size finer than salmon gut, and one foot shorter than the length of your rod down to your reel. A small brass swivel should connect the leader with the line, to prevent the leader from twisting. The flies should be tied from No. 1 to 1-0; the bodies should be larger than are generally made, nearly as large around as an ordinary lead-pencil.

Seasonal Conditions

In the opinion of many anglers backwardness of spring and a previous severe winter improve the fishing chances of summer for many if not all the so-called game-fishes. The reason for this, in the opinion of old Waltonians, is that the severity of the winter has destroyed the larvæ of many insects, and the cold and late spring retards the spawning of the cyprinoids and other small fish that reproduce their kind in March, April, and May. The principal food of the black bass consists of larvæ, matured insects, and small fish, such as the daces and shiners; hence the smaller the quantity of natural food the greater the eagerness of the fish to take the lure. Be this argument fallacious or otherwise, it is a matter of experience with many old anglers that late springs are followed, as a rule, by well-filled creels.



BAITS FOR BLACK BASS

THE number and variety of baits that entice black bass have never yet been definitely settled. Certain it is that they will take any living thing, small enough — and sometimes too large — for them to swallow. The definite size of a perch or a sunfish which a large-mouthed black bass cannot engulf is still imaginary, for none of these big-mouths have been found choked by a food-fish, although it is not an infrequent occurrence to find the small-mouths in that condition, floating helpless on the surface of the water. The fins on either the sunfish or the perch do not seem to bother the bass very much. If their prey is very large it may take them longer to turn and swallow them head first, but when so swallowed, the fins close down like a fan and slip through the gullet without any difficulty.

The Capture or Purchase of Live Bait

One of the saddest trials to many anglers is the capture or purchase of the most alluring baits. If an opportunity to buy them occurs, one is apt to be

BAITS FOR BLACK BASS

charged an exorbitant price, sometimes as high as three dollars a hundred for live minnows, crayfish, or lamper-eels, half or more of which are apt to die before the fishing day is over. Personally, however, I may say that some of the most enjoyable hours are those passed in the capture of live baits. It fills up the off days or early hours when the bass are not in a biting humor, and, best of all, it will make one independent of the local bait-peddler, who, of all human beings, has the least conscience anent crime within the law. Live baits are easily obtained.

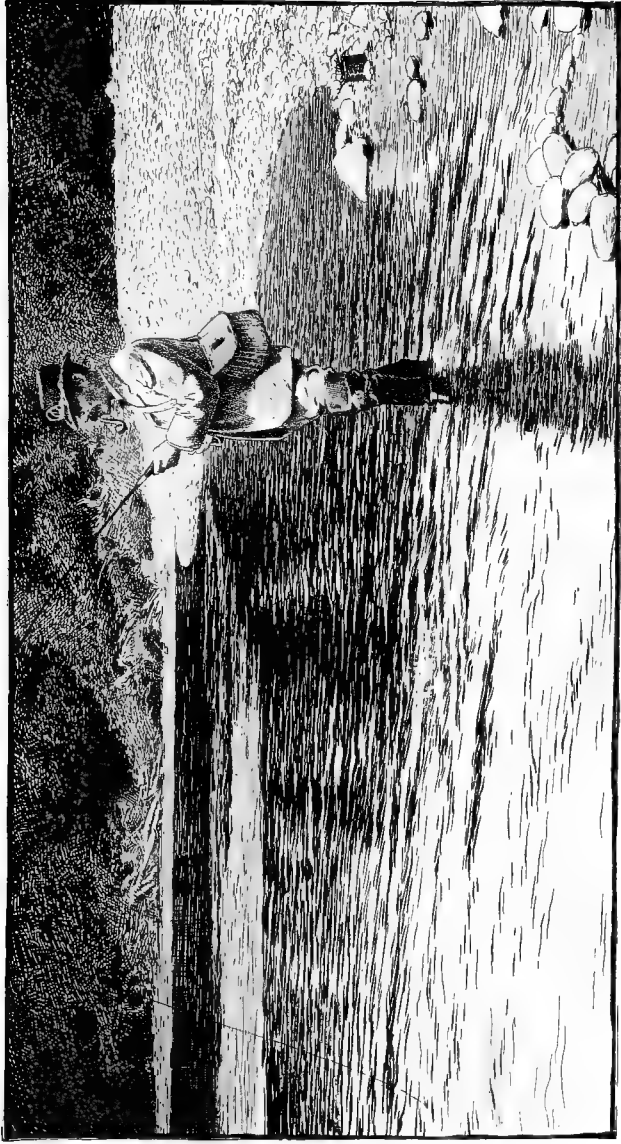
The Lamprey

First, the so-called lamper-eel, which is not an eel, but belongs to a very low order of water animals, having no bony skeleton, no gills, ribs or limbs, and being a naked, eel-shaped creature with a sucker mouth, the lips of which are fringed with fine hairs. It inhabits the fresh water of rivers and brooks and gets its living by attaching itself to other fishes, feeding upon them by scraping off the flesh with its rasp-like teeth. They are usually found in the mud close to the shores, and a shovel is all that is necessary to capture them. Dig deep and throw the mud upon the dry bank, and search thoroughly through it with the hands for the wigglers. They are more slippery and agile than the eel, and of all live baits the most difficult to impale

upon the hook. A dead one is not attractive to the bass, but — to the bother of the angler — very much so to the small sunfishes and chubs.

Catfish

The small catfishes, which are favorite baits with many bass-fishermen, bear several popular names, such as “stonecats,” “mad-toms,” “black bullheads,” “pouts,” etc. They are found under stones along the shores. Take a hammer with you, and on seeing a stone with a shelving side, no matter how slight the angle, strike quickly and sharply on its top; lift it up at once, and you may find underneath it one or more catfish from two to four inches long, stunned and helpless. Seize them quickly (avoiding touching the spine on the back), as they recover and disappear almost in an instant. This bait is very tenacious of life, and on a single one as many as five black bass have been caught before the catfish died. This result, however, is, in a measure, owing to the fact that in many instances the black bass, like many other fishes, when striking fiercely at live bait, and sometimes even when they appear to have gently mouthed it, force the minnow from the hook several feet above it on the line or leader. A satisfactory angling diagnosis or explanation of this peculiar condition is yet to be made.



Fishing with Lampreys in deep Water

Crayfish

As crayfish frequent the bottom rather than the surface or midwater of the stream, the bait should be dropped to the bottom at the head of a hole. When the crustacean finds a hold, it will burrow just deep enough to make fast either in the sand under a cobble or in a crack in a stone. A bass evidently knows the meaning of the little pile of fresh sand as well as a fisherman looking for bait, as the fish will nose out the crayfish when the latter cannot pull it out. If the crayfish is fast, the first intimation of a bite will be when a fierce-looking bass jumps from the water with the bait in its maw.

Many fishermen prefer crayfish to any other live bait. They are found under stones near the shores of rivers and brooks, and frequently in lakes. It is well to use a small hand-net of fine mesh to capture them, as they are quick in their movements. A better plan, however, is to place a bait of decaying flesh or animal garbage in a piece of net on spots they are known to frequent; they will gather around it in numbers, and can be easily captured.

The salt-water shrimp, preserved in alcohol, which is allied to the crayfish, has been found very attractive to the black bass of Greenwood Lake, and doubtless would be in any other water.

Dobson

The dobson or helgramite is the aquatic larva of a fly, the horned corydalis (*Corydalis cornutus*), somewhat resembling and closely allied to the "devil's darning-needle" or "dragon-fly," a large well-known, lace-wing fly. It is also found under, above, just below, and on the low-water line of rivers and other waters of low temperature. Lift a stone quickly, and seize the animal instantly, for it is a rapid mover and disappears in a trice. It has nearly as many legs as a centipede, and two nippers on the front of the head, with which it often seizes the hand of its captor, inflicting a small but harmless wound, the pain of which ceases in a moment or two.

Why the nomenclature of the dobson should be so suggestive of the infernal regions and his Satanic majesty it is hard to determine, though the long antennæ or horns of the perfect winged creature have something to do with the vulgar naming of a harmless animal. It is said to exist for several years in the larval state, and it is during this period that it is suitable for baiting purposes.

The varied and curious nature of the names assigned to the dobson has no parallel, and can be accounted for only by the fact that the creature has been found in a fossil state in stratas of pri-

BAITS FOR BLACK BASS

meval rocks formed millions of years ago, and by the supposition that its nicknames have been accumulating throughout the ages since the world began. They are worthy of record. Besides the more general names of dobson and helgramite, the larva is known by the following names at different points:

New Jersey

Belvidere, Black crab
 Interior points, Crock
 Lambertville, Water-gram-
 pus
 Tumble, Gogglegoy

New York

Broome County, Mollygrub;
 Scrabble
 Fulton, Andy; Black crab;
 Flying-crab; White crab
 Milford, Sand-crab; Stone-
 crab
 Port Jervis, Clipper
 Schenectady, Black worm;
 Flying-worm
 Schoharie, Dragon
 Western sections, Alligator

North Carolina

Raleigh, Hell-diver; Red
 crab; Yellow crab

Pennsylvania

Carlisle, Ho-jack

Flat-Rock Dam (Schuylkill
 River), Clipper-bug
 Hanover, Snake-doctor
 Hazleton, Devil
 Honesdale, Clipper
 Lafayette, Stone-climber
 Monroe, Hell-devil
 Perkiomen, Crawler
 Pond Eddy, Ho-jack
 Portland, Bogart
 Towanda, Conniption-bug
 TUPLEHOCKEN DAM, Alug-
 mite; Hiltamite
 Wilkes-Barre, Dobsill; Hell-
 lion; Kill-devil
 Wyalusing, Devil-catcher

Virginia

In parts, Flip-flap; Stone-
 devil

Wisconsin

Fox and Rock rivers, Dam-
 worm
 Janesville, Crawler

Minnows

The live minnows used in taking black bass are of many species, with many and varied local names for the same fish. The most common in use, and confusedly so, are generally known as chub, shiner, dace, silver minnow, golden shiner, darter, etc. In this connection it is important to remember that black bass take more eagerly any live bait brought from waters that are distant from its habitat. The most successful method of procuring minnows for baiting purposes is by the use of a seine not less than fifteen feet in length and of very small mesh. Such devices as glass minnow traps or dip nets are not, as a rule, successful, although in some waters the former seem to be fairly effective. Old anglers who do not care to spend the entire day in fishing and are not equipped with a seine delight in catching their minnows singly on an almost microscopic piece of worm placed on the point of a midge hook. On a shady shelving shore with a light rod and delicate tackle minnow-fishing has its pleasures.

Grasshoppers

Grasshoppers, at certain seasons of the year, are most attractive bait for black bass. They usually abound and are easily caught with an insect net on

BAITS FOR BLACK BASS

the fields adjoining the fishing-waters. The little green-backed frog is also used by some black-bass fishermen. They are caught in hand-nets, but the pursuit of them is often tedious and tiresome. They are very effective when used in skittering.

When other live baits fail in supply, fishermen find an attractive bait for bass in the large garden worms called "night-walkers."

It is said that our German friends on the upper Delaware use bologna sausage as bait for black bass, thus killing two birds with one stone, as they draw out of their capacious pockets either lunch or lure, as their appetites or the fishes demand.



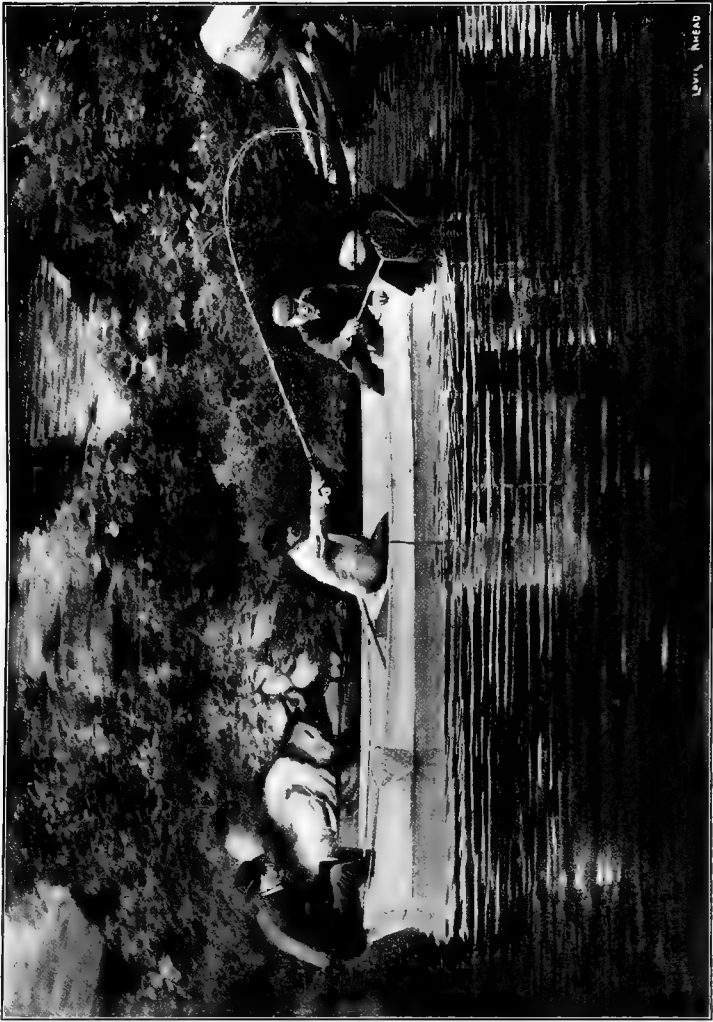
IN THE MATTER OF FLIES

In Running Waters

THERE are times when the black bass will take the fly, particularly in running waters, at all hours of the day, — in the glare of sunlight nearly as fiercely as under a lowering sky; but these occasions are very widely apart. I never fish for them in streams until dusk, or when the day is very dark, and then I use a medium size of fly, what is usually known as a large trout fly, tied on a No. 6 Sproat hook. With two of these flies dressed in subdued colors, I whip the head, middle, and tail end of pools, never the rapids, although I have caught many fish in the eddies on the sides of the very swift water, and in one instance had a bass jump four feet across a little rapid at my flies trailing on the opposite side from where he was lying, *perdu*.

In Lakes

As to lakes, it is, I think, a waste of time to fish broad waters for black bass with a fly, unless



LEWIS, HEAD

Lake Fishing

you find shallow ledges of rocks where the water is not over five or six feet deep; and if less, the better for your outlook. True, the bass, lacking a food-supply in such places, will forage near the shore, particularly around the aquatic vegetation in the little bays, and, more likely, even than there, at the mouths of small brooks that flow into the lake. Under such conditions, get out of your boat, put on your wading-trousers, and approach the spot within fifty to sixty feet—black-bass fly-fishing requires long casting. Let your flies sink an inch or two, and then draw your cast slowly in, with the dropper just touching the surface of the water. Should you see the swirl of a rise, cast instantly into it and let your flies sink at once.

If black bass are caught on lakes with the artificial fly on a bright day, the occasions are exceptional, and the fish are taken only when cloud shadows are passing now and then; but when the gloom of the fading day spreads over the water, or before sunrise, the bass feed, and at such times they, like all other fish that come to the surface, will take a trailing lure, be it of feathers, of metal, or of Nature's build. I have caught at least twenty species, including thirteen varieties of Southern salt-water fish, with the artificial fly, and never failed to lure any fish to the moving feathers, provided the water was clear enough for

the fish to see them. Even catfish and suckers have fallen a prey to the artificial fly.

I do not claim that black bass will take the artificial fly in preference to the spinner or natural baits, although I have known instances where they did so. I simply say to all doubters that if fished for under the proper conditions, the bass can be taken with the feathers with more or less success in all its native waters. Difference in habitat will affect measurably, and in limited instances, the habits of fish, their hours of feeding, action when hooked, coloration, and (even to a slight degree) their physical structure; but a hungry bass in any water will seize a moving lure if in its action it approaches that of a living creature.

Choice of Flies

As to the choice of flies, no list would satisfy the craft at large. Anglers are markedly divided into two classes—the colorists and the formalists. The first have an intense belief in the color-dressing of a fly, and some of them go so far as to swear by the minutest and almost obscure tints on the tip of the wing or on the hackles. The formalists, on the other hand, discard color as of little value in luring, but insist on form and manner in dressing. They argue for and believe in either large-winged, small-winged, or cocked-

winged flies, or even in flies with no wings at all; and many become settled in the conviction that the hackles, palmer-dressed or otherwise, are the only killing bugs for black bass.

There is, however, — and fortunately, — a large class of black-bass fly-fishermen who, when at work on the stream, observe the conditions existing upon it and fish in accordance therewith. These anglers, as a rule, believe more in the efficacy of the manipulation of a cast of flies than in color or form, not ignoring the fact, however, that as the evening closes the minuter forms of insect life gather in greater numbers over the surface of the water. In fact, it is not an uncommon incident to see black bass “gnatting” in the gloaming. In doing this the fish does not rise abruptly to the surface, but may be seen a few inches under the water, and when a “no-see-um” floats down, the bass comes quietly up, with only a gentle disturbance of the water, and sucks it in.

Standard Dressings Best

It is safe to assert that all the makes of the standard dressings, tied on Nos. 4 to 7 Sproat hooks, will kill black bass when they are feeding; always, however, bearing in mind that the closer the action of the artificial fly is made to resemble the struggles of a drowning insect the fuller will

be the angler's creel. Subdued colors in the dressing of flies are, I think, the best, and of these my preference is for one of which body, head, wings and feet are made of the feathers plucked from the brownest of turkeys.

I have caught black bass in numbers with the ordinary black, gray, and brown hackles, and often use no others, except, indeed, when the fish are not biting. At such times, where is the fisherman who does not go earnestly through his book down to the last feather, hoping against hope that this or that bug will do the work, until he has fruitlessly spent perhaps half a day in whipping the stream, and at last gets hold of a nondescript fly which has lain unused and unvalued in an out-of-the-way corner of his fly-book for several seasons. With it, then and there, he fills his creel, and ever after swears by it, brags of it, and believes it to be *the* fly, forgetting that his half-day's unsuccessful work was made during the basses' off-biting hours, and that his infallible nondescript chanced to fall among eager, hungry fish, who were ready for bug, minnow, or gogglegoy.

It is said that when black bass are gorged — hence “off feed” — a red ibis fly with a live minnow on the hook will lure them if anything will.

THE BLACK BASS AND THE TROUT COMPARED

IT were idle to tell the trouter — whose heart is forever pulsing with the memory of a favorite mountain brook, which babbled all day to him with its musical echoes from out of the old rocky channel-ways, singing through the chords of the shouldering pines that cluster along its banks — it were idle to tell him that the bass is a nobler and harder fighter than the trout. That one isolated day, when, tempted by the urgency of a bass-loving friend, he cast his fly upon the surface of a hundred-acre lake and failed to get a rise, settled the question forever in his mind, and “No *Micropterus* for me” became the fiat of the moment and the text of his future angling life. It is not to be wondered at. He might as well have tried to shoot salmon in trees as to attempt to lure the wary black bass from the cool recesses of a lake fifty feet in depth, with its bosom as glassy as an unscratched mirror.

Perhaps — but even then it would have been an exceptional triumph — had he chanced to find the

waters ruffled by a rippling breeze, a bass might have been struck, which on light trout tackle would have tingled his blood in the striking and taxed his best skill in handling, and our angler, like many others known to me, would have soon forgotten his old love and ardently burned for the new.

Trolling with Flies

I do not pretend to assert that lake fishing with a fly for black bass is always a failure, for I have caught the muscular small-mouth when casting and skittering the feathers on the uncertain bosom of Lake Champlain, but it has always been over rocky ledges and at the mouths of inflowing streams. Nor do I deny that trolling with flies or allowing the flies, when cast, to sink two or three feet below the surface and then drawing them slowly in, is not oftentimes a killing method. But — and alas! — after all it is simply bait-fishing with the fly (your lure goes to the fish, the fish does not come to it), and, as such, should be deprecated by the true angler, except, of course, where food is necessary for camp use, when the spear, the net, and all the contrivances of the pot-fisher are permissible to the extent *only* of the demands of an urgent stomach.

Every living thing inhabiting the stream (the surface bug, the mid-water minnow, or the bottom



Fishing for Black Bass in the St. Lawrence

BLACK BASS AND TROUT COMPARED

creeper) falls a prey to the jaws of both trout and bass; yet of the two, the bass is the more delicate feeder. Time and again I have caught a trout whose mouth was widely distended by a crayfish or young trout, and the wonder came quickly to my angling senses how that trout managed to strike and to be hooked by the fly with his jaws propped wide open by his half-swallowed prey. No black bass was ever caught by my rod when it was in such a gormandizing frenzy.

Comparatively few anglers fish for black bass with the artificial fly. The practice is one of relatively recent date, and facilities for indulging in the sport, particularly in running water, are infrequent, and often distant from the large cities; yet the charm of casting the feathers for the bass, one of the choicest and gamest of fishes, when once experienced, grows upon the angler almost to the exclusion of any desire to fish by any other method or for any other fish. Old rod-fishermen say that, as a regular angling diet, fly-fishing for black bass never creates a surfeit or leaves a void to be filled.

The Tiger of the Waters

The reason for this is apparent to any one who has waded along and cast the flies over a mountain

trout-stream, as the black bass in rivers and brooks have many habits identical with those of the brook-trout east of the Alleghanies. They live upon the same animal and insect food, and may be found feeding, like trout, in the shallows and at the foot of rifts, retiring to the deep pools for repose and digestion. At such times, however, they are in one respect like the trout: they will not take a lure, either natural or artificial, although they have been seen, under like conditions, to kill young fish of alien species, seemingly from the love of destroying life, tearing bits of flesh from the backs of sunfish and then sculling away with what seemed like a pleasurable flirt of the tail. Hence the name of "tiger of the waters," applied to them in some of the Western States.

Trout will gorge themselves to the lips, taking an artificial fly with the tail of a minnow sticking from the mouth. Black bass will purr over and play with the minnow bait, and sometimes suck it in tail first and then spit it out with force, sending it spinning three or four feet from them. It is practices like these that perplex the bait-fishermen when fishing for black bass in the large and relatively quiet pools that occur in such rivers as the upper Delaware and Susquehanna, where, as I have stated in a previous chapter, it has been found that the most effective way of hooking them is by paying out fifty to a hundred feet of line when the "draw" or gentle

BLACK BASS AND TROUT COMPARED

pluck of the fish has been seen or felt. This method is used owing to the erratic manner in which the black bass takes a live minnow, — a long free line and great patience being necessary to meet its various moods and to place the hook securely in the flesh of its mouth or gullet. On the other hand, these fish, when in running water, particularly at the tail of a rapid, usually take the minnow head first with a rush.

Night Sports of the Bass

Black bass often disport themselves as the day closes, like the trout, by turning somersaults in the air, and on favorable nights, when the twilight lingers or the moon shines, they may be seen sporting and lashing the pools as late as midnight; in fact I have had them jump between my legs when wading and fishing for them in mid-stream at night.

Because of these habits of the bass, the trout-fisherman with bait or fly finds a duplication of his pleasing experiences when angling for bass in fluvial waters; and as it is said that a good trout-rod handler will quickly catch the art of successfully luring and handling a salmon, so also may it be stated that he will soon become an expert at black-bass fishing, with the additional charm of the same picturesque surroundings of hill and rock, of danc-

THE BASSES: FRESH-WATER AND MARINE
ing waters and pellucid pools, that await him on the
trout-stream.

Haunts of Bass and Trout

Black bass have never been found, as have often been the trout, in the heart of the rifts or rapids, but frequently on the edge of them, or in the circling eddies formed by the back-set of the current on either side of the rapids. True, at times, the bronze-backers, as the black bass are often called, will rush into the foaming rapids in pursuit of minnows, and have been seen to jump into the air and across the boil of a narrow rapid, and take the fly from the eddy on the other side of the current, which action would seem to indicate a repugnance to entering a very rapid water even when foraging for food.

It has been observed that the black bass in rivers are constantly seeking the upper waters, their range being restricted only when the cold spring water is reached and there is an absence of deep pools in which they can find rest and comparative protection from danger. This disinclination of river-bred bass to enter cold spring brooks where trout live has saved the latter fish from extermination in many waters. The upper range of the bass is, no doubt, induced by the dearth of their natural food in the lower waters, a condition caused by the over-popu-

BLACK BASS AND TROUT COMPARED

lation of the latter by their foraging congeners. In their upper migrations they wait, like the salmon and trout, until a freshet occurs before they start up stream, and they have been known to loiter for weeks in shallow pools rather than breast the shoaler waters of the rifts. On the other hand, they have been seen in schools of a dozen or more, swimming toward the upper waters with their back fins sticking out of the surface of the dark, saffron-colored current when the stream was swollen to near high-water mark. At such a season all lures were rejected, and very often the most unpropitious time to visit an otherwise favorable and fruitful pool is immediately after a freshet, for it has been deserted by its old inhabitants and the incoming migration has not reached it. A rain of even a few hours' duration will sometimes affect the feeding-habits of the black bass, either from their being surfeited by the downpour of surface food washed out from the banks, or by the fish leaving the lower for the upper pools. Certainly a heavy freshet will render barren a pool that has hitherto been fruitful, and just here is found an additional similarity between the habits of the black bass and the brook-trout. Trout, particularly after the first of August, are found only in diminished numbers in the lower pools and reaches of the brooks; the greater number have left for the upper waters, but not from the same cause that induces the migration of the black

THE BASSES: FRESH-WATER AND MARINE

bass. The trout, impelled by instinct, seek for highly aërated waters in which to reproduce their kind; the black bass are hunting for better foraging-grounds.

The black bass, like the trout, will live and thrive in cold spring waters that are landlocked, if born and bred there, but they do not seem to enter a trout-stream from choice; and if the ponds or lakes are comparatively shallow, as most trout-waters are, the black bass will not increase in numbers or size.

Migrations

Another similarity between the black bass and the trout is their autumn migrations. The trout, after spawning, fall back to the lower and deeper waters to recuperate from the feebleness caused by the reproductive act. The bass, after the extrusion of their spawn, do not seem to be enfeebled, but rather appear to be endowed with new life and combative vigor to defend their young; and at about the same period at which the trout seek the lower waters, the bass also begin their return migration, which they extend in some rivers — notably the Susquehanna — down as far as the brackish water.

On the Hook

Similar in many respects as the trout and black bass are in their stream habits, the resemblance ceases when they are fastened to the hook, and their intelligence in the uses of devices to free themselves shows greatly to the advantage of the bass. The trout are by far the less intelligent or ingenious in the arts of escape; they seem to rely solely upon their strength of muscle and obdurate resistance, showing no trait of the resources of the black bass to free themselves from captivity. The black bass are gifted in this respect; they leap repeatedly from the water into the air, and frantically try to eject the hook from the mouth by violently shaking the body, — not the head only, as many anglers assert: they cannot shake the one without the other. They rush around deep-lying or outcropping rocks in their efforts to cut the line, and go down to the bottom and “jigg, jigg, and jigg,” much, as I have before said, like a dog tugging at a rope held by the hand. None of these devices is resorted to by the trout. It never leaps into the air or comes to the top of the water when the hook is fast, unless compelled to do so by a strong pull on the line by an over-eager angler. The black bass leaps into the air on a slack line.

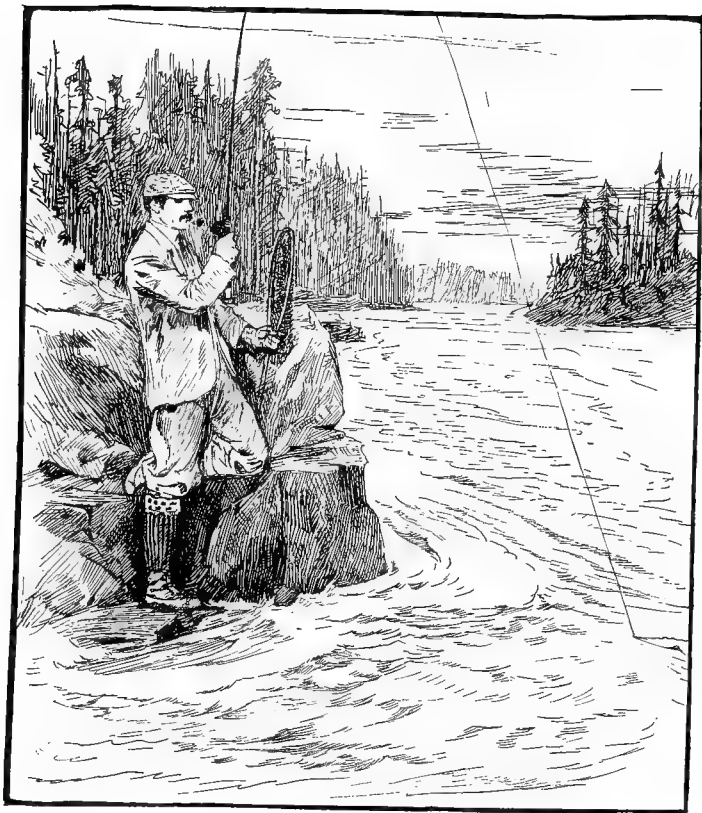
With these attractive traits it is not strange that

the black bass, pound for pound, inch for inch, is considered the superior on the rod of all fresh-water fish, and when taken in running water on light tackle and artificial flies its qualities of resistance appear to gather strength and certainly add to its chances of escape. Anglers who fish with light gear which their quarry can break if a direct strain upon it is obtained by the fish feel that they are giving to their scaled prey the same chances for life as the field sportsman gives to the quail or pheasant which he disdains to shoot on the ground and will fire at only when on the wing.

The Angler's Outfit

The outfit for fly-fishing for black bass is very similar to that used in trout-fishing; the flies are often alike in name and dressings, but the feathers are dressed on larger hooks, and the hackles are generally tied well down to the bend of the hook, in palmer or bunched fashion. Many anglers use flies that are too large for fishing in running water; those dressed on Nos. 4 to 6 Sproat, and generally called "large trout flies," will answer well, and the use of the so-called big "lake flies" on running water has been discontinued by experienced anglers.

In these latter days, since angling tournaments have been held, rods are built with more backbone, but without increased weight; and a six-ounce split-



Playing the Black Bass

BLACK BASS AND TROUT COMPARED

bamboo fly-rod, nine feet long, will kill with ease, and in ten minutes or less, any black bass that is apt to rise to a fly in fluvial waters; they seldom weigh more than two and a half to three pounds. A leader of single gut, six to nine feet in length, that will lift a dead weight of three pounds, is generally used, and upon it are tied or looped two flies. Thus equipped, with the addition of a creel slung over the shoulder, the stream is entered, with a long-handled landing-net to be used as a staff.

Fly-Fishing

The courses of most of the upper waters of the Eastern rivers alternate in rapids, or rifts, and large, comparatively deep pools (ten to twelve feet) locally called eddies. At the head of these pools, where the swift water subsides into the deeper reaches, and all along the stretches of the river where the current is somewhat sluggish and the depth from three to four feet, are found black bass, particularly when the sun has dipped behind the western hills and long-drawn shadows are cast upon the water. The density of these shadows is peculiar to many sections of the Eastern States where bass-waters are found. The hills are almost precipitous to the water's edge, and their thickly wooded sides, covered with deep-green foliage, intensify the darkness thrown over the streams, which in many places

are not more than a hundred feet in breadth. With an environment such as this, the black-bass angler who uses a fly will always find the largest and gamest fish; and if he extends his outing until night closes in, his creel will doubtless be filled to repletion, as the bass rise to the feathers at all hours of the night, be it moonlit or otherwise. At such times they seem to prefer a dark-colored fly to a light one, and the similarity can be explained only upon the theory that the fish mistakes the dark fly, as it is trailed through the water, for a cricket, upon which they are in the habit of feeding greedily when they can get them. It also seems to prove that the sense of sight in the black bass is more than ordinarily keen.

The method of casting the fly for black bass is the same as that used in trout-fishing, although the distance cast is generally longer, because of the more open waters in which bass are found, and of the fact that the form of the angler can be seen at a greater distance by the fish, which is more skittish and more easily alarmed than the trout at any unusual condition existing on the stream or on its banks. Another point — which is, however, open to discussion — is that many anglers for bass allow the flies, when cast, to sink two or three inches below the surface, believing that this method is more likely to attract the fish, as they are not, to the same extent as the trout, surface-feeders. Again, and more to

BLACK BASS AND TROUT COMPARED

the purpose, the main attraction for either bass or trout lies in the lifelike action given to the artificial lure by the manipulation of the rod, through which the insect is made to appear to be struggling to escape from the water.

Bass Waters near New York

Near the city of New York there are few waters where bass can be taken with moderate success by wading and casting the fly. The upper reaches of the Passaic and Raritan, and the lower Ramapo, will yield their quota of fair-sized bass, while the outlet of Greenwood Lake, within twenty feet of the sluice-gate, will furnish five or six unusually game bass in an hour's casting when the flies are thrown above and on an old eel-weir which is just below the dam of the lake. There is also quite a good pool, for three or four bass only, below the weir; but beyond that the outlet of the lake is too shallow to afford shelter for bass.

An unusual method is sometimes adopted, especially at Greenwood Lake. It is particularly good during the two or three weeks that follow the legal opening of the season. Entering Greenwood Lake at the lower or southern end of the railroad bridge, which begins at Cooper's Station, the angler wades out loin-deep and casts parallel with the shore line, and continues to do so until the first

projecting point of land is reached, where he turns to the left and follows the shore about a mile toward the lower end of the lake. A dozen or more of good bass, all small-mouths, are usually taken in this manner with artificial flies. In the early part of the season, the big-mouthed bass, which are numerous in the lower portion of the lake, seem to be absorbed in watching their young on the stumps, or otherwise engaged, as they are not found, as a rule, near the shore.

At the junction of the east branch of the Delaware River and the Beaverkill, 150 miles from New York city, and all along the first-named water to the Hancock, a distance of about twelve miles, some of the best fly-fishing for black bass in New York or any other State can be found. In this section there are scores of pools and long reaches where the black bass swarm and rise freely to the fly, particularly in the early days of the season. In the Oswego River, a few miles above the city of the same name, can also be found good fly-fishing.



THE MINOR BASSES (BLACK-BASS FAMILY)

Points of Difference between Bass and Sunfish

THERE are four additional sunfishes that come under the general and common name of bass, — the rock-bass, the warmouth bass, the crappie, and the strawberry-bass; yet there are only three fresh-water fishes (one of which is popularly known as white perch) that are classed by the scientists as true basses (*Serranidæ*), which classification brings them closely in anatomical similarity with the *Centrarchidæ*, the sunfishes. If you should chance to catch one of these classed fishes and feel uncertain as to its being a sunfish or a true bass, by simply putting your finger in its mouth and feeling its teeth your doubts will vanish. If it is a true bass its teeth will be pointed or conical; if a sunfish they will be slender and crowded into soft velvety bands. In addition, the lateral lines of the first-named fishes do not extend to the tail-fin, that of the others touch it.

THE BASSES: FRESH-WATER AND MARINE

Nine tenths of the above-named fishes that are taken with hook and line and by market fishermen are pan-fish, although the rock-bass grows infrequently to a weight of a pound and a half; the Northern form (and occasionally the Southern) of the strawberry-bass attaining three pounds.

The Strawberry-Bass

There are two species of the strawberry-bass which are generally considered as Northern and Southern forms; yet the matter of habitat seems to be somewhat confused, for both species are found in the same geographical range, the calico-bass (*Pomoxys sparoides*) being the most numerous in the North, and the crappie (*Pomoxys annularis*) in the South. No fish represents so forcibly the confusion apt to arise from numerous common or local names, and from the fact that there are two distinct species living practically in the same waters, similar in form and partially so in coloration.

The Calico-Bass

The Northern form, which I have designated as the calico-bass, is frequently also called grass-bass, speckled bass, bank-lick-bass, rock-bass, lamplighter, bitterhead, strawberry-bass, paper-mouth, barfish,

THE MINOR BASSES (BLACK-BASS FAMILY)
strawberry-perch, razorback, flyfish, chinquapin-perch, lake shad, silver bass, big-fin bass, goggle-eye, or goggle-eyed perch.

The Crappie

The Southern form, known very generally as the crappie, is also locally called bachelor, New-light, Campbellite, sac-à-lait, crapet, tinmouth, bride-perch, chub, speckled perch, John Demon, and shad. It must also not be forgotten that nearly all these names are applied indiscriminately to both species of this fish. Could confusion be worse founded?

To distinguish these two species at sight is not an easy matter, particularly when both are taken from the same water, possess the same physical conditions, and live upon the same food, which so affects the coloration as to lead to a similarity in hues and tints. In the crappie (Southern) the profile is more or less strongly S-shaped, the mouth is very wide, and the rows of scales on the cheek (a space back of the eye) are four or five in number.

“Color silvery olive, mottled with dark green, with dark marks chiefly on the upper part of the body with a tendency to form narrow vertical bars.”

The dorsal fin has six spines and fifteen rays. The calico-bass (Northern) is a much broader fish than

THE BASSES: FRESH-WATER AND MARINE

the crappie (Southern); its profile is not so S-shaped; its mouth is not so large; its fins are much higher; the dorsal fin has seven or eight spines and fifteen rays; the color is silvery olive, mottled with clear olive green, with small bunches of dark mottlings of irregular shape covering the whole body; and there are six rows of scales on the cheeks.

I have been careful in differentiating these two fish, for of all species living in inland waters they are the most confusing in classification, owing to their approximate identity in habitat, similarity in color and markings, and the strong resemblance of their exterior anatomical make-up.

Neither of them grow much longer than twelve inches, but both are excellent pan-fish; in fact the crappie and the calico-bass may be called two of the great food-fishes of the extensive area west of the Alleghanies. On many of the Western rivers and lakes, whole families may be seen on flat-boats busily engaged in catching the Campbellite or lamp-lighter, — two favorite names for the crappie and calico-bass.

The crappie is not so choice of habitat as the calico-bass, for he is found in and seems to prefer the sluggish waters of ponds and bayous, while the calico is seldom seen in such localities, preferring cold and clear waters, in which, however, the crappie is often found. I have been told that not infre-



Removing the Hook

THE MINOR BASSES (BLACK-BASS FAMILY)

quently one of each species is caught on the same line and at the same moment.

Both species are caught in great numbers, as they bite freely, the favorite lure being the live minnow, but angle-worms, crayfish, and artificial flies, when they are feeding in shallow water, will fill the creel, even if the fisherman be crude to the core. It is on record that two anglers, fishing for pleasure, caught in three days, on hook and line, 1,000 crappies weighing from four to twenty ounces each.

In fishing for both species use very light tackle, and if the fish runs up to a pound or more handle him gently and give him elbow-room, for he is said to have a somewhat tender mouth. Their first surge when hooked is quite strong and somewhat wild, but they quickly succumb under the strain of a taut line. Both species occasionally reach a weight of three pounds.

The Rock-Bass (Ambloplites rupestris)

The rock-bass (which is also known as the redeye, goggle-eye, and red-eyed perch) is one of the most delicious of pan-fish; its lack of fighting qualities when on the rod being thereby condoned. Although its first rush when hooked will frequently deceive an experienced angler, who is apt to mistake it for the wild first plunge of a black bass, the

contest ends then and there. It is an excellent fish for waters, artificial or otherwise, located near a household of fish-lovers, as it will thrive in most waters, especially those having rocky bottoms, and, as our angling mentor, Seth Green, once said to me: "It does not take a dancing-master to catch them." Light tackle and almost any kind of bait — worms, minnows, pieces of fish, grasshoppers, and artificial flies, or even a small trolling- spoon — will prove effective either in trolling or casting. Yet these bass have the vim and the courage to hold their own against the black bass, the pickerel, and other predacious fish. If you have a pond of five or more acres in area, fed by springs, put in fifty to one hundred adult rock-bass, and "fish on Fridays" and on many other days will be an accomplished fact.

The rock-bass spawns in the latter part of May or in early June. In weight it reaches upward of two pounds, sometimes rather more, but the average is not over quarter to half a pound. It is nearly as prolific as the sunfish, to the family of which it really belongs. It is a handsomely colored fish, with a brassy tinge and markings of yellow and green, with a dark spot at the base of each scale, which after death becomes more distinct, giving a striped appearance to the body.

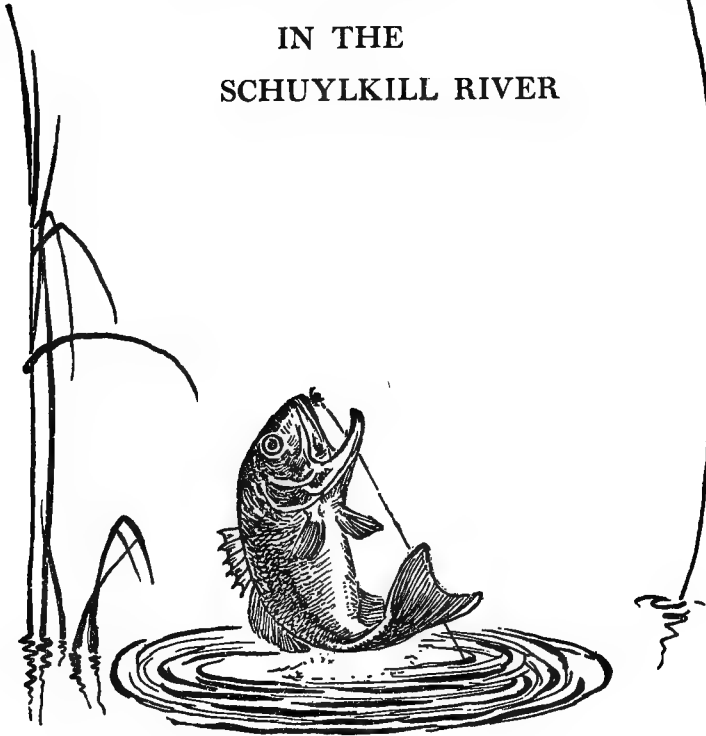
THE MINOR BASSES (BLACK-BASS FAMILY)

The Warmouth Bass (Chænobryttus gulosus)

The warmouth bass (also popularly known as goggle-eye, perch, redeye, sunfish, and bream) is a sunfish that is shaped very much like the rock-bass, grows to a length of about ten inches, and seems to prefer lowland streams and sluggish bayous. It is very numerous, however, in some of the shallow ponds of the Northwest, and is abundant in those of the South. As a fish for the angler it is of little importance, and for the table equally valueless, as it is likely to have a flavor of the mud bottoms on which it lives.

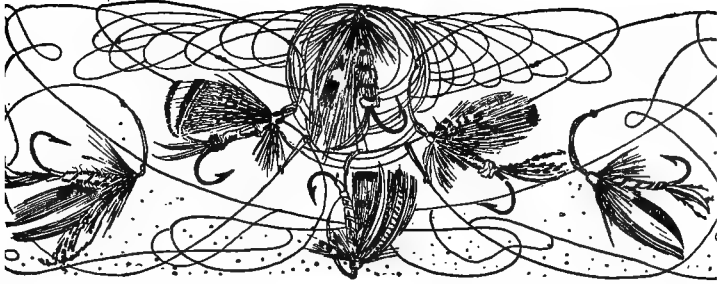


FLY-FISHING
FOR BLACK BASS
IN THE
SCHUYLKILL RIVER



The personnel of the three anglers who figure in this little brochure is an exact portraiture of their individual social and angling traits. I fished with them all for many years. The locality is a stretch of the Schuylkill River extending from Royers's Ford to Yankee Dam, a distance of about three miles, and about thirty miles from Philadelphia. Their fishing-box here described stood on a high bluff, overlooking the Schuylkill for many miles. The fishing methods of the angling trio, as recorded for each of them, were identical with their practices on the stream. They were bosom friends and had been so for years.

WILLIAM C. HARRIS



FLY-FISHING FOR BLACK BASS IN THE SCHUYLKILL RIVER

IT was about five o'clock on a pleasant evening in June when three anglers stepped out of the cars at Limerick station on the Reading Railroad, rod-cases in hand, and creels slung over their shoulders.

A fifteen-minutes walk along the railroad, with the Schuylkill River fifty feet below, brought them to the bluff upon which their fishing-box was built, and a winding ascent of some forty feet landed them on their camp grounds, sheltered by the pines from the sun, now fast losing itself behind the foothills in the west.

Throwing his traps upon the grass, the oldest of them exclaimed: "Boys, it's just the hour and just the water for the bass! Hey, Mendy! did you ever see a better outlook for good sport?"

"I never did, Doc, but once before, and then it panned out bad enough."

“How and where was that?” cried Gills, the youngest of the trio, who was always ready to dive into anything that savored of paradox or disputation.

At that moment their man hailed them to supper, and they passed into the rough but cozy dining-room and did ample justice to a plain but appetizing camp meal.

“Now, Mendy,” said Gills between mouthfuls; “tell us about that mixed experience of yours, when, if I understood you correctly, the conditions of the wind, the water, and the weather were all first class, but you did n’t do much with the bass. To be sure, it’s rather unusual with you to fail in making big catches, so I’m more anxious to hear about this little one.”

“Give it to us, Mendy,” chimed in the Doctor.

“Well, it’s a pretty tough yarn, and I don’t think, boys, you’ll believe me; but it’s true, every word of it.

“It was about this time last summer, and I was stopping over for a few days with Jim Bean, who keeps the Pauling House at Perkiomen on the Schuylkill, and I had a rattling good time with the bass, catching about twenty-six every day, and not one of them weighed less than two pounds.

“After fishing one morning with my usual success, I laid off for the day, on the principle that ‘enough is as good as a feast,’ when, late in the

afternoon, Jim Bean came rushing into my room, crying out, —

“ ‘ I never seed the bass so thick — they ’re jumping down at the dam like wildcats on a frolic. Rig up, old man, and tackle ’em.’

“ I could n’t resist, and was soon on my way to the dam, as likely and lovely a stretch of fishing-water as ever I laid my eyes on. Sure enough, the bass were there, and they all seemed to be on a bender, — holding a wake or something like it; for they were bobbing and jumping in and out of the water as thick as whirligig beetles on top of it. The big ones seemed to act lazy-like, as they rolled in and out like porpoises at play, and the smaller fellows were as skittish as young kittens. They would come two or three feet out of the water and turn somersaults one after another, and I swear bluntly that I saw one, about fifteen inches long, make a dash at a swallow that swooped down after an insect fluttering close to the water. Others, again, would swim leisurely along in shoals, with their dorsal fins sticking out of the water, then in a jiffy down heads and disappear, — all the world like a crowd of schooling minnows when frightened by a splash or from some other cause. The river was, in fact, boiling and foaming with the antics of those fish, and it took me but a few moments to joint my rod and get at them.

“ Now comes the strangest part of my story. I

THE BASSES: FRESH-WATER AND MARINE

whipped that water with my flies for more than an hour and a half, and did n't get a rise, much less a strike. The fish, to be sure, were on the jump, and would come out of the water every second almost in droves, behind, in front, and on either side of my flies, and one old rascal swam up leisurely to my point fly, eyed it in a sort of What-are-you-anyhow? way, then, demurely getting his body at right angles with it, gave his broad tail a sort of contemptuous flirt, throwing the fly at least three feet to the left of the spot where it had been trailing at the foot of a riffle.

"I tried the pools, the rapids, the foam at the breast of the dam, the quiet water below, and the swirling rift between the rocks, but all to no effect. They would not touch my lures. I waded out on the dam to midstream; I tried every bug in my fly-book and artificial and live minnows; I let my flies sink under the water; I skittered them on top of it; I bought gogglegoys from a bait-boy and fished with them six feet down in the deep pools; tried garden worms in a great bunch as big as an eel-bob; dipped and trailed with grasshoppers, with a young toad, a little sunfish, a juvenile bullhead, here, there, and everywhere, but not a fish did I lure.

"Account for it, boys! I can't."

"Well, that is rather a tough yarn; but, Mendy, you should have tried the toodlebug-fly before you gave it up," said Doc.

“Or a live mouse,” put in Gills.

“Yes, I dare say either would have done the work,” rejoined Mendy; “but, joking apart, boys, did you ever hear of such an experience?”

“Well,” said the Doctor, “Genio C. Scott tells something like it in his ‘Fishing in American Waters.’ He was angling for trout up in Maine, and the fish were jumping very lively, but would not touch any of his feathers. He fished for an hour or so, when, observing that the air was full of gray gnats, he tried one, and then and there made a full creel. What were your bass jumping at, Mendy? Did you notice?”

“Pshaw! Doctor!” indignantly replied Mendy. “You know I’m up to all such dodges. I tell you the bass were jumping at nothing, at least, all but one: he went for a swallow, but as I did n’t have any such bait in my box, I could n’t try it on.”

“Mendy,” said Gills, “I can back you up, for one evening this summer, at the mouth of Mill Creek, I had a similar but not so elaborate an experience as yours, and I have long since come to the conclusion that black bass sometimes jump out of the water, either for the fun of the thing or from some other cause, probably a hygienic one, unknown to us.”

The camp of our anglers was built upon the edge of a bold bluff on the Schuylkill River, overlook-

ing the best fishing-grounds for black bass within fifty miles of Philadelphia. From the porch on an opportune day, faintly cloudy, warm, and misty, the fish could be seen fairly roiling the waters below, and it was not an unusual occurrence for one of the trio to slip on his water toggery after supper and return at dusk with sufficient black bass to supply for a day the table of the camp and that of a neighboring farmer over the hillside.

The personnel of the members of the club was indicated by their distinct angling methods and their belief in the Doctor, the president, who was a well-to-do young physician, hearty in health, and stocky in body and spirits, with a jolly "How-are-you?" air about him that went like a sunbeam into your good graces. His angling hobby was expressed in his belief, loudly spoken, that a certain bug was *the* lure of the season.

"You might catch them with other feathers, but you always caught them with this one."

It is a fact, certified to by an open-season angler, that the eldest of the club was heard to exclaim, one August night, during the camp-fire talk:

"'A worm at one end and a fool at the other!' Ah! old Johnson said so, did he? Well, well! it may be so; but just tell the old gentleman for me that rather than not go fishing at all *I'm willing to be the worm.*"

FLY-FISHING IN THE SCHUYLKILL RIVER

Gills, the secretary, was slight and wiry, with the nerve, strength, and endurance of an ox; a ready and willing hand at camp chores; a mechanical expert; a rod-maker and fly-featherer; and a practical, observant fisherman. What he did n't know about fish, the scaly fellows themselves did n't know. He pinned his faith to the practice of allowing a fish all the line it could draw from a click-reel, and did not take stock in the "holding hard and killing quick" methods of many anglers.

Mendy, the treasurer, had the qualities of good fellowship and intense unreliability on the subject of fish and fishing so blended that you were apt alternately to forget the one in the outcrop of the other. For a moment or two you would be delighted and the next appalled at his daring mendacity, wondering meanwhile at your sufferance, and still more surprised at your condonation of the extensions that fell from his lips more rapidly than raindrops from a storm-cloud; yet, with it all, he was an angler in every sense of the term. Strange to note, he was scrupulously truthful on every other subject except fish and fish-catching.

The midsummer evening came slowly on, with a favorable outlook. The rays of the sun still slanted down over the river, with here and there spots of shadow, made by the occasional elms on the western bank. A fitful breeze was blowing,

just heavy enough to ripple the pools, and wayward enough to try the patience and judgment of the angler as to when and where the most likely casts should be made, in which dilemma, however, he was aided by a scud of leaden clouds, chasing each other just above the western horizon, which were sufficiently dense to throw transient patches of shade upon the water.

The face of the river was as clear and its depths as pure as a mirror, with a rise of about twelve inches during the preceding twenty-four hours, caused by brief but heavy rains in the upper countries bordering upon the water.

It is an amiable specialty (and a pleasant and favorable one for anglers) of the Schuylkill River never to get roiled, except upon sufficient cause. To make it so requires a heavy freshet, or a continuous rain for days, and it was often noted by the club that the lower river, below Phoenixville, would frequently be very muddy, while at the camp, only six miles above, the water was crystal in its color and purity.

The Doctor, somewhat afraid of rheumatism, was the only one of the three who wore a wading-suit; the others donned their last winter's cast-off clothing, woollen drawers and undershirts, with woollen stockings coming over the knees, and Government brogans thickly studded with hobnails.



Fact and Fiction

Gills varied slightly from Mendy in his rig, by having on a pair of breeches buckled just below the knee-joint, and made out of trousers that had done good every-day service for a year or two. The Doctor had on a pair of fishing-shoes made to order, and fitting loosely, but aptly, as the chafing of an ill-fitted shoe would soon scrape a hole in the waterproof material.

They each had on such old coats and headgear as came most handy to them. They were not dandies, either at home or on the stream. They were hard-working, earnest, ardent rodsters, who knew that a full creel meant work, and skilled labor at that; that it was a matter of muscle and nice judgment; and that a keen eye, a quick nerve, and delicate handling were the essential gifts of a successful fly-caster, and that these qualities did not centre in the foot or body garb of the wading angler.

Every fruitful spot or likely pool, rapid, or eddy of the Schuylkill for a mile above and below camp was known to these fishermen; but as each place was changeable in its outcrop, there was never any difficulty among the members of the club as to the choice of grounds when they chanced to fish together. Indeed, as it happened on this occasion, they would angle down stream in company — one near the left bank, one on the right, and the third in midstream; and it was a beautiful and

novel sight to see these anglers advancing down the river like a line of skirmishers, with three arched rods, curling lines, and lures, spotting the lip of an eddy, the outer curl of a riffle, or the quiet water lying just beyond a baby boulder, with a sort of automatic precision of distance and movement that was as wonderful in its mechanism as it was pleasant to look upon.

The river lay about sixty feet below the "fishing-box," and was reached by a path which wound under a culvert built by the railroad company over the little stream that glittered down the ravine to the south of the camp. At the spot where this brook plunged over the rocks into the river, the bass in midsummer could always be found feeding upon the small dace and other minnows that lay in the shallows at its mouth; and it was here that our anglers always made their first essay upon the bronze-backers.

Having adjusted their rods, soaked their casts, and in other diverse ways completed their bodily and fishing rigs, they started for the river, and in a few moments were abreast of the mouth of the small stream before mentioned. They had decided, before starting out, to fish down stream in company, but as Mendy was slightly in advance, and the spot was tempting, he made a cast across the widest part of the little bay, and the response came quickly to his army-worm in the form of a

FLY-FISHING IN THE SCHUYLKILL RIVER

six-inch bass, retrieved rapidly, carefully unhooked, and, while yet alive, deposited again in the river.

The members of the club were not pot-fishers, and never "fished for count," albeit they were not sticklers as to numbers when caught of proper size and legitimately, — on a light rod and a feathered lure. They could always find mouths to eat their extra catches, both at home and in the adjacent village; and, knowing this, they never failed to basket every good fish, being aware from experience that only about once in many outings could the bass be found thoroughly in humor.

The Doctor used only two flies, one of which was that peculiar combination of feathers known as the toodlebug, and the other was a gray and black hackle, tied palmer-fashion, bunchy and thick, with the hackle laid well down to the bend of the hook. The toodlebug is always used as a point, tail, stretcher, or end fly (all anglers know that these four terms are synonymous), as it was a winged fly, and, under the tension of the current, approached in appearance pretty closely to that of the live insect. These two flies were attached to the leader, always nine feet long, at a distance of three feet from each other.

Gills made his own flies, and rare good ones they were. He used three, and believed in bright colors — big bunches of them — tied on a No. 4 Sproat hook. He had a special fly which he swore

by so long as the fish were rising, but no longer. At such times he had a dry way of announcing his belief that one fly was as good as another — when the fish had stopped biting. His cast was made as follows: hand-fly, coachman; dropper, black palmer; point or tail fly, big Injun.

In this connection it is opportune to state that the club decided at one of its earliest camp-fire talks to adopt the above mode of designating the flies attached to the leader, — what is generally known as a “cast of flies.” They were compelled to have a uniform nomenclature, as much confusion had been created, even among themselves, by the terms “first dropper” and “second dropper,” which many anglers use indiscriminately to designate alternately the middle fly and the one nearest the rod-tip.

“Heaven knows,” said the Doctor one evening, when the subject was talked over, “there’s enough confusion already existing about field and water sports: such as conflicting fish- and game-laws and the almost hourly changes, by zoologists, — particularly ichthyologists, — of the specific names of game-fish and game-birds. Take the very fish we are going after — the black bass: we find that within the last five years he has been a gristies, a *Micropterus*, a *salmoides*, a *pallidus*, a *dolomiei*, and heaven knows what! Do let us try, boys, to get at what we are talking about, so that we can

understand each other at least, on this cast business. I say that the "hand" fly is the one nearest my hand; the "point" fly is the one I point at the spot where I think a fish lies; and the "dropper" (for want of a better name, as all flies are droppers when cast), the middle fly. What say you, boys?"

"Agreed! Agreed!" and the matter then and there was settled. May all good, sensible anglers go and do likewise.

Mendy used but one fly, and gave the following as his reason therefor:

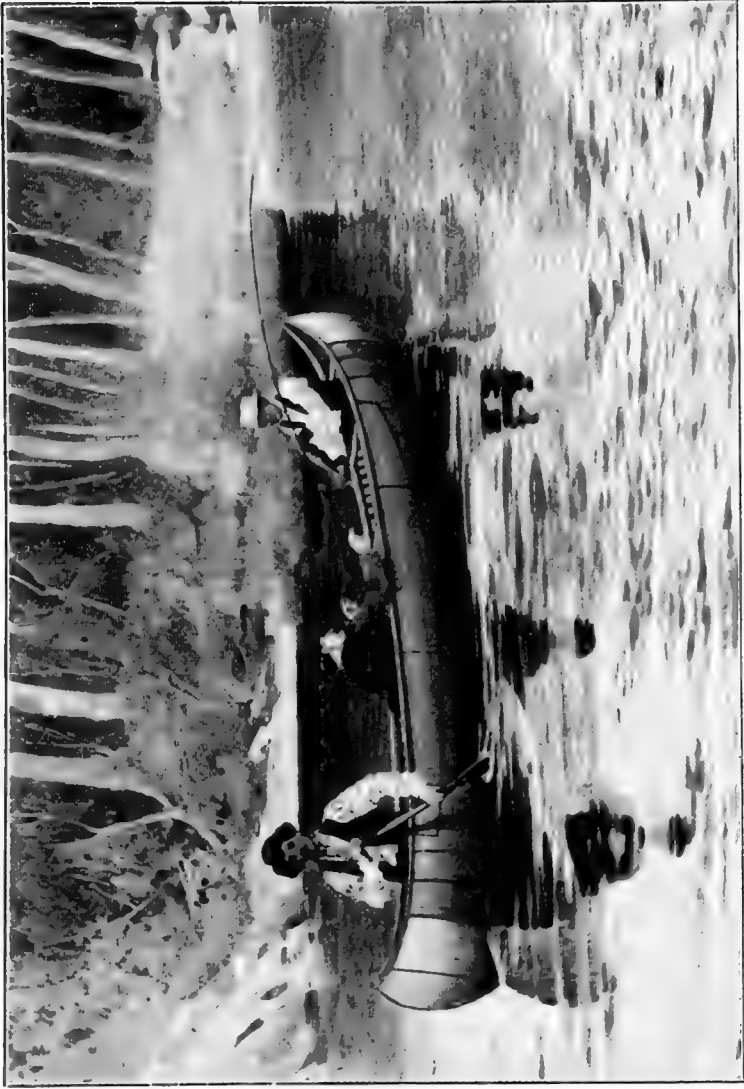
"I have never caught, except on rare occasions, more than a single bass at a time, and more than once I have lost a good fish which had taken my middle fly, was nearly exhausted, and well-nigh landed, when with a splurge and a quick snap another and bigger one struck my point fly, which was made by the game fight of the first fish to zig-zag across the current more like the struggles of a live bug than any simulated motion I could give the artificial one through the medium of my rod. No, boys, you can't catch more than one good fish on one hook, say I, and I'll have none of your triplex casts."

"Bosh!" said Gills. "I've caught two bass at a time repeatedly, and if there is a grain of reason about your protest, why, the more danger of losing, the more skill in saving. I'd like to strike

three on a single cast — two-pounders each — this evening, and if I lose them all, the glory of such a strike would last me to brag of and enjoy for a month, if I did n't basket another scale for a longer time than that."

"Boys, hold up!" interposed the Doctor. "It's mainly a question of strength in your tackle. Look at this gut out of which my leader and fly-snoods are made. It has stood a dead strain of nine pounds, and no two fish that scull the Schuylkill can get that much out of it, — that is if I handle my reel and rod right. In fifteen casts in forty-five minutes, down there in the little bay below Polly's Island — you can see the place plainly between those two maples — I caught nine fish that weighed over seventeen pounds, and six of those fish were caught two at a time on just such gut as this, that has neither a flaw nor a fleck in its whole nine feet. Mendy, you are wrong for once, old fellow; stick to your miraculous scores and hitch on another bug to that mist-colored leader of yours, which, judging from its look, is strong enough to hold a twenty-pound salmon, always supposing that your hand and arm are at the landing-end of it."

"Come, come!" cried Gills. "If we stand here talking any longer, we'll lose our best chances at the bass. Do you intend, Doctor, to take a turn at them by moonlight? I see that the clouds have



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Trolling for Bass in Maine

chased each other out of sight, and we will have a beautiful night and a full moon."

"Yes, Gills, my idea is to fish down to the point of Quail Island, take a rest, and then give them a haze 'by the light of the moon' on the way back to camp."

"Agreed," said the others, and the three anglers stepped into the stream.

At this moment the wind freshened and whirled around the bend of the river in fitful gusts, striking them upon the "starboard quarter," as the sailor has it. This induced casts to the right, and called for a strong wrist movement in order to lay the line well out athwart the breeze, which would sometimes catch the flies in their forward cast and toss them upward, often holding them there suspended and floating, feather-like, until a slight lull would land them gently as a snowflake falling upon the ruffled river.

The Doctor was to wade straight across the stream, some 200 feet wide, to fish its right bank; Gills took the left side, and Mendy chose mid-stream.

To a rod expert the direction and wayward nature of the wind was nervy and exciting. To a bungler it was confusion and failure. But the Doctor was a master. Holding the rod in his right hand, just above the reel, with the thumb extended and the fingers closely but not rigidly clasped, his

cast of flies being held meantime in his left hand, and the rod being nearly perpendicular, by an appreciable movement of the wrist from left to right he gave the tip of his rod a flirt, and the line and leader curled backward, lengthening out behind him. Then, without a turn of the eye (it was intuition that told him that his rear cast was ended), he reversed the movement of the wrist, springing the rod to the front, and the flies, quivering, fell within an inch of the spot which his judgment had told him was a likely one.

The Doctor ignored the traditionary teachings of the craft, by his disbelief in the "forty-five degree" angle doctrine.

"Herbert, Morris, Scott, and the rest of them," he once said during a camp-fire talk, "may have found it all right; but, boys, I think that many of our angling lessons, as taught in the books, are laid down on the principle of follow-your-leader. Walton led, and the crowd of moderns followed. Take this 'angle of forty-five degrees' in hand and put it in practice. Nine times out of ten your backward cast of fifty feet will plump your flies, when handled on a ten-foot rod, into the water behind you. And in the forward cast, with your rod at that angle, ten to one you will recover it, at least twenty degrees, in order to prevent the line looping and falling with a great splash into the water before your flies touch it.

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“No, no, boys,” he continued, “the whole matter lies in the nervy wrist movement, with the clear brain and the loving heart behind it. Mendy, neither you nor Gills can tell me how you give that effective quivering motion to your rod. A turn of the wrist, say you! Bosh! say I. Your brain wills it, and the motive power goes right down that good right arm of yours into the wrist, and then up and out that split bamboo, through each thread of your braided line, until it culminates in the point fly; not ending even there, I sometimes think, but rather in the tough upper lip of the bass, as you strike him.”

“Doc is off! Not a word, Mendy, or else he'll play this tune for an hour or two,” said Gills.

“This ‘forty-five degree’ theory is all very well, boys,” continued the Doctor, “on a trout-stream overhung with brush or forest growth; that is, if the same angle of the rod is used twice the same day on such water (which I doubt), where you are forced to use a twenty-foot cast, and to sweep it oftentimes parallel to the surface of the stream, or, as I once saw a green one do, to loop your line into a roll like a sailor's heaving-line, and toss it into the foam of a rapid, hoping that the current would land it in a pool where ‘a big trout’ should lurk if he knows himself well. Don't look so skeptical, Mendy. I'm in earnest about this, and I repeat that no man can ever be a fly-fisher unless

his heart aids his brain and muscles. Take Tuck for an example. You both know him. His head is clear on all angling points, and his fingers are deft at dressing a fly. He is full of effective pros and cons. He has got the wrist movement down to a turn, and can show it beautifully on a broomstick or cane; but the knack leaves him just as soon as he steps into the stream, and his flies fall kerslosh — all in a bunch — when he attempts to cast; and with all this he can talk us all adrift about how to do it; yet you both know that he is the veriest bungler that ever worried a pool. What's the reason? Simply this: The man has gone into angling just as a swell goes into a club. It's the thing, you know! But his heart is not in it, and his nerves and muscles have n't got enough loving electricity about them."

It was now about half-past six, and the sun still shone over the river, except on the right bank, where it was shaded by a dense growth of trees; hence the Doctor had the advantage of position. Mendy, in the middle of the stream, had a show at the edge of the shadows, while Gills fished in the broad glare, yet aided materially by the scurrying gusts that swept the surface of the pools.

Across the river, starting at the point at which the three anglers entered it, a line of rocks extended, which at half-stage of the stream were

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covered with water, except at intervals of about twenty feet, where the water swept between them, making a series of swift currents that swirled down stream for some distance. At the tail of these channel-ways, and in the still water and the curl of the eddies behind the protruding rocks, experience told our friends were likely places for the bass to lie.

“The largest black bass that ever struck my fly,” said the Doctor, “did so at Flat Rock Dam. You know the spot well, Gills, for we have had some glorious sport together at the dam, and Tuck once told me that he believed you knew each pebble at the bottom of those pools by its front name; and you too, Mendy, as I remember you flushed and worried over your maiden effort at fly-casting some ten years ago, standing on that big rock that reaches a line level with the breastwork of this same dam. Well, my mammoth bass — it must have been a four-pounder — rose to my point fly in the rush of that surging rapid, the water of which came dashing over the end of the rocks of the big pool just below the dam on the eastern side of the river, the half of which is jammed by the rocks and the bank into a space not more than ten feet wide, making a rapid for about twenty-five feet.

“I had alternately waded and jumped from rock to rock until I reached the shallows in midstream, then waded down, with ankles scarcely covered,

to the old boulder that stands, sentinel-like, on the upper and western side of this rapid I speak of. Climbing up, I perched myself on the extreme top of the rock, unjointed my limbs, and stretched them out with a feeling of comfortable ease and unrestraint to be appreciated only by a wading fisherman who for some hours has been feet-fumbling on the stony and uneven bed of a river which is made up of deep holes and a ten-horse-power current.

“After resting a moment or two I arranged my cast, intending to whip the eddies made by the boiling waters on the lower edges of the rapid. I had never as yet had any luck in the strength of a stream such as this, and wisely, I thought then, chose the sides and tail end of it. I looped on a large point fly, to which, in the paucity of my knowledge of the names of flies then as now, I had given the name of hornet. You will remember it, Gills, if you can recall our last trip to Perkiomen Dam, when we saw the hornets flying around us, and occasionally falling into the water, where the eager bass soon made use of them. You will, perhaps, remember that we also made use of a tolerable imitation, a golden and brown bug we found in our fly-books. Well, I put on the same fly on this occasion, and a big gray hackle along with it.

“Tossing my line carelessly into the current, more for the purpose of getting the kinks out of

the leader than with the thought of a fish rising to the flies, to my astonishment I saw a black bass plunge across and slightly up the rapid, with a sweep like a flash at my point fly, but missing it. When he attempted to strike, his back for several inches came out of the water, and as the sun was shining brightly I could distinctly see his outline and length. Boys, he was a whopper! The largest I ever saw rise to a fly in any waters outside of Lake Champlain.

“I was considerably flurried and excited, but cooled down in a moment, and made a cast, pointing my ender just below the spot where the bass would probably reach and pause after his sweep at my flies. It was just at the outer edge of the swift current, where concentric and enlarging rings on the surface told me that there was still water below. My ‘hornet’ no sooner struck the eddy than it was struck by the bass.

“Of course, boys, I had a heavy and sweating time of it. The old rascal never came out of the wet at all, but despite my efforts that nose of his was pointed all the time at the boiling rapid, and at last his body went along with his nose. I scrambled down the rock as best I could, — in fact, I slid down flat on my back, — and gave him his own way. Down stream he went, with just enough tension on him to hold the barb of the hook tightly imbedded in his jaw until he reached mid-channel,

where the current was comparatively sluggish. Once there he seesawed from right to left, and left to right, for several minutes, until at last, struck, or rather inspired, — for it was inspiration, intellect, anything but instinct, — by that last life-saving idea which I have seen exercised only by two-pounders and upward, my bass went down —— ”

“ And sulked,” put in Gills.

“ Sulked!” cried the Doctor. “ Not he; there was no sulk in him. Down he went until I felt that he had got to bed-rock. Then commenced a series of tugs or jerks, — not angry ones, but regular in time and method, each successive one getting a little stronger than the last. It seemed to me that he had found a hole just big enough for his body between two stones, and that he had braced himself with his pectoral fins to bear upon the light gear. At first I simply held him taut; then, fearing for my tackle, I let up on him at each tug; but this method, I at last felt, would be a losing game for me, as the jerks grew in strength with an arithmetical progression that alarmed me. Something would give way, I was sure, if I did not bring matters to a focus at once, and I brought them. Putting a sturdy pull upon the fish, as obstinate in its strain as he was in his tugs, I reeled in, inch by inch, until I actually dragged him from his lair; but unfortunately it was a poor day for dragging, for, with a vigorous flirt of his tail and



Landing,

a figure-eight contortion of his body, he actually tore the hook out of his mouth, and it came back to me with a piece of flesh clinging to it.

“Boys, what do you think about the way I handled that fish? Was I right or wrong in my treatment of him?”

Gills promptly responded:

“No, Doc, you did n't use him right. There are but two ways of treating such a rascal; one is to wear him out by patience, just as a mule-driver does a sulking animal, — sits down and eats his dinner, the mule's obstinacy usually winding up with the driver's last mouthful; or, if that does not answer the purpose, still continue the mule-driver's methods, — pull the mule backward by the tail, he's bound to go ahead. Just so with the bass; chuck a small boulder behind him, and he's sure to jump into daylight.”

“Nonsense,” said Mendy, “you are both adrift. Doc, you should have held that bass and never let him reach bottom.”

“Nonsense back in your teeth, Mendy; I could n't hold him.”

“Then you should n't fish for the likes of him. A man who goes a-fishing for black bass with tackle that won't hold a five-pounder is about on a par with the man who roils a pool with three thrashing flies bunched ‘buzz.’”

This last remark started Gills on the warpath.

“It was n't the tackle, Mendy, that failed to hold Doc's fish; it was the fish's lip. Moreover, I never caught twenty-three bass, each weighing two pounds, on a single fly in a forenoon's fish, as you did at Perkiomen; but I will wager our man's wages for a month against a nine-foot leader, that my bunchy palmers, the tail one particularly, which leaves a wake behind it like that of a stern-wheel steamer, will catch more bass in a given time than that simple spider fly you brag about.”

“The bet is taken and Saturday next the day,” cried Mendy; and our anglers at last went to work down stream, whipping the choicest spots of the most beautiful bass river of America.

The subject of the mental and emotional capacity of fishes is the cause of much curious speculation among angling naturalists, who do not willingly consent that fishes should be placed upon a plane of intelligence below that of insects.

The belief that fishes possess qualities which reach a standard beyond the instinct of self-preservation has recently gained in strength and interest, owing to the increased facilities that fish-culture has given us for observing their habits. Seth Green, the Nestor of fish-culture in America, believed that fish can talk to each other, and the idea is by no means an extravagant one.

It is conceded by naturalists that certain insects

and many of the lower animals have the power of imparting mutual intelligence by processes unknown to us. The little ants hob-nobbing with each other, the cooing dove wooing his mate vocally, the hen clucking her brood under her protecting wings, are familiar instances of vocal intercourse among insects and birds; and no one who has watched the minnows of a shallow pool, or those in an aquarium, has failed to see equally sure indications that fishes have a way of their own in communicating with each other. They dart up to one another, put noses together for a moment, and then dart off again with an air as much as to say, "All right!"

Old Æschylus, in one of his poems, describes many fishes as "the voiceless daughters of the unpolluted one"; but many of the ancients and moderns testify to the utterances of fish. Pliny, Ovid, and others tell us of the *scarus* and its wonderful powers of intonation. In the days of old Rome, certain fish were said to have a regular language, "low, sweet, and fascinating," and the Emperor Augustus pretended to understand their words. We have all heard, or heard of, the various sounds of the gurnards, the booming of the drumfish, and the grunts of the croaker, the weakfish, and others. The grunt-fish of the Gulf of Mexico is said to express discontent and pain, and when touched with a knife, fairly shrieks, and when

dying makes moans and sobs disagreeably human. Take it for all in all, we cannot but believe that fish have the power of making intelligent communication one to the other, and we have frequently noted, or thought we did, a kind of knowing look about their eyes which led us to credit them with meaning unutterable things.

The scientists tell us that in many fishes no trace exists of an organ of hearing; that the tympanum, its cavity, and the external parts of the ear, are entirely absent; that in others this organ is only imperfectly developed, and that in the remaining few — such as the shark, the shad, the herring, and others — there is an odd connection between the organ of hearing and the air-bladder. With these crude facts before him, the ichthyologist leaves the angler to work out the answer to the question, "Can fish hear?" which is a most practical one to the careful angler in his pursuit of the educated game-fish of our inland waters.

Fish do not seem to hear sound originating in the air. Place a cannon upon an india-rubber carriage, sufficiently large and elastic to deaden all concussion upon the ground, and Mr. Fish, after the gun has been fired, will be as placid in his pool as a gourmand after dinner. But step as lightly as one may upon the margin of a stream, and the fish will scatter like shot from the near shallows where they are feeding or frolicking. The larger

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the fish and the lesser the depth of water, the greater and wider the scattering will be.

Security, with them, seems to lie in the relative depth of the pools, as the step of the angler disturbs them only in a foot or two of water. A black bass lying in a hole five feet deep, close to the bank, is undisturbed by any ordinary concussion.

Again, any concussion originating in or upon the bed of the river or below the bass does not appear to disturb them. This was verified by Mendy one day in the case of a large bass, which he saw lying motionless within a foot of a stake to which the camp boat was tied. The water was about four feet deep. Mendy struck several successive hard blows upon the top of the stake, which protruded about two feet out of the water, without causing a flirt of the fin in the fish below.

Our anglers at once concluded that the bass could not hear the noise made by their footsteps upon the bed of the river when they were wading in the stream, and as the jolly fins ("jolly for the fins," parenthesized Gills) could not hear their conversation originating out of the water, they indulged in social chat and pleasantries whenever inclined, taking care, however, to be always on the safe side, by not becoming too boisterous in their discussions or hilarity.

"Boys," said Mendy, on one occasion, "what fools these bait-fishers are to put their comfort in

a straight-jacket when they go a-fishing! Some old fellows won't let you whisper in the boat, and are as querulous and overcautious as my grandfather was whenever he had an attack of the gout. He would lie flat on his back in bed, with his gouty foot propped up on a pillow laid across a chair, placed bottom upward, and in this position would centre and strain his eyes and fears upon the knob of the chamber door, which was no sooner turned than he would cry out with prospective pain, 'Watch out for my foot.'

"It is just so with these bait-fishers. A motion of your lip, although voiceless, and they would cry out, if they dared, 'Watch out for my coming bite!' They are right in thinking that the least motion of the boat is apt to frighten the fish, but 'I won't go home till morning,' by a dozen bass voices, is less disturbing to a pool or a bank than the twisting of a toe on the bottom of a boat."

The Doctor continued: "A fish can see in water, but not when out of it. The shadow of a split-bamboo rod thrown across a pool will create in a fish the same skittishness as would be caused by an elephant browsing upon the bank.

"A passing cloud over a shallow and pellucid pool protects the angler, and puts another fin or two in his creel, where, a moment before, each cast drove the fish to deeper pools or behind protecting rocks."

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Gills said that fish were like ostriches in some of their ways, notably in that they seemed to feel safe when their noses were hidden behind a tuft of grass or in the crevices of a sunken rock.

“Fish facing the sun, and forget not this rule, even when the twilight is over the waters, by casting toward the west,” was the law of our anglers, enacted by their knowledge, based upon experience, of the effect of shadows upon the wary fins, which are more startled by unusual appearances on the surface of a pool than they are by strange things below.

The Doctor then said that, vision and hearing in fishes being the senses most concerning the angler in his aquatic sports, those next in importance are smell and taste. The possession of these by fish seems to be a disputed point. They evidently have taste in a modified degree, as they will reject the artificial lure if the barb or the hook is not immediately imbedded in their flesh, but, on the other hand, they will take a leather or rubber imitation of the natural bait with as much gusto as a live minnow or bug; hence, the question is a seesaw one.

“Of course, among angling naturalists, the gift of senses is, or at least they think it should be, confined to game-fish, as they cannot imagine any dispensation of Providence that places the ignoble

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catfish or the snaky eel upon the same plane with the salmon, trout, or bass.

“Fish, no doubt, in common with other animals, have the instinct of danger developed almost to the quality of reason; and it is no bar to the truth of this to argue that, because a fish will take the bait with half-a-dozen hooks in his jaws, it follows a brutish appetite that is blind to danger; for, look you, be ye an angler or a butcher, that stomach of yours is death to you every day of your life: that smoking dish, be it red herring or canvas-back duck, is causing you to make rapid strides graveward, and you know it; and yet you gorge yourself every day upon your favorite dish.

“It ill becomes a man to argue that because an animal cannot control its appetite it has not the lordly gift of reason. To sum up:

“Can a fish taste? Certainly: he spits out, if he can, an artificial bait.

“Can a fish smell? Aye, there’s the rub; yet why the anointed lures so prized by old anglers and many modern ones, and why does a fresh natural bait kill the most fish?

“This fact, however, is sure: fish are susceptible to anger and jealousy; for we have seen them fight, and we all know how tiger-like in jealous combat salmon and trout are on their nuptial beds.”

The evening’s fish of the club had commenced

so tardily, that it was confined to the stretch of the stream bounded up and down by the two previously named water-marks, the lower one of which was only a distance of 300 yards from the camp.

Mendy, fishing in the centre, and standing some twenty feet back of a large rock known as "The Daddy," on account of its great size, was the first to get a rise. His fish was a pounder, known at once to be such, not only from its size, but by the vivacity of its strike.

Mendy would never listen to the accepted theory that bass could be found and caught with more certainty by allowing the flies to sink an inch or two below the surface. Whenever the fact was announced he would bury it under a contemptuous "Bosh!" and always persisted in skittering his fly over the water. He did not vary his practice on this occasion, and was quickly greeted with a rise, the like of which is only an occasional occurrence among bass.

The fish, in its eagerness, missed the lure, and came, trout-like, at least a foot out of the water, turning a complete somersault, returning head down into the stream again.

A careful eye, watching Mendy just then, would have been delighted and somewhat astonished to see him, then and there, go back upon his emphatic "Bosh!" as he lulled his skittered fly into a passive float, allowing the sweep of the current

to carry the single fly slightly below the surface. His reward came at once, for Mr. Bass, as he returned to his own element, doubtless paused for a moment to dwell upon the wonders of the foreign one from which he had just returned, — paused just long enough to allow Mendy's tempting bug to drift under his nose, and then struck swift, sure, and safe.

"It's only a mite of a fellow, boys," said Mendy, as he quickly brought the bass within reach of his left thumb, which he inserted in the gill, basketing the fish without flurry or waste of time.

Gills by this time had his hands full with a two-pounder, which had struck with such vim that a sort of wake was made behind him, seaming the pool, across which the fish was surging with diagonal sweeps from right to left and vice versa.

"Boys, he is an unco' dandy," cried Gills, and the fish justified the remark under the rodster's peculiar method of handling, for he went at pleasure, hither, thither, and everywhere. It will be remembered that one of Gills's crotchets was to allow a bass all the line he wanted, provided that the strength of the fish was sufficient to draw the line from the clicked reel. Now this bronze-backer was just the fish to do Gills's theory to a turn, and he buckled down to it as if with a foreknowledge of the latitude of range permitted by his opponent's favorite method.



An Enthusiast

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A few moments, and the bass won. Making a bee-line for a boulder the gray head of which cropped out of the stream, showing the angles below, the fish circled around the sharp corners, and then, somewhat restricted by the line, came half-sideways a few inches into the air, and fell back again with a flop and a half-hitch around its tail into the water, having in its jaw a bunched palmer and four feet of leader, streaming, horn-pout-like, down the current faster than the exhausted fish could follow it.

It has been said that bass, when struck and played, will always head down stream when they escape from the hook, and we have verified this saying over and over again.

Gills was by no means flurried over his loss, for he simply remarked:

“Just as likely as not another big fellow hitched on to the dropper when the first one came out of the wet; and you know, boys, with a big fish in the air, and another big one seesawing the liver out of the leader around a rock, from below,— why no tackle can stand it,”— and he sat down on “The Daddy” to repair damages.

The Doctor fished the shallows on the left side of the river with judgment, but without an immediate rise.

Over the bank, and extending into the stream, the lengthening shadows were falling with clear-

cut yet changing outlines as the foliage of the trees waved to and fro, "the gloom of the even-tide" reaching out for thirty yards from the shelving and grassy margin of the river.

Our anglers chose the dense patches of shade, giving preference to the little eddies that whirled around the miniature rocks which here and there dotted the broad reach of the quiet waters extending from the "Sentinels" down to the "Old Fish Weir."

Midway between those two water-marks a few small boulders were tumbled together, over and through which the water purred and foamed into baby rifts, which were soon lost in the gentle flow of the river. Just at this point a pebbly bar, its bold head forming a little island, cropped out from the surface, baring its front to the flowing waters, which, with dying swirls induced by the rapids above, swept around its stony sides. Within a yard or two of its outer end the flash of a feeding bass and the sheen of a herd of skipping minnows caught the keen eye and ear of the Doctor, and quicker than thought his favorite fly lit searchingly a few feet behind the fish.

Behind the fish — because a hungry bass, when dashing into shallow water after the frightened fingerlings, returns to the deeper pool instanter — he lingers not a moment, but back again to his lair until his prey gathers once more upon the shoals.

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We have often seen an old bass, when feeding, dart among a crowd of minnows where the water was so shallow that his great dorsal fin was perforce entirely out of the water; and more than once, when fishing over the stretch of the bar near Quail Island, the Doctor had observed large bass working their way for yards, with side fins and muscles, where the river had a depth of only a few inches.

Knowing this retreating habit of the bass whenever deeper water was accessible, the Doctor deftly and quickly threw his flies about three feet to the rear of the spot where he had last seen the body of the fish splash into the water. He had not only dropped his flies behind, but also allowed them to sink an inch or two below the surface, knowing full well that bass would not make two immediately consecutive rises. His caution and skill were promptly rewarded.

The fish, doubtless with his appetite sharpened by the delicacy of the silver shiner just swallowed, struck with such boldness that the Doctor, who had hitherto invariably handled his strikes in silence, cried out:

“Mark! Mark!”

His experience and memories of the past delights of the field probably prompted this involuntary cry, as not many years ago, before his eye had been dazed by the sweep of a covey, he was

one of the gifted few in a stubble-field or an alder-swamp.

Mendy and Gills were startled by his voice, and at once paused in their downward casts, looking toward the Doctor, who had hailed them with an addendum:

"Boys, he's one of the dandies of the old Potomac River stock," alluding to the original source of the black bass of Pennsylvania rivers, all of which came from the source he named.

"A five-pounder, if an ounce," he nervously added, with flushed face and tremulous voice.

"Gills," said Mendy in a low voice, "Doc will lose that fish; his nerves are all unstrung."

"No! no! Mendy, I've seen him before in just such a quiver; outside he is an aspen leaf, inside as nervy as an iron bar. Watch him."

As Gills spoke, the Doctor was seen to edge himself, inch by inch, toward the middle of the stream, the fish meanwhile bearing all before him, but not rapidly clicking the reel, for the angler's thumb pressed the line closely against the rod, and it went out with a measured click-click-click, not with a continuous whirr and whirl, but inch by inch, just as the bronzed rascal earned it.

Gills's heart was in his mouth, for the Doctor's method of handling the fish was so opposite to his own in theory and practice that for his life he could not help breaking out with:

“ Doctor, for heaven’s sake let up on him! He ’ll smash things if you don’t! ”

“ Bosh! ” came the reply, as the fisherman was seen to turn the tip of his rod toward mid-stream, its butt outward and downward, with the yielding bamboo arched and quivering under the strain.

Meanwhile the ceaseless click-click-click showed that the bass still held the upper hand.

Foot by foot came the Doctor nearer to deep water, the fish getting farther and farther away, with about twenty yards of the reel line going down stream with him. It was ten yards more than the Doctor ever yielded before to a bass.

Gaining a depth sufficient to play the coppery giant beyond the danger of rock or rapid, the Doctor snubbed his fish sharply. The response came quickly by a surge across stream, swift as an arrow from a bow, straining line, leader, and rod to the utmost tension; but the ball of the angler’s thumb contained so delicate a nerve, or pulse, trained to danger for use on such occasions as this, that, whenever breakage signals were aboard, the line glided through the rod-rings with just sufficient restraint upon it to curb the will of the fighting fish, and take from it, thread by thread, its wild strength of muscle.

Surge — surge — and surge again, but still in mid-water, for not even the tip of the dorsal fin glinted along the twilight shadows that were

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now rapidly deepening over the bosom of the river.

The Doctor, as cool now as the freshening evening breeze, held his prey well in hand until the bass resorted to the usual dodge of the weighty ones by settling deeper until it reached the bottom and stayed there.

The Doctor knew that this trick meant recuperation, and that when the fight was renewed his fish would contest every inch with nearly all its original skill and vigor.

What was to done? Strike the hook deeper into the sulker's jaw? The only response was a succession of tugs from the fish, which could be compared only to the sturdy, persistent jerks that a dog gives when you attempt to take a cloth or a rope from its mouth.

Startle it with a pebble or two thrown into the pool?

The bass only settled itself deeper and deeper until it reached bed-rock and stayed there.

But one resource was left, and the Doctor availed himself of it. He put his tackle to the test, and dragged the bronze-backer upward by main force. No sooner did the fish feel the tightening strain than it sprang into the air, but, being skilfully met, could do no more than surge across and across the pool in desperate efforts to free itself.

Having tried the strength of his tackle, and

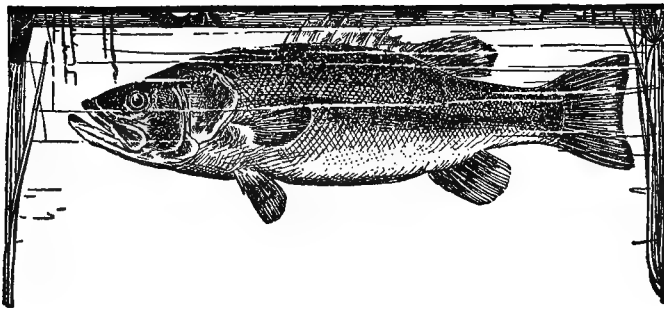
FLY-FISHING IN THE SCHUYLKILL RIVER

found no failure there, the Doctor closed his hold on the bass, and after a few wild efforts the fish floated on its side, and was carefully towed toward and into the shallow water, whence its captor, running his fingers through the gill, deftly plucked it and held it up, exclaiming:

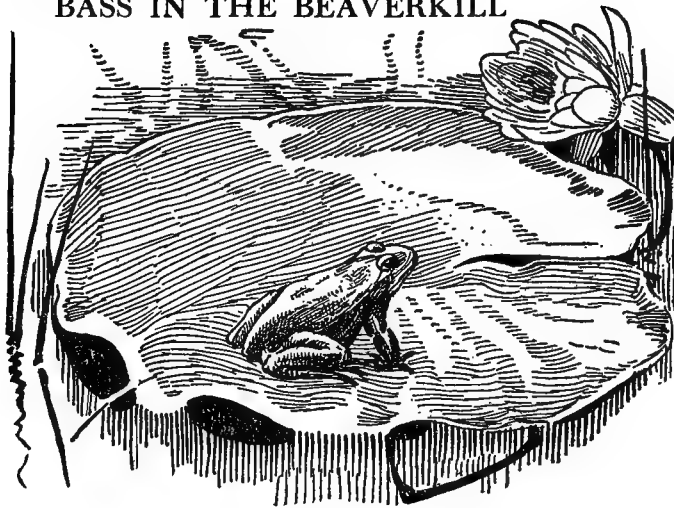
“A four-pounder, by George!”

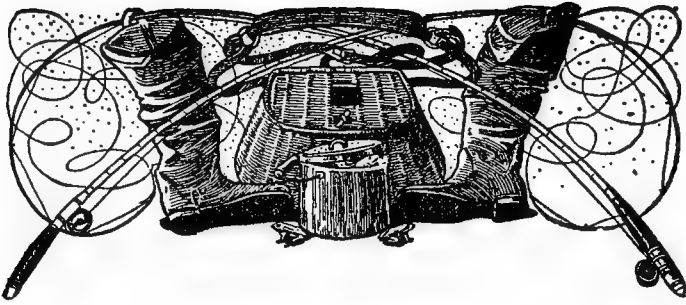
Gills and Mendy gathered around, and the former whipped out his rule, and, laying out the lines of the bass, announced the result:

“Nineteen inches long — six and a half broad — two and a quarter thick; mouth-opening capacity, two and three-quarter inches, — a simon-pure *Micropterus dolomiei* — small-mouthed — probable weight, four and a half pounds.”



BASS IN THE BEAVERKILL





BASS IN THE BEAVERKILL

IT will probably be a great surprise to most of the anglers who yearly wade this famous trout-stream to read of bass in their favorite water. Before going any further I will say that what harm can be done to the *Fontinalis* is done, because bass will not ascend the stream higher than a certain point, where the temperature is lower than they like, to spawn. This given point is the junction of the Willowemoc and the Beaverkill. A little below the town of Roscoe, a stretch of six miles down stream is one of the prettiest bits of bass-fishing any angler can desire. Some years ago this part of the river got the name of containing numerous big brown trout that were very wary and hard to land, and these very soon played havoc with the speckled trout, so that few, if any, are now caught.

In fishing in this water down to Cook's Falls, where bass have been landed weighing from three

to five pounds, nobody seems to have imagined that bass would run up the stream above the falls; yet all the way down, in trying for trout at the best season on various occasions, I did not meet a single fisherman, and I landed no fish, though I used the finest of imported leaders and very small flies. It never occurred to me that by using live bait or young frogs in this rushing water things would have been different.

Fishing at "The Fork"

For a number of weeks I confined my whole attention to a fine pool made by the junction of the two streams, locally known as "The Fork." It is a long, deep pool, three hundred feet long and seventy-five feet wide, and in parts fifteen feet deep. I fished in this pool for trout every evening, watching for them to rise about sundown, and always succeeded in landing one, two, or three, none less than twelve and some as much as eighteen inches long.

During my stay of five weeks I had thirty-seven large trout to my credit — not one *Fontinalis* — the number being about evenly divided of brown, rainbow, and German. One starry but dark evening, I hooked a nice fish. I could not see it, but by its leap and the way it acted I felt sure it was a bass. My leader being very fine, it was neces-

sary to bide the fish's time. On the other bank a local angler was walking slowly backward and forward along the pebbly beach. Upon my asking him why so much exercise he replied, "I've got two on and mean to land them." After a time I landed my fish, which proved to be a bass of nearly three pounds, and went to the hotel, leaving my brother angler still on his beat. The next day, I called at his place, and on my inquiring about the previous night, he said, "Come and see." To my great surprise, I saw a brown trout of over three pounds, and a bass of three and a half pounds, both taken on the fly. "So," said my friend, "you see I landed a double, but not two of a kind."

Ideal Bass Water

It was this incident which led to my inquiries regarding bass in this part of the river. I was told there were lots of them all the way down to Cook's Falls, and I find that any day I can fill a basket. I have caught them on the fly, with young frogs, and with crayfish, but find lampreys afford the best and easiest fishing. The bed of the river is rocky, and live bait get under the stones, but lampreys slip out easily. I have never tried minnows or a spoon, but bass will take anything you like to offer them. They rise to a fly almost

THE BASSES: FRESH-WATER AND MARINE

any time, and, living in quite rapid water, are unusually gamy.

Below "The Fork," the river runs down an incline of rocks in the bed of the stream. This is ideal bass water. Without going any further down stream a basket may be filled if the conditions are at all favorable. If flies are not taken, young lampreys may be dug out of the sandy reaches of the river side. On the hill side above this stretch of water is located a very comfortable and clean boarding-house, well kept by John S. Ferdon, whose address is Roscoe Post-Office. A short distance away is the Campbell Inn, more elaborate and higher priced, but well kept and very comfortable for anglers. Either place will suit those who want to fish in this neighborhood.

The river in parts is very rapid; but, as it turns so often, many pools and stretches yield good results, the best and easiest fishing being along where the railroad runs. It is quite possible, indeed very likely, that the angler will strike and land one of the large brown trout which were planted in this section some years ago. They have grown large and fat, but rise to the fly only in the evening and have grown very wary, often getting away with the fierce first rush before the angler is aware of them, when it is too late to give them line, or they rush around a rock or stump and so free themselves. If the angler is fly-fishing he will

BASS IN THE BEAVERKILL

often strike a good-sized chub, which plays so pluckily that for a while it will deceive the fisherman, who thinks he has a trout. I have had a fifteen-inch chub rush up stream exactly like the speckled trout, but it gives up the fight much sooner. I usually throw such catches on shore to give the minks a fish supper. These nimble little animals seem to be quite plentiful. I often see them swimming across the stream or sitting by the water's edge on the lookout for a young bass or trout.

A Day's Work

Farther down, the stream does not widen, but gets wilder, and everywhere the banks are lined with a thick growth of timber or brush with high mountains on each side, mostly uncultivated. Farms are few and far between. The distance from Roscoe to Cook's Falls by road or rail is but six miles. By the winding stream I should say it was about twelve miles, making a full day's hard fishing. But such a day is well worth the labor for the expert if he provides himself with the right bait and tackle. He will not have any desire to walk back home, or especially to carry his catch on his back. He will be wise to time himself for the return trip and catch the train back in the evening. Arriving at Cook's Falls the angler will have a chance to try his luck at

THE BASSES: FRESH-WATER AND MARINE

this famous bass pool. He will, no doubt, find others there, the locality being well known and frequented by many fishermen. But nobody could pass by such a splendid place without having a cast from the lower end of this rushing torrent. For my own part I rarely go far away from "The Fork," and the angler will do well to try the long deep pool at sundown early in the season. If a fine evening the wind usually drops, and all is calm on the surface except for the "plop-plop" of the rising bass. With a cast of two or three flies — a brown, a gray, and a red — dropped lightly, if possible, over the place where the fish are rising, the reel will probably spin to a lively tune. A small handy net saves time in landing. There will be plenty of work, or play, just as the angler chooses to make it, until dark, — and after dark for that matter. The fish will go on taking the fly, as they can see just as well as in the daylight. But to my mind there is little pleasure in fishing in the dark. It is difficult to bring the fish to the net, and flies will get entangled, especially if pussy-willows form a background. So I generally wind up when the stars begin to twinkle, trudge off home, take off my boots, wash, and eat a hearty supper, and then sit on the piazza smoking and planning what to use and where to go on the morrow, going to bed with a hope that no rain will come in the night to flood the stream.



Casting the Fly

Of course, most anglers like to land fish, — plenty of them and of tolerable size. Yet the true fisherman can return home after a hard day's work with nothing in his creel, and still be satisfied with his efforts, knowing full well that many conditions have to be combined ere the wary fish give the desired chances. And the fish are by no means the only factor to be considered. A hot or windy day is unfavorable, and a night's rain swells these mountain rivers into roaring torrents, so that if the holiday is limited to a week or two, the waiting for the water to become normal would try the patience of St. Peter himself.

Some Awkward Experiences

I have always found that it takes a couple of days in a new place to find out what bait to use, where the fish lie, and what time of day they are amiable — for the only fish that is at all agreeable is the one that meets you half way. If it be a large one, the chance is all on its side to get away and live to come some other day. The true angler scorns to haul him in like a codfish. That is why, in fly-fishing, a nice judgment is required, to be neither quick nor slow. A bass will come to the creel quicker when handled firmly. I shall never forget one of the first really good-sized bass I hooked, using a shiner for bait, at the Sullivan

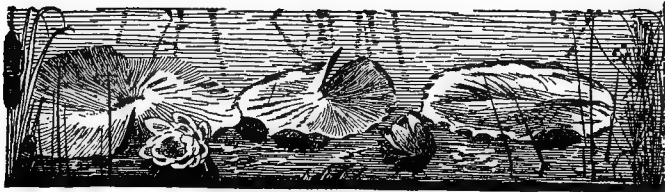
County Club's Wolf Pond. I was alone in the boat and had slipped an oar, and the bass had reeled out nearly all my line. For the life of me I had not strength to reel him back. He was making toward New York for all he was worth. A stranger, fishing some distance away, yelled, "Why don't you get him in?" I replied, "I wish I could." He came rowing up at full speed and said, "Hand me your rod." I thankfully did so. Well, he set to work and whirled the rod around like a windmill. I said ruefully, "That rod's a good one, but I doubt if it's as strong as an oar. Remember it's not yours, but mine, you are jimcracking with." "Oh, damn the rod. Let's get the fish," he replied. After some more whirlwind passes he certainly turned the traveller toward my boat, and consequently to my net, and began to reel in like mad, so that together we soon had safe a fine three-pound bass. For the rest of the day we fished together and I learned a good deal that was useful to me in after life.

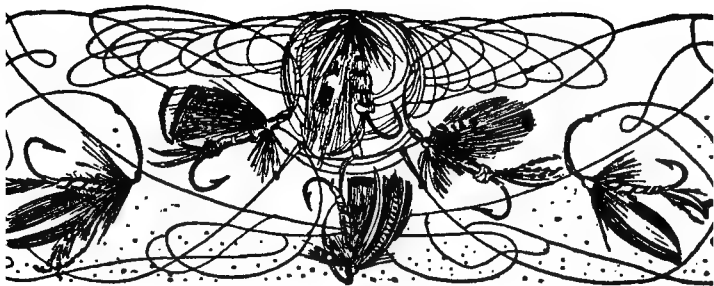
Another instance of my early bass-fishing days was when my wife and I were out on the lily-pond some miles back of Roscoe. A beautiful sheet of water it was, but we had little success and at last decided to try the lily-pads for pike.

We used a minnow and a large fly. Hardly had we cast the first bait when my wife had a shock and her reel began to whirr. The fish started

BASS IN THE BEAVERKILL

for the lily-pads. Just as I arose to assist her, my rod gave a sudden jerk. There we both were, in deep water, with long and tough lily-stems all around. I said, "Hold tight, and I will land this fellow." I began to reel in, net in hand. I got him up to the boat and saw that it was a good-sized pike. All at once he darted right under the boat and took the rod with him, smashing it into shivers. Laying the remaining butt down, I mentally resolved that this should happen but once, and began the work of landing the other fish. The rod my wife used was borrowed from a friend, a fact not realized at the time, though that friend, in another boat, was shouting for us to come along home, which helped to make matters worse. Any way the tip split at the ferrule. Still struggling with three parts of a rod, after an awful mess and tangle, we at last netted the prize bass of the day's fishing-party and merited, if we did not win, a prize as rod-breakers.





THE CHOICE OF FLIES

TO choose the six best books would be no more difficult than a like choice of flies. It would be hardly possible to get two fly-fishermen, from the many thousands who cast, to agree on a choice of the six best flies. The most that could be hoped for would be that so short a list should contain one of their fancy. Indeed many anglers provide a varied list in their books, because season and locality require it. Bright or cloudy days often make it necessary to change both size and color, and a fly used with success in the morning is often no good at evening, although on the following evening it may be just the thing.

To minimize the difficulty and save time while in the water, a well-known angler has devised a plan to have ready-tied half-a-dozen leaders with a choice and varied assortment in both color and size — each set entirely different from all the others.

The largest and most taking fly is placed as the end, or tail, fly. Should the upper fly be taken first, it is then removed to the end — the end fly being much easier to handle, especially with a large fish. Should the first cast of flies be unsuccessful, it is short work to take it off the line and replace it with another, duller in color, or brighter, as the case may be. By this means, he claims, possibly with truth, that less time is wasted and the quarry sooner brought to the basket. It certainly has advantages when fishing after dusk, with little light to see the fly or tie it on the leader.

Many anglers assert that for bass-fishing one fly is sufficient, and some think a small spoon used with the fly gives better results. This would be especially so when a vari-colored fly like the Ferguson is used. It would seem that with two flies, tied forty inches apart and having as great a difference as possible in color and size, success would be more sure. It is by no means rare that two fish will take the flies at the same time. Often in playing one fish the other fly, being moved rapidly in the water, will be taken by another fish, out of pure jealousy. An instance of this kind was shown when the writer, fishing with a live minnow on the end of the leader, and a fly tied three feet from the bait, a good-sized pickerel took the minnow. After being brought to the edge of the boat, he broke away, again to be returned, with a large bass on the fly —

THE CHOICE OF FLIES

the pickerel on the bait — both being landed after considerable stiff and careful work.

Very few will contest the fact that the silver doctor, both in form and beauty, is the queen of flies. No matter what its size, for bass, trout, or salmon, it holds its own as a taking fly, in any season or locality. In "Favorite Flies," Mrs. Marbury states that the majority of anglers place the silver doctor at the head of the list, especially for evening use. It did not originate in this country, but it has been heartily adopted, and adapted to all waters by making it on all sizes of hooks. Its value for all game-fish is undisputed.

As a bass fly, next to the silver doctor, the Ferguson is probably the most successful fly used. It is named after Major Ferguson, Fish Commissioner of Maryland, who endorsed this special pattern as the true one among a number of others slightly different, but all of the same name. It is a bold and bright-colored fly, the wing with long streaks of yellow, red, and black showing brightly in the water, the green hackle softly blending with the black and bright-golden body.

The matador was designed by William J. Casard, of New York, and later named by C. F. Orvis. Its gay, rich dress, having wings of the black-barred feathers of the wood-duck, with a bold white streak running across the top, at once stamps it as an excellent bass fly.

The W. D. Cleveland, so named after a member of the "Texas Fishing Club," is somewhat similar to Dr. Henshall's polka, having a gallina wing and red-and-black body. The black blot at the top and bottom of the wing is showy; otherwise this fly has a sober brown appearance, but with distinct and original markings.

The Cracker was designed by Dr. George Trowbridge, of New York, and was intended for the fishes of Florida, being named after the "poor whites" of that State and Georgia. Like the silver doctor, it is a good all-round fly for different game-fish. The luckiest models always contain a plentiful supply of red in wings and back, with yellow and blue mixed in, and with peacock feathers to blend with its blue body. The Cracker is a remarkably handsome fly, having the red hackle of a slightly darker shade than the red of the wing. This fly is not so well known as its beauty warrants.

The Murray Hill, with bright body and wings, has a long red tail, black hackle and side feathers, and resembles to an astonishing degree a living moth. It has less color than the usual bass fly. Bass have an eye for bright and strong colors, with deep black well mixed in for contrast; in this they much resemble the salmon and other game-fishes. It is beyond question that bright colors will attract from a greater distance. Could we be placed where fish generally lie, these brilliant butterfly fairies



The Cracker
The Ferguson
The William D. Cleveland

The Murray Hill
The Silver Doctor
The Maiador

THE CHOICE OF FLIES

dancing on the top of the water would attract our attention, and had we the bass's pugnacious will, we, too, might tackle with avidity the man encased in so bright a robe.

To the thoughtless casual observer a fly is just a bundle of feathers jumbled together anyhow — without meaning. By no means is it so. The great and standard flies have been evolved, designed, sometimes after many years of thoughtful study of both nature and habits of the fishes, and the inventor of such a fly as, for instance, the silver doctor, unquestionably has conferred a world-wide benefit for all time. Such a fly is born but once in a very long time, — like a Shakespeare or a Dante. But all anglers are of one mind in this: that a limited variety of the famous patterns is all they want, although the designs to pick from are as various as the flowers that bloom. Practical fly-fishers of many years' standing, like the late William C. Harris, Dr. Henshall, and others, have repeatedly stated that in their experience they soon discarded all but a few patterns. Dr. Henshall has complete faith in his own creations, and with reason, too; though his inventions are less brightly colored than those of others, and, in the writer's opinion, have too-thick bodies, — at least in some instances. In only one of the five flies is red used, and that only for the body and hackle. On the other hand, Mr. Harris was a staunch believer in

red and green, but the difference in success may be apparent only in the locality fished — whether west or east. But all agree in the oft-repeated rule that for dark days and evenings light flies are always taken best.

One of the greatest advantages is having confidence in a fly, — for it goes a long way toward making it a success. A fisherman will almost invariably kill the greatest number of fish with the fly he uses most. He persists so long that from sheer anger a game-fish rises to his lure, and, be it said, the artificial fly, when playing on the water, is more like the natural fly than the average observer would imagine; the many varieties winging their flight on or near the water, with wings cocked or flat, have been imitated with remarkable fidelity. The duns, drakes, spinners, beetles, ants, and browns — all insects in their natural state providing abundant food by night or day — being so difficult of capture, ingenious man provides substitutes that will stay on the hook and keep their form and color, in or on the water, till worn out, to be replaced by new ones.

It is not to be inferred that the writer advises against trying any new patterns that are invented; experience will at once tell whether a new fly will be likely to surpass those now in use, and it is quite possible that the greatest fly is yet to be made by some genius, — a fly that will take at all times,

THE CHOICE OF FLIES

in all places, and all kinds of fish. Such a fly would make the designer world-renowned among a host of admiring brother anglers. One has a secret thought that perhaps fishing would be then too easy, and the delightful hope, the fisherman's guide, would be gone forever.

But it is a noticeable fact that the great majority of bass-fishermen use live bait, — frogs, minnows, helgramites, crayfish, and eels. They imagine that a better-filled creel results from the use of live bait; yet fly-fishing is immeasurably superior in every way. It is cleaner, less cruel to bait and quarry, cheaper and easier in many ways. Who has not travelled some distance, to find his bait short just as the fish are beginning to bite, or at times find his bait dead and therefore useless? and how often it happens that bait costs much more than the fish are worth. Who cares to wade through a stream with a can of minnows dangling in the water, with nerves on edge every minute, as he expects their escape or loss? Frogs are especially "cute" in getting away either by forcing the lid off the can, or jumping in all directions when the angler has only one hand at liberty; and, worse still, how often will they crawl around a large stone or rock, from which no amount of pulling and tugging moves them, till, weary of trying, a sudden, last, desperate jerk parts the leader from the line.

These and many other ills come not to the fly-

caster. He calmly takes his book of flies, lying snugly in his pocket, and soon replaces or adjusts a new cast, right in mid-stream, and freely begins anew his pleasant pastime. It is quite true that bass are not always in the humor to take a fly, — the same may be said of salmon and trout, — but the ardent fly-caster usually has patience in his make-up to wait till the fish will rise to his feathery lure, and this often happens sooner than is expected, if some coaxing is brought into play.

No ingenious American has yet attempted — at least to the writer's knowledge — to make flies by machinery; so that all are tied by hand, and well-made flies are necessarily costly. All the makers, especially well-known and trustworthy houses, can supply and will furnish the very best, if paid for the extra care in tying. No comparison can possibly be made between the ten-cent bass fly of the bargain stores and those made by such firms as Abbey & Imbrie, Mills, and Charles F. Orvis, the latter firm having made the sheet of colored flies for this volume. The original patterns are copied exactly, and each firm has its own choice set of patterns, besides the standard kind.

Experienced anglers often say that bass will jump at anything when they are in the humor; but the trouble is that they are rarely in the humor to jump at any old rag that is cast before them, and the only way to put them in a humor to be always

THE CHOICE OF FLIES

jumping is to show them the most attractive flies. A fly that will rise a fish often is a good fly.

Abbey & Imbrie, the New York fly-makers, found a like difficulty in making a selection of six best flies; but their final preference was for grizzly king, Colonel Fuller, silver doctor, brown palmer, Lord Baltimore, and Parmechenee Belle.

In the order given: No. 1 has a gray wing with red ibis shoulder, warm gray hackle with a green body, red tail to match the shoulder, and deep black head. No. 2 is a brilliant yellow hackle, body and wings, with shoulder of red, black head and tail. No. 3 is decidedly different from the Orvis silver doctor, having a bright blue hackle, black head, with wings a mixture of grays, without the golden pheasant's feathers, the absence of the latter taking away much of its beauty in appearance, yet seeming to lessen none of its effectiveness as a taking fly. No. 4 has the brown hackle, thick and bushy, green head and body of peacock's harl, with a short, stumpy, red tail. I like this fly, and, made in any size, — smaller preferred, — it would do great service for trout. No. 5 has a deep black wing, hackle, head, and tail, with a bright golden body and cream-colored spotted shoulder; it is a most effective-looking fly, but did not take as I expected on trial. No. 6 is the regulation white and red, with yellow head and woolly body.

A new pattern rising rapidly in favor, the Bab-

cock, used always as a second fly, — that nearer the rod, — has bright yellow wings, in striking contrast to the black head and hackle which is carried on by a streak of black up the yellow wing. With its body of bright scarlet with twisted gold thread and its black tail, it is both a gracefully built and a strikingly handsome fly. I used it with a silver doctor as end fly, and, on this cast of flies, landed fish.

These flies, with the six Orvis flies pictured on the plate, were specially tested by the writer, in swift-running, cold water of the Beaverkill a few miles above its junction with the Delaware, and while, of course, this was not conclusive, it was found that the silver doctor, by both makers, was far ahead in the number of rises and of fish caught, in the morning or the evening, on dull or bright days. When I changed back to this successful lure, it seemed to be as enticing to trout as to bass, — the brown as well as the *fontinalis*, or brook, trout, while the ever-voracious chub, that rises to any fly, took a particular liking to this fly. One large fish weighing over three pounds, after a gamy resistance, was brought to the net, and, on extracting the hook, he disgorged a good-sized mouse or young rat that, no doubt, in swimming across the stream, had just fallen a victim. The brown palmer, used as a second or upper fly, hooked a number of fish. Another cast, made up of the grizzly king and Lord Baltimore, was not so effective, but attracted

THE CHOICE OF FLIES

attention, the fish rising, but returning without taking the fly.

I am inclined to agree with Mr. Harris that bass flies as sold by the dealers are far too large for running water, and are better suited for the deep, dark-colored water of lakes. The rule is not infalible — that big flies catch the large fish; but after dusk the large fly is more serviceable in that both angler and fish see it more easily.

Later, I carefully trimmed part of the flies with my scissors, reducing the wings and tail nearly one third, the change being a decided improvement in the Ferguson, Cracker, and silver doctor of the Orvis flies, and the silver doctor, Parmechenee Belle, and grizzly king of the Abbey & Imbrie flies. While casting for bass in what is known as a bass pool, I landed a splendid brown trout, on the Cracker, before reducing its size; but at twilight, and on three different occasions, I hooked a fine bass on the trimmed Ferguson in this same pool. Twice he got away while out of the water, and once he rubbed the hook off by nosing a rock in the swirl of swift water. I tried him many times after, and on every occasion he would leap out of the water once, but never a second time.

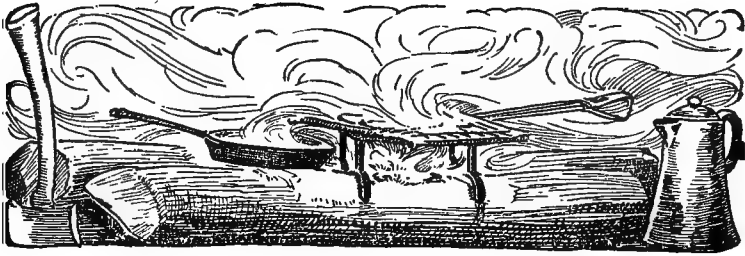
In short, after most careful study of this particular kind of water and locality, I am firmly convinced that any fish — bass, trout, or even salmon — will, nine times out of ten, go for the fly that

THE BASSES: FRESH-WATER AND MARINE

has a shining metallic body, either of silver or of gold, the former preferred; and that this is the explanation why the silver doctor is so universally pronounced a favorite fly. My choice would be, out of a dozen flies, ten with silver or gold bodies and a varied assortment of wings and hackles, no matter what fish be the quarry. In fresh or salt water the same rule would apply, and size is more important than color. It is only in the latter part of the season that large-sized natural flies are on the wing. In swift-running water the bass is harder to land and has in his favor all the chances of getting away. With movements so quick, he is gone in a flash. Many times, like lightning, he rises to meet the fly, even before it touches the water, so that the angler must be very alert to get ahead, if the bass is to be hooked at all. To the fly-fisherman there is no more inspiring sight than a fair-sized bass, leaping out of the foaming, rapid water; in a second, head up, with fly in his lips, shaking his whole body in anger and fright; slipping down again, to tear off up stream; the reel singing a lively tune. We ask ourselves every time: "Will he get away?"



NOTES ON THE COOKING OF BASS



NOTES ON THE COOKING OF BASS

FOR good eating, both fresh-water bass and salt-water bass should be perfectly fresh, scaled or skinned, well washed, and cooked to a nicety. All the different kinds of bass dry up quickly; the scales harden soon after being placed in the creel or in the boat, especially in the warm sun, and when the bottom of the boat is dry. A good method to keep the fish moist is to have the creel lined with wet moss, and in the boat a plain covered box with a few handfuls of damp grass or ferns. By this means the angler, on his return to camp or hotel, if he is to be his own cook, will find the fish ready for scaling and cutting.

A medium-sized bass of three pounds may be fried, baked, or boiled. Its flesh is firm, white, and juicy, and the taste of the fish is improved if mushrooms or small onions are used in the cooking.

For frying, scale, cut off the fins, take off the head, and cut down the back clear to the back-bone.

THE BASSES: FRESH-WATER AND MARINE

Open up the fish and take away the inside; wash and dry; then scatter pepper, salt, and flour, dip in beaten eggs, and roll in cracker-crumbs or baked stale bread pounded fine. Have the fat smoking hot, and enough to cover the fish. Cook until brown. Some chopped parsley cooked for a minute along with a few slices of green onion-tops give it a relish. Serve the fish with a garnish of watercress and sliced lemon.

For baking, scale the fish and remove the gills. Leave the head on, but remove the inside; wash, and then dry. Make a stuffing as follows: Beat two eggs, and add four chopped oysters, two sliced and boned sardines, one cup of grated bread, some chopped onion, minced parsley, a little pounded mace, black pepper, allspice, and salt. Beat a piece of butter in the stewpan. Stir the whole dressing together over the fire till of the consistence of a thick batter. Fill the fish with the stuffing and sew it up. Put some slices of fat pork into small holes made through the skin of the back. Bake in a moderate oven, basting with plenty of butter, and serve garnished with pickled mushrooms, parsley, and anchovy sauce.

To broil fresh-water bass, clean the fish in the same manner as for frying. Rub it over with oil or butter to keep the skin from sticking, and grease the broiler with salt pork. Have the fire hot and clear, a wood fire being the best. Keep constantly

NOTES ON THE COOKING OF BASS

turning till done. Place the fish on a hot dish, season with salt and pepper and a lump of butter, spread over anchovy or tomato sauce with a garnish of watercress and sliced lemon.

What bass-fisherman can forget the delightful luncheon prepared by the guides on one of those little islands of the St. Lawrence round about Clayton, N. Y.? Should he be the fortunate possessor of an island he could hardly fare better. After sailing or rowing around with unfailing luck, the anglers are landed and led to a shady grove where every requisite for the mid-day open-air meal is to be found. A neat little folding table appears, whereon is spread a clean cloth with knives and forks. The guide knows what he is about, and with remarkable quickness he has ready a fire, frying-pan, and fat. Everything is done in such a cleanly, workmanlike fashion that one's appetite is whetted to a turn. If bass were ever better cooked or tasted more agreeably, we would be glad to hear of it. A bass cooked rapidly within an hour after leaving the water tastes solid, crisp, and sweet.

It may be a fancy that these guides cook so well; it may only be that our appetites are keen from the active sport, yet it is a feature of the game and we are content. Even the coffee they make is far better than that supplied by many city hotels.

Up in Maine, after a morning's fishing, the guides will push their boat or canoe on shore at

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some spot daily used by them, at which impromptu tables, chairs of logs or old boxes, are to be found, as well as a fireplace of stones ready for the wood to be placed and lit. One guide shoulders a box with all the necessary things, — round frying-pan without a handle, bread, butter, pickles, and crockery. The meal is soon ready. These guides invariably fry the fish. Yet, if you want, they will as quickly bake it or boil it, — in a primitive way. They will take a good-sized bass, just out of the water, without cleaning, wrap it up in wet paper, and place it in the red-hot coals, testing it now and then with a fork. When the fork goes through easily the fish is cooked. Fifteen minutes is long enough. They then carefully remove the fish from the paper, leaving the skin adherent thereto, season it with butter, salt, and pepper, and serve it. Some Canadian guides provide parsley, flour, and eggs, with which they make a tasty sauce.

Fresh-water bass is unsuited for boiling. It seems to lose its rich flavor, and does not compare with other ways of cooking. Salt-water bass, on the other hand, — either striped, sea, or black bass, — are by far the finest dish if boiled. No salt-water fish can compare with boiled bass either for richness of taste or whiteness and firmness of flesh. It has no peer — at least in our waters. The small red mullet caught around the coast of England has a similar taste, but it is a rare and expensive fish,



Maine Guides preparing Lunch

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while here bass are reasonable in price and comparatively plentiful the greater part of the year, though striped bass soars up to forty or fifty cents a pound in March and April. This noble fish, with its striped coat, is beautiful to the eye, a bold and defiant fighter, and, when fresh and well cooked, a delicate and dainty dish for the table. Like the salmon it is a clean feeder and grows to an immense size at times; yet it always retains the delicacy of flavor it had when a youngster of but twelve inches long.

The fish should be ready for the kettle within an hour of his demise. To cook a ten-pound fish proceed as follows:

Scale and clean it; then cut off the fins, leaving the tail and the head intact. Cut it into three parts, to allow of its being placed in the kettle. Take a piece of cord and wrap around the head under and above the middle piece and round the tail piece, so that the fish will be together when cooked. Lay it back in its natural position, with garnishings over the cuts. Use sufficient water to cover the fish, a tablespoonful of vinegar, a teaspoonful of salt to every two quarts of water, some bay leaves, and soup-vegetables for flavor. Lower the fish gradually into warm water. Boil it quickly, then draw it aside to simmer till done. Lift up the strainer carefully from the kettle and drain it well. Place it on a dish with a napkin well trimmed with pars-

ley. Arrange slices of lemon, slices of hard-boiled eggs, some chopped pickles, and a few capers, with boiled potato-balls around the dish, and serve with a rich Hollandaise sauce. Black or sea bass can be cooked in the same way.

In roasting and frying, much the same method can be used as that mentioned for fresh-water bass, except that in baking or roasting a little more fat is required. In my judgment the flesh of the sea-basses has no equal in salt-water fishes, no matter which way they are cooked, providing they are well cooked, for underdone fish is uneatable. If overdone it loses its flavor or is too dry. Some prefer fish served with all its skin removed. This can be done either before or after cooking. If before, skin from the head, loosen and strip it down with the aid of a sharp knife.

In carving a fish, when cooked, always cut to the bone in slices, then remove the bone and cut as before. Even a small fish should not be cut right through. Remove first the whole of the side that is uppermost as it lies in the dish.

The fresh-water basses can be filleted with great advantage and little loss of flesh. First scale thoroughly, and remove the fins; then cut carefully from the back, closely shaving the back-bone to the belly, repeating the same work on the other side, and the skeleton remains with little flesh, if care be taken in the work. These fillets can be cut in two and fried

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in crumbs, or rolled up and placed in the tin for roasting. If the latter, a good-sized lump of butter should be placed in the roll, with salt and pepper, some chopped parsley, and a little white wine, with a scattering of flour to help brown the fish. In a sharp oven, it should be cooked in thirty minutes, served with or without sauce, with small new potatoes and boiled peas.

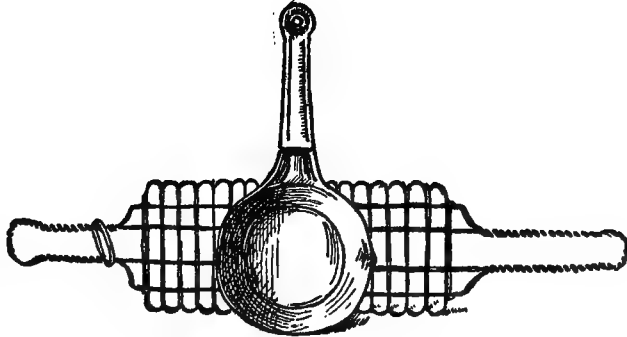
Should our gentle angler land an extra-large black bass, and not desire to have him mounted as a trophy of his skill, but prefer to eat him, why should he not cook him in grand style, — show his friends what a beauty the bass is dressed out with a garniture of crayfish, of which in life he had his share? Between the red crayfish place sprigs of parsley and halves of boiled eggs. Remove the skin, to show the bass's white and flaky flesh, which cannot fail to induce the guest or angling friend to show impatience at delay in falling to the feast.

Foreign cooks adopt more pretentious methods in cooking fish, — not only in cooking, but in the addition of sauces and elaborate garniture. These notes, being less pretentious, are confined to simple cooking in home or camp. Finally the conclusion of the whole matter is that, unless the fish are absolutely fresh, they are utterly worthless, and that marine basses require less salt than fresh-water basses.

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In fact, a good plan to get better results would be to soak fresh-water fish in strong salted water for thirty minutes, especially if the fish are caught in lakes or pools. By this means the flavor is improved, and the unpleasant muddy taste done away with.

The case is different with striped bass or sea bass; less salt is necessary, and if properly boiled, baked, broiled, or fried, there is not a fish that is more delicious than these, especially the striped bass.





**ARTIFICIAL LURES
FOR BLACK BASS**



ARTIFICIAL LURES FOR BLACK BASS

By JAMES A. CRUIKSHANK

THE black basses have a special interest for the sport-loving angler by reason of the variety of methods by which they may be taken. In many waters they will rise readily to the artificial fly. A small spinner or spoon, preceding a fly of fairly good size, furnishes a lure light enough to use with a heavy fly-rod, and will generally produce abundant sport when the fish are taking a surface bait. Natural bait, such as minnows, frogs, helgramites, grasshoppers, crickets, worms, and even small mice, will each be found taking at times. And artificial lures, — some in imitation of minnows, frogs, helgramites, bugs, and mice, others of startling originality as to form, color, and motion either in air or water, and resembling nothing ever seen by the eye of man in the air, on the earth, or in the waters under the earth, — are now offered in bewildering profusion. Despite the first impression of the in-

credulous angler, many of these strange devices will bring rises and strikes a-plenty.

Bass may be taken in swift-running rivers by methods analogous to those of fly-fishing for trout. In ponds and lakes they may be taken by casting and trolling, either with natural bait or artificial lures, or by still-fishing with natural bait. Probably no other game-fish taken by the American angler responds to such a variety of lures presented in such a variety of methods.

The recent popularity of the new sport of bait-casting has served greatly to increase interest in angling for black bass, and has largely stimulated the production of artificial lures.

In the new form of bait-casting, from the reel, with the short rod, the shape and weight of the artificial lure and its easy flight through the air are of much importance; on them depend the distance and accuracy of the cast. With a lure weighing an ounce or more, casts averaging much over a hundred feet are made by good casters. More good water may be covered by this method in a short time than by any other, and it exactly meets the restless American's love for activity and change of scene even in his pastimes.

Natural, or live, bait has distinct disadvantages. It is difficult, sometimes impossible, to obtain; does not live long in confinement; is frequently unsuited to the waters to which it may be transported; is not

ARTIFICIAL LURES FOR BLACK BASS

pleasant to handle, either alive or dead; and can be counted upon for only a very few casts, when its usefulness ends.

The ingenious American, alert for improvements, humanely inclined, and impatient of the time wasted in obtaining live bait, has set himself assiduously to the production of artificial lures which would take game-fishes. He has found them.

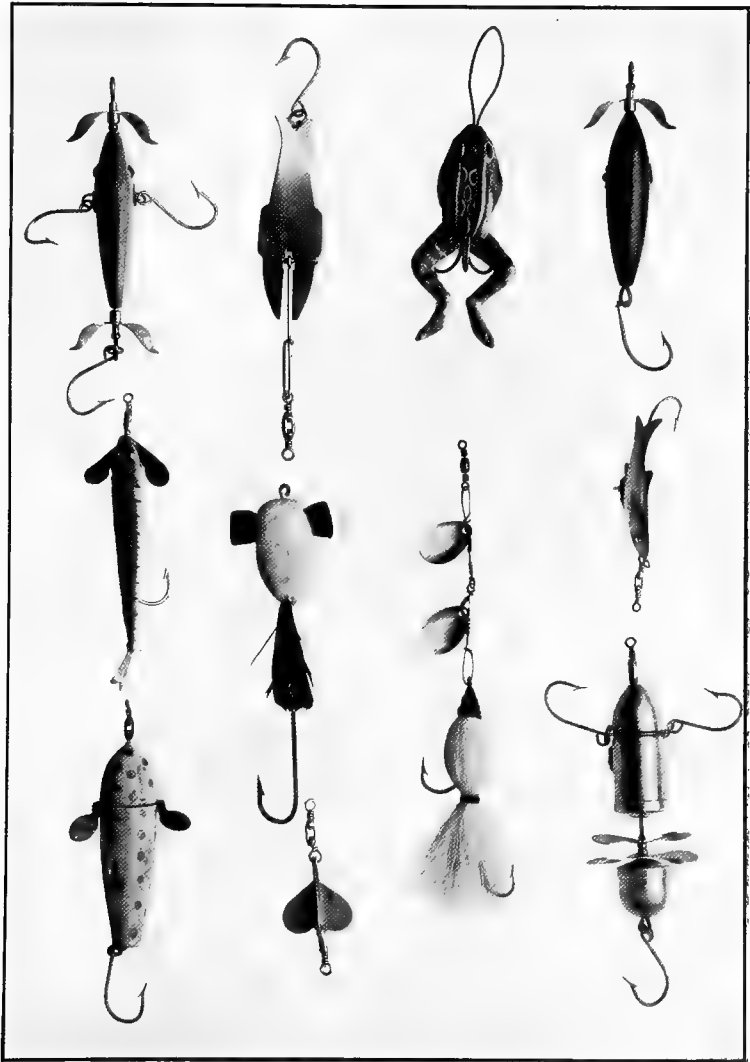
“Will take more fish than live bait,” the phrase employed by not a few of the manufacturers of these lures, may have furnished the unthinking with cause for merriment; but the critical expert, who carefully tests each new device, will find that in many cases the claim is fully justified by results. The writer is among the enthusiastic converts to the modern artificial black-bass lure. He has personally tested every new lure which has come into prominence during the last five years, on waters ranging from the famous Belgrade Lakes, of Maine, to ponds within sight of New York’s skyscrapers, and has compared results, side by side, with anglers using the best of native live baits. The modern artificial lures, properly rigged and handled, need fear competition with no live bait so far discovered.

Yet the curious fact remains that, although we have many champions of the exclusive use of the fly for trout, salmon, and ouananiche, we have very few champions of the exclusive use of the artificial

lure for black bass. It must be because our anglers are unfamiliar with the recorded facts.

The lures illustrated are a careful selection of the best now on the market. It will be observed that in each case the treble hooks, furnished by the manufacturers as part of the equipment, have been removed and single hooks substituted. The strong tendency of the day in this direction is shown by the option in hooks now being offered by the makers of many of the lures, and by the legislative enactments of several States, prohibiting the use of the treble hook.

The Worden buck-tail minnow (No. 1) is fashioned from the stiff hair of a deer's tail. The affinity between black bass and deer-tail hair has not satisfactorily been explained; nevertheless, this lure has a firmly established reputation as one of the most effective inventions ever offered to the angler. It may be used above or below the surface and will gain much by the addition of a spoon. The Bacon spoon shown with it is unquestionably the finest spoon yet produced: it folds back against the wire shank while travelling through the air, and spins very freely even when drawn slowly through the water. Nickel or silver finish, on both sides of the spoon, is to be recommended. The habit of painting the concave side of spoons a brilliant red, has, in my opinion, nothing in its favor.



Bass Lures now in Use

ARTIFICIAL LURES FOR BLACK BASS

The "Dowagiac" lures, of which there are several, are comparatively new comers which have already won their place as leaders. The Dowagiac rainbow minnow (No. 2), having green back, shading through yellow or orange sides to white on the belly, is the most killing minnow yet offered to the gamy black bass. It is equally killing when used for large brook-trout, togue, salmon, mascalonge, and pickerel. Having spinners turning in opposite directions, the lure does not turn, therefore no kinking occurs, and it is correctly weighted.

The Dowagiac bronze minnow (No. 3), round, and having only one spinner, is frequently as useful as the rainbow minnow. It will be observed that in this lure the tail hook is very close to the body of the minnow. This arrangement is important where the fish are striking short, and may be employed with any of the Dowagiac lures. The careful workmanship and finish of these lures will delight any critical angler.

The silver soldier (No. 4) is made of coin silver, shaped and finished in careful imitation of a small minnow, and slightly curved so that the motion through the water is darting and not rotary. A single hook is firmly soldered onto the side of the minnow. This lure has been found very killing, not only for black bass, but also for trout, salmon, and several varieties of salt-water game-fishes, especially the striped bass and bluefish. When used

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in salt-water, however, the larger size, with a hook of heavier calibre, should be employed.

Shakespeare's Revolution (No. 5), as the result of large advertising and genuine merit, is famous far and wide. Of large size, aluminum body, with propellers on blades revolving in opposite directions, it creates "a wake like a steamboat's" on moderately still water. Although wonderfully effective on Western and Southern waters, it has never achieved remarkable success in the waters of thickly settled communities; but it is well worth a place in the outfit, and will generally arouse the pugnacious instincts of big bass.

Mill's Yellow Kid (No. 6), on the other hand, is distinctively an Eastern lure and has not yet many friends in the West. It is of tin construction, painted bright yellow with gold spots, and, like the preceding lure, makes a tremendous wake when drawn over the water. In case the fish are biting "high," single hooks may be added at the sides of the body, but I have not usually found them necessary. Few lures will produce as many rises as this one.

The coaxer (No. 7), having body of cork, enamelled white, wings of red flannel, waterproofed, and tail of large red feathers, is built upon the ingenious principle of imitating a bug while in flight as well as when on the water. Experienced anglers for black bass are familiar with the fact that the

ARTIFICIAL LURES FOR BLACK BASS

bass frequently starts for a lure before it reaches the water; perhaps every casting-lure ought to be constructed with reference to this fact. The coaxer has taken many good fish during its short life, and may be recommended in confidence. In Eastern waters, the smaller size should be used, while the larger size is successful in better adapted Western and Southern waters.

The Mohawk darter (No. 8) is a flat metal minnow, nickel-plated, and is drawn through the water by a wire hinged somewhat back from the extreme front end. By this arrangement an oscillating or darting motion is given, while a slight twist in the tail tends to keep the lure slowly turning over. In principle this device has much to commend it, and its killing quality is not limited to black bass; salt-water fish strike at it readily. It should prove a very effective lure for striped bass.

The best of the several varieties of artificial frogs now offered the angler is the hollow rubber frog (No. 9), and there are times when these imitations will prove excellent lures. I have found that frog with the brown back and cream-colored belly the most successful, although my habit is to paint my artificial frogs in careful imitation of the animals native to the waters I am fishing. And it is also good sense to paint both sides of these lures in imitation of the belly of the frog only, since frogs, either natural or artificial, when cast by an angler,

have a persistent way of landing on their backs. When I make a frog, therefore, he has no back.

The phantom minnow (No. 10), hollow, made of silk, and painted in various colors, is very frequently a successful lure for black bass. The blue-back, silver-belly coloration has proven most useful in my hands. The gang-hooks should be removed, and a single hook substituted. This single hook I attach by cutting a very small slit in the belly of the minnow, passing in the head of a good-sized needle-eyed O'Shaughnessy hook, and fastening the hook by means of fine piano-wire to the cross-bar in the mouth of the minnow. A second hook, similarly attached, may be located in the tail of the minnow, if desired; but as a rule the hooks which are placed in the centre of the lure are those which take the fish. All game-fish have the habit of attacking their prey from the side, after which the victim is turned and swallowed head first.

The pilot (No. 11), and the similar devices known as the turn-a-frog and pilot spinner, are extremely ingenious little articles by which a lure or bait may be made to swim deep or on the surface. They are made of aluminum, are small, light in weight, do not interfere with distance or accuracy in casting, and will positively prevent a spinner or spoon from twisting or kinking the line.

There is very great difference between the management of live bait and artificial lures in

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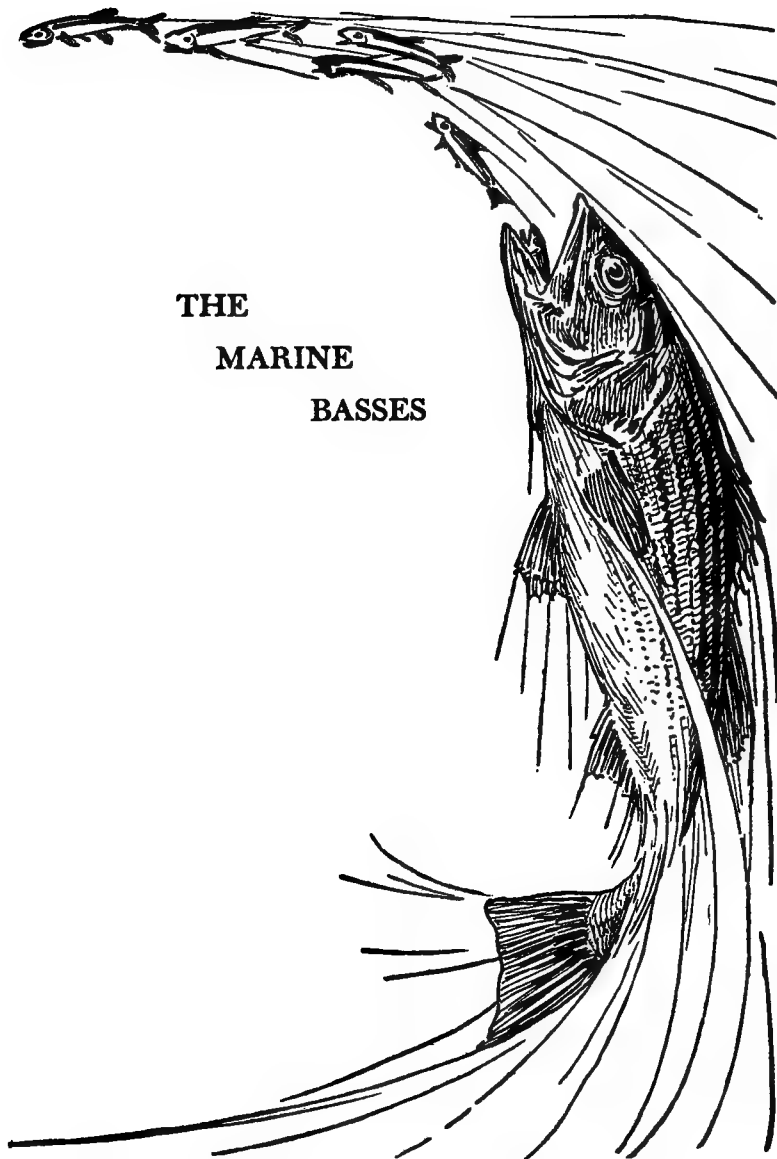
angling for black bass. With live bait the fish is often permitted to take his time and ample quantity of line, — I have even known one expert angler to feed out a hundred feet of line before he struck his fish. When using artificial lures one must strike on the instant that any sensation of attack on the lure is felt; indeed, when the bass can be seen making for the lure, the strike may even be timed in advance.

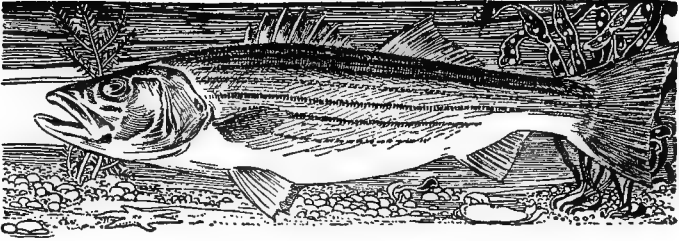
Again, the invariable rule is to keep an artificial lure moving. Even in case of a savage rise where the fish misses the lure, it should not be stopped, but reeled slowly in and cast again.

Probably in no country of the world is the angler provided with so many ingenious and practical devices intended to increase his pleasure. Let not undue conservatism rob him of the additional pleasure so near at hand.



**THE
MARINE
BASSES**





THE STRIPED BASS

Family

THE family to which this fish belongs contains a great many members differing widely in size and other characteristics, and inhabiting the fresh waters as well as the ocean. Those which are best known to the angler and most nearly related to the striped bass are the white bass, yellow bass, and white perch, all of which except the last are fresh-water residents. The white perch lives equally well in fresh, brackish, or salt water.

The marine relatives of the striped bass are the common Northern sea-bass, sometimes called black-fish; the Southern forms of sea-bass; and some smaller tribes of little importance to the angler. These are by no means the only elements of the great family of Basses or *Serranidæ*. A bewildering variety of groupers flourishing in the near-by and remote seas constitute the bulk of the series; but these do not come within the scope of this work,

as for the most part they represent offshore fisheries or countries remote from our own. Suffice it to mention in this connection one celebrated species, well known on the Pacific coast as a seabass, although quite different from all the seabasses, so called, in the East. This refers to the giant jewfish of California and the Gulf of Mexico, which is styled *guasa* by natives of Spanish origin. The *guasa* sometimes attains a weight of four hundred pounds. It takes the hook freely, but has no superiority over the common codfish for sport.

The Genus Roccus

The striped bass belongs to the genus *Roccus*, a name invented by Dr. Mitchill, nearly a century ago, with reference to one of the common names of this bass, the word being dog-Latin for "rock."

Description

The genus *Roccus* has two patches of small teeth on the base of the tongue; the lower jaw is much longer than the upper; the scales on the cheeks are nearly smooth along their margin; and the back fins are separated by a narrow space. Another characteristic of some importance is the structure of the spines behind the vent, which increase regularly in size from the first to the third. The striped-bass genus is further distinguished by a rather

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elongate and stout body, while the peduncle of the tail is slender.

The greatest depth of the body of this bass equals the length of the head, and it is two sevenths of the entire length of the fish without the tail-fin. The eye is small, one half as long as the snout, and contained from six to eight times in the length of the head; it is placed high, near the top of the head. The jaw-bone reaches to below the middle of the eye. The anal spines are slender, the third and longest about one fifth as long as the head. The fourth and fifth spines of the first back-fin are the longest, about two fifths as long as the head. The breast-fin (pectoral) is a little longer than the belly-fin (ventral) and one half as long as the head.

There are nine spines in the first fin on the back, one spine and eleven or twelve rays in the second dorsal fin. The anal fin has three spines and ten or eleven rays. There are seven rows of scales between the lateral line and the first dorsal fin, nineteen rows between the lateral line and the ventral fin, and sixty-five scales in the lateral line itself. This is an average number of scales, which will be bound to vary among individuals.

The sides are greenish or olivaceous above, silvery below, sometimes with a brassy lustre. They are marked by seven or eight longitudinal streaks, none of which are half as wide as the eye, one of them passing along the lateral line. The lower-

most stripe is somewhat below the middle of the body depth. In life these stripes are purplish blue, fading to slate and light brown. The whole body is also beautifully iridescent and presents one of the most pleasing pictures in the whole range of game-fishes. In addition to the beautiful play of colors this bass is trim and shapely, swift in movement, and possessed of great strength and cunning, qualities which combine to make it one of the greatest favorites in the angler's category.

It seems wonderful that a fish which sometimes surpasses 100 pounds in weight should develop from an egg smaller than that of the shad, and from an embryo which when newly hatched is less than a quarter of an inch long. The egg of the striped bass is scarcely half as bulky as that of the Atlantic salmon, yet its product is much larger than that of the largest salmon on record.

Common Names

In the northern United States the name "striped bass" is more generally used than any other for this fish, especially along the coast. In the Delaware, Susquehanna, and Potomac rivers it is called "rockfish," which was one of the early New York names for this species. Schoepf, a German writer who came to the United States during our Revolutionary war, heard the names "rockfish" and

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“striped bass” at New York. In 1814 Dr. Mitchill called it “Mitchill’s perch,” “striped basse,” and “rockfish.” Dr. James Mease, about the same time, gave a very interesting account of the fish under the name of “streaked bass.” In the same article he stated that rockfish weighing from twenty-five to sixty pounds are called “greenheads.” “Greenhead” and “squid-hound” are names applied to large individuals found in ocean waters of New England.

Distribution

Natural. — The natural range of the striped bass includes the entire Atlantic coast from the Gulf of Mexico to the Gulf of St. Lawrence, the fish entering rivers and ascending them almost to their head waters unless stopped by natural or artificial obstructions. Individuals are known to have been taken every year in the Alabama River, including some of large size. The fish has also been captured in the lower Mississippi. In the vicinity of Pensacola, Fla., examples were occasionally obtained some years ago. Dr. G. Brown Goode stated that it was rather rare in the St. Johns River, Fla., at the time of his investigations. In the great bays and sounds from North Carolina to Cape Cod it is sometimes very abundant now. Many large individuals have been taken in Albemarle Sound.

At Edenton, N. C., Dr. Capehart has caught fifteen tons at one haul, many of the fish weighing from seventy-five to eighty pounds each. At another haul 820 fish weighing 37,000 pounds were captured. A still larger seine-haul contained nineteen tons of striped bass, among which were 600 individuals averaging sixty pounds each, and several weighing 105 pounds.

There is a record also of a seine-haul containing 1,500 striped bass, near Norfolk, Va. These facts are given to show the great centres of abundance on the Atlantic coast. It is not certain whether the capture of such large numbers of bass at particular points reduces the angler's chances in waters farther north, because this bass appears to be more truly local in its habitation and less given to wandering along the coast than one might at first blush suppose. The same observation has been made on the Pacific coast, where the striped bass was artificially introduced more than twenty years ago. The spread of the fish along the coast north and south is very limited, and the Fish Commissioners of California have undertaken to make up for this peculiarity by transplanting in many waters, to form new centres of distribution.

It is a noteworthy fact that although striped bass live chiefly in salt or brackish water, they may be suddenly placed in fresh water without inconvenience or loss. They have been reared success-

fully in fresh-water ponds, where their increase of weight has been rapid, but no one has yet discovered their spawning in such waters.

Artificial. — The natural distribution of the striped bass has been supplemented in the United States by the transplanting of the fish to California waters, and this experiment has constituted one of the great triumphs of modern fish-culture, as the yearly catch of striped bass in California, both commercially and for sport, is nearly equal to the yield in Atlantic waters. There is, however, a marked difference in the marketing of the fish, because when New York is paying twenty to thirty cents a pound San Francisco can have the same fish for a few cents, the wholesale price at certain seasons ranging from three quarters of a cent to a cent and a half a pound.

In the Potomac River the fish ascends to the Great Falls. It has been one of the commonest and most highly esteemed fish of the Delaware and Susquehanna rivers, though unfortunately it has not been so abundant there in recent years. It has been regarded as a permanent resident of Gravesend Bay, N. Y., with the fishery at its height from the 10th of October to the 10th of November. Bass up to forty-five pounds in weight were formerly caught in May, but in the fall the fish range from nine to twenty-four inches in length. In Great South Bay specimens have been obtained by the

writer at Blue Point Cove, Great River, Nichols's Point, and off Widow's Creek. A great haul was made about the middle of October, 1901, on the Lone Hill middle-ground. In some tributaries of Great South Bay the fish remains throughout the year.

Dr. Mearns reported the capture of great numbers of bass in nets set through the ice of the Hudson in winter, and in the drift nets of the shad-fishermen in spring. Large individuals weighing sixty pounds or more are sometimes taken in winter and early spring. Dr. Mearns took a specimen in fresh water a little above the estuary of Poplopen's Creek.

At Wood's Hole, Mass., the fish arrives about May 1 and leaves about November 1. It is not a common specimen and apparently does not spawn there; it ranges in weight from half a pound to sixty-five pounds.

The striped bass ascends the St. Lawrence at least as far as Quebec, and may possibly reach the Niagara, where a specimen has been reported at Lewiston. It is not certain, however, that this individual was a striped bass; it may have been the white bass, which resembles its marine relative, although much smaller and confined strictly to fresh water.

The striped bass was introduced into California through the joint efforts of the United States Fish

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Commissioners and the California State Fish Commissioners in 1879 and 1882. It has become so abundant that the annual catch by fishermen is nearly as large as the yearly supply on the Atlantic coast. The range of the fish is still limited to the interior bays and rivers. In 1882, 400 fingerlings were planted at Army Point, in Solano County. The extent of the increase may be appreciated from the market sales in 1903, which amounted to nearly 2,000,000 pounds. The bass have not gone far north or south of the Golden Gate. Russian River, in Sonoma County, seems to be almost the northern limit, while Monterey Bay is the southern boundary. The Commissioners are of opinion that the bass dislike to migrate far through the salt water in order to reach other fresh-water streams. To obviate this supposed difficulty a plant was made in Orange County, in December, 1903, in a series of brackish lagoons fed by fresh water. Seventy-five bass ranging from six ounces to three and a half pounds in weight, and assorted according to size, were kept in live-cars for thirty-six hours and were then shipped 700 miles in twenty-gallon cans, reaching their destination without loss. The object of this southern plant is to establish the bass in the Santa Aña River and San Diego Bay. Arrangements were also made to send bass to Del Norte County, where the waters are considered suitable for the experiment.

Abundance

Notwithstanding the numerous agencies which have combined to deplete the waters of game and food fish, the striped bass is still a very important source of profit to the fisherman and of sport for the angler. A fish which furnishes a quota of about 1,500,000 pounds to the Eastern markets annually, besides the large numbers caught by anglers, and in addition to a commercial and angling yield of nearly equal volume on the Pacific coast, cannot be considered a declining object of fishery. It seems to be established that there are not so many bass in Northern waters as were reported by the early writers, — Captain John Smith, the Virginia historians, Mitchill, Mease, De Kay, and others. The fish have either migrated beyond the limits of pollutions, obstructions, and disturbance of their feeding and spawning grounds, or they have ceased to visit our shores with the other migratory shoals that still make their appearance annually.

The sale in Northern markets of tens of thousands of young bass, many of them scarcely more than six inches long, must have been followed by local depletion at least. The same unwise demand for immature fish developed in California as soon as the bass began to attract attention in its bays and estuaries, but legal measures were promptly taken

to protect the young, and their good effects were soon apparent.

Fish-culture has come to the rescue of the people also, and the artificial hatching of the eggs has supplemented the transplanting of bass with gratifying results. Transplanting alone by means of very small numbers has already placed California on a par with the Atlantic coast in the extent of its bass-fishing. Artificial hatching has proceeded in a small and desultory fashion for more than thirty years; but no extensive work in this line was accomplished until 1904, when Mr. S. G. Worth, of the United States Fisheries Bureau, collected 13,683,000 eggs at Weldon, N. C., from May 2 to May 24, the great bulk of them coming in one day, May 6. Sixty-nine per cent of the eggs were hatched.

Mr. Worth believes that partial rearing in ponds would be successful. Of this there seems to be no doubt, as such experiments have been made at several places along the Atlantic coast, notably in South Carolina and Rhode Island. Striped bass have been captive in the New York Aquarium since 1894, and some individuals have increased from about eight ounces to twenty pounds in weight in a pool only twenty-eight feet long and about three feet deep.

The rearing of choice game-fish in public as well as private waters is worthy of encouragement, as

the project is entirely feasible and the object to be accomplished is in every way desirable.

Favorite Haunts

The striped bass prefers cold waters. It is frequently found at the mouths of small creeks and in tide-ways, where it lies in wait for the great schools of little fishes upon which it feeds. The rock-bound shores of our Northern bays furnish hiding-places for fish of the largest size. Sometimes a school of big ones will be seen in the surf along sandy shores, feeding upon such small fish as may be present.

The great bays and sounds of the coasts of North Carolina and Virginia are centres of abundance, and provide suitable spawning-grounds for enormous numbers of the fish. Edenton and Weldon, N. C., and Norfolk, Va., are noted fishing-places. The Roanoke River, in the vicinity of Hamilton, yields a great many bass.

The Little Falls of the Potomac is a favorite ground for fly-fishing in good seasons. The Passaic and the Raritan have also furnished good sport for this style of capture. The Susquehanna River, near Havre de Grace and in the vicinity of Port Deposit, is noted for its bass. Pushing farther north we find favorite grounds near New York and in Great South Bay, also near Newport, R. I., Block Island, West Island, No Man's Land, and



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Landing a Striped Bass at Dawn

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at the fishing-stands of Martha's Vineyard and its neighboring islands.

In November the bass congregate in shoals in ponds of brackish water, the back waters of tidal rivers, or in the bays and bayous of rivers flowing into the sea.

On the Pacific coast the most famous haunts of the fish are Lake Merritt, in Oakland, Cal., San Francisco Bay, San Leandro Bay, and San Antonio Slough. The last is celebrated for its great numbers of big fish.

It has been said that the bass hibernates in winter, but this remains to be established. Genio C. Scott records the freezing of a great shoal of the fish in ponds formed by the backwater of the Seconnet River, where they were discovered by their dorsal fins closely packed together in the ice. Many years ago the great winter resorts of the fish were Motecunk, thirty miles from Long Branch, and the rivers of Elk and Egg Harbor.

Habits

Migrations. — The striped bass lives in the seas or the fresh waters indifferently, and has been kept successfully in artificial and natural ponds. It is a lover of cold water, and will ascend streams for long distances unless stopped by obstructions. It is especially fond of rivers frequented by the shad,

because the eggs of that fish furnish one of its favorite foods; and the river herring, which accompanies the shad, also contributes greatly to the diet of the bass. Perhaps the habit of ascending streams was acquired through this marked love for shad eggs and the tender flesh of the alewife.

Feeding. — The bass is carnivorous and predaceous and consumes vast numbers of little fishes in the streams, particularly herring and shad. The shallow bays along the coast furnish it with killifish, anchovies, silversides, lant, and many other small fishes, as well as worms, shrimp, crabs, squid, clams, scallops, mussels, and other marine invertebrates. Its movements while feeding are greatly influenced by the tides.

Spawning. — The greatest runs of the fish take place in the spring, when pressing toward the spawning-grounds, or very late in the fall, at which time great numbers are often obtained. The largest fish frequent the vicinity of rocks and “nigger-heads” along the shores of our bays and the coast indentations between the shores and the outlying reefs. The estuaries and tideways harbor smaller bass, while in the shallowest waters are found the smallest of the race.

The uncertainty of the movements of this fish is proverbial. It is hard to find at certain times, and still more difficult to bring to the hook. It is shy and extremely wise on occasion, so that no

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angler can lay claim to continual success in that branch of fishing. When the bass does strike the hook, however, there is no possibility of mistake about its intention, and it almost invariably hooks itself without assistance.

The bass spawns either in the rivers or in the brackish waters of bays and sounds, but little has been discovered about its breeding-places except in North Carolina. At Havre de Grace it was almost invariably difficult to get ripe eggs and milt at the same time, and still farther north the practical difficulties increased; in fact, almost nothing has been accomplished in the Northern States because of the slight knowledge heretofore possessed concerning the breeding-places and breeding-habits.

Qualities

As a Food-Fish. — As a food-fish this bass has been noted since the very early history of our country, and the Indians were acquainted with its excellence before white men came to these shores. The flesh is most palatable and nutritious, so that the bass ranks in the markets among the choicest of the fishes. In California it is considered as second in value and importance to the salmon only. In the Eastern cities it commands a higher price than almost any other of the species.

Many persons, unfortunately for the perma-

nency of the supply, consider the very small fish a great delicacy and continually tempt the marketmen and fishermen to obtain what they desire, notwithstanding the most stringent protective laws.

The flesh of the striped bass is firm, white, and flaky, and has a delightful flavor produced by the generous and nourishing diet upon which it subsists.

This is one of the largest of the food and game fishes which ascend into fresh waters, frequently reaching a greater size than the largest of the salmon family. Individuals weighing more than 100 pounds are by no means uncommon.

As a Game-Fish. — A shapely fish, moreover; active and graceful in its movements; beautiful far above the average of the game-fishes in its silvery mail and brilliant iridescence; quick to seize a suitable lure and to hold it firmly; full of resources in its struggle against capture; full of expedients for escaping the hook or parting the most approved line; endowed with wonderful strength and endurance; quick to take advantage of all the natural obstructions to the angler's skill which exist in its favored haunts, — the striped bass is a king among the game-fishes. It is certainly in the same class with the salmon for its intelligence and fighting qualities. Its first plunge when hooked is more powerful than that of the salmon, and its endurance is greater. It depends upon its great strength for its escape from capture, and resorts

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to no tricks such as every salmon-fisherman must overcome in the pursuit of his favorite quarry. The bass fights in the water, at the bottom or mid-depth, utilizing every accessory which nature has furnished for its protection. Sharp rocks, stems of kelp, sunken timbers, or whatever may offer a chance to chafe or cut the line or break the hook are employed to the best advantage. A quick change of direction, involving sudden slacking of the line, is one of the wiles which often lead to failure with the most expert anglers.

Casting through the surf is one of the most exhilarating, though precarious, methods of bass-fishing. When a great fish is hooked, everything combines to circumvent the fisherman: the bass itself, the weight of the surf, the action of the undertow, the friction of rocks, the uncertain footing of the fisherman, and, frequently, the force of the winds, — sorely try his patience and test his skill to the utmost. The muscles of the bass are formed with regard to strength as well as to symmetry, and when supplemented by unflinching courage they involve a contest which soon develops into a furious battle. No angler, however skilful, can be sure of his prize until it is fairly landed beyond the power of escape.

The great vitality of the bass will be more fully appreciated when we remember its power of enduring long journeys and close captivity. The splen-

did results obtained on the California coast could scarcely have been secured but for these qualities. Sudden transplanting from salt water to fresh, and long railway journeys in a limited quantity of water, cause very slight mortality to this splendid species, therefore it is practicable to stock new and distant waters and thus multiply the pleasures of the angling fraternity, while supplying the markets with a delightful food-fish.

The value of a game-fish is dependent to a great extent upon its versatility, if we may attribute this characteristic to a fish. It can be taken by many reputable methods, including the use of artificial flies, and thus gains a wide circle of admirers and gratifies a great diversity of tastes.

Voracity. — The voracity of the striped bass contributes to its merits as a game-fish. The necessity of upbuilding such superb muscles makes it keen and vigorous in the pursuit of its prey, and therefore always on the lookout for any object in the water which promises to satisfy its prodigious appetite. Notwithstanding its inherent qualities, there is no reason to believe that the bass makes war upon its own kind, as does the fresh-water black bass, which is notorious for its cannibalism.

Rate of Growth and Size Reached

This giant among the game-fishes starts from a very small egg. Last year Mr. S. G. Worth, of the United States Fisheries Bureau, recorded 35,000 eggs as the number in a United States standard liquid quart. The egg is therefore smaller than that of the shad, which is about an eighth of an inch in diameter before fertilization. The development of the egg in water at a suitable temperature is very rapid. Mr. Worth states that the embryo four hours old is about three sixteenths of an inch in length. When four days old the young are about a quarter of an inch in length, and at four weeks measure about half an inch. Dr. C. C. Abbott found young bass about one inch long in the Delaware during the second week in June, and by the middle of October some of them had reached a length of four and a half inches. In a small pool of fresh water in South Carolina some bass fed upon crabs and oysters increased in about eleven months from six inches to twenty inches in length. In Rhode Island, bass confined in a pond grew from half a pound to a pound in June, and to six pounds by the following October.

The rate of growth naturally depends chiefly upon the amount of food obtainable, suitable temperature, and quality of the water. In California,

according to the anglers, the bass is not so dainty a feeder as in the East; his appetite (voracity) appears to be more exacting, and he pays far less attention to the details of placing bait upon the hook. To use the expressive language of a recent writer, "he can be caught with a big 'gob' of clam stuck on a hook so obviously that it would not fool a cross-eyed crab."

The limit of growth varies with the locality. Big fish are plentiful in various waters, but more especially on our Southern coasts. The very largest on record was caught many years ago in the town cove at Orleans, Mass. This was said to scale 112 pounds. At Cuttyhunk, in 1860, an individual weighing 104 pounds was claimed. In a fish-market at Baltimore, Md., Dr. J. A. Henshall, in his boyhood days, saw a bass weighed which exceeded 100 pounds. Near Norfolk, Va., about 600 of the fish landed in one haul averaged sixty pounds each, and several of them attained 105 pounds. On the Pacific coast the fish have not been so long established, and do not run so large as in Atlantic waters, seldom reaching forty pounds in weight.

Artificial Culture

The striped bass is said to spawn naturally in both fresh and brackish waters, but the work of the

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fish-culturist with this species has thus far been limited to fresh-water localities.

Seth Green and Marcellus Holton were among the early experimenters with the bass, their work having been carried on more than thirty years ago and just about the time of the beginning of artificial hatching by the United States Fish Commission. For a long period of years, for some reason or reasons not well known, next to nothing was done to increase the numbers of this valuable fish, although desultory investigations were continued. In the meantime new colonies of striped bass were established in California, from which State we may soon be compelled to obtain market supplies of the fish for the East. As has been already stated, the California Fish Commissioners, having observed that the fish are not inclined to spread far from their original centres, are introducing them at points widely separated, hoping to create new and successful fishing-grounds wherever the water conditions permit.

Legal restrictions of one kind or another are necessary for the permanence of bass-fishing. In the East there is a close-time corresponding by supposition with the breeding season. In California there is a continuous open season, but no bass under three pounds in weight can be lawfully sold or had in possession. The sale of very small bass in Eastern markets has certainly been one of the causes



of the dearth of spawning-fish in our Northern waters.

Seth Green handled the eggs just as he had successfully managed the shad eggs, and in floating boxes with a wire screen bottom tilted at a slight angle to the surface of the stream by means of lateral cleats fastened on the ends of the boxes. Holton carried on some preliminary work at Weldon, N. C., in 1873. The United States Fish Commission found the ripe fish in North Carolina in May, 1879; but not until last year were operations successfully carried out upon a large scale, and then Weldon was again the scene of the work. There Mr. Worth was surprised by the suddenness of the natural spawning. Out of the whole number of eggs collected, aggregating more than 13,000,000, about five sixths were taken in a single night (May 6), and upward of 3,000,000 were furnished by a single female.

The spawning females secured by Mr. Worth ranged from three to fifty pounds in weight and yielded from 14,000 eggs to the maximum of 3,220,000. The season continued from May 2 to May 24, and the water temperature varied from 60° to 70° F. The average period of hatching was forty-four hours, while Seth Green recorded eight days for the same operation in the North, which shows how important a part the water temperature plays in the development of eggs.

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Before fertilization, according to Mr. Worth, the egg has a beautiful green color which disappears in the course of hatching. After absorbing all the water it will hold in the hardening or plumping process, it is nearly as large as the shad egg and has about the same qualities for hatching purposes. The oil in the embryo sacs is amber, and this oil globule causes the young fish to assume an oblique swimming-position with the head somewhat raised.

Fishing Localities

Within easy reach from New York are many good bass grounds. At Liberty Island, during the ebb tide the fishing is from the landing, while on the west side the beach offers the best available spots. About a quarter of a mile from Liberty Island a depression known as The Pot has been noted for its good fishing. Robbins Reef; Sunken Island; Staten Island shores from Dumb Beacon to The Willows, and thence down to Sailors' Snug Harbor; The Crib; The Nigger-Heads along the Jersey shore; The Sods, off Fitzgeralds; Giffords, Staten Island; and the shore at Eltingville, — have been mentioned as favorable localities frequently yielding good catches of bass. Along the Hudson River front of the city between 125th and 155th streets some fish have been taken.

Sandy Hook offers some good fishing by casting

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outside the breakers. There are also good points for surf fishing on the New Jersey coast from Sandy Hook to Barnegat, especially Ocean Beach and South Elberon. Boat fishing and trolling around Staten Island have been successful at various places, among them Giffords, New Dorp, South Beach, Eltingville, Huguenot, Annadale, Prince's Bar, and Tottenville. The Sods, on the outer beach at Giffords, have yielded the best scores, the fishing always taking place on flood tide, as it is done in shallow water.

Excellent fishing has been enjoyed in Staten Island Sound, near Buckwheat Island, in the vicinity of a little creek running in there from the shore. In the Raritan River, at The Hedges, above the bridge at Perth Amboy, some bass have been secured, also a few in the Rahway River at Tremley. Allenhurst, N. J., provides excellent bass-fishing at the flume at the foot of Deal Lake. The presence of the fish is due to beds of sea-clams, or skimmers, which provide choice food for the fish, which run large, some of them being nearly fifty pounds in weight. The Hackensack River was once famous for its bass, but the fishing has been destroyed by the injurious use of illegal nets.

At Hell Gate, notwithstanding the deterioration of the waters by oil, trolling sometimes furnishes good sport. Striped bass are also caught in Bowery Bay, Jamaica Bay, from the piers of Coney Island,

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in Gravesend Bay, and along the Diker. A few small fish are occasionally caught at the piers on the Brooklyn side of the Bridge.

In addition to the city fishing-localities named above, the Hudson River furnishes bass-fishing at Fort Washington, Yonkers, Tarrytown, and Ossining. On Long Island Sound the fishing is sometimes good at New Rochelle, N. Y., and Stamford, Conn.

Famous fishing-grounds exist off the coast of Rhode Island, especially in the vicinity of Newport, around Cuttyhunk and other islands between the Vineyard and Buzzards Bay, as well as in the channel between Naushon and Cape Cod.

In addition to the California fishing-places mentioned under the heading "Distribution," the latest report of the Commissioners states that striped bass weighing twelve pounds have been taken in the clear waters of Feather River above Oroville. They are found in large numbers in the Tuolumne River above Modesto and in the Merced River, and in the San Joaquin River they have been found as far up stream as Pollasky.

Striped-Bass Clubs

The anglers of the California coast, rejoicing in the abundance of bass, have formed numerous striped-bass clubs since 1900. Thousands of people

enjoy the sport and have added to their table fare a most excellent food-fish since the successful transfer of the fish. On Sundays and holidays the shores of San Francisco Bay and the banks of the San Joaquin and Sacramento rivers, as well as of their tributaries, are lined with anglers equipped for the new fishing.

The records of the striped-bass clubs and private fishing-stands along the Atlantic coast unfortunately show little now but vanished glories. From one cause or another, and sometimes without apparent cause, the sport has dwindled to insignificant proportions, and some clubs which were once very prosperous are at present almost deserted. Mr. Daniel B. Fearing, of Newport, R. I., has kindly furnished some data concerning the catch and notes upon the supposed unfavorable influences which have destroyed the bass angling.

The West Island Club, West Island, R. I., occupied grounds made famous by the writings of Genio C. Scott. The records cover a period of forty years and show considerable variation in the number of fish caught. The best year, 1874, yielded 2,406 bass, and the poorest catch numbered only eleven fish, taken in 1904.

The Cuttyhunk Club, Cuttyhunk Island, Mass., organized in 1865, has never reached the record of its first year, when 1,174 bass were captured; and during the last fifteen years the results of angling

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were very discouraging. In 1902, for example, only two bass were recorded. The falling-off has been attributed to extermination of the bass, and, in part, to the presence of innumerable lobster-pots in the vicinity.

The Pasque Island Club, Pasque Island, Mass., whose records have been kept since 1866, took 905 fish in 1868 and only one in 1889. In 1902 forty were recorded. Seining for menhaden in Buzzards Bay, sale of immature fish in the markets, and the firing of heavy guns by war-ships and from Fort Trumbull are assigned as causes of the scarcity of big bass.

The Monument Club, Bourne, Mass., began its record in 1873 and attained a maximum of 633 bass in 1878. Very few bass have been taken during the last decade, owing probably to the diminution of menhaden, shrimp, and young fish forming the food of the bass.

The Beaver Tail Club, Conanicut Island, R. I., has no accurate accounts of the catch, but 104 bass were set down for 1890, since which date and until 1896 the number secured was small.

The Graves Point Club, Newport, R. I., has records from 1881 to 1890, but nothing authentic since 1890. Before the club was formed Mr. William Post, while fishing at Graves Point, caught the largest striped bass ever taken on rod and reel, a fish weighing seventy pounds several hours after its capture.

The Southside Sportsmen's Club, Oakdale, Long Island, although not a striped-bass club, takes a great many bass in Great River, but in 1904, for some unknown reason, the catch was very poor. The fishing is done with fly-spoons, bloodworms and sandworms. Light tackle is used, as the fish seldom reach ten pounds in weight. A few have been taken with artificial flies.

No recent information is at hand concerning the Newport Fishing Club, Southwest Point, Newport, R. I., and the Squibnocket Club, Martha's Vineyard, Mass. An old friend writes that he is told that the fishing at Cuttyhunk and Seaconnet Point clubs has been very poor for a number of years, and the visits of members are few and far between. Truly the time is ripe here for intelligent fish-cultural enterprise.

Fishing Outfit

Clothing. — As the season for striped-bass fishing is a long one and continues far into the cold and inclement weather, the angler must be supplied with plenty of warm clothing, including waterproof jacket, mitts, and boots. A soft hat or cap, overalls, and thumb-stalls for protection against the friction of the line, are necessary parts of the equipment.

Rods. — As the fish vary greatly in size, and the

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styles of fishing differ widely, there must naturally be a corresponding variety in the character of the rods used, depending upon the conditions to be met by the angler. The materials generally used for the rod are ash, lancewood, and Calcutta or Japanese bamboo, either natural or split. Whatever the materials, a jointed rod is preferable to any other. The length and weight of the rod differ with circumstances. A casting-rod should be eight or eight and a half feet long, and weigh from twelve to sixteen or eighteen ounces.

The best rod, of course, in the opinion of most anglers, is of split bamboo of superior quality and workmanship, although one that will best stand hard usage may be made of lancewood, greenheart, or bethabara, which, however, would be somewhat heavier than one of split bamboo. A very satisfactory rod and much less expensive, besides possessing the advantage of lesser weight, is made of the natural male Calcutta bamboo, known to anglers as a "chum" rod.

The rod should be in not less than two pieces, and some prefer to have it in three, when the length reaches eight and a half feet. In some cases the rod may be nine feet long, but it must have plenty of spring and be much stiffer than trout and salmon rods of the same dimensions. Two joints of bamboo with a butt of lancewood or some other heavy wood, form a rod which meets with great favor.

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The chief qualities required in a rod for sea fishing are toughness, spring, and elasticity. It should be silk-wound and have guides and tips of agate or carnelian. The double bell-mouth guides and a funnel top lined with agate are used on the most expensive rods.

For bait-casting in fresh water a lighter rod will answer, its length and weight depending on the work to be accomplished. A light pliable rod not exceeding nine feet in length will be suitable for fishing in shallow bays and lagoons, near river-mouths, or in streams within tide limits. A two-piece rod in ash and lancewood, with a length of seven and a half feet and a weight of eight ounces, or of split bamboo of lighter weight, can be used with success.

For fly-fishing a different style of rod is needed. Any good black-bass rod will prove effective in striped-bass fishing. For still-fishing, where the fish are small, one may have fine sport with a plain rod combined with a float and sinker and with two hooks on gut leaders. For trolling, when the bass are not too large, expert anglers often use a trout-rod eight or eight and a half feet long and weighing from four to six ounces.

Reels. — There is just as much variation in the reels required for striped-bass fishing as there is in the rods; everything depends on the size of the fish and the conditions surrounding it. Surf fishing,

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for instance, demands a reel made especially for that method. The reel must be a quadruple multiplier with bearings of jewels or steel, and having a capacity of holding from two hundred to three hundred yards of twelve- to eighteen- thread Cuttyhunk line. The most serviceable reels for this fishing are made of hard rubber and German silver, and cost from ten to fourteen dollars each.

In fly-fishing the same tackle which is used for black bass will serve quite as well for striped bass.

Lines. — The lines generally used for surf-fishing are linen lines of the style known as Cuttyhunk 9–18-thread, in lengths varying with the character of the fishing. For still-fishing in summer or bait-fishing from the shore the line is usually of braided linen, smallest size, in lengths of fifty yards with a three-foot leader of single gut. In trolling for comparatively small fish up to ten pounds in weight, about 100 feet of braided linen line, size *E* or *F*, or with 200 feet of size *E* for larger bass, may be used. According to experts, raw silk makes the best line. The sizes generally used are 12–15-thread, though some use 18-thread. Grass lines have frequently been employed, but they require too much care, and unless well kept they soon become unserviceable. Some of the best linen lines, which come in 200-yard lengths, cost as much as \$2.50 each by the hundred.

For small bass up to two or three pounds in

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weight, Nos. 1 or 2 Sproat or O'Shaughnessy hooks on gut snells will be found suitable. In trolling, Sproat hooks Nos. 2-0 to 3-0 on gut snells are recommended for small fish, and Nos. 5-0 to 6-0 for larger bass. The best hooks for surf fishing on the coast are knobbed Sproat or O'Shaughnessy hooks, Nos. 5-0 to 8-0. These are secured to the line by two half-hitches, with an additional half-hitch to attach the loose end. In California the anglers who troll on Lake Merritt use a 3-0 Wilson hook, but it is to be noted that the fish are not so large in those waters as in the East.

A characteristic outfit for Eastern anglers would include twisted gut leaders with two three-foot leaders in service, one of them attached to the line with a brass swivel, the second fastened in like manner to the first, and linked to the end of this, also by means of a swivel, a small spinner of the screw-propeller type. To the end of this spinner a standard hook, usually a 4-0 or 5-0, should be attached. The best nine-foot leaders, made by looping three leaders together and used for heavy bass, cost \$7.50 a dozen. Increase in the length of a leader adds greatly to its cost.

Sinkers and Sundries. — For still-fishing, sinkers of different weights according to the strength of the tide form a valuable adjunct, and over grassy bottom a light float may be added with advantage when using crab or shrimp for bait. Sometimes the

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fish will refuse the bait when suspended in mid-water, and it becomes necessary to substitute a running sinker for the float and swivel sinker and let the bait lie on the bottom until a bite is felt, when the hook is to be sent home by a quick strike.

Additional appliances of great utility in surf fishing are a long-handled gaff-hook made of the finest steel and very sharp-pointed; a knife for cutting up (or "chumming") the waste parts of the menhaden, a spoon for throwing out the chum, and thumb-stalls, or cots, made of woolen yarn, leather, rubber, or other suitable material, to protect the thumbs from being chafed by the line. A shoemaker's knife, well sharpened, makes an excellent bait-knife.

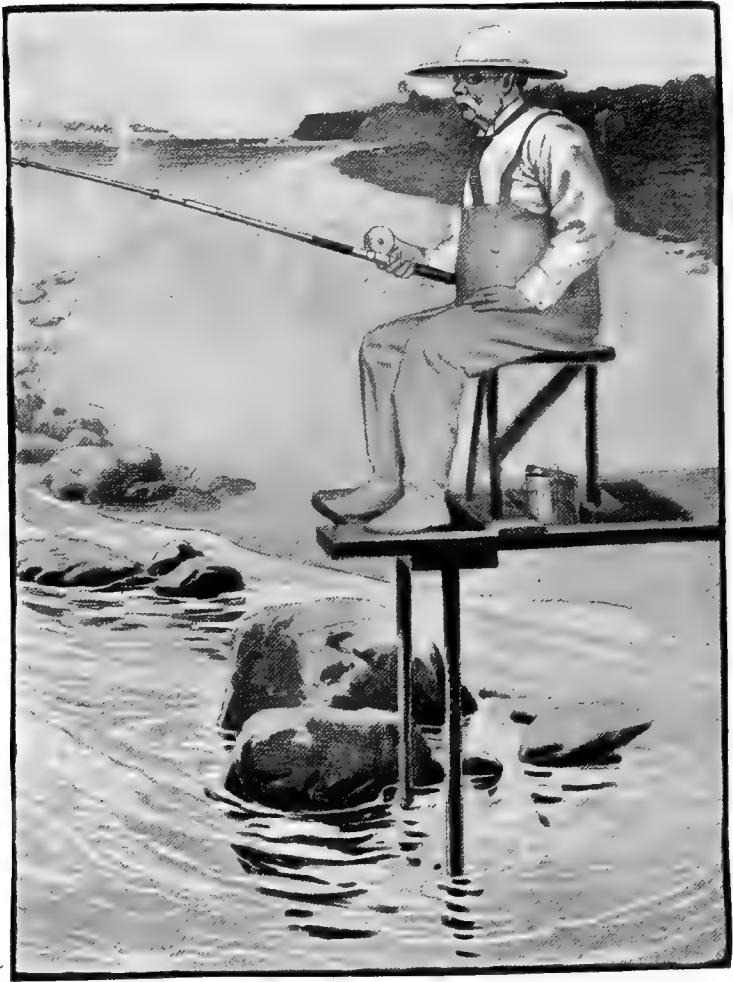
Bait. — The striped bass is such an omnivorous feeder, and his taste changes so frequently, that the angler will use many different kinds of bait during the fishing-season. No doubt the common shrimp is more generally used than anything else, except on the California coast, where many fine shrimps are found, but are not necessary to tempt the appetite of the bass. Little fish called shiners and sardines, and the clams of the region, form the usual bill of fare. For trolling, the Golcher, Stewart, or Wilson spoon, is used, with tackle which would be considered unnecessarily heavy in the East, but which may at any time have to stand the weight and strain of a great salmon instead of that of a bass.

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For still-fishing from the shore or from an anchored boat, in addition to the ever-useful shrimp, excellent service is performed by crabs of several kinds, preferably in the soft or shedder state. The blue (or edible) crab is the one most frequently employed, but the calico crab, or lady-Crab, also serves a useful purpose wherever found. Shedder-lobster is another well-known and sometimes highly effective bait which is no longer to be obtained in localities near New York. At one time lobster tail was a favorite casting-bait at Gay Head, with the remainder of the animal cut up for chum.

A very tempting morsel is furnished by the marine worms (the sandworm and bloodworm of our sand beaches), used in trolling or still-fishing. The bloodworm, sometimes called whiteworm, often reaches a length of twelve to fifteen inches, and two or three worms are needed for a single bait. These are threaded through the whole length of the body and must cover the hook entirely from point to snell. Some anglers combine this luxury with a spinner or other artificial bait, but this is unnecessary and wasteful.

The mollusks play an important part in bass-fishing. The hard clam or quahaug, the skimmer or hen-clam, the soft-shelled clam, and the scallop, all have their distinctive uses and supplement the work of the shrimp and crab tribes most handsomely. Some of them are difficult to apply to the



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hook securely, but the fish will sometimes prefer them to all other lures. The skimmer is known as an excellent bait at Allenhurst, N. J., where a great bed of these clams attracts bass of large size. The squid, if it were easier to obtain, would prove highly effective, as it is one of the natural foods of striped bass and other game-fishes. Supplies may be had around Martha's Vineyard, and the islands between Vineyard Sound and Buzzards Bay, with more or less regularity in summer. Doubtless the salted squid would serve very well when the fresh material is lacking, just as it does in the commercial cod-fishery.

Small fish of many kinds, either alive or dead, will always hold their place, because they are the legitimate prey of the large game-fishes. To a considerable extent the bass depends for its rapid growth on such resources. In California the shiner and sardine are the staple baits for trolling or still-fishing. As a matter of fact, any of the numerous silvery or translucent minnows of the coast waters will attract the game. On our Eastern shores we have an abundance of little fish in every way suitable in size and coloration for the angler's needs, — silversides, spearing, killifish, lant, smelt, salt-water mullet, eel, alewife, and menhaden. One of the killies is so well associated with the bass in the capacity of a food-supply that it has received the name of bass killie. This is one of the largest of

its kind and has different markings for the sexes, females having longitudinal narrow dark streaks while males have dark bars arranged vertically. The menhaden is the most famous of all baits in surf fishing, serving not only to toll the fish by producing an oily floating scum, but also to furnish a choice morsel which no right-minded bass can well refuse.

For a trolling-bait on certain rivers, especially the Susquehanna, an eel-tail is sometimes used successfully. When the skin of the eel only is taken, it is better to cast by hand, attaching a small sinker to the front of the bait. The skin is stripped from the vent backward, turned inside out, and drawn over two hooks, one at the front and another at the rear. The lure must be pulled rapidly through the water, to give it a lifelike appearance.

Another bait, seldom heard of at present, but formerly much esteemed, is the roe of the shad. There is no question that bass are fond of this delicacy, because they follow the shad up their spawning rivers for the express purpose of enjoying such food. The principal objection to the roe is that it is not nice to handle, and its preparation is somewhat difficult. At the same time some anglers continue to fish with it and keep it in jars through the summer by covering the whole roe with hot tallow, sealing it tightly, and placing it in a cold spot. In order to prevent the rapid destruction of the roe it

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is sometimes enclosed in mosquito-netting and fastened securely to the hook.

Artificial lures for trolling include the bone or block-tin squid, spoons, spinners, and their allies, preferably attached to a single hook. A silver spinner is frequently used in the East combined with whiteworms completely concealing the hook. Some authorities discourage the addition of natural bait to the artificial. On San Francisco Bay, in the fall, many anglers troll in Raccoon Straits, usually with one of three standard spoons No. 6 or No. 7. Heavy tackle is required to take care of any stray quinnat salmon which may take a fancy to the lure, and it is nothing unusual to hook bass weighing from twenty to thirty pounds. Anglers on Lake Merritt, Cal., in trolling with shiner or sardine, use two swivels on the leader, — one at the top and one at the bottom. Where the leader is attached to the line there is placed a sphere of lead about three eighths of an inch in diameter, pierced with a hole large enough to allow the line to run through it easily. This is to prevent ravelling of the line.

Artificial flies are available for striped-bass fishing in fresh or brackish water only, and they can be used to the best advantage in the spring when bass are ascending fresh waters. Fishing is most productive of results about sundown. Showy flies are the favorites, — red ibis, blue jay, oriole, royal coachman, polka, silver doctor, Parmachenee Belle,

THE BASSES: FRESH-WATER AND MARINE
and similar gaudy creations. Trolling the fly is
sometimes the only effectual method, giving ample
length of line and working the lure at the surface
of the water.

Methods of Capture

Still-Fishing with Bait. — Still-fishing with bait
from an anchored boat or from the bank is very
general on both coasts. This yields the best results
in rather shallow water of the estuaries, in the tide-
ways, or “thoroughfares,” at proper stages of the
tide, near river mouths, or in the tidal waters of
rivers. Expert anglers even beyond tide-water
often make good catches at the edges of rapids in
deep eddies near big rocks. In the estuaries and
river mouths the best fishing stages of tide are the
last of the ebb and the first of the flood, while the
full tide is best in shallow bays and lagoons.

The rod should be comparatively short, eight to
nine feet, rather stiff, but elastic, and not much
over eight ounces in weight. Wooden rods will
weigh more than split bamboo, but a combination
of wood and bamboo offers the most satisfactory
result. The stiffness of the rod facilitates the use
of heavy sinkers, which are often necessary in tide-
ways.

The reel adapted to this fishing is a good multi-
plier, and if intended for use around salt water it

THE STRIPED BASS

should be nickel-plated or composed of German silver and hard rubber. Fifty yards of the smallest size braided linen line, with a three-foot single-gut leader, or with two leaders (one of three feet and the other two feet), and with Sproat or O'Shaughnessy hooks ranging in size from No. 1 to No. 3, or even larger for the big fish, will be needed. A swivel sinker for the attachment of the line and leaders is part of the outfit. A landing-net will be a very useful adjunct.

When fishing over grassy bottom a float attached about three feet above the sinker will be found very useful. The sinker is to have two swivels, one above for the line and one below for the leaders. The weight of the sinker must vary with the strength of the tide.

Shrimp bait is fastened by passing the point of the hook under the back plates. Shrimp and crab are two of the most effective baits known to the angler. Throughout the summer the crab will usually prove the more useful of the two. The bait must sometimes lie quietly on the bottom, but is usually suspended in mid-water and kept in constant motion by jerking the rod. Only a single hook is used by some expert anglers.

Trolling. — Trolling with marine worms, minnows, natural squid, eel-tail, or artificial lures of any kind, requires a fairly stiff but pliable rod eight or nine feet long, braided linen line from 100

to 200 feet in length, from size *F* to size *E*, depending upon the weight of the bass, and with Sproat hooks No. 2-0 to 6-0. The baits generally used in the East are bloodworms, live minnows, or other small fish, part of an eel's tail, or some artificial creation such as a squid, spoon, or spinner with or without the addition of natural bait. In California it is customary to pay out seventy-five feet of line on the flats, and about forty feet in deeper water. Here also a favorite line is the 15- to 18-strand Cuttyhunk.

The boat is rowed alongshore, especially close to the margin of water plants, which furnish shelter for minnows, or over sunken reefs or ledges of rock, and near the border between rapids and the deep eddies caused by intercepting rocks. It is not necessary to strike the fish when a bite is felt, but allow it to hook itself and then play it carefully and bring it to the gaff or landing-net.

Heaving and Hauling in the Surf.— Heaving and hauling in the surf with hand lines is a method employed to some extent for striped bass as well as for bluefish. Not much skill is required for such fishing except in securing the bait to the hook and in making the cast smoothly. The heaviest Cuttyhunk line is required, and finger-mitts to protect the hands. The bait may be spearing, killie, lobster, alewife, menhaden, eelskin, or any of the known foods of the bass. The bait is usually drawn rapidly through the water.

Casting with Menhaden Bait. — Casting in the surf with menhaden bait is regarded as the highest type of expert angling for striped bass on the Atlantic coast. The most elaborate outfits and most expensive establishments go with this style of fishing.

The character of the rod will differ according to the tastes and means of the angler, but it must be decidedly stiffer than one used for trout or salmon. The approved length is from eight to nine feet, and the most expensive kinds are made from split bamboo, preferably with a butt piece of some hard wood. Guides of the double bell-mouthed pattern and tips of the funnel style, both tips and guides lined with agate or adamant, are associated with this form of rod. Some anglers use a rod made of greenheart, bethabara, or lancewood about eight and a half feet long. This will stand rough usage better than the split-bamboo rod. Another style, known as the "chum" rod, is made of natural male Calcutta bamboo in two or three pieces.

The reel is another important part in casting with menhaden. Reels are made expressly for surf fishing and must have bearings of agate or steel, so that they may run noiselessly and with perfect freedom. They should hold at least three hundred yards of 12-18-thread Cuttyhunk line.

Hooks intended for this mode of fishing have already been described, also such accessories as

thumb-stalls, "chum" knife and spoon, and a gaff-hook of the best quality and workmanship.

Menhaden is the bait almost universally used, but the tail of a lobster without any remnants of shell is sometimes substituted for menhaden. In Southern waters a silver mullet five or six inches long, hooked through the lips, or some other fish of silvery color, has been successfully employed in casting. The supposed advantage of the menhaden is that its oil, which floats off upon the water, attracts the bass to the anglers' stand, but the attraction may really be due to the fragments of fish which are thrown out in chumming.

Some anglers attain great skill in casting menhaden bait and claim to reach a distance of 120 yards, which is far greater than the average distance of the cast. In making the cast the line is reeled up to about two feet from the tip, and one hand grasps the rod above the reel and the other below it, the thumb of the lower hand, with its protecting thumb-stall, controlling the line so that it travels at exactly the same rate as the bait, which must be delivered with great accuracy at the end of the cast. The motion of casting is a peculiar one and is acquired only after long practice. It is really more like throwing than the overhand casting. The cast may be made with either hand, the body being turned to one side or the other as occasion requires. The one great essential is to deliver

THE STRIPED BASS

the bait at the surface of the water without a jerk, and the motion of the reel must be stopped as soon as the bait touches the water.

As soon as the bait sinks to the bottom the line is reeled in slowly, and the casting is continued until a fish is hooked. The first dash of the fish after hooking is the most critical stage of the fishing, and the bass may sometimes rush toward the angler faster than the slack can be taken up, or he may chafe the line against sharp rocks or entangle it in weeds. All of these tricks must be skilfully met and overcome. The natural difficulties associated with this fishing, in addition to the strength and endurance of the bass, call for good judgment and superb skill on the part of the angler. In landing big fish through the surf the utmost care is required.

The preparation and application of the menhaden bait are very simple. The fish is first scaled, then a slice is cut from each side from head to tail, leaving little except the backbone, the head, and the fins, which are utilized later for "chum." The hook is inserted in the fleshy side of the strip, and then returned through the edges of the scaly side in such manner as entirely to conceal the shank. The bait must be tied on the hook, or it will soon be washed off by the action of the water. After two baits are cut from the sides, the remainder of the fish is chopped up and thrown into the water; the solid portions sinking at greater or less distance

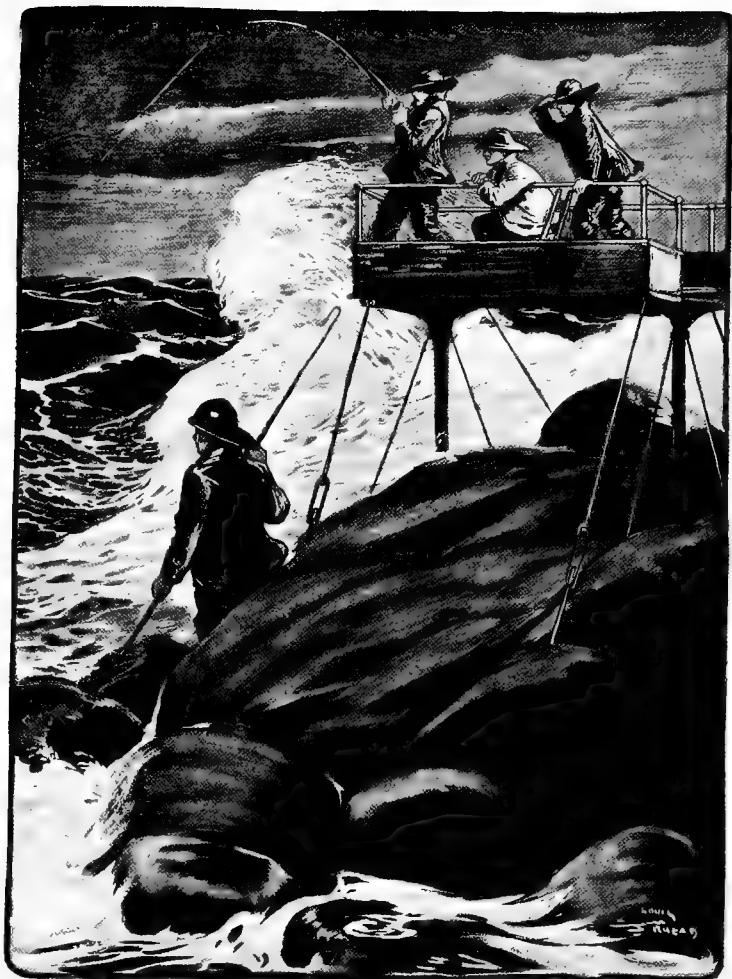
from the shore, while the oil covers the surface for a considerable space.

The greatest difficulty in this method of fishing results from the over-running of the line, and to prevent this taxes the ingenuity of the fisherman to its limit.

Fishing with Artificial Flies.— In fly-fishing for striped bass it is often advisable to troll the fly, or it may be cast in a strong current with considerable length of line and manipulated at the surface of the water. This method of fishing succeeds best late in the evening. The styles of flies which have been most successfully used are the bright-colored ones, and, in general terms, such as would attract the black bass in fresh waters.

The fishing is most productive on cloudy days and dark nights and when the water is rough and roily. Dark, stormy nights are most suitable for taking the big bass. In sea fishing the rocky ledges attract the biggest fish when the surf is running high.

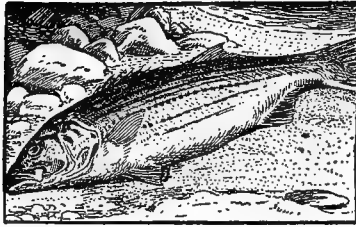
Club-Houses and Fishing-Stands.— The substantially built fishing-stands, resembling the “pulpits” of swordfishing vessels, are a characteristic feature of the club properties on our New England coasts and islands. Stout planks and iron railings firmly bolted to the solid rock enable the angler to maintain his station near his favorite feeding-grounds, no matter how fiercely winds blow or surf



Striped Bass Fishing on the New England Coast

THE STRIPED BASS

beats against the shore. Clad in warm and water-proof clothing, and provided with all the needful appliances for the capture of his mighty prey, he braves the elements and patiently endures the long struggle for the sake of the highest trophy possible outside of the salmon regions. Blow, ye winds! Roar, ye surges! The stout heart of the angler courts and defies your threatenings, for here revels wild life and matches its cunning against man's strength and skill!



THE WHITE BASS

THIS is the nearest relative of the striped bass, and the only other fish belonging to the same genus which includes that famous species. It is very much smaller than the striped bass and is found only in fresh water.

Description

The white bass may be readily known by its eight or more longitudinal blackish streaks on the sides, the lower ones being more or less interrupted. The body is oblong, deep and thin, making quite a contrast in these respects with the striped bass. The general color is silvery, tinged with gold on the sides.

The head forms one fourth of the total length including the tail-fin. The depth of the body is one third of the same length. The upper jaw reaches to below the middle of the eye. The snout and the diameter of the eye are about equal. The teeth are in brush-like bands on the jaws, the tongue, and

THE WHITE BASS

the middle and sides of the roof of the mouth. The outline of the back is much curved, and the two back-fins are well separated. The first back-fin has nine spines; the second has one spine and fourteen soft rays. The fin behind the vent has three spines and eleven or twelve rays. There are eight rows of scales between the lateral line and the base of the second back-fin; thirteen rows between the lateral line and the beginning of the fin behind the vent; sixty rows in the lateral line.

A specimen obtained by Mr. James Annin in Oneida Lake was twelve and a quarter inches long; its head three inches; its depth four inches; its eye nine sixteenths of an inch; weight, sixteen and a half ounces.

Common Names

The fish is usually called white bass, but is sometimes styled the fresh-water striped bass. The Canadian name silver bass probably belongs to this fish. Rafinesque described it under the name *Perca chrysops*, meaning "gold-eye," in 1820.

Distribution

This fish abounds in the region of the Great Lakes and is widely distributed also in the valleys of the Ohio and Mississippi rivers. It is found in Oneida Lake and has been freely introduced into

many lakes in which it is not native. Greenwood Lake, in New York and New Jersey, has been stocked with it by the New Jersey Fish and Game Commission.

Favorite Haunts

The white bass prefers the deeper parts of rivers and is best adapted for life in lakes and ponds. It is said to be a good fish for rearing in artificial ponds. In April and May it is found near the shore or in river mouths, where it spawns. In summer and fall it resorts to deeper waters and to the lakes. The rocky coves around the Bass Islands of Put-in-Bay, Lake Erie, and the upper waters of the Mississippi, especially Lake Pepin, are notable for the number and size of their white bass. The Detroit River furnishes famous fishing for this species. "At the mouth of the Fox River, in Wisconsin, these fish are doubtless more numerous than in any other single locality, or were so a few years ago. The favorite bait there is a minnow, at which they will bite all night, and a score of a hundred white bass in a few hours is not unusual. When the anchor is hauled up they seem to be as ravenous as when the first bait was thrown out." — *Harris.*

THE WHITE BASS

Habits

This bass swims in schools while feeding or migrating, and thus contributes to the score of the angler. All that is necessary is to provide suitable bait or lure and tackle, and watch the direction in which the schools are headed, and the fish will do their part handsomely. They are often in shallow water, or near the surface, so the artificial fly has an opportunity to play its part. In the spring they enter streams tributary to lakes, and are usually most abundant off the points washed by channels or where the streams are narrowest. The fish are pretty generally distributed and may be taken almost anywhere and at any time. In summer and fall they will be most readily caught late in the afternoon until sundown.

The white bass feeds upon minnows, crayfish, and other fresh-water crustaceans, small mollusks, and the young of fishes. It is said to devour many young whitefish on the spawning-grounds. The spawning-season is in May and June, and the eggs are deposited near shore or in the mouths of rivers.

Qualities

Voracity is one of the characteristics for which it is noted, and this makes it a free biter, always

THE BASSES: FRESH-WATER AND MARINE

ready to accept bait or fly if it looks good to eat. There are few fresh-water fishes that excel the white bass as a source of sport with light tackle. It can be caught in large numbers with bait or artificial fly, and gives excellent play. As a food-fish it is highly esteemed, its flesh being considered quite as good as that of the black basses.

Size and Rate of Growth

The shape of the body changes with age, adult individuals showing much greater depth than the young. A fish in good condition will weigh about one pound when one foot long, and its depth will be about one third of its length. The fish is said to reach the weight of five pounds in the Ouachita River, Arkansas.

Methods of Capture

The white bass is taken with bait by still-fishing, or by casting either from the shore or from an anchored boat. A small silvery minnow hooked through the lips makes a very good bait. It takes the artificial fly also with great readiness, but only in shallow water or when the fish are schooling near the surface. Fly-fishing gives the best results in spring, when it may be practised at any time of day. A trout fly-rod of six to seven and a half

THE WHITE BASS

ounces, with small click-reel and very fine enamelled silk line, will give the best satisfaction. Small flies tied on hooks No. 5 to No. 7, and of almost any of the standard patterns for brook-trout, will attract this bass. The hackles, the drakes, stone-fly, Montreal, Henshall, Seth Green, silver doctor, and several others have been used with success. Norris and a companion once caught, in a small Canadian creek opposite Detroit, near sundown, twenty-five white bass, averaging nearly one pound each, with a fly whose wings were made of the end of a peacock's tail feather. "In the Ouachita River, Arkansas, a scarlet and white fly seems to be the favorite lure."

For bait-fishing use a black-bass or trout rod weighing seven or eight ounces and about eight feet long. The reel should be a good multiplier, and the line a very small calibre of braided silk. A fine gut leader three feet long, and hooks numbered 3 or 4, on fine gut snells, form part of the outfit. The bait should be a small minnow hooked through both lips. The angler may fish from points at the edge of currents or in the deep pools of streams, but an anchored boat offers the best opportunity. The bait may be manipulated either by still-fishing or by casting. In good localities, when the fish are moving freely, the angler will have little time to attend to anything but the fishing.

THE WHITE PERCH

DURING the War of the Revolution, Schoepf, a Hessian surgeon stationed on Long Island, described a number of our common fishes without naming them scientifically. One of these, the perch or river perch, he recorded as an inhabitant of the coasts of New York and Long Island, in and at the mouths of fresh-water streams. It was left for Gmelin to give it the name *Perca americana* in his edition of Linnæus's "Systema Naturæ," in 1788. In 1814 Dr. Mitchill established the genus *Morone* for the same fish, and now our white perch is referred to in the books under the name *Morone americana*.

The genus *Morone* as now accepted includes the white perch and the yellow bass — another illustration of the possible confusion resulting from too great dependence upon common names alone. *Morone* differs from the striped-bass genus in having the back-fins joined, the spines strong, the anal fin with ten soft rays, the anal spines not graduated (that is, the second and third are nearly equal and

THE WHITE PERCH

much longer than the first), the jaws nearly equal, and no teeth on the base of the tongue.

Description

The white perch has an oblong body, its depth about three eighths of the length without the tail-fin. The back is convex. The mouth is moderately large, the upper jaw reaching backward a little past the front of the eye. The eye is nearly as long as the snout, and its length is contained five and a half times in the length of the head. The head forms one third of the length without the tail-fin. The third and longest anal spine is two fifths as long as the head; the second spine is one third as long as the head; the first spine is less than one half as long as the second. There are nine spines in the first back-fin, one spine and twelve soft rays in the second. The anal fin has three spines and ten rays.

There are seven rows of scales between the lateral line and the beginning of the first back-fin, eleven rows between the lateral line and the edge of the belly, and the line itself pierces fifty-one scales. The back-fins are separated by a deep notch, but connected by a low membrane. The color of the upper parts of the body is grayish or greenish; the sides are silvery; the young have pale longitudinal streaks. The great variation in colors is

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responsible for such names as red perch, black
perch, ruddy bass, gray perch, and yellow perch.

Common Names

Schoepf called this the perch or river perch, no doubt adopting a term in use among the fishermen. Mitchill used the name of red perch and stated that when not in the breeding-season it is known as black perch because its colors are browner and darker. In his "Fishes of New York," De Kay described it as the ruddy bass. In Great Egg Harbor Bay, N. J., individuals taken in salt water are sometimes called yellow perch or peerch. Norris employs for it the names white perch and gray perch. The name most widely used is white perch.

Distribution

The species ranges from Nova Scotia to South Carolina and is found in both salt and fresh water. Mitchill saw specimens fourteen inches long and nearly five inches deep from Quogue, L. I. Bellport, L. I., has been noted for its winter fishery for white perch. The author has occasionally found it in various parts of Great South Bay, as at Smith's Point, Whale House Hole, and Swan River; also in the east end of Shinnecock Bay in

THE WHITE PERCH

the fresh water of Head of Creek, near Southampton. The white perch is never plentiful in Gravesend Bay; it abounds in lakes of Central Park, New York, and Prospect Park, Brooklyn. Near Montauk, L. I., the fish is plentiful and grows very large. Eugene Smith found it common in brackish waters near New York all the year; he also had it from fresh water. Dr. Mearns states that it remains in the Hudson throughout the year and is caught abundantly in winter in nets set through the ice. It was reported to him that individuals weighing two or three pounds were caught in Oscawana Lake, Putnam County, N. Y.

In the vicinity of Wood's Hole, Mass., the white perch is abundant in fresh-water ponds connected with salt water. Fresh-water ponds and lakes in many portions of the New England States are well stocked with this fish, and in some of them it reaches a large size. In the tidal creeks all along the east coast from New York to South Carolina white perch furnish excellent fishing, and the fish ascend many large rivers far above the limits of tide. It is doubtful if the species extends its range as far south as Florida and the Gulf of Mexico.

Abundance

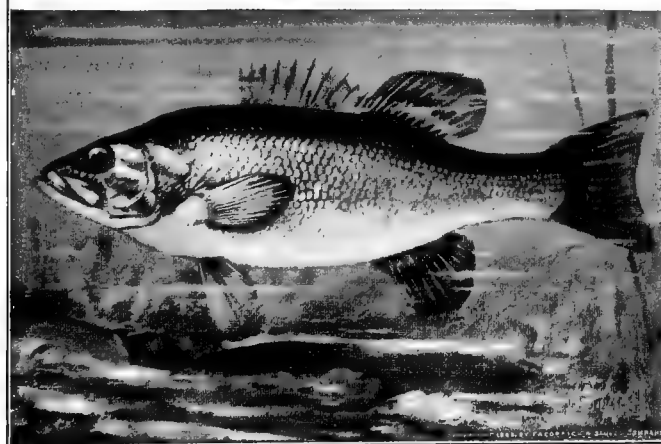
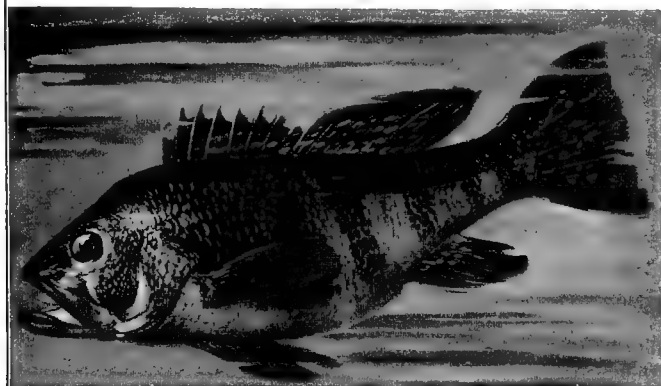
The white perch congregates in large schools and is one of the commonest of our pan-fishes. Dr.

Abbott has recorded that as many as 240 have been taken with a line in a few hours, and the late A. M. Spangler reported catches of 600 or 700 in a day by two rods, the fish weighing from three quarters to one and a quarter pounds. It is a lover of brackish water and may be found in tidal creeks in vast numbers in the company of mummichogs, silver-sides, and eels.

Habits

Small individuals ascend streams into fresh water, associating with small striped bass and feeding upon young eels and small minnows. It resembles the striped bass in its feeding-habits, but differs from this in its tendency to seek warm waters. It has a varied diet, including the spawn of other fish, especially of the shad, insects and their larvæ, worms, shrimp, minnows, and small eels, which they pursue in the rivers with much eagerness.

Some of the fish are said to hibernate in the deep salt water of the bays, but others are found under the ice of rivers in the winter. The migratory schools which go into fresh-water streams enter them in spring soon after the ice and snow-water have run off. During the summer the perch are found swimming around the piers or the timbers supporting bridges, or chasing minnows on the flood-tide high up the stream among the water-lilies,



Striped Bass
Sea Bass
Small-mouthed Black Bass

THE WHITE PERCH

sometimes ready to take a small shrimp or other suitable bait without much ceremony, but occasionally leaving a locality suddenly when the feeding-grounds are disturbed by seines.

At the beginning of the fishing-season the perch follows its food to the limits of the tide-ways. During summer, on the ebb tide, it is in deep water, on sandy or rocky bottoms or mussel-beds, or around submerged wrecks and stone piles. On the flood it moves along the margins of creeks and rivers, following the minnows into the water-plants wherein they find a home and partial shelter. Although usually living upon animal food the perch sometimes appears to take brackish-water seaweeds into its stomach, perhaps for the sake of the small shells and crustaceans found upon them.

The spawning-season is in May and June. The eggs are small and very adhesive; they number about 40,000 to the fish of average size and are hatched in three or four days. The first experiments with artificial hatching were made before the improved methods of separating the eggs were understood, and the results were far from satisfactory; yet some were hatched in six days in water varying in temperature from 58° to 60° F. After the spawning-season is ended the fish seek deeper waters in which to recuperate.

Qualities

As a pan-fish this species is a great favorite. The flesh is white, firm, flaky, and of excellent flavor. Few fishes on the east coast are more highly esteemed. Norris was the great apostle of the white perch. He described in detail the modes of fishing and also the best methods of cooking. For frying he recommended that the fish be rolled in grated cracker or coarse corn meal and moderately browned. For a piquant dish he gives the following suggestions:

“Cut off the heads and tails and fry enough to lay them open; take out the backbone and ribs, dividing each into two slices; then put them in the pan again and brown them in coarse corn meal, pouring over them, when nearly done, a little Worcestershire sauce or walnut catsup, and serve them up with drawn butter and an additional quantity of sauce or catsup.”

As a game-fish the white perch ranks very high. Its known voracity makes it a free biter on many kinds of bait, and with light tackle the angler may be certain of good sport provided he can locate the schools. The fish rises fairly well to the artificial fly in fresh-water streams and ponds. Henshall relates an experience which illustrates the persistency of the fish: a white perch was caught four

THE WHITE PERCH

times in succession in the Gunpowder River before it was finally killed.

Size

The average length is about nine inches, and the weight half a pound or less; but many individuals measuring fourteen inches and weighing two pounds or more have been taken in New England waters. In Oscawana Lake, Putnam County, N. Y., it is said, some of the perch weigh two or three pounds.

Methods of Capture

The requisites for white-perch fishing are: a light rod, a very fine braided linen line, a leader of single gut about three feet long, and hooks Nos. 6 to 8 on gut snells. A small multiplying reel may be used if desired. A sinker is needed in tide-ways, to keep the bait off the bottom, as the fish will not take bait on the bottom unless it is moving. Shrimp, crabs, and worms are most frequently employed, and to these a life-like action must be given. A float is required in slack-water fishing in the vicinity of water-plants. The float is to be so placed as to hold the hooks well off the bottom.

The best baits are: shrimp, shedder-crab, worms, young eels, and small minnows. The pearl minnow

THE BASSES: FRESH-WATER AND MARINE

is sometimes effective in eddies where tides sweep the end of a pier. Shrimp and shedder-crab are choice baits for brackish waters; worms are killing in the deep pools of fresh tidal rivers; small pieces of fish, little minnows, or quite young eels are good on the flood tide along the margin of water-plants.

In brackish water the best fishing is to be had from an anchored boat at half tides; full tide is best in tidal rivers; low water finds the perch in deep holes among rocks or sunken timbers. A common practice is to row up a tidal creek on the ebb as far as possible, collect shrimp, and fish on the young flood, using a small shrimp on a fine hook and sometimes adding an artificial fly or two, casting moderately close to the banks. Some anglers have been successful on warm May days in casting with a single small eel, moved like a heavy fly.

“Large white perch are frequently caught at night along the mud flats of our Eastern rivers. The angler runs the bow of his boat into the soft mud near the shore on the incoming tide, and with a rod about four feet long fishes from the stern of his boat without using a float. As the tide rises he shoves the boat farther up on the flat, as the large perch follow the feeding minnows as the tide grows and bite freely at the garden worms commonly used as bait when fishing by this method.

“But it is at Betterton, Md., at the head of Chesapeake Bay, where the white perch excel

THE WHITE PERCH

in numbers and feeding-powers. A few years ago, at this place, two other fishermen and I caught 700 perch, averaging over half a pound each, in about two hours. Two boatmen were kept busy preparing crab-bait, baiting the hooks, and taking the captured fish from them. Our tackle was a species of 'paternoster' (so called by English fishermen), a hand-line with a heavy lead at the bottom (the tide is very strong at Betterton). From four to six hooks were attached to each line, about five inches apart, and when the pluck of a fish, always a strong one, was felt, the barb of the hook was fastened into its jaw with a jerk. Before the line could be hauled aboard, another, a third, fourth, fifth, or sixth fish would take a hold. Perch scores were then estimated by peach-crates, as when that fruit was in high season the perch was most plentiful and they were packed in the baskets used in shipping peaches to market." — *Harris*.

Fly-fishing is most productive in fresh-water ponds not connected with the sea, or well up fresh-water streams. A variety of small flies has been employed — dark midge, gray drake, red ibis, grizzly king, oriole, coachman — tied on Nos. 7 or 8 hooks.



THE YELLOW BASS

IN 1860 Dr. Theodore Gill described the western white perch, better known as yellow bass or brassy bass, from type specimens collected in the vicinity of St. Louis and at New Orleans. The fish had long been known to fishermen, but had received no scientific description up to that time.

The genus *Morone* was established by Mitchill in 1814 for the white perch and some other fish which he supposed to be nearly related to it. The only two American members of this genus are those above mentioned, one of them living in salt water, brackish water, or fresh-water ponds in the East, the other inhabiting the Mississippi Valley, extending a short distance up the Ohio and into certain streams and lakes of northern Indiana, — lakes Tippecanoe, Eagle, Pike, Centre, and Chapman, — also Eel River.

Description

The yellow bass resembles the white perch in shape and is very different from the white bass,

THE YELLOW BASS

from which it is easily distinguished by its much larger eye and mouth, very much higher first back-fin, and much longer second spine of the anal fin. It has also larger and rougher scales than the white bass, and its color is brassy yellow instead of silvery. Its longitudinal black stripes are more pronounced.

The body is oblong-ovate, the outline of the back much arched. The head is flattened above and rather pointed. The eye is large, its diameter equal to the length of the snout. The mouth is oblique, and the hind end of the upper jaw reaches to below the middle of the eye. The back-fins are slightly connected by membrane; the first is high, its fourth spine being much more than half as long as the head. The second anal spine is half as long as the head. The head forms one third of the total length without the tail-fin. The first back-fin has nine spines; the second, one spine and twelve rays. The anal fin has three spines and nine rays. The lateral line pierces fifty scales.

Color in life, brassy tinged with olivaceous above; seven very marked black stripes on the sides, those below the lateral line interrupted so that the posterior part alternates with the anterior.

The fish reaches a length of eighteen inches, and a weight of five pounds; individuals weighing three pounds are not rare, but the usual weight is from one to two pounds.

Common Names

Yellow bass is the name usually applied to the fish; but it is known also as brassy bass, and in Louisiana it is called the bar-fish, on account either of its stripes or of its habit of congregating in great numbers upon the shoals of clear-water branches and bayous which empty into the Mississippi, to feed upon minnows and shiners as suggested by Hallock.

Distribution

The yellow bass is found chiefly in the lower Mississippi River and tributaries, reaching Cincinnati and appearing sometimes in northern Indiana. About 1872 it was very common in the small lakes of Kosciusko County, and at the present time a few are taken every year, especially after a June freshet, according to Jordan & Evermann.

Favorite Haunts

The fish prefers the deep pools in rivers and clear-water bayous and is to be looked for at the foot of rapids and riffles. The St. Francis River, in Arkansas, and the head of the Yazoo Pass, in Mississippi, are famous fishing-grounds. In the early morning it resorts to the bars on which min-

THE YELLOW BASS

nows feed, and is there associated with the large-mouthed black bass, bent upon the same errand.

Habits

It feeds principally upon small minnows. The spawning-season is in spring.

Qualities

The yellow bass is a favorite food-fish and with light tackle yields excellent sport. The flesh is fully equal to that of the white bass, for which it provides an acceptable substitute in the lower Mississippi Valley, and many anglers consider it superior to the black basses.

Methods of Capture

The same tackle and modes of angling described for white bass will serve for the yellow bass. Western anglers use practically the same appliances as for the black basses, the crappies, and the white bass.

THE SEA-BASS

FISH families often include members of strikingly diverse appearance. The sea-bass is a near relative of the striped bass, and yet it resembles the groupers more strongly and would not at once be associated with the striped bass, the white bass, the yellow bass, and the white perch. Its back-fins are scarcely notched; the tail-fin is three-lobed or double concave; the anal fin has few soft rays; the belly-fins begin in advance of the breast-fins; and the coloration is very different from that of the striped-bass tribe.

Description

The sea-bass has a stout, ovate body with the back somewhat elevated. The depth is one third of the length without the tail-fin and nearly equals the length of the head. The mouth is rather large and very oblique; the upper jaw extends beyond the level of the front of the eye; the lower jaw projects forward beyond the upper. The eye is

THE SEA-BASS

large and placed high, its diameter about one fifth the length of the head. Canine teeth are present, but scarcely noticeable. The teeth are all fixed, in broad bands. Spines of the first back-fin strong, the middle ones longest, but less than half as long as the head.

The spines, except the first, frequently with a filament at the tip. The breast-fin is very long, reaching to the vent. The belly-fins also reach as far back as the vent. The tail-fin is double concave, and the upper lobe is sometimes produced into a short filament. There are ten spines and eleven rays in the two back-fins; three spines and seven rays in the fin behind the vent. The lateral line pierces from fifty to fifty-five scales.

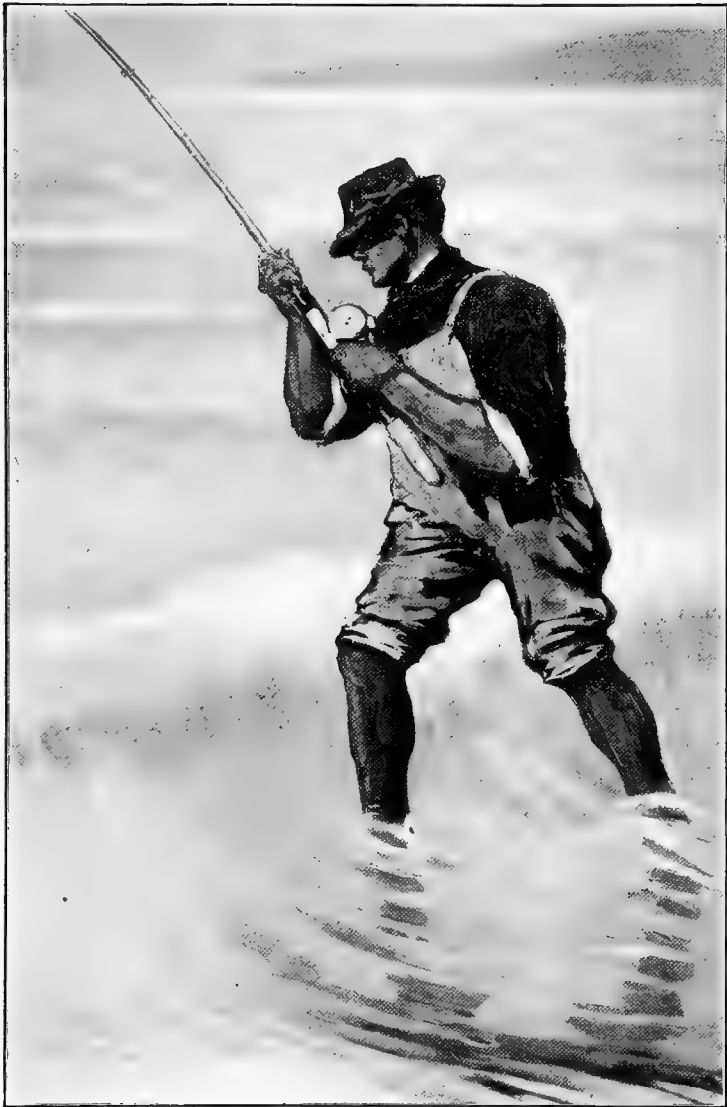
Color, dusky brown or black, adults often bluish, especially in the breeding-season; sides more or less mottled, with traces of pale longitudinal streaks along the rows of scales. The back-fins have several series of elongate, whitish spots forming interrupted lines; the other fins are dusky, and all except the breast-fins are much mottled with pale or bluish spots. The young are greenish or brownish, with a dark lateral stripe which is sometimes broken up, forming cross-bars. The sea-bass from deep water in spring is a brilliantly colored fish and cannot fail to excite admiration. The male is especially gorgeous.

Common Names

Schoepf, in 1787, recorded the New York name as blackfish. Mitchill (1814) writes of it as sea basse, black harry, hanna hills, and bluefish. De Kay (1842) has it as the black sea-bass, black bass, and blackfish. Dr. Storer mentions the Massachusetts name of black perch. In the Middle States a name for the fish is black will, and at New Bedford one may hear it called rock-bass. The best-known names are sea-bass and blackfish.

Distribution

There are three distinct forms of sea-bass, the northern, the southern, and a third in the Gulf of Mexico. The northern form is found from Vineyard Sound to Cape Hatteras, occasionally straying north of Cape Cod to Massachusetts Bay. At Wood's Hole, Mass., the fish was very common in 1898, when it arrived in May and left the inshore waters about October 1, having been most abundant from July to September. In 1900 a remarkable scarcity of this bass was reported at Wood's Hole, and observers of the United States Fish Commission stated that it was rapidly decreasing in numbers. Hand-line fishing, even on the spawning-grounds off Hyannis, was very poor, and



A running Fight

THE SEA-BASS

young fish were less common than usual. Formerly the young were abundant everywhere in the vicinity of Wood's Hole, but in 1900 they were limited to a few localities.

The same variation has been noted in Great South Bay, where the young are usually found in summer, but occasionally fail to arrive except in very small numbers. Off shore at Southampton, especially around an old sunken wreck about two miles at sea, adults are caught freely. Good fishing-grounds are reached by steamers from New York and Philadelphia on the near-by "banks." Five Fathom Bank, off the coast of New Jersey, is famous for its sea-bass. In the shallow waters of Great Egg Harbor Bay hundreds of small-sized sea-bass can be taken in a day, and it is sometimes difficult to keep them away from bait intended for larger fish. The natural range of the fish has sometimes been extended by the transfer of live bass in well-smacks to waters north of their usual limit.

Favorite Haunts

The young sea-bass prefer the channels of shallow bays and the vicinity of wharves and landings. Large fish frequent the offshore "banks" where the bottom is rocky. A sunken wreck delights the adults, because it attracts food and furnishes shelter also.

Habits

The young are found in the eel-grass in summer and fall as well as in channels. The adults like to hide in rock crevices, reminding one of the tautog in that respect. The species is sluggish, but voracious. In their seasonal migration the adults usually arrive at Cape Cod during the first or second week in May, when the water has reached a temperature of 48° to 50° F.; but in 1900, in spite of the cold weather, they appeared at Cuttyhunk and Menemsha Bight on April 28, — with one exception the earliest arrival recorded in twenty-five years.

The sea-bass feeds upon shrimp, crabs, sea-worms, squid, small fishes, and other animals of suitable size. This omnivorous appetite makes it vulnerable to almost any bait.

Spawning takes place at Wood's Hole, Mass., in June, and the species breeds throughout its range during the summer months. The egg is one twenty-sixth of an inch in diameter and is hatched in five days in water at a temperature of 59° or 60° F. The egg is buoyant in sea water. It has been hatched artificially, and the supply of fish can be kept up indefinitely by fish-culture whenever required.

THE SEA-BASS

Qualities

The voracity of the species makes it one of the most persistent biters in the entire range of anglers' fishes. It is a strong-pulling fish and bores toward the bottom with vigorous tugs when hooked. The flesh is white, firm, and very palatable, so that we reckon this bass among the most valuable of our food-fishes.

Size and Rate of Growth

The young grow very rapidly. At the end of July they measure three fourths of an inch; by the end of October they will be from two to three inches long. Adults reach a length of eighteen inches, and a weight of six pounds.

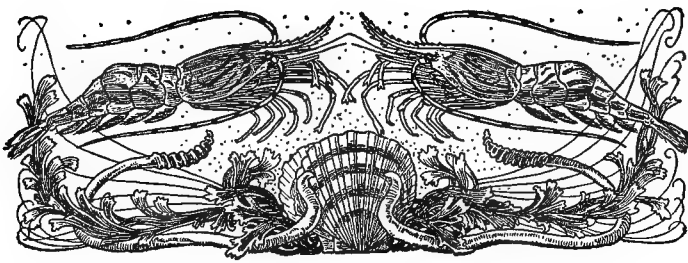
Methods of Capture

Large fish in deep water are frequently taken with hand-lines; but a more sportsmanlike way is to use a light rod of wood or cane, a fine braided linen line on a multiplying reel, Nos. 1-0 to 3-0 Sproat or Aberdeen hooks snelled on single gut, a leader three or four feet long, and a sinker varying in weight with the strength of the tide.

THE BASSES: FRESH-WATER AND MARINE

A landing-net will prove very useful, and the greatest comfort will be secured by fishing from an anchored boat.

The baits are clams, shrimp, shedder-crab, sand-worms, squid, pieces of menhaden, or various small fishes.



CONSERVATION

REVIEW: 4-12-93

No further action

