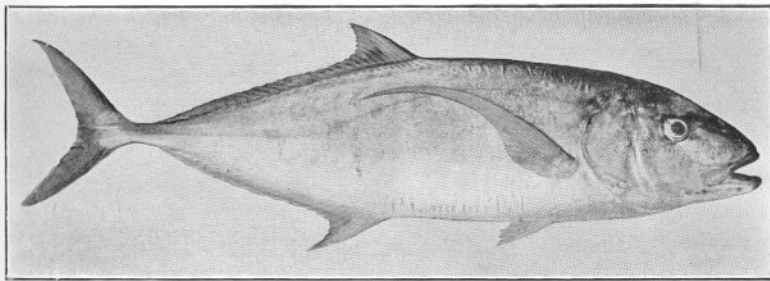


BARRACUDA (SPHYRAENA, OP:)
Weight 45 lbs., length 4 ft. 10 in., girth 1 ft. 8½ in.
March, 1912.



THE MOMBASA 'KOLI KOLI' (THYNNUS SP:)
Weight 18 lbs. Total length 3 feet 2 in.
Mombasa, May 1912.

4 COLLECTING SEA FISH AT MOMBASA

The publication of the second number of the 1911 JOURNAL, No. 4, has been greatly delayed owing to the causes already referred to, the MS. having only been sent off a few weeks ago. JOURNAL No. 5, the first number for 1912, is nearly complete and should be ready for the publishers in a short time.

It is not proposed at present to attempt to issue more than two numbers of the JOURNAL per annum, as it is difficult to obtain articles or notes for more.

Proposals relating to the alteration of Rule 6 providing for the creation of a new class of Members to be termed Associate Members, whose subscription would be only Rs.7.50 per annum, are about to be laid before the Members, who will be asked to vote upon the proposals simultaneously with the voting for the new Committee.

The Society now exchanges publications with most of the principal Societies of a kindred nature in the world, and the Library is being continually augmented by their Reports and Periodicals. The British Museum Authorities have also presented the Society with Catalogues of their various sections, which should prove very helpful to our Members for reference.

JOHN SERGEANT,
Honorary Secretary.

May 14, 1912.

NOTES ON COLLECTING SEA FISH AT MOMBASA¹

BY R. J. CUNINGHAME

During the months of March and April 1912, I was at Mombasa making a collection of sea fish for the British Museum, but on my arrival at the coast all the native fishing population formed a ring to frustrate my object and I found it impossible to obtain a native boat or any assistance. I had every sympathy with their dogged opposition, for how can one expect a hybrid native to grasp the unlimited possibilities of scientific achieve-

¹ Re-written from an address delivered at the Museum, Nairobi, on May 30, 1912.

ment or the ethics of sport? I had the active assistance of officials and residents at Mombasa, who endeavoured to explain to the fishermen my object in securing fish, but it was without avail. I was supposed to have arrived to inaugurate a white man's sea-fishing commercial industry, and if that was founded they saw the extinction of their profession.

For ten days I played the well-known political game of 'wait and see.' I took a fish tank down to the market and placed some fish into a preservative solution after having taken many measurements, tying on leather labels, and asking endless questions. I also paid well for my specimens. Very soon this began to appeal to them, and I came to be well known to many of the fishers. They concluded I was peaceably inclined but mad, and therefore certain concessions might be made to me, and in this way I at last made a bargain for a sort of dug-out with a crew of four professional fishermen.

Many of you may conclude that sea fishing in tropical seas is a very pleasant pastime, but I can assure you that, if you try, you will discover that the heat is most overpowering and the fierce glare from the shimmering water induces most violent headaches after being out, say, eight hours in a dug-out. Blue glasses give some relief, and should be worn constantly.

The Mombasa fishermen are wonderfully skilled and ingenious in their devices for capturing fish. They make their own lines, and most serviceable material it is. Their 'owzeeo,' or fish traps, are the same as those found amongst all fishing communities in Africa, and the owners make a good living out of them. Then they have huge lobster-pots or creels of some seven feet in length, four feet broad, and two feet high. These they sink inside and *outside* the reef in some four or five fathoms of water. To lift them, two men go out in a dug-out, and on reaching a creel one of them dives to the bottom and makes inspection. If there are fish caught, the creel is hauled up and dexterously placed athwart the dug-out and balanced there, a feat which no white man can perform. The fish are prodded out with a pointed stick, fresh bait is inserted, and over slides the fish-pot again, often accompanied by a fisherman who guides it to a good position. The bait used is a seaweed, gathered from the reef at low tide.

6 COLLECTING SEA FISH AT MOMBASA

These creels are made of coco-nut and palm-leaf strips, and are very durable, but must be thoroughly dried twice a month.

Then they have large drag-nets taking a dozen men to haul. These are made of the same material as the fish creels. They are put out from a boat in about five feet of water, in a semi-circle, and the total length of rope and net will be some eighty yards.

During the process of dragging the net in, three men go out to the furthest end and remain under water as much as possible, clearing the net from the coral boulders. I noticed that the variety of fish taken was always very poor, but the men were well repaid by the quantity.

I collected over 200 fish, *each* representing a different species, sub-species, or variety, but as I possess no particular ichthyological training my determinations in many cases may be wrong.

I take it that pronounced and recurrent differences in markings, such as maculation, lines of colour, and angle of gill slit, constitute what are termed good characteristics, and on this assumption I base my 200 or more distinct varieties of fish. I do not propose to enter into any minute description, but simply to give my general ideas and observations on some of the species found in Mombasa waters.

There are about twenty-two local or annual species which are always present in the vicinity of Mombasa. Then you have two great immigrations, one from the north with the north-east monsoon, and the other from the south with the south-west monsoon.

During the short time (a little over two months) that I was actively engaged in collecting, I secured 112 specimens of fish, which I believe to be part of the northern lot, and some 68 specimens which most undoubtedly arrived from the south shortly after the south-west monsoon broke.

The period of the north-east monsoon ranges from December to March, and that of the south-west monsoon from April to October, and it is during this period that the rainy season occurs.

The direct cause of any wide movement of animal life is

always of peculiar interest, and I took special notes regarding their maximum and minimum weights, for fish, I believe, migrate only for two reasons. Firstly, the fry of certain fish roam immense distances, seeking new feeding grounds and steadily increasing their size, and consequent ability of journeying greater distances in a reduced time; and, secondly, when adult, they seek with their elders the suitable spawning grounds that may have been used for generations.

The native fishermen are well acquainted with the seasonal changes of fish life, but always refer to the southern immigration as 'when the wind comes with the rain.'

The methods of capture that I employed were hand lines, trammel-net, seine-net, and trolling. But few species (comparatively speaking) are caught by hand lining, and the best places are situated in deep water of fifty to eighty fathoms, which renders the capture rather laborious. The trammel is certainly a failure in these waters, as the tides are uniformly far too strong and the bottom too rocky to allow the net to fish properly. The seine-net often catches quantities, but for collecting a good variety of specimens it is hardly worth the labour after having tried it some half-dozen times.

In the scores of fish-traps, both on the ocean front and in the lagoons around Mombasa Island, I procured many of my best specimens, and during suitable conditions of the tide I used to patrol the coast and look over eight or ten different catches in a few hours. Then the lobster-pots or creels gave me quite a few fish, which are not obtainable except by this method of capture. By the way I call them lobster-pots, but there are no lobsters on the African coast. The fish called lobsters are Cray-fish, of which there seems to be two species locally.

Now I should like to say a little about the Game fish. Unfortunately I arrived rather late in the fishing season to study fish from a sporting standpoint, and by the time I had about completed my collection the south-west monsoon had broken and it was impossible to go away out upon the ocean. I, however, had a little experience, and I have collected a good deal of what I believe to be reliable information from native sources.

When at sea I had often observed two quite different species

leaping away some four miles out from land, and one day I took a friend with a tarpon rod, reel, and line. We got well outside, and trolled with a small two-inch pike spinning-bait called a 'clipper spinner.' When about three miles out, and in the hundred fathom-line, something took bait and for half an hour we had great sport; the fish never showed himself, but his rushes were really serious during the beginning of the struggle. On being brought alongside and gaffed, his vitality was such that he bent a new strong steel gaff. This fish I believe to be the Barracuda and it weighed forty-five pounds; the weight is not great, but the power of the fish far exceeds that of any salmon of similar weight.

The Barracuda is a cosmopolitan fish inhabiting the Indian, Atlantic, and Pacific oceans, and is often caught by the dhows when they are on passage from Muscat to Zanzibar.

Provided the boat is going at a sufficient rate of speed, say, about eight miles an hour, the Barracuda will take a piece of white cloth with a bit of red material sewn on it. Any silver spinning-bait with a red tassel seems effective; also as a natural bait, Squid, or a fish very similar to *Holocanthus diacanthus* may be used. Its jaws have most formidable teeth and a steel trace is essential to prevent many disappointments.

In Mombasa waters they are fairly numerous, and at high tide I have seen large examples leaping ten feet out of the water opposite Kilindini pier. They come up the channel after the small sprats and remain in the inshore waters only about two hours, i.e. between the turning of the high tide.

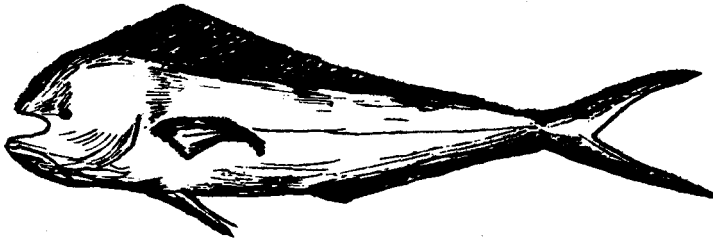
The native name is the 'Unguo' and three species are recognised.

As a game fish he is well worth trying for, and he is literally found just off the pier head at Kilindini.

The Frontispiece shows the Barracuda caught at Mombasa, and you will observe the great breadth of the tail in comparison with that of the body. The Barracuda, I may mention, is a resident of Mombasa waters.

Another sporting fish is the Dolphin fish or 'Faloosi' of the Swahilis, seen in the rough sketch. This is essentially a migrant and arrives from the north about December, and all have passed south by the end of March. They are

caught in large numbers by the natives, who troll for them with a single hook, baited with a piece of squid. On a fish being hooked they haul him up to within a boat's length and then throw out three more previously prepared baited hooks. The result is that as the school passes, a catch of five or six Dolphin fish are unceremoniously hauled aboard. If trolled by rod and line of light make, say, a thirteen-ounce rod, very fine sport will be had; the average weight is about eight pounds, but for ten minutes they develop the energy of a fifteen pounder. While playing them, they are as much out of the sea as in it, but when landing them a gaff should not be used as they have a strong leathery skin which even a gaff skates about on, and



DOLPHIN FISH OR 'FALOOSI' (*Coryphaena*, sp.)

Weight 26 lb. Total length 3 ft. 10 in. Mombasa, March 1910.

will not readily penetrate. A large-mouthed landing-net would meet the case.

The Dolphin fish will take a 'spoon bait' or a 'clipper spinner,' but the palate has a bony surface and the mouth is relatively small; therefore a triangle hook is of not much use. It should be single and long in the shank.

The largest of these fish I saw weighed twenty-six pounds. The natives recognise two varieties, but I very much doubt the correctness of this.

The 'Faloosi' is always on migration when in the neighbourhood of Mombasa, and goes about in shoals of fifty or more. It is a surface feeder, and, as far as my knowledge goes, spawns in the Persian Gulf and travels down the coast of Africa to the vicinity of Mauritius. After that it is never seen again on its return north. It probably seeks deeper waters and

returns whence it came after the manner of the common herring in the Atlantic.

Now I come to speculate a little. I well know that speculation is very bad science; still I am not writing a scientific article about these Game fish, but speaking more from a general point of view.

My readers will be acquainted with the American Tuna of the Pacific coast, of which there are three varieties: *Thunnus alalunga*, with the very attenuated side-fins; *Thunnus thynnus*, which is the name of the giant Tuna; and *Thunnus maculatus*, or yellow-finned Tuna.

In the Mediterranean we again find the Tuna under the name of Tunni. This fish is *T. mediterraneus* and known in the Mediterranean as Thon. It has never been known to take any sort of bait and is there captured in wire nets.

Further East still, we find a fish apparently identical with *T. alalunga*, or long-finned Tuna, in the neighbourhood of Aden, where the Somalis fish for them and sun-dry them for commercial purposes.

Then again at Malindi, on the mouth of the Athi or Sabaki River, reports have reached me of a fish that most closely resembles a Tuna in appearance, habits, and behaviour when hooked.

Off Mombasa the same fish is known to be present from December to February.

My informants have given me minute descriptions of the methods they employ for their capture, and have identified the fish from large illustrations I have shown them. Apparently there are two species of Tunas to be found off Mombasa, the long finned (*T. alalunga*) known as 'Djodari' at Mombasa, and the yellow-finned Tuna (*T. maculatus*) known as Sayhaywa.

At Mombasa they feed largely on flying fish, which is also their chief diet off the coast of California, where sportsmen resort in large numbers and use dead flying-fish as bait.

Most unfortunately I was not fishing at Mombasa during the months these fish were passing through those waters, so that all I have to tell you about them is open to a certain amount of doubt; but at the same time I feel convinced that a true Game sporting type of ocean-going fish awaits anyone who

can afford the leisure to try various forms of bait with rod and line.

The Sayhaywa, i.e. *T. maculatus* or yellow-finned Tuna, are present till the beginning of March and are always found in deep water, about three to five miles out at sea. They range in size from twelve to eighty pounds and their length runs from two to four feet, but they increase very disproportionately in girth as they develop. They are often seen jumping after flying fish, and they clear a height out of the water of some five to six feet.

With regard to the native method of capture, the fishermen first catches about ten pounds' weight of a Sardine-like fish called 'Seemu,' with a hand seine-net. As they are released from the net they are transferred into a special basket covered with sacking, which is secured to the gunwale of the boat, and immersed in the sea. When the desired amount of fish have been caught they proceed to sea, and when far enough out lower sail and mast and drift with the tide. A few of the live Sardines are then let loose and a handful more are taken and mushed up in the hands under the water.¹ This is done to create a smell of oil. The process is kept up at intervals of a quarter of an hour; and, when Tuna shows up, one Sardine fish is quickly placed on a hook by passing the same through both eyes, and is cast out. A live bait, so secured, will remain alive for about half an hour, and as long as it is alive there is a chance of a Tuna taking it, but they never take a dead natural bait.

When hooked, the Tuna never shows himself, but rushes straight away, though without any sound.

There is about 240 fathoms of strong line coiled in the boat and about three-quarters of this is allowed to run out. Then pressure is applied by hand and the fish is checked, and, if possible, hauled in a bit. When a rush is made again the line is let go, and so it goes on for two or three hours with a big fish.

Often they think the fish is lost, but it is only rushing towards the boat, and the surprise is very sudden to him who is handling the line.

¹ I believe this is also practised in California and termed 'Chumming.'

Sometimes the men, by putting on a careful strain, manage to get the Tuna to tow the boat about.

To get a Tuna aboard, a harpoon is used to spear him when alongside; he is then roughly hauled up to the boat's side and struck on the head till quiet.

Another way of catching Tuna is to troll for them, with a good breeze at, say, six miles an hour. The same hook and line are used, and the bait may be a triangular piece of squid or a bit of white cloth.

Both the Mombasa Tuna are greedy for flying fish, but it is next to impossible to secure that bait; but if when a Tuna is caught it is cut open there is always the chance of finding a freshly swallowed flying-fish. If so, use it.

The natives recognise three species of Tuna, two of which they call 'Sayhaywa,' and the other 'Djodari'; the latter is the largest and scarcest, and all seem to have traces of yellow on the fins and tail, but this colouration varies according to species. I could not determine exactly the individual distinction of colour, as the native mind cares but little for the exact areas of pigmentation found on the fish he catches.

Two more Game fish deserve notice, which are named the 'Tangessi,' and the 'Koli Koli' (see *Frontispiece*). The Tangessi are a pike-like fish and are present throughout the year. They apparently spawn in these waters, but do not take a bait until they are about fifteen pounds in weight, while a large fish will scale forty pounds.

They may be caught both inside and outside the reef. For bait employ squid or a silver spoon, and sail at a good rate. When hooked they jump vigorously, but are not strong fighters.

The 'Koli Koli' at first sight reminds one of *Tuna alalonga*, the long-finned variety, but though belonging to the same genus they are vastly inferior from a sportsman's point of view.

These fish are present in Mombasa waters during nine months of the year, being absent in August, September, and October. In size they run from two pounds to fifty pounds, which indicates that they spawn in these waters.

For bait a live Perch, resembling a sea Perch and called 'Tawa' by the Swahilis, is the best; the hook is passed

through the dorsal fin, allowing the bait to swim alive for nearly an hour.

They can be caught with a piece of squid by trolling, and on taking the bait they rush straight away at a great speed, but apparently do not make a good fight.

They are never seen leaping at sea, and during May they are very plentiful and can be caught inside the reef. When the north-east monsoon blows they are always found out in the ocean.

Considering that indications of the presence of big Game fishes are to be found off Mombasa, I can only hope that someone with sufficient leisure may soon undertake to give the capture of them by means of rod and line a fair and exhaustive trial. To do this successfully the use of a motor-boat is, in my opinion, essential. The local craft of all shapes and sizes are quite unsuited for the attempt, except in the inshore waters. The tides are comparatively strong, and during the best fishing months, December to March, the wind is very fitful and moderate, and causes hours of delay in reaching the outside fishing grounds where the big fish may be found.

As regards the question of the preservative I employed, and the results in my hands, I refer the reader to page 99 of this JOURNAL, where a short article I have written on the subject will be found.

In a later issue I hope to chronicle a list of the fish in my collection, coupled with a few individual notes.

THE THOWA RIVER

BY ARTHUR M. CHAMPION

The course of this river had for some years been a subject of much dispute, at any rate among those who have had any connection with the Kitui district. Opinions varied so widely that by some it was held to be in the Tana basin, whilst others maintained that it joined the Tiva and eventually flowed into the Sabaki.