Potential for Developing a Red Snapper Fishery in British Guiana

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THE ORIGINAL INVITATION asked that the subject of this talk be about the off-shore fisheries of British Guiana, but because of the finding of some shrimp off that coast this picture has changed to such an extent in the last year that anything that might be said in trying to cover the entire off-shore fisheries would certainly be out of date, so these remarks will be confined primarily to the Red Snapper Fishery.

First, for a very brief description of British Guiana or B.G. as it is affectionately referred to by the English in the West Indies, as well as those living in the country. It comprises a geographical area of about 89,000 square miles of which there is a coast line of approximately 270 miles on the Atlantic Ocean and which runs from South-East to North-West.

B. G. is situated between 1° and 8° North Latitude and 57° and 61° West Longitude and inland is bounded by Venezuela on the North and West Brazil and Dutch Guiana or Surinam on the South.

One more item of interest which should be mentioned because it does affect the fishing, and that is that Guiana means land of the waters and, due to the heavy rains in the area, there are a number of large rivers which bring large quantities of food to the Atlantic from the forests inland.

These rivers begin with the Courantyne River which separates B. G. from her neighbors on the southeast. Then the Berbice River flows into the Atlantic at New Amsterdam. Georgetown, the capital, is on the Demerara River. Perhaps the largest of all of the rivers is the Essequibo River which is some fifty miles west of Georgetown. Then from there north and westward to the Venezuelan border there are a number of smaller rivers, of which the Waini is the largest.

Lastly, there is a rise and fall of tide of some ten feet or more which is sufficient to make the rivers appear to flow up stream when the tide enters the large estuaries.

The author traveled quite a distance up some of these rivers and noted that they did not have the muddy appearance that they do near their mouths, so it is assumed that it is the constant changes in tide which stir up the mud in the estuaries and is responsible for the color given to the Atlantic for at least some fifteen miles at sea.

B. G. has two very capable Fishery Officers. At the present time, Mr. Eric Shepherd is designated as the off-shore Fishery Officer and Mr. W. H. L. Allsop has the responsibilities for the inland fisheries. However, during Mr. Shepherd's vacation several years ago, Mr. Allsop acted in his stead, so some of the present developments can be traced in part to the efforts of each or both of these men.

At the present time, Mr. Shepherd is in charge of the Government Fish Dock, and the off-shore operations. Mr. Allsop has a laboratory in the Botanical Gardens and is doing a great deal on fish culture to be carried out by farmers, etc. The Government Fish Dock is an idea which could well be copied by the fishing industry in the United States. Of course, the dock does serve as an unloading facility where the catches are unloaded and sold and where some of

the fishing boats remain berthed during their time in port. The outstanding feature is a very clean bunk house and a small cafe and game room where the fishermen who are in port can be comfortable while ashore.

Another reason why this facility is more than a convenience, and that is that in the case of the red snapper fishermen, most of them are from "The Islands" and were it not for this cafe and bunk room the men would have no place to go while ashore.

There seems to be good red snapper fishing all along this coast. The fishing grounds begin some fifty miles off-shore where the depth gets over thirty fathoms. However, from what could be learned, the fishing becomes better further southward along the coast.

So far there has been nothing said about the weather and fishing conditions. There is a very strong current which flows along this coast. The strength of this current never seems to be less than one knot per hour and runs at times as much as four times that strength. Also, there is the trade wind which also never seems to get discouraged and follows the path set by the current.

The red snapper fishing schooners are mostly longer than fifty-five feet and the sailing rig is either that of the schooner or modified ketch rigs. With but few exceptions, all vessels have auxiliary engines but in every case inspected, there is not sufficient power to satisfactorily handle the boat. Two trips were taken south eastward from Georgetown, which is directly into the wind and current and more than two days' time was required to travel less than one hundred and fifty miles.

The vessels are good sea boats and the crews are capable sailors, yet, under such conditions, in the final analysis the question is, "Are you going sailing or are you going fishing?"

Thus, the first prerequisite for improving these vessels would be to add more power. The next condition to rectify would be the installation of engine controls in the pilot house.

During the two trips made by the author from Georgetown, the captain had a small bell. The purpose of this was to call the engineer to him and discuss what he wanted to accomplish, and after that the engineer would run amidship, and dive in the engine room to do the captain's bidding.

As to the method of fishing, each fisherman operated one line which was usually fifty per cent longer than the depth in which the vessel fished. On the end of this line is a large chunk of iron. Up the line from this weight and about three feet apart are gangens carrying baited hooks. The number of hooks varied, perhaps from twelve to twenty or more. The method of fishing is to back the jib so that the boat cannot come into the wind. This allows the vessel drift beam to the current, and all hands man the fishing lines. While drifting thus and the lines cross a school of fish, nearly every fisherman will catch three or more fish, but no attempt is made to mark the location of that school of fish so the vessel drifts on until another school is encountered.

When the fish are brought on deck they are often treated in the same way as fishermen throughout the world react. That is, the fisherman is more interested in the fish that he hopes to catch rather than the fish he has caught. The result is, the fish are not put away as soon as they should be.

However, in most cases the fish receive excellent care. The next step is the way the fish are handled before being iced. The fish is ripped open along the stomach cavity and the entrails and gills are removed. Then the stomach lining

is scrubbed with fibers made from the palm leaves. This scrubbing is quite thorough and no blood is left in the cavity.

Now, unfortunately, another error is made. The fish are thrown down into the ice box, but the icer does not go below to cover the fish with ice until he has acquired at least one hundred fish. Of course, when fishing is good this is a comparatively short time, but should the fishing be poor, it may be as long as two days before the fish receive the benefit of the ice just below them.

It is believed that this procedure arose from the fact that the tools which were available for crushing ice were not very satisfactory, and the labor required to obtain crushed ice was quite excessive.

Our methods of fishing or handling of the catches are not always superior to the way it is being done in other parts of the world, and some worthwhile ideas can almost always be gathered from the other side of the globe.

For example, the method which B. G. fishermen use in cleaning the catch is certainly superior to the method used in the States. Another example is the incentive plan on which the fishermen work. The plan is an old one, and an idea which I have tried to get our fishermen to work, but without success. The idea being to pay the fishermen on count. The captain keeps an accurate record of the number of fish caught by each man and he is paid accordingly.

It must be admitted that fishermen get a rather rough deal in his share, for while he gets ten cents per fish, the owner of the vessel gets some forty or fifty cents per pound. Not a bad profit, even in the eyes of a shrimper.

There is one last criticism and that is the question of bait. The schooners go to sea with comparatively little bait and each fisherman uses some of the fish that he has caught. This fish is charged back to him at the price that he was allowed, but, unfortunately, this represents a substantial amount of the catch and a material financial loss to the owner of the vessel. Further the bait is not properly taken care of and much is lost due to the sun drying it out before it is put on the hook.

No details have been given about the red snapper fleet which fishes out of Georgetown. One reason is that there are some four or five boats owned in Georgetown and fully an equal number which are owned in the Islands and merely operate out of Georgetown. Further, it was my observation that by far the majority of the fishermen come from the many British possessions throughout the West Indies. For example, on the vessel that the author made trips, only one of the crew, and he was the cook, came from B. G.

There were other types of fishing being done. The first of which is done in the estuaries using large nets shaped like funnels. These nets are spread on poles which hold the mouth open in the direction of the outgoing or incoming tide. The catch from this net is harvested before the tide changes.

Then there are the pin seines. These are nets of some six feet high from corks to leads and they seem to be miles long. The method of setting them is from the beach out into the seas and back again nearly to the beach. These nets are set at high tide and as the tide recedes the fish are left on dry land from which they are collected by the fishermen. The fishermen who handle these nets have a most unusual type of boat, in that the length beam ratio is quite large. I would guess one of these vessels of some forty feet in length would have a beam of six feet more or less. None of these boats appeared to use engines. The sail used has quite a length from fore to aft, but because of the narrow beam, the mast is not high.

Lastly, there is the never ending search for shrimp. There was a company there by the name of the B. G. Fisheries, which spent quite a sum of money and built a rather elaborate shore establishment. It had very little success until Harry Sahlman and several others moved in with good equipment and now this has become quite a satisfactory operation.

Potentialities for an Octopus and Squid Fishery in the West Indies[1]

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OCTOPUS AND SQUID, with their close relatives, the cuttlefishes, are heavily exploited for human consumption in many parts of the world. In the Mediterranean, India, China, Japan, the Philippines, Indonesia and Oceania they are considered to be one of the major delicacies obtained from the sea. Except for the first, these regions are mostly within the temperature boundaries found in the West Indies and with much the same habitat, yet, as we know, this source of food is hardly touched within the Caribbean region. The total world catch of cephalopods according to Walford (1958) is 1,800,000 metric tons, including all species. This is probably a low figure for a very large percentage of the catches are not included in the statistics from many countries. The largest producer of cephalopods is Japan which in 1952, its peak year, caught 646,000 tons, the average annual yield since World War II leveling off at about 600,000 tons of which nearly all are the common Japanese squid, *Todarodes pacificus*. The annual catch in North America is about 11,000 tons of which about 4,500 tons are taken in Newfoundland for codfish bait and are *Illex illecebrosus*. The United States catch consists of *Loligo pealei* and *Lolliguncula brevis* on the east coast and *Loligo opalescens* in California.

The author has made a rather extensive search of the literature and has questioned a number of individuals in an effort to determine the annual catch of cephalopods in the West Indies. Even considering that the majority of the catch is unreported, the fisheries must be considered negligible. Dr. Perez-Farfante of the Centro de Investigaciones Pesqueras in Cuba states (personal communication) that the 1958 production of squid and octopus in Cuba amounted to 20,472 pounds or roughly 10 tons. Mr. Erdman (personal communication) estimates the annual catch of octopus in Puerto Rico at about 50 tons, but squid are not obtained in commercial quantities. There are, apparently, no statistics from the island of Hispaniola. The Virgin Islands, with ample bottom and suitable habitat, are undoubtedly rich in octopus and squid, but Randall and Kumpf state (personal communication), after a year of underwater observations and fisheries survey work at St. John, that they have never seen an octopus or squid in the market or in local catches. Furthermore, a great fear and repugnance was shown by a native fisherman when confronted with a "sea cat" or octopus caught by the survey team. No mention is made, as nearly as can be determined,

[1]Contribution No. 257, The Marine Laboratory, University of Miami. This study was supported by National Science Foundation Grant G-5853.