El Primer Año de la Pesca del Camarón en Aguas Cubanas

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En 1953 se descubrió en la porción suroeste de Cuba en el Golfo de Batábano, un banco de camarones. En esta fecha se introdujo en Cuba las redes de arrastre las cuales revolucionaron este sector de la pesca.

El primer barco camaronero que surcó las aguas de Batábano fué el "Ulda Velma", rebantizado en Cuba con el nombre de "Camarón I". En estas primeras pescas se llegó a obtener hasta 2000 libras en una noche. A la terminación del año de 1953 las perspectivas eran tan halagadoras para la industria que varios inversionistas empezaron a adquirir nuevos barcos.

Del 1° de enero al 15 de febrero de 1954 las pescas por barco permanecierno tan altas como antes y en febrero el promedio de pesca por barco fué de 630 libras por noche. A partir del 15 de febrero de 1954 se enforzó una disposición prohibiendo la pesca de camarones. Se descubrió entonces otras regiones de más o menos un area de 10,000 km^2 en las cuales la pesca de camarones era posible.

En mayo de 1954 se autorizó de nuevo la pesca del camarón, pero los barcs ahora nada más que alcanzaron un promedio de 185 libras por noche, habiendo noches en julio en que solo se pescaron 90 libras.

El Centro de Investigaciones pesqueros ha orientado sus estudios hacia el logro de estos dos objetivos: 1. Determinación del efecto de la pesca en las areas de explotación. 2. Estudio de la biología de las dos especies de camarones, *P. duorarum,* y *P. schmitti.* Se han distribuído formas especiales entre los patrones de barcos que operan en Batábano así como otros lugares. También he han empezado ya los estudios biológicos.

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Another Look At the Caribbean Fisheries

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A famous American humorist once remarked, "Everybody talks about the weather, but no one does anything about it." Much of the same might be said about the development of the Caribbean fisheries. The local fishermen are ill equipped with vessels and gear for deep sea fishing, and other interests most likely have neglected the area because of the lack of knowledge concerning the fisheries resources in this body of water, although it lies virtually on our door step. While it is true that most of the inshore waters are fished quite extensively for such species of reef fish and pelagic fishes as may be found there, the local fishermen using small craft do not venture far off

shore. It would be accurate to say that practically all of the present production comes from waters within ten miles of the shoreline. These fishermen generally have a good knowledge of the inshore water, but productivity is limited by the character of the fishery resources that are within their reach. Evidence of this is that production in about 20 countries runs in the neighborhood of only 300 million pounds annually, and half of this is Venezuelan production alone, according to FAO statistics. For purpose of comparison, this total for the Caribbean countries is about the same as the amount landed each year in a single United States port, such as San Pedro, California. It is likely, however, that the inshore production cannot be increased very much, except perhaps moderately through the adaptation of a few simple and inexpensive gear improvements.

Now, what about the great mass of water beyond these present limits of exploitation? Hardly anything is known of this area, which exceeds many times that now fished along the shores. Knowing something of the amount of fish in the waters beyond the customary fishing grounds is comparable to keeping good inventory records in a store. It is sound business practice. The fishermen can either make immediate use of this stock, or leave it for harvest when economic conditions and markets are right. In the latter case our fishermen usually say that this is like having money in the bank. Is there money in the bank, so to speak, in the Caribbean through deep-water fishery resources awaiting development?

Almost three years ago at the Caribbean Commission Fisheries Conference in Trinidad, this same question was brought up. There were some indications of the potential value of the Caribbean fisheries, and some fragmentary surveys followed, principally for shrimp and tuna by commercial interests. However, these short lived efforts were reported as not particularly productive, and it is doubtful if much general knowledge has been gained.

Some time has now passed and a few more facts have come to light, so let's have another look at the Caribbean possibilities, at least as far as shrimp and tuna are concerned. Both these species bring a relatively high return to the fisherman, and as a result have been more the subject of speculation as to their availability in the Caribbean than any other species.

From what information we have it appears that the development of a substantial shrimp fishery beyond the immediate coastal waters is the least encouraging of the two prospects. There is no doubt that several species of shrimp occur to some extent over a wide range of coastal waters in the Caribbean. Reports of shrimp taken have confirmed this, but location of sufficient quantities upon which to base a commercial fishery has been the exception rather than the rule. The two most promising types of locations are large bays or lagoons confluent with fresh water rivers, and coastal regions with shelf areas extending some distance outward from the shoreline. Several of the latter areas are found along the east coast of Central America in the vicinity of Honduras and Nicaragua, where some development of the fishery has taken place. The best fishing is reported in the more shallow inshore areas on mud, shell, and sand bottom. Unfortunately the bottom topography of the Caribbean Sea is such that there are relatively few locations of this type, and suitable for trawling. With the exception of ordinary reef areas the bottom generally falls away sharply along most of the island coast lines, and in most places off the mainland shores. The contour drops quickly be-

yond feasible trawling depths, and in those locations where it does not, the bottom is often irregular and is frequently covered with such formidable obstacles as large coral heads or logger-head sponge beds. Even if these disadvantages could be overcome there is little indication of sufficient quantities of shrimp in such areas to make the effort of taking them commercially worth while. Occasionally patches of mud and sand are found interspersed among the coral, but commercial fishing under these circumstances is a costly and exacting enterprise.

As to the estuarine water areas in the larger mainland bays and gulfs, several local fisheries for shrimp have been developed, even though total production is not large in comparison with our Gulf of Mexico grounds. A few of the Caribbean islands embrace large bay areas in their coast lines where shrimp fishing is done commercially. The recent development of the Cuban fishery in the Bay of Batabano is an example of this type of fishery. Bays of this magnitude, however, are not common in most of the other Caribbean islands, which are smaller than Cuba.

To summarize, it would appear that the deeper waters of the Caribbean within customary trawling limits do not hold great promise for extensive shrimp production. In depths beyond this there are practically no clues. Discovery of red shrimp in the Gulf of Mexico by the Fish and Wildlife Service exploratory fishing vessel *Oregon* in depths beyond 1,000 feet is perhaps a remote indicator, but any statement on the promise of this type of fishery in the Caribbean would be the sheerest conjecture at this time.

From the evidence that is accumulating it begins to look more and more like the pelagic fish are the key to any sizeable offshore fisheries development. There already are established tuna fisheries, principally for blackfin tuna in the coastal waters of Cuba and Venezuela, and some canneries for handling these catches. Yet, as to the offshore possibilities there probably is as little basic fishery information on the Caribbean as on any major body of water in the world. What clues have we then with which to work? There are indications from oceanographic studies of the area that basic nutrients are scarce in the Caribbean upper water levels. A vertical profile of the water masses of the Caribbean from north to south shows that the discontinuity layer is sloped upward from about 50 fathoms in depth in the vicinity of Puerto Rico to the surface in the area off the Venezuelan coast. Normally there is practically no transport of the more nutrient rich deeper waters across this very stable layer, except in the upwelling in the region of the northern Venezuelan coast. The nutrient-poor surface thus varies from 0 to 50 fathoms in thickness. Thus, the most reasonable promise for expansion of the offshore fisheries lies in locating pelagic species that live in or move through the Caribbean in the more nutrient-rich subsurface strata. In this respect the tuna and tuna-like fish are of particular interest, as well as other species, such as swordfish, marlin, and sailfish. There is no accurate information about the seasonal movements of these species in the Caribbean. Certain assumptions can be made on the basis of random observations of surface schools by sports fishermen, schooner captains, and others who travel Caribbean waters. From what little is known of the migration of the tuna and tuna-like fishes it is presumed that they follow a general path through the Windward Islands Passages into the Caribbean and later appear off the north coast of Venezuela, the south coast of Cuba, and the Island of Puerto Rico. This fits gen-

erally with the current pattern for the central Caribbean, which is a westerly movement of water from where it enters in the region of the Windward Islands group.

It has been demonstrated during the past year by the catches made by the Fish and Wildlife Service exploratory fishing vessel *Oregon* that yellowfin tuna ranging up to 200 pounds in weight are present over a wide expanse of the Gulf of Mexico at subsurface levels. Some blackfin tuna and bluefin tuna have already been taken on long line gear adapted from the Japanese long line, which can be fished at considerable depths. In the Gulf of Mexico the best long line catches were made in the central Gulf current, which is derived mainly from the Caribbean, flowing strongly through the Yucatan Channel, so that oceanographic conditions in some parts of the two bodies of water may in many ways be quite similar. It is inevitable that this fact should be linked up with other data on the possibility of deep water tuna production in the Caribbean. Also, bluefin, blackfin, yellowfin, and skipjack tuna have all been observed and occasionally taken in the surface waters of the Caribbean, even though they appear very sporadically. Who would say then, that it is inconceivable that larger populations may be located in the deeper waters? During the coming year some exploration of the western Caribbean is included in the schedule for the vessel *Oregon* for the purpose of investigating this theory and for following up on the results of this year's tuna exploration in the Gulf of Mexico. It is not anticipated that the *Oregon* will make complete coverage of the Caribbean offshore reaches; and, in the meantime, some commercial investigation of the long lining potential for tuna and tuna-like fish over a broad area of the Caribbean might pay real dividends when market conditions are right and tuna supplies are in demand. Up until recently there have been no processing facilities, except those mentioned previously, for handling tuna production in the immediate area. A large cannery has now been established in Puerto Rico, and in the event that a sizeable Caribbean tuna production could be demonstrated, there is no reason to believe that commercial interests would not expand, with material benefit to the Caribbean economy.

Another look at the Caribbean seems to justify some optimism, then, with the most hopeful area being the offshore tuna fishery. We are forced still to speculate only, however, until some earnest exploratory and biological work is done.

Otra Vista a las Pesquerías del Caribe

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Abstracto

Se han pasado por alto los potenciales pesqueros del mar del Caribe? Las pescas de cerca de la costa confinadas principalmente a pescadores locales están siendo utilizadas. Sin embargo la exploración y desenvolvimiento de las pescas de alta mar son como el clima: todos hablan de él pero nadie hace nada. Los pescadores locales no están equipados para la pesca en alta mar. En general muy poco es sabido acerca de esta gran masa de agua, y la poca in-

formación que se tiene es fragmentaria y basada únicamente sobre observaciones incidentales e inspecciones de corta duración.

Han habido varias conjeturas acerca de la posibilidad de la existencia de peces en aguas profundas del Caribe Central. En la actualidad se cuenta con evidencia que demuestra que peces migratorios como el atún, pez espada, marlin y pez vela, ocurren en cantidades considerables en aguas profundas que no se les ha prestado atención. Un ejemplo es la presencia de cantidades de atunes de aleta amarilla sobre grandes extensiones del Golfo de Méjico, descubiertas por el bajel exploradór Oregon. Las pescas más grandes hechas por el Oregon parecen estar asociadas con la corriente central del Golfo, la cual entra en el golfo con proveniencia del Caribe. Es casi indudable que pescas comerciales de atún ofrecen muy buenas posibilidades en las regiones del Caribe.

DISCUSSION

Caribbean Session

Discussion Leader: F. G. WALTON SMITH

Discussion Panel: CARLOS G. AGUAYO, DUDLEY W. WILES, WINSTON MENZEL, JOSE SUAREZ

Fluctuations in Abundance of Red Snappers *(Lutjanus aya)* in the Gulf of Mexico

C. ISAAC CAMBER

Q. Howell Rivero: Do you know if any one has tried to fish for snappers around 80 to 130 fathoms with long lines?

A. Camber: I am familiar with attempts to fish with reels at such depths, but not long lines. Deep fishing with reels has proven to be successful and the catches include mainly *Lutjanus vivanus.*

Q. Rivero: Here, I have tried several times to use long lines for deep snapper fishing. I have regular long lines with 100 hooks each working in 80 to 170 fathoms. The average catch of snappers in good condition have been around 30 to 35 for each long line of 100 hooks. Do you think it would be profitable to use this on a commercial basis?

A. Camber: The long line was tried in the red snapper fishery quite a few years ago. One of the drawbacks was the predation by sharks, so the method has been abandoned.

A. Whiteleather: We fished some long lines in the Caribbean during the war and we found great difficulty in working this gear on the type of rough bottom that snappers frequent. A lot of gear was lost and when the amount of gear lost was compared to the amount of fish caught the method did not seem feasible.