THE FISHERIES POTENTIAL ALONG THE EAST COAST OF MEXICO[1/]

By Milton J. Lindner*

INTRODUCTION

The purpose of this report is to point out what I think to be the potential of some of the fisheries adjacent to the east coast of Mexico and, in particular, those fisheries which I believe might be expanded. When and how these fisheries will be expanded is impossible to state as that will depend entirely on economic conditions. To have a fishery, two important requirements must be fulfilled:

1. The fish must be present.
2. There must be a profitable market for the fish.

The first is a biological requirement; the second is an economic requirement. In this report, I shall confine myself to the first or biological requirement.

GENERAL OBSERVATIONS ON EAST COAST FISHERIES POTENTIAL

In the sea, as on the land, there are rich areas and poor areas, there are verdant valleys and there are deserts. Since the sea is not uniform in its production of fish, it cannot be justifiably stated that because one country has so many more miles of coast line than another, the former country should produce so many more tons of fish than the one with a shorter coast line. Such a comparison and conclusion would result in erroneously comparing the productive potential of a desert with that of a verdant valley. This is not to infer that the east coast of Mexico is a marine desert; on the other hand, neither is it a verdant marine valley. I believe that it lies somewhere between these extremes, more probably closer to the lower than the upper extreme, but exactly where will not be known until it is fished extensively.

Unfortunately, the science of fishery biology has not yet progressed to the stage where the productivity of a fishery, let alone that of a general area, can be determined precisely. At present, the only means available for determining fisheries productivity is by actual intensive commercial fishing and by rough approximation derived from exploratory fishing and from ecological or environmental observations.

My conclusions with respect to the waters adjacent to the east coast of Mexico are based primarily on ecological observations now available and, to some extent, on exploratory fishing. However, most of this type of work still remains to be done in the Gulf of Mexico. It is probable, however, that this gap in our knowledge will, within the next few years, be filled.

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1/ Adapted from an address delivered on March 5, 1950, at a meeting of La Academia de Ciencias de Veracruz, Veracruz, Mexico.

With the foregoing generalities understood, I shall attempt to evaluate the potential of some of the fisheries along the east coast of Mexico. Since the available data is very limited, no attempt will be made to place them in the order of importance. The fisheries to be discussed will be divided merely into two main categories:

1. Those now fished to some extent.
2. Those not presently fished to any appreciable extent.

FISHERIES NOW IN PRODUCTION

Shrimp Fishery: Of those fisheries now in production, the shrimp (camarón) fishery is the most important along the east coast of Mexico, both on the basis of monetary return and quantity produced. Over 6.6 million pounds of shrimp are taken annually from this area. The major production comes from the recently inaugurated fishery (1946) in the Gulf of Campeche, with lesser quantities from the States of Veracruz and Tamaulipas. With the exception of the area between Tampico and Tuxpam, the fishery is based principally upon the common or white shrimp (Penaeus setiferus). In the Tampico-Tuxpam area, small, immature grooved shrimp (apparently mostly P. duorarum and P. aztecus) are taken in the lagoons.

The white or common shrimp (P. setiferus) along the northern coast of Tamaulipas, to a certain extent, migrate between Mexico and the United States. By means of tagging experiments conducted in 1947, it has been determined that shrimp along the northern Tamaulipas coast move northward in the spring. It is probable, though not established, that there may be a southward movement from Texas to Tamaulipas during late fall and winter. Most probably, the Gulf of Campeche population is local, depending upon the marshes of Tabasco and Campeche for nursery grounds.

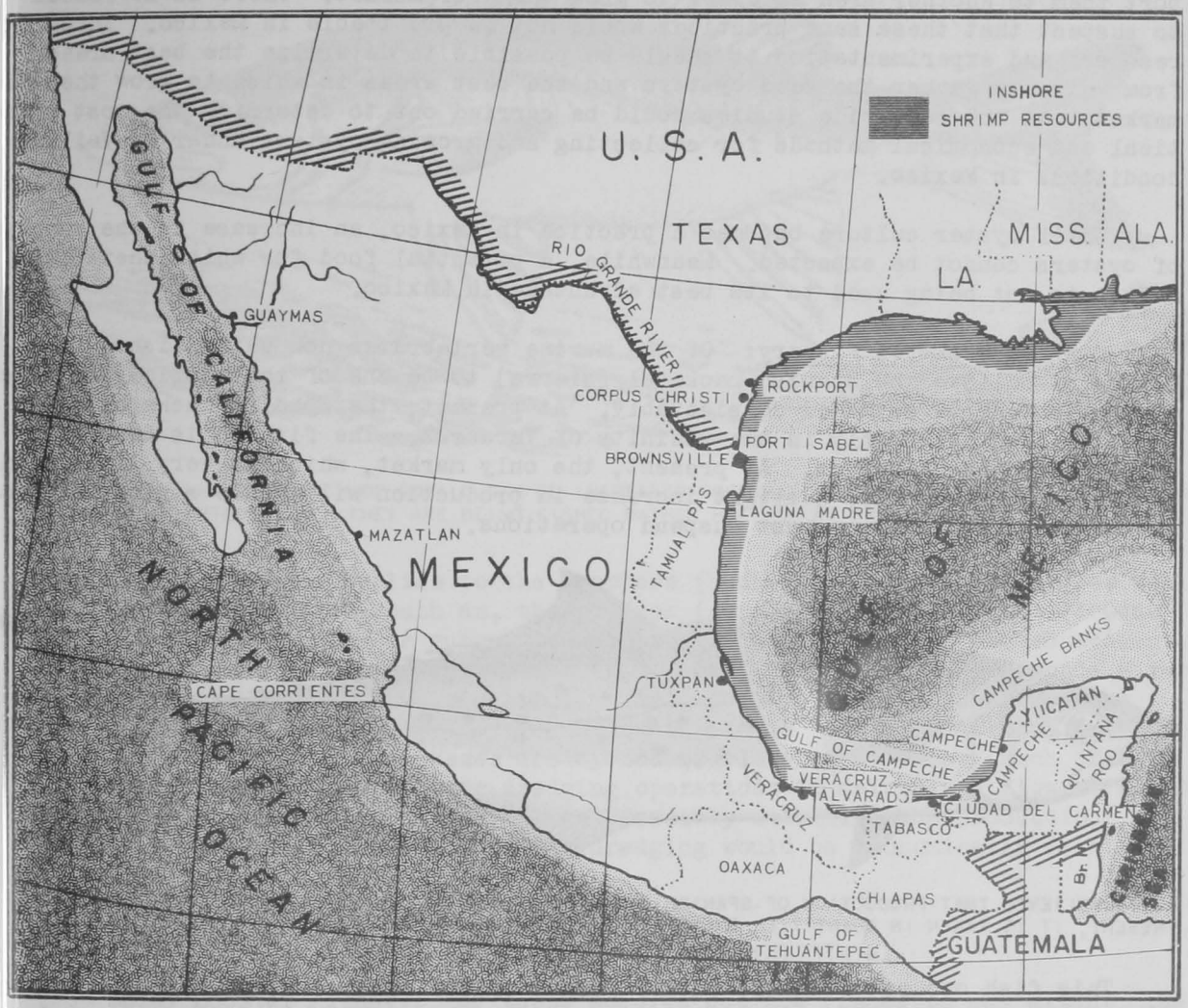
From all indications it seems likely that the white shrimp has reached its maximum production in the Campeche area. There is a possibility of an increased production of this species from Tamaulipas, but probably not to any great extent.

I feel certain, on the other hand, that there can definitely be an increase in the production of the grooved shrimp (P. duorarum and P. aztecus). The adults of these species of shrimp tend to inhabit deeper waters than do the adults of the white shrimp (P. setiferus). The grooved shrimp are darker in color than the white and, until recently, as a consequence of this difference in color, were not readily acceptable in the markets of the United States, where the vast majority of the shrimp is consumed. During the past year, however, as a result of educational campaigns conducted by the United States Fish and Wildlife Service and the fishing industry, there has been an increasing demand for the grooved shrimp. Within the past year, a fishery for them has been developed off Brownsville, Texas; and within the past few months, another has sprung up near Key West, Florida.

Along the east coast of Mexico the areas most likely to produce these shrimp in abundance lie between the mouth of the Rio Grande River and Campeche in depths between 30 and 100 fathoms.

Blue Crab Fishery: Another invertebrate, the production of which I believe can be expanded in this same area, is the blue crab (jaiba), belonging to the genus Callinectes. This crab is now taken in small quantities in the area between Tampico and Alvarado for local consumption and for shipment to the capital. The present production seems to be limited entirely by the demand. If more markets could be developed, there is no doubt that the production of blue crab could be increased many fold.

Oyster Fishery: Still another invertebrate, the oyster (ostión), is capable of increased production. The oyster, nevertheless, is peculiar in certain respects. It is one of the few marine animals in Mexico for which the demand exceeds the supply; also it is one of the few marine animals which can be successfully cultivated.



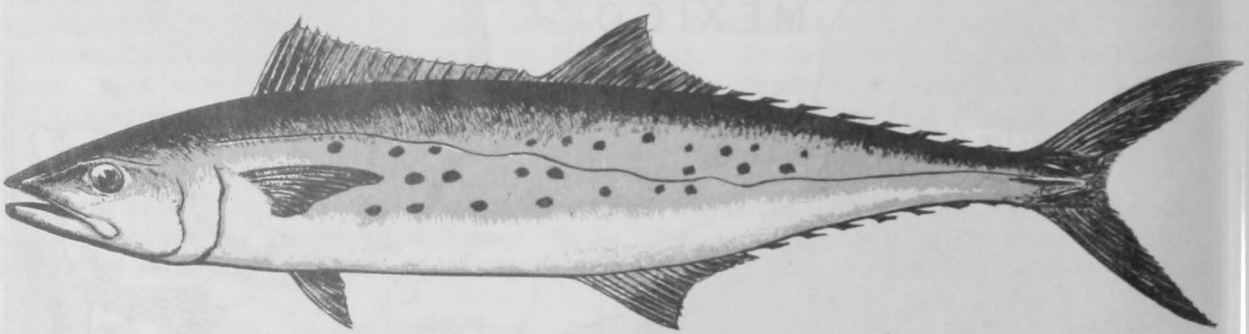
INSHORE SHRIMP RESOURCES OFF THE EAST COAST OF MEXICO AND THE GULF COAST OF THE UNITED STATES ARE INDICATED ON THE MAP. THE MAJOR SHRIMP PRODUCTION OF THE MEXICAN EAST COAST COMES FROM THE GULF OF CAMPECHE AT PRESENT.

It is probable that the amount of oysters along the east coast of Mexico is less than it was some years ago. This has been brought about by a combination of factors, including excessive fishing, lack of cultivation, and environmental changes. The influence of environmental changes on the supply of oysters cannot be overlooked. In various places in Mexico, apparently also in Texas, it seems that the influence of man through deforestation and poor grazing practices has been detrimental to the oysters. Lagoons, which previously produced quantities of oysters, are now subject to flash-floods which lower the salinity of the water sufficiently to cause heavy oyster mortality.

In spite of these changes, however, I believe that the production of oysters can be increased by means of cultivation. At present oyster culture is not practiced in Mexico, which is unfortunate, as generally with oysters the best spawning areas are not the best growing areas. In many parts of the world, it has been found advantageous and profitable to collect young oysters in one area and transport them to another area in order to grow them for market. There is no reason to suspect that these same practices would not be profitable in Mexico. Through research and experimentation it should be possible to determine the best areas from which to gather the seed oysters and the best areas in which to grow them for market. At the same time studies could be carried out to determine the most practical and economical methods for collecting and growing oysters under prevailing conditions in Mexico.

Until oyster culture becomes a practice in Mexico, an increase in the supply of oysters cannot be expected. Meanwhile, a potential food for which there is a market is not being used to its best advantage in Mexico.

Spanish Mackerel Fishery: Of the marine vertebrates now being fished in Mexico, I believe the Spanish mackerel (sierra) to be one of the species for which production can be expanded considerably. At present, the Spanish mackerel is taken in quantities only in the vicinity of Veracruz. The fishing is done principally with beach seines. At present, the only market, which is very limited, is in Mexico. Frequently, a slight increase in production will cause a glut on the market and the fishermen must suspend operations.

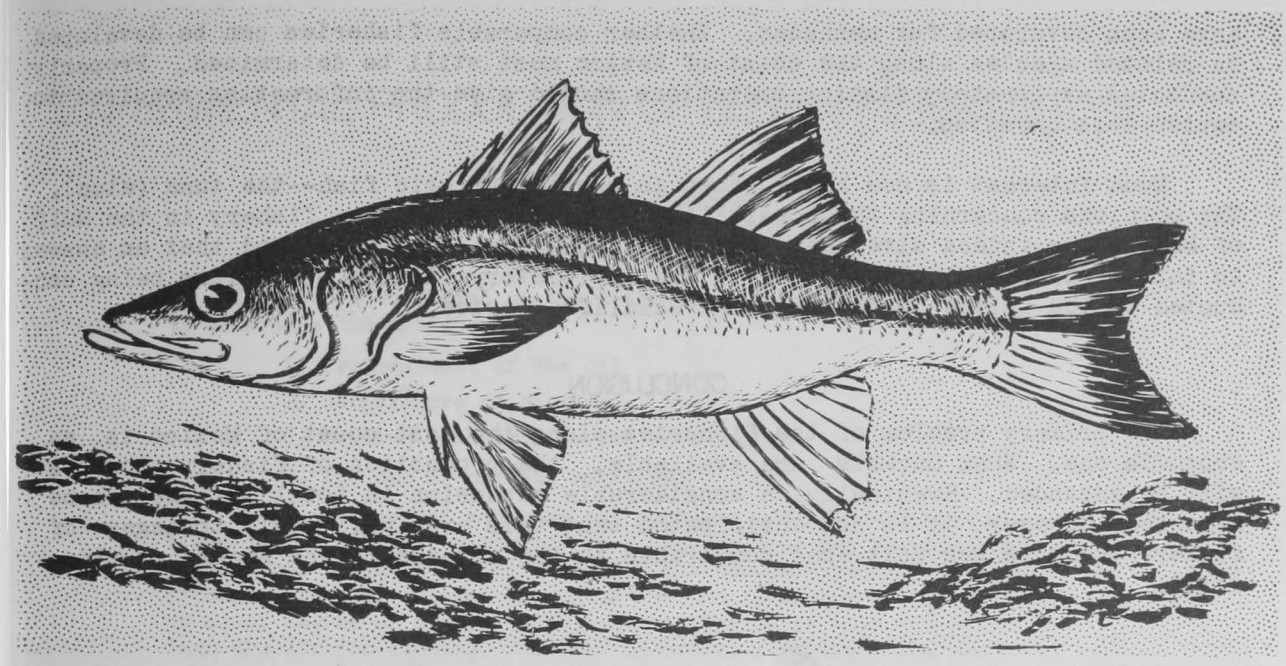


IT IS BELIEVED THAT PRODUCTION OF SPANISH MACKEREL IN MEXICO CAN BE EXPANDED CONSIDERABLY. AT PRESENT, IT IS TAKEN IN QUANTITIES ONLY IN THE VICINITY OF VERACRUZ.

This fish occurs along the entire length of the east coast of Mexico, and with an increased demand, the production undoubtedly could be greatly augmented. Possibly the solution for increased production, as in so many other instances, lies in better methods of drying and canning than those now being practiced.

Other Fisheries: Like the Spanish mackerel, various species of mullet (lisa, lebrancha, bobo) occur in abundance along the entire east coast of Mexico. Again, like the Spanish mackerel, the mullets can be produced in greater quantities than at present. However, because these fish enter the coastal lagoons in quantity, they are fished to a greater extent than are the Spanish mackerel. For this reason it is probable that the ultimate proportional increase in production will be less for the mullets than for Spanish mackerel.

The production of robalos (robalo blanco, robalo prieto, chucumite, and constantino), I suspect, can be increased somewhat, but probably not to any great extent as apparently they now are being fished rather heavily.



ALTHOUGH THE MEXICAN CATCH OF ROBALO CAN BE INCREASED SOMEWHAT, IT PROBABLY CANNOT BE INCREASED TO ANY GREAT EXTENT SINCE THEY ARE BEING FISHED RATHER HEAVILY AT PRESENT.

I think the same applies to the snappers (huachinangos and pargos), as well as to certain sciaenids, such as, the redfish (corvina), spotted trout (trucha del mar), croaker (croca or gurrubata), and black drum (tambor). These sciaenids are more abundant in the area between Tuxpam, Veracruz, and the Rio Grande River. South of Tuxpam they are not plentiful. The majority are now taken from the Laguna Madre in Tamaulipas. The production in Laguna Madre varies considerably depending upon whether the passes are opened or closed. At times, much of the Laguna Madre is dry. Systematic dredging operations to maintain a flow of water through the passes of Laguna Madre might possibly stabilize the production of these fish at a higher level. Whether dredging would be economically feasible remains to be determined.

POTENTIAL FISHERIES NOT IN PRODUCTION

Spiny Lobster Fishery: Of those species not now fished to any extent, the spiny lobster (langosta) of Yucatan and Quintana Roo is most likely to be subject to an early expansion. It can be classified as an exportable luxury product the sales price of which is sufficiently high to permit a margin for risk capital. The problem involved is that of catching sufficient lobsters to justify the rather large expenditures that probably will be required to process and transport them to market. The lobsters are found over a large extent off the East Coast but they are not abundant enough in any one place to warrant a large investment for a purely local operation. A method must be devised for fishing spiny lobsters over a wide area and concentrating the catches at a suitable locality for processing and shipment to market.

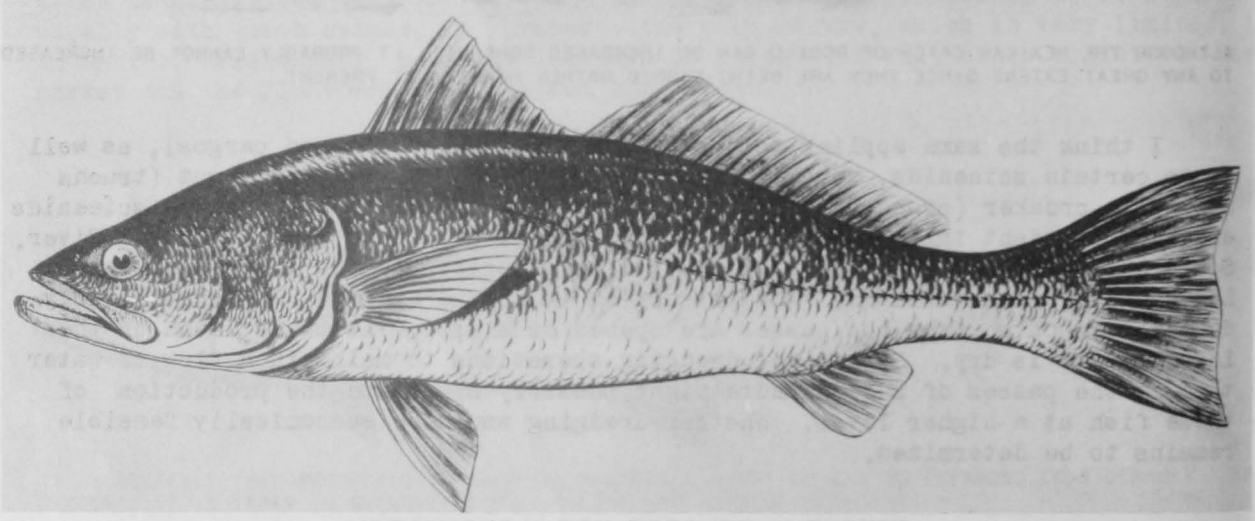
Pelagic Fisheries: Of the pelagic fish not now produced, so little is known concerning their abundance that statements made at this time are purely conjectures. In this group, most probably the herring and herring-like fish have the greatest potential. In the northern Gulf of Mexico rather important fisheries

have been developed for menhaden. Whether comparable fisheries can be developed on related species along the coast of Mexico must still be determined. Properly conducted exploratory fishing operations should give the information required to decide this question.

Much interest is now being shown in another pelagic fish--the tuna (atun). The opinions concerning the possibility of developing a tuna fishery in the Gulf of Mexico are indeed divergent. However, there is some likelihood that an answer to this problem will be attained by the exploratory fishing operations being conducted by the United States Fish and Wildlife Service.

CONCLUSION

The primary problem of the fisheries along the east coast of Mexico is an economic one. When markets are available, the production of fishery products will be expanded. Eventually, a considerable expansion in total tonnage can be expected, however, it is not anticipated that this area will yield tonnages of fishery products per unit area comparable to the richest marine areas of the world.



REDFISH OR CORVINA (CYNOSCION OTHONOPTERUS) ARE, LIKE THE ROBALO, BEING FISHED RATHER HEAVILY AT PRESENT AND THE CATCH OF THESE FISH PROBABLY CANNOT BE INCREASED TO ANY GREAT EXTENT.