

The Red Grouper Fishery of Yucatan Peninsula, Mexico

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INTRODUCTION

THE ECONOMY OF THE YUCATAN PENINSULA is supported largely by the fishing industry which provides occupations for many people, in fishing and in processing. Modern packing plants have been established in Cd. del Carmen, Campeche and in Progreso, Yucatan. Moreover, there are important ship-building yards devoted to the construction of fishing boats. Shrimp, lobster, marine turtle and red grouper are the species of greatest importance to the fishing industry. Red grouper is the dominant fin-fish landed in southeastern Mexico (Fig. 1) It has excellent filleting and freezing qualities and the market demand for it is strong in Mexico and the U.S.A.

This paper deals specifically with the grouper fishery in the State of Yucatan. Research on this species at the Progreso Biological Station has been directed towards assembling information on the life cycle and on the fishery. The object is to provide advice to those administering the fishery whereby maximum exploitation of the resource may be achieved.

ORIGIN AND DEVELOPMENT OF THE FISHERY

The grouper fishery began in 1945 when a few fishermen using small sailboats supplied the market of the city of Merida, Yucatan. In 1947 the first packing plant was established in Progreso, Yucatan, and this supplied the national market, sending its shipments by boat and aircraft. The export of grouper fillets to the United States was initiated in 1960. Nine packing plants, six of which are located in Progreso, are engaged in the processing of grouper. The greater part of their product is intended for export providing a source of foreign currency for the country. This is the reason for strengthening the fishing industry of Yucatan, and for improving and increasing the red grouper fleet. The Federal government has recently taken direct action to aid the fishing industry by constructing a sheltered harbor at Yucalpeten, Yucatan, 6 miles from Progreso.

The fishing grounds are located in the coastal waters of the states of Campeche and Yucatan, and at different localities on the continental shelf where there are sharp slopes, rock or coral accumulations.

The coastal fleet consists of small sailboats of 0.5 to 3.0 tons (Fig. 2) with a range of 15-20 miles. Flat bottom boats measuring 8-10 feet in length called "cachitos" are carried as auxiliaries. On the fishing grounds these small auxiliaries are lowered into the water and are operated by one fisherman. A nylon line with two hooks is used. Most coastal fishing boats lack elementary navigation equipment and are powered only by sail. There is a growing tendency

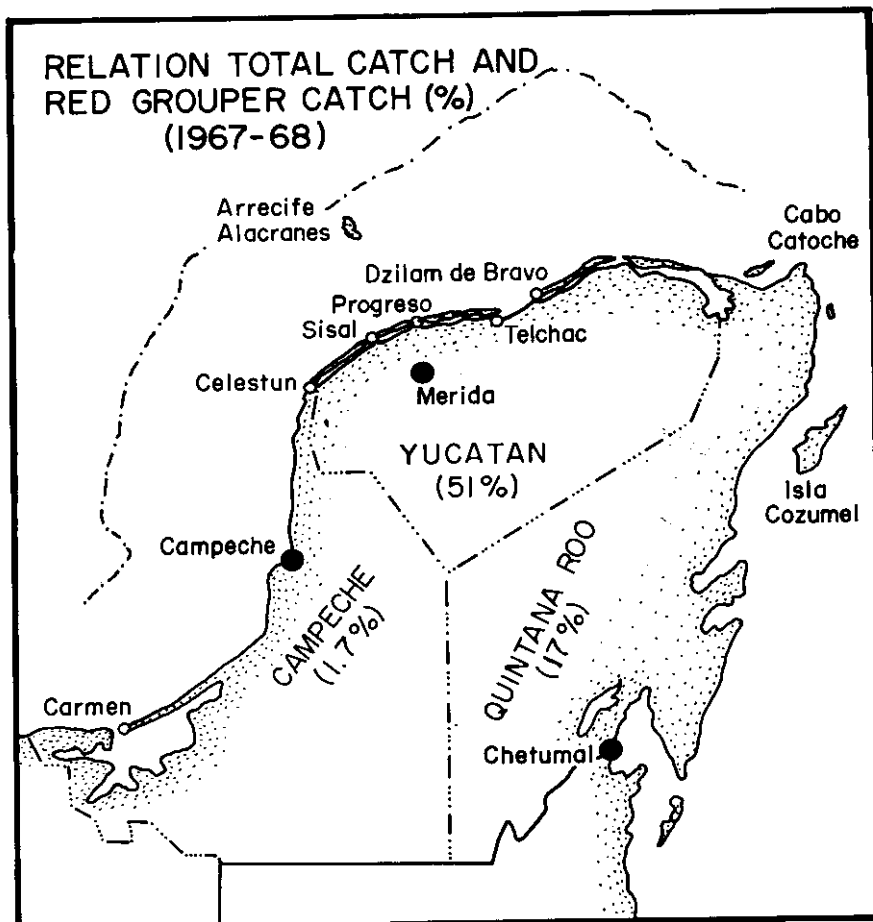


Fig. 1. Principal fishing ports and marketing centers of the Yucatan Peninsula. Percentages are of the total red grouper catch landed by state.

to use outboard and inboard motors. Fishing trips vary from 1-3 days, with 1-day trips being most common. Larger boats may stay out as much as 3 days, and preservation of the catch is accomplished either with ice or live wells. The coastal fishery depends on the population of juveniles (Fig. 3) which pass the greater part of this phase of their life in shallow waters, probably no more than 10 miles from the shore.

The ocean fishery is conducted by diesel-powered boats of 10-55 tons. Fish hold capacity is 5 tons or more and ice is carried. The majority of these boats have their base in the port of Progreso and fish exclusively for grouper. There is a snapper fleet which consists of larger boats powered by 175 hp engines. Grouper comprise a fraction of the catch of this fleet, but grouper may be fished exclusively when snapper are not abundant. Five fishermen, on the



Fig. 2. Dugout canoes and "cachitos" used in the red grouper fishery.



Fig. 3. Weighing a good catch of red grouper at Chuburna, Yucatan, Mexico.

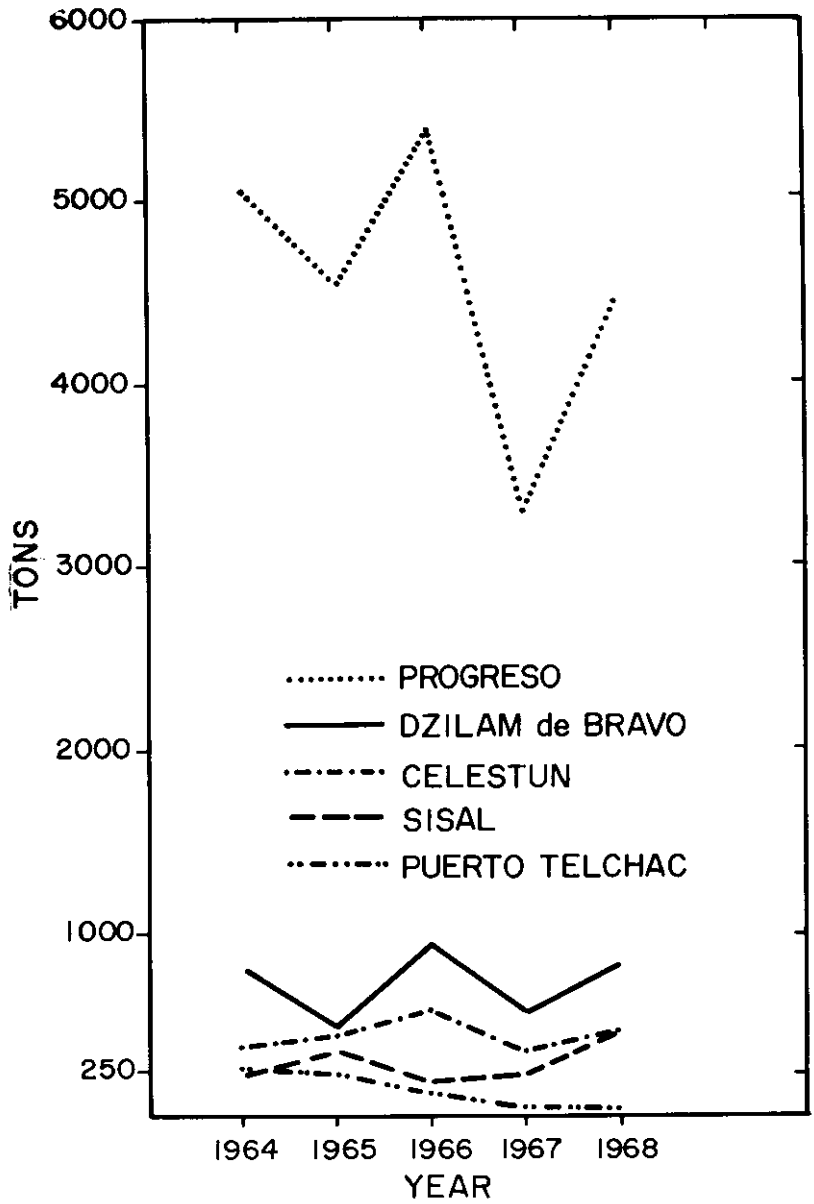


Fig. 4. Grouper landings by port in tons per year.

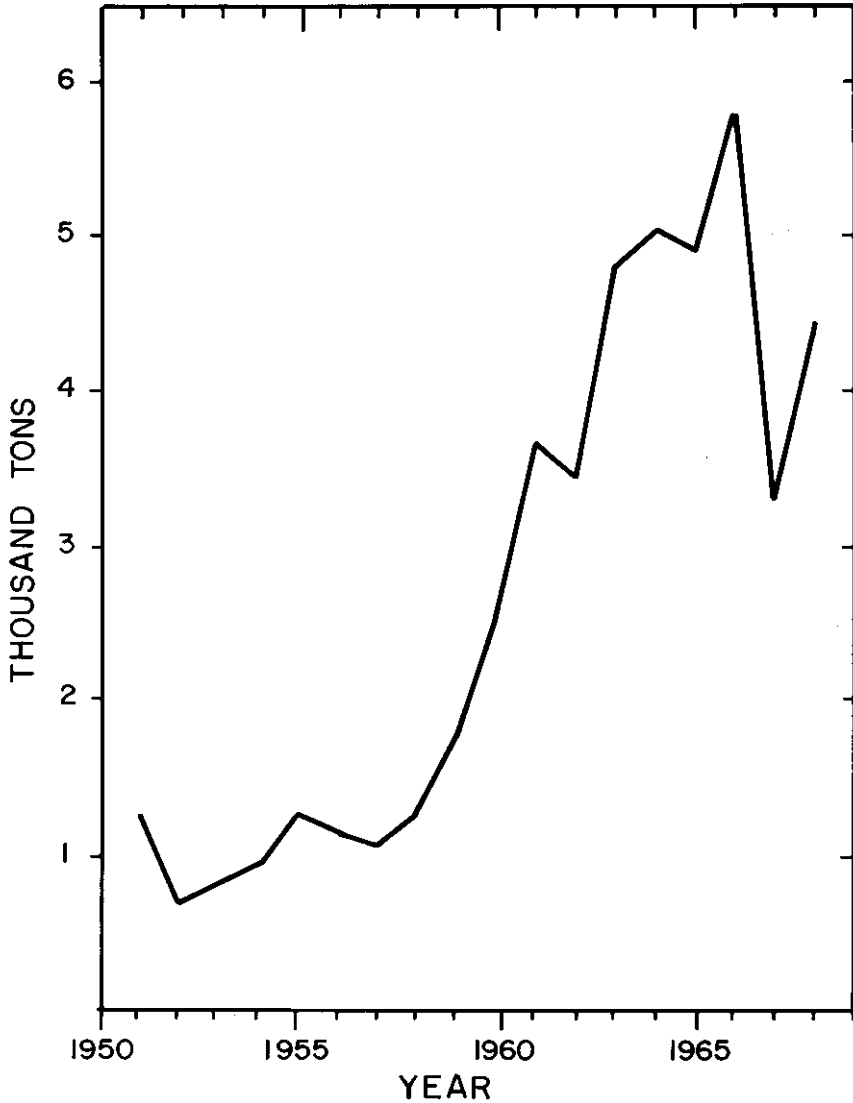


FIG. 5. Grouper landings at Progreso, Yucatan.

average, crew boats which operate on the high seas. These boats carry small auxiliaries which work similarly to those in coastal fishing; the fishing method is either with line or with hand reels. The latter permit the exploitation of stocks in deep waters.

Approximately 2,500 fishermen engage in grouper fishing, using some 600 boats; of these boats, 130 engage in ocean fishing and the remainder in coastal

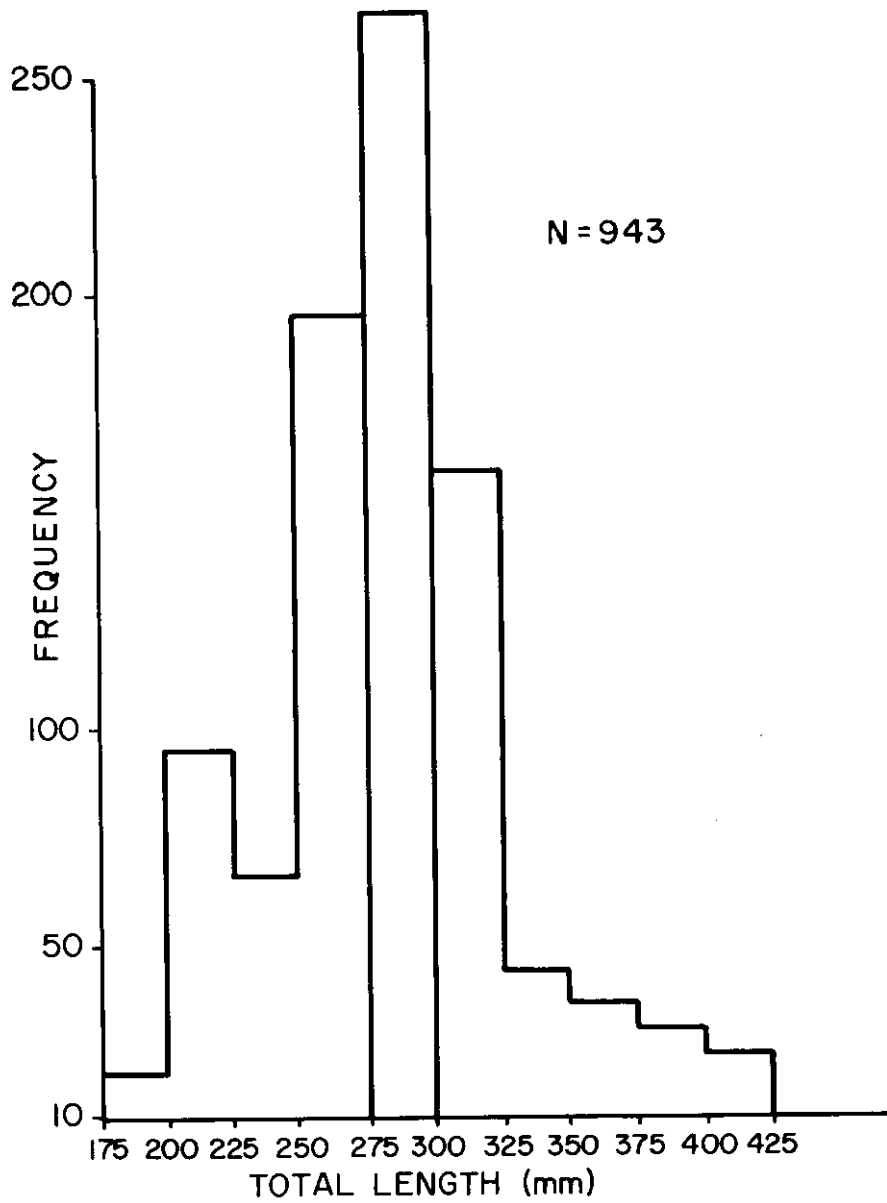


Fig. 6. Red grouper length frequency composition—1968, Progreso, Yucatan.

fishing. The season extends throughout the year with maximum production from September to January.

The principal Yucatan ports of landing, in order of importance, are: Progreso, Dzilam de Bravo, Celestun, Sisal and Telchac. Landings at these ports are shown in Fig. 4. In 1967, catches fell by 41.4% when compared to the previous year. People connected with the industry attributed this decline to the hurricane "Inez" which affected the Yucatan Peninsula in 1966.

It is possible that the decline was due to a 4-or 5-year population fluctuation peculiar to the species (Fig. 5). During the first 6 months of 1969, an increase of 20% in the capture of grouper has been observed compared to the same period in 1968.

Since 1967 the fishing industry of Yucatan has become concerned about the constantly increasing numbers of very small grouper in the commercial catches. They have requested the Director General of Fisheries to apply a minimum size of capture to protect the resource. On an experimental basis, a minimum size of 300 mm was established in October 1968, as a result of studies conducted previously (Fig. 6). This size limit represents the mean size reached by specimens taken in the coastal fishery. Moe (1967) has suggested a 500 mm total length as the ideal biological minimum size. The application of the present 300 mm minimum size, though smaller, takes economic and sociological factors into account so as not to harm the coastal fishermen.

RESEARCH

The technical personnel of the National Institute of Fisheries Biology began their study of this species in 1965 with the port of Campeche as the base. In the development of this work, trips aboard fishing boats which operate on the high seas have been made, and personnel have continuously obtained samples of fish from the coastal fishery. Fishermen have voluntarily furnished data on their activities through a log-book system. From this information it will be possible to determine the movements of the fleet throughout the year, and to show the proportion of the catch which is obtained in different localities and depths, as well as the catch per unit of effort.

Results have shown the size composition of the catch in each fishery. The spawning period extends from January to March. With the objective of extending these investigations, a biological sub-station was established at the port of Progreso, Yucatan, at the beginning of this year and the personnel of the station devote the greater part of their time to the study of grouper.

CONCLUSIONS AND RECOMMENDATIONS

There appears to be a gradual reduction in the coastal fishery at present. For this reason financial aid given by the federal government to the cooperative fishery societies should be used for the construction of larger boats suitable for operation on the high seas, and for the introduction of new fishing gear to permit better exploitation of banks located in deep waters.

Experimental fishing with bottom long lines is planned for the near future. Although Smith (1961) did not consider it necessary to apply protective measures for this species in view of the low level of technical development of the fisheries, in the case of the Yucatan Peninsula it is considered necessary to apply the minimum size limit of 300 mm. Since Cuban fishermen participate

in the fisheries of the Gulf of Mexico and the Caribbean, it is desirable to organize cooperative studies with them so that a sound management program may be developed at an international level.

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