The Cuban Grouper and Snapper Fishery in the Gulf of Mexico

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ABSTRACT—The history and development of the Cuban grouper and snapper fishing in the Gulf of Mexico are reviewed. Included is information concerning fishing grounds, catch composition, fishing fleet, and operations and catches. The implications of extended fisheries jurisdictions for Cuba are briefly discussed.

INTRODUCTION

This paper reviews the development of the Cuban grouper and snapper fishery in the Gulf of Mexico. Starting as a handline fishery from sailing vessels, the fishery developed into the present bottom longline operation. The activities of the Cuban State Flota del Golfo (Gulf Fleet) organized under Fidel Castro in 1963 are emphasized.

Very little information is available in U.S. publications concerning the Gulf Fleet. The information for this paper was compiled mainly from Cuban fishery publications and from unpublished reports by the National Marine Fisheries Service (NMFS) Law Enforcement and Marine Mammal Protection Division, Southeast Region.

HISTORY OF THE FISHERY

Cuban vessels of various types have fished waters off Mexico and Florida for mullet, groupers, snappers, and other fishes since Spanish colonial times (Martinez, 1948; Leal, 1971).

In 1850, sailing vessels known as “viveros”—fishing vessels with live-wells to hold and transport live catches—began fishing off Florida and Mexico. Groupers and other reef fishes were caught by handlines and placed in the live-wells. When the wells were filled, the viveros returned to Havana, Cuba, where the live catch was marketed (Anonymous, 1966).

In the ensuing years the fleet became informally known as the “Flota del Alto” (Deep Water Fishing Fleet) and was affiliated with a cooperative established in 1946 and located on Havana Bay (Martinez, 1948; Buesa, 1964).

Gradually, viveros were converted to “‘viveros’—vessels in which the catch is iced. In 1955, the Deep Water Fishing Fleet had 68 sailing vessels from 80 to over 100 feet (24.3-30.5 m) in length, many with auxiliary power (Suarez Caabrero, 1957). In the late 1950’s, about 40 of these vessels, averaging over 45 years of age, were still used for fishing. The entire Cuban fishing fleet consisted of 2,500-3,000 principally small nonmotorized coastal boats. In 1959 the Cuban government began to nationalize and organize this artisanal fishing industry. The main thrust was toward the development of Cuban coastal, nearby Caribbean, and Gulf of Mexico fisheries (Kravanja, 1972). A ship-building program began in 1961 to replace the existing fishing fleet with new, powered, wooden vessels of about 10 standard classes and designs (Abascal, 1966). In 1963, a centralized state fishing administration, the “Instituto Nacional de la Pesca, INP” (National Fishing Institute), was established to coordinate activities and modernize the industry. The INP finances, manages, and directs its fishing, seafood processing, distribution, marketing, seaport, and shipbuilding enterprises. It also fixes production goals, determines salaries, and establishes prices. Other widespread activities include political and social programs which include education, training, and housing for INP personnel.

THE CUBAN GULF FLEET

General

The Cuban Gulf Fleet was organized by the INP in 1963 and began operations in 1964. The Gulf Fleet size increased from 65 vessels in 1963 (Abascal, 1966) to about 140 vessels of various designs and sizes in 1967 (Young, 1971). Apparently, the fleet overexpanded and the desired level of proficiency still was not attained. As the INP fishing policy evolved, emphasis shifted from the Gulf Fleet to distant water, more productive or more valuable fisheries (Kravanja, 1972). After 1967, the Gulf Fleet size decreased (Fig. 1) when many of the older and smaller vessels were placed in Cuban coastal fleets, and 65 of the largest vessels were converted into shrimp trawlers (Chang, 1971). By

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Figure 1.—The Cuban Gulf Fleet grouper and snapper catch and number of vessels, 1964-75. Sources: Compiled from Mar y Pesca, 1965-75; Carles Martin and Liubimova, 1967; Young 1971.
1975, the Gulf Fleet, though smaller, was an effective fishing force of 55 standardized vessels (Ubeda, 1975).

**Grounds**

The fishing grounds are on shelf areas off the west coast of Florida and off the north coast of the Yucatan Peninsula (Fig. 2). The Gulf Fleet fishes primarily in depths of 8-44 fm (15-81 m) (Carles Martín and Liubimova, 1967) favoring the shallower depths to 30 fm (55 m). Off Florida, the grounds extend from the Dry Tortugas to Cape San BLas and Cuban vessels usually fish 20-80 nautical miles (37-146 km) offshore (Fuss, 1972, and unpublished reports). Off Mexico, the grounds are from 12-100 nautical miles (22-185 km) offshore. The INP conducted a comprehensive resource, biology, and oceanography survey of the Campeche Shelf grounds. The published results appear in Instituto Nacional de la Pesca, Centro de Investigaciones Pesqueras — INP/CIP (1974, 1975).

**Species Sought**

The Cuban fishing effort is directed toward the “cherna americana” or red grouper (*Epinephelus morio*), which constitutes about 90 percent of the total catch (Abascal, 1968). The average size of a fish is about 10 pounds (4.5 kg), although fish over 17 pounds (7.7 kg) are sometimes caught. The remainder of the catch is composed mainly of other groupers, snappers, king and Spanish mackerels, grunts, sharks, and porgies (Table I).

**Gear**

Although the traditional handline is still used to some degree, the “palangre de fondo,” bottom longline (Fig. 3) came into general use about 1965 and is the principal fishing gear (Cubillas, 1965). The bottom longline is 3,280-4,921 feet (1,000-1,500 m) in length, buoyed at each end and weighted in between to keep the longline near the bottom. As many as 250-300 branch lines, each with a baited hook, are spaced about 10-20 feet (3-6 m) apart on the fishing portion of the longline. The bottom longline is set and retrieved.

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**Table 1.** List of fishes commonly landed by the Cuban Gulf Fleet.

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>United States</th>
<th>Common name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serranidae</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Epinephelus adscensionis</em></td>
<td>Rock hind</td>
<td>Cabrera mora</td>
</tr>
<tr>
<td><em>E. itajara</em></td>
<td>Jewfish</td>
<td>Guasa</td>
</tr>
<tr>
<td><em>E. morio</em></td>
<td>Red grouper</td>
<td>Cherna americana</td>
</tr>
<tr>
<td>Mycteroperca bonaci</td>
<td>Black grouper</td>
<td>Aguaji; Bonaci</td>
</tr>
<tr>
<td><em>M. interstitialis</em></td>
<td>Yellowmouth grouper</td>
<td>Abadejo</td>
</tr>
<tr>
<td>Mycteroperca spp. and <em>Epinephelus spp.</em></td>
<td>Groupers</td>
<td>Cherna; Meros</td>
</tr>
</tbody>
</table>

| Lutjanidae      |               |             |
| *Lutjanus analis* | Mutton snapper | Pargo crillo |
| *L. campechensis* | Red snapper   | Pargo colorado; Guachinango |
| *L. griseus*    | Gray snapper  | Caballero |
| *L. vivanus*    | Lane snapper  | Bajalila |
| Ocyurus chrysurus | Silk Snapper  | Pargo de lo alto |
| *Rhombopatites aurousbens* | Yellowtail snapper | Ratarrubia |
| *Lutjanus spp.* | Vermilion snapper | Cagon; Cotorro |
| Pomadasyidae    |               |             |
| *Haemulon aurulineatum* | Tomtate | Jeniguano |
| *Haemulon spp.* | Grunts        | Roncos     |
| Sparidae        |               |             |
| *Scomberomorus cavalla* | King mackerel | Sierra |
| *S. maculatus*  | Spanish mackerel | Serrucho |
| *S. regalis*    | Cero          | Pintada; Pintadilla |

1. Only species identified in literature are included.  
2. Common and scientific names follow Bailey et al. (1970). Cuban common names are from Mar y Pesca and other sources.  
3. *Epinephelus morio* is the target species.
Vessels and Personnel

In recent years, the Gulf Fleet was composed mainly of “Lambdas,” 75-foot (23-m) diesel-powered, wooden-hulled vessels, capable of speeds of about 10 knots (Fig. 4). The fish hold capacity is about 33 tons (30 t). Each Lambda has a complement of 11-20 men; there were 1,082 men in the Gulf Fleet in 1975 (Young, 1971; Ubeda, 1975). Most of the crew are trainees and students between 16 and 25 years of age. An important function of the Gulf Fleet is the training of fishermen, technicians, and officers for service in INP fishing enterprises (Young, 1971; Saez, 1973).

Fishing and Fishing Operations

The operations of the Gulf Fleet are directed and coordinated by INP from “El Puerto Pesquero de La Habana” (The Fishing Port of Havana). The vessels are directed to fishing grounds on the Campeche Shelf or the West Florida Shelf and communications are maintained with the INP fishing headquarters during the trip.

Each Lambda serves as a mother vessel and usually has six 16-foot (5-m) fiberglass longlining launches on board. Upon arrival at the fishing grounds, the launches are placed in the water. The two-man crew makes an initial set of the bottom longline gear; thereafter, the longline remains in the water until the end of the fishing day. The launch progresses along the mainline while the crew retrieves the catch and simultaneously baits and resets the mainline, one hook at a time. The mainline is traversed in this manner usually from six to eight times per day. The catch is transferred to the Lambda when the crew returns for lunch and at the end of the fishing day (Arango, 1974). The fishing trip cycle is about 40 days: 10 days in port, 27 days fishing, and 3 days in transit (Instituto Nacional de la Pesca Cuba — INP, 1967). Each vessel averages nine trips annually; the fleet averages 450 vessel-trips (Chang, 1971).

Traditionally, Cuban vessels operated independently, but beginning about 1971, the Gulf Fleet was organized into 13 flotillas of from two to four Lambdas each. A vessel captain is selected as commander of each flotilla. Two operational systems are used by the flotillas: the “En compañía” (in company or group) and “Enviada” (envoy or transport).
In the compañía system, a Lambda from a flotilla is designated to take the flotilla’s catch to Cuba after the first half of the trip, while the remainder of the flotilla continues fishing. The catch is unloaded at the Fishing Port of Havana, then the vessel returns to the fishing grounds with supplies, ice, and fuel, and resumes fishing. The flotilla returns to Cuba after 24-30 days at sea.

In the enviada system, specialized transport vessels go to fishing grounds and transship a flotilla’s catch to port but do not engage in catching fish (Chang, 1971).

In the grouper-snapper fishery where the resource is dispersed and fish are landed individually by manual labor, the catch per unit of effort is low in comparison to other fisheries where the resources are concentrated and harvested by nets.

Fishing efficiency has increased greatly, however, since the Gulf Fleet
began operations in 1964. Port and shipyard facilities were improved. The fleet was standardized from an assortment of vessels to the Lambda-class almost exclusively. All vessels have electronic fish-finding, navigation, and communication equipment. Each Lambda has a hydraulic crane for loading and unloading of the longline launches during fishing operations (Abascal, 1968). The new diesel-powered, fiberglass launches are lighter, more maneuverable, and have twice the payload capacity of the former wooden launches. The fishing power of the longlines was increased from 100 hooks (Abascal, 1966) to 250-300 hooks (Arango, 1974).

Effective fishing time was increased when vessels began fishing as organized flotillas with supply and transport vessels (Chang, 1971). Although valid catch comparisons cannot be made between vessels because of size, gear, and fishing effort variations, the catch-per-vessel-per-year increased from 96,000 to 277,000 pounds (44,126 t) from 1967-75 (Fig. 5).

The Gulf Fleet is experimenting to further increase efficiency by extending the duration of trips, rotating the fishermen from shore to vessels to shore, and mechanizing the longline operation (Ubeda, 1975).

**CATCH INFORMATION**

Catch information is not readily available to us. We have no access to data for the Deep Water Fishing Fleet during 1959-63. Catch information for the Gulf Fleet from 1964 to 1974 was compiled from various sources and often represents estimates based on seasonal catches, analysis of interviews with fishermen, and observations of fishing activities by NMFS.

The total Gulf Fleet catch increased from 8.8 million pounds (3,986 t) in 1964 to 15 million pounds (6,800 t) in 1968 (Table 2). The average annual catch from 1967 to 1975 was 14.5 million pounds (6,577 t), with a low of 13.3 million pounds (6,050 t) in 1973 and a high of 17 million pounds (7,700 t) in 1970. Catches for 1967, 1969, 1972, and 1973 were below the annual mean, but catches increased above the annual mean in 1974-75. At U.S. prices, the value of the 1975 catch of 15.3 million pounds (6,927 t) is 6.1 million dollars. The Campeche Shelf produces about 71 percent of the Gulf Fleet catch; the remainder is from the West Florida Shelf. From 1971 to 1975, the annual catch varied from 8.4 to 11.2 million pounds (3,800 to 5,073 t) for the Campeche Shelf and from 3.5 to 4.9 million pounds (1,597 to 2,214 t) for the West Florida Shelf.

Mexico and the United States also fish on the Campeche Shelf. Mexico generally fishes for groupers closer to shore than the United States or Cuba. In the Gulf of Mexico in 1972, for example, Mexico landed 38.8 million pounds (17,600 t) of groupers and snappers primarily from the Campeche Shelf (Food and Agricultural Organization, 1974). U.S. vessels fish mainly for snappers in deeper waters of 60-140 fm (110-256 m). The Campeche Shelf was an important fishing area for the U.S. snapper fleet, but in recent years, activities have decreased. Catches dropped from about 8.1 million pounds (3,674 t) in 1964 (Allen and Tashiro, 1976) to an annual average of less than 0.7 million pounds (318 t) from 1973 to 1975.

The Gulf Fleet competes with U.S. snapper and grouper vessels on the West Florida Shelf. In 1970, the Law Enforcement and Marine Mammal Protection Division of NMFS, in cooperation with the U.S. Coast Guard, began surveillance of foreign fishing activities in the Gulf of Mexico. From their observations and from interviews with Cuban fishermen, they estimated the catch-per-trip for each Lambda at from 30,000 to 50,000 pounds (13,608-22,680 kg).

For the West Florida Shelf, the annual Cuban Gulf Fleet catch from 1971

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**Figure 5.** The Cuban Gulf Fleet grouper and snapper catch per vessel, 1964-75. Sources: Mar y Pesca, 1965-75; Carles Martín and Luibimova, 1967; Young 1971, and Table 2.

**Table 2.**—Grouper and snapper catches from the West Florida Shelf and the Campeche Shelf by the Cuban Gulf Fleet, 1964-75. Catch figures are in thousand pounds and metric tons (in parentheses).

<table>
<thead>
<tr>
<th>Year</th>
<th>West Florida Shelf</th>
<th>Campeche Shelf</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>90,387 (3,986)</td>
<td>12,566 (5,700)</td>
<td>102,953 (6,496)</td>
</tr>
<tr>
<td>1965</td>
<td>90,387 (3,986)</td>
<td>12,566 (5,700)</td>
<td>102,953 (6,496)</td>
</tr>
<tr>
<td>1966</td>
<td>1,000 (4,400)</td>
<td>13,448 (6,100)</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>1,000 (4,400)</td>
<td>13,448 (6,100)</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>1,000 (4,400)</td>
<td>14,991 (6,800)</td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>1,000 (4,400)</td>
<td>13,669 (6,200)</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>1,000 (4,400)</td>
<td>16,975 (7,700)</td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>3,960 (1,796)</td>
<td>9,908 (4,494)</td>
<td>11,855 (5,449)</td>
</tr>
<tr>
<td>1972</td>
<td>3,960 (1,796)</td>
<td>9,908 (4,494)</td>
<td>11,855 (5,449)</td>
</tr>
<tr>
<td>1973</td>
<td>3,960 (1,796)</td>
<td>9,908 (4,494)</td>
<td>11,855 (5,449)</td>
</tr>
<tr>
<td>1974</td>
<td>3,960 (1,796)</td>
<td>9,908 (4,494)</td>
<td>11,855 (5,449)</td>
</tr>
<tr>
<td>1975</td>
<td>3,960 (1,796)</td>
<td>9,908 (4,494)</td>
<td>11,855 (5,449)</td>
</tr>
</tbody>
</table>

*Other species groups may comprise up to 10 percent of the catch.

* Apparently no fishing 1964-65.

* Estimated from Carles Martin and Luibimova, 1967.

* Indicates data not available.


* Estimated from C.M. Fuss, Jr., Chief, Law Enforcement and Marine Mammal Protection Division, Southeast Region, NMFS, NOAA, St. Petersburg, FL 33702.

* Estimated by the authors.

* Estimated from the annual grouper catch reported in Sáez, 1973.

* Estimated from 8 months data reported in Mar y Pesca for 1973.

* Mar y Pesca, 1975, Numero Especial.

* Estimated from 8 months data in Ubeda, 1975.

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October 1977
to 1975 was conservatively estimated to average 4.2 million pounds (1,905 t) (see footnote 1). The U.S. catch for the same area in 1974 was 13 million pounds (5,897 t) of snappers and groupers (Snell, 1976).

**DISCUSSION**

The Cuban grouper and snapper fishery, following a period of organization and development, emerged as the present successful Gulf Fleet. Fleet size and catches in recent years were fairly stable. With the present fishing methods, fishing proficiency is approaching its maximum limits. Catches will not increase appreciably without additional fishing effort, which in this case, means more vessels and personnel. The INP fishery administrators are aware of the productive limitations of this fishery; but in assessing the importance of the Gulf Fleet to Cuba, the INP considers not only quantity of the catch but also other aspects such as social welfare, employment, training, and national prestige.

Gulf Fleet catches of groupers and snappers are not exported. These fish are a traditional and popular food item that Cuba regards as a national staple. Many bottom longline vessels were converted and transferred to other fisheries. The Gulf Fleet, however, has been able to maintain catch levels with fewer vessels by increasing fishing efficiency.

Gulf Fleet catches of groupers and snappers are not exported. These fish are a traditional and popular food item for Cuban domestic consumption (Cubillas, 1965; Instituto Nacional de la Pesca Cuba-INP, 1967). From 1964 to 1967 the INP changed much of its “Caribbean first” fishing policy and concentrated effort on the development of more productive, distant-water, or high dollar value fisheries. Spiny lobster, shrimp, and tuna ranked highest in value as fishery exports. As a result of this policy change, Gulf Fleet size decreased and many bottom longline vessels were converted and transferred to other fisheries. The Gulf Fleet, however, has been able to maintain catch levels with fewer vessels by increasing fishing efficiency.

Gulf Fleet catches are made in waters that are now under the jurisdictions of Mexico or the United States. This creates special problems for the Gulf Fleet. The Gulf Fleet supplies fish to Cuba, which are a traditional and popular food item for Cuban domestic consumption. This policy change, Gulf Fleet size decreased and many bottom longline vessels were converted and transferred to other fisheries. The Gulf Fleet, however, has been able to maintain catch levels with fewer vessels by increasing fishing efficiency.

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**LITERATURE CITED**


