



UNIVERSITY OF
FLORIDA

EXTENSION

Institute of Food and Agricultural Sciences

An Overview of the Cuban Commercial Fishing Industry and Implications to the Florida Seafood Industry of Renewed Trade¹

Chuck Adams²

Abstract

The Cuban seafood industry has long been an important supplier of certain high-valued seafood products for the world market. In addition, the industry has historically played an important role in providing seafood products for domestic markets in Cuba. Assistance from the Soviet Union led to the development of a large distant-water fleet, which produced large volumes of low-valued seafood products. The nearshore fleets continue to produce high-valued species for export markets. The loss of Soviet assistance, following the break up of the Soviet Union, has dramatically affected the manner in which the Cuban fishing industry is conducted. More recently, management of nearshore fleets, associated service industries, and processing facilities has been conducted in a more decentralized manner. In particular, this strategy allows much more control by the fleet operators of the various harvesting activities. The Cuban fishing fleet now concentrates on the production of high-valued species such as spiny lobster, shrimp, reef fish, tunas, sponges, etc. Renewed trade with the U.S. would provide market opportunities for several of these species.

Introduction

The commercial fishing industry of Cuba is an important source of fisheries products originating from the Gulf of Mexico and Caribbean region. Cuba historically fielded a large distant-water fleet that was engaged in the harvest of subtropical and temperate fisheries stocks. Cuba has more recently played an increasingly important role in the world market for seafood products, particularly for high-valued finfish and shellfish. However, given the evolution in the global political environment of the early 1990s, Cuba's commercial fishing industry has changed dramatically. As a result, production emphasis has shifted from high-volume, low-valued pelagic stocks to high-valued nearshore fisheries, aquaculture, and shrimp culture. As the U.S. seafood industry continues to strive to enhance its competitiveness in the global seafood market, and as domestic fisheries managers attempt to be more effective in developing sustainable domestic and regional fishery management policy, a need exists to better understand the role that Cuba plays in the total production of seafood products and to recognize Cuba's importance in the world seafood market. Also, if political change in the region affords the opportunity for renewed trade between the U.S. and

1. This is International Working Paper IW93-3, May 1998. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>.

2. Chuck Adams, professor, Department of Food and Resource Economics, University of Florida, Gainesville, Florida.

Cuba, an understanding of the resultant market impacts is crucial. In addition, if the southeast U.S. region (Florida, in particular) and Cuba can effectively share the same marine ecosystem, the sustainable utilization of the region's marine resources may be dependent on shared management strategies. This paper attempts to provide a brief history of the Cuban commercial fishing industry and to compare seasonal attributes of production for selected fishery products that may influence trade patterns if trade is renewed between Cuba and the U.S.

Industry History

The commercial fishing industry of Cuba has long been an important source of fishery products from the Gulf of Mexico and Caribbean region. Prior to the Cuban Revolution (Revolution), the commercial fishing industry in Cuba was characterized by a fleet composed of small boats and vessels plying the island's nearshore waters. These crafts, which were typically low capacity and technically unsophisticated, primarily targeted a complement of reef fish, spiny lobster, sponges, and a few pelagic finfish species such as mackerels, tunas, and billfish. The landings were handled by small-scale processing facilities, and the products were mainly directed into the local domestic markets and the tourism industry. Following the Revolution, much attention was given to the further development of the commercial fishing fleets. A viable modern fishing fleet would not only provide a badly needed source of domestic protein and export revenue, but would also enhance coastal surveillance capabilities, provide training opportunities for naval recruits, and re-establish relations with neighboring Latin American nations via bilateral fishery access agreements. However, the modernization of the Cuban commercial fishing industry would require considerable revenue, which unfortunately was in short supply as a result of production disruptions caused by the Revolution and the recently imposed economic sanctions against Cuba.

During the early 1960s and the next two decades, a modernization program created port facilities that provided for the expansion of the Cuban fishing fleet, the seafood processing sector,

and the various commercial fishing service-related industries. The Cuban fleet that emerged from this program was characterized by a level of technical sophistication and capacity unrivaled in the Caribbean and Central American region. Annual commercial fishery landings averaged about 20,000 metric tons (mt) before the Revolution [Food and Agricultural Organization of the United Nations (FAO)]. Following this period of commercial fishing fleet development, landings exceeded 100,000 mt by 1970 and surpassed 200,000 mt by 1976.

Whereas, prior to the Revolution, the Cuban commercial fishing fleet was primarily a nearshore fleet, the new Cuban fleet was comprised of four distinct components. The Flota Cubana de Pesca (FCP) was the distant-water fleet composed of purse seiners and mid-water trawlers. This sector of the fleet represented a different form of fishing activity than that in which the Cuban fleet had traditionally engaged. The FCP developed into the largest distant-water fleet in all of Latin America and targeted low-valued species such as mackerels, herring, and hake. These low-valued fish, harvested from the southern and northwest Atlantic and Pacific regions, were destined primarily for the domestic market. The Flota Atunera de Cuba (FAC) was composed of tuna and swordfish longliners that operated in the Gulf of Mexico and Mid-Atlantic regions. The Flota del Golfo (FG) contained bottom-longliners and other hook-and-line vessels that targeted bottom fish and reef fish in the nearshore waters. Finally, the Flota de Plataforma (FP) was comprised of nearshore vessels that possessed a wide variety of gear types such as traps, hook-and-line, trawls, grappling hooks, etc. The FP targeted a complement of high-value, nearshore species such as shrimp, spiny lobster, sponges, reef fish and crab. The catch of the FCP (the fleet most supported by the preferential trading agreements with the former Soviet Union via advantageous oil prices) was primarily intended for domestic consumption, whereas the high-value catch of the FAC, FG and FP was destined for lucrative export markets and represented an important source of new revenue.

Although an impressive accomplishment, the development of the modern Cuban commercial fishing fleet was fraught with bad timing. This was

particularly true for the FCP, FAC and FG. Virtually all coastal nations in the Americas imposed 200-mile limits for their territorial waters in the late 1970s. With few exceptions, the exclusive rights claimed by these coastal nations excluded access by all other countries to the fisheries resources found in their territorial seas. Cuba's fleets, especially the distant-water fleet, were designed to access these coastal resources throughout Latin America. Unfortunately, this access was soon denied, with only few exceptions, throughout the region. Thus Cuba was left with a stable of large, operationally-costly vessels (FCP), which were then forced into the role of only being able to operate in the even more costly open-ocean regions. The high-cost nature of the fleet, while being forced to target low-valued stocks, produced an economically inefficient venture. As a result, the FCP (which targeted low-valued species) was almost totally dependent on cheap, Soviet fuel oil in order to stay operational. However, Soviet assistance did allow the FCP to continue operations for a number of years, even as the aging and costly fleet continued, by necessity, to target low-value species for domestic markets rather than generating export revenue, as was the case for the other fleet components.

The breakup of the Soviet Union in 1992 caused the virtual shutdown of the FCP and reduced operations of the FAC and FG. Cuban landings of all forms of finfish and shellfish fell from 232,000 mt in 1988 to 88,000 mt in 1994, although the majority of this decrease was associated with reduced operations of the FCP and declines in landings of pelagic species. The vessels that comprised the former FP continue to operate in the nearshore waters and to produce a wide variety of high-valued species—the most important of which are spiny lobster, shrimp, sponges and reef fish. The FAC and FG also continue to operate and target pelagics such as mackerels, tunas, swordfish, reef fish and sharks. During 1996, 12 FCP trawlers were targeting hake in Canadian waters. A longstanding fisheries agreement with Canada provides access by the Cuban fleet. However, the much publicized state of over-exploitation that exists in the Canadian groundfish fisheries may jeopardize that longstanding agreement. The other FCP trawlers are being used as transport vessels.

The state of flux in Cuba's commercial fishing fleet is reflected in the Cuban fisheries management infrastructure. The Ministerio de la Industria Pesquera (MIP), the agency charged with managing Cuba's commercial fishing industry, is currently undergoing substantial changes in its structure and goals. Formerly, the MIP administered 63 companies or enterprises. Within the FP, there were 18 enterprises through which all nearshore landings were sold. Two other enterprises administered seafood processing and one enterprise administered the FCP, FG and FAC fleets. Numerous other enterprises oversaw vessel construction, export operations (CARIBEX), training, research and other activities. The MIP continued to exercise tight controls over virtually all aspects of the fishing operations and resource management issues. The MIP is currently adopting a number of changes such as license authorizations, establishing resource protection zones such as for Lane snapper in the Gulf of Batabano, recognition of endangered/threatened species and the creation of a National Inspection Office that is intended to enforce the license system. Many of the changes were mandated by the 1996 Decree Law 164 for Fishing Regulations.

Most strikingly, the MIP is seeking to restructure so that governmental oversight in the day-to-day management of fishing operations is reduced dramatically. Basically, the MIP will continue to be responsible for management/regulatory issues, but the logistics of nearshore fisheries production will be relegated to a complement of production associations. The restructured MIP will contain only 21 associations. The nearshore fisheries and aquaculture activities will be administered through 15 provincial fisheries associations. In many ways, these associations resemble cooperatives. Each FP association (one per province) will contain a number (at least 20) of state-owned vessels, with each vessel operating within a prescribed budget and quota. Production over the predetermined vessel quota may generate a profit percentage in the form of monthly bonuses. Thus cost control is a new incentive and is currently being emphasized by association directors. Captains, crew members and mechanics are paid a salary, which could possibly be augmented by bonuses that could result from profit maximizing behavior.

Conversely, poor production history could result in expulsion from the association. The details of these changes in association management and member incentives are currently under development. In certain instances, a quasi-property rights structure has been established. For example, the association in Batabano, which is an important producer of spiny lobster, delineates a specific area within the association's operational region for each lobster fisherman. Each individual fisherman decides how and when he will fish within the region. Sustainable fishing practices and production efficiency are thus critical issues to be considered by the member fishermen. This decentralization of the fisheries management process is hoped to create greater efficiency in operations and to increase the profitability of production and processing activities.

In addition to the associations related to nearshore fisheries production and aquaculture, six additional specialized associations will administer export activities (ACEPEX); inputs, supplies and imports (APROPES); processing and domestic sales (INDIPES); vessel construction (ARGUS) and offshore fleet operations (FCP, FAC, and FG combined—PESPORT). In addition, an association exists for shrimp culture (CULTICAM). These will continue to be operated and managed under the auspices of the MIP.

Overview of Landings, Processing and Trade

Landings

With the advent of modernization, total landings by the Cuban commercial fishing fleets increased steadily during the 1960s and 1970s. By 1980, landings had increased to 186,500 mt. Further development in the distant-water fleet led to the most recent peak in landings volume of 245,000 mt by 1986 (FAO). During this period, Cuba's landings of finfish and shellfish exceeded all other countries in the Central American and Caribbean region, with the exception of Mexico. In 1988, less than five years before the loss of preferential conditions, Cuba's fisheries landings were estimated to be 232,000 mt, second only to Mexico's reported landings of 1.4 million mt (Table 1). However, following the

collapse of the Soviet Union, Cuba's fisheries landings decreased by approximately two-thirds to 88,000 mt in 1994. During this same period, most countries in the region, with the exception of Mexico, experienced *increases* in fisheries landings.

Cuba's fishery landings are characterized by an impressive array of species. Cuba has the third most diverse array of target species among all countries in the Western Hemisphere. During the 1984-89 period, Cuba reported landings for at least 135 different species or species groups (FAO). This diversity is exceeded only by the species mix reported by the U.S. and Canada.

Prior to the reduction in distant-water fishing activities, the most important species by volume were Cape horse mackerel, Chilean Jack mackerel, Araucanian herring, and Pacific/Silver Hake (Table 2). These species were landed in the southeast Atlantic and the southeast Pacific by the FCP. These regions would be infeasible to target without the cheap oil supplies from the former Soviet Union. In fact, landings of Chilean Jack mackerel and Cape horse mackerel were eliminated by 1993. Silver hake production in the north Atlantic has continued via fishing agreements with Canada. Although most of the FCP capacity became idle, some redistribution of overall fleet effort occurred. Landings of low-volume, high-valued species such as spiny lobster, shrimp, reef fish (i.e., snappers and groupers), sharks, tunas, etc., have been maintained by the FP, FG, and FAC fleets. In addition to marine species, other freshwater species have also become more important. For example, silver carp and blue tilapia have been important species for aquacultural production. Silver carp production increased from 1,400 mt in 1989 to 9,900 mt by 1995. Blue tilapia production increased to 17,000 mt by 1992, with annual production averaging 11,300 mt thereafter. This trend suggests a growing expectation for aquacultural production to augment the supply of fishery products for the Cuban domestic market.

Processing and Trade

Several facilities exist in Cuba for the processing of seafood products. These facilities handle the freezing, canning, smoking, and salting of a variety of products. There are 14 large processing plants for

lobster, shrimp, canned tuna, and fish. They are located in La Coloma, Isla de la Juventud, Batabanó, La Habana, Matanzas, Cienfuegos, Casilda, Caibarién, Santa Cruz del Sur, Niquero, Manzanillo, Santiago de Cuba, Guantánamo, and Nuevitas. The processing facilities of Regla, Hacendados, and Cojímar are located in Havana. A large percentage of the products processed in these facilities is destined for export markets. The Fishing Terminal de Regla also processes a variety of species, but these products are utilized in domestic markets (Garcia, 1996). Additionally, there are over 20 smaller processing facilities all over the country. As mentioned earlier, processing activities are managed by the INDIPES association and the provincial fisheries associations.

Fresh or Frozen Crustaceans and Molluscs.

Four processed product forms are reported for this category (Table 3). Spiny lobster is reported in whole, frozen-form, and frozen meat/tails. Shrimp are reported as frozen and frozen shell-on tails. Total production of these four processed product forms declined over the 1988 to 1994 period. Total production decreased from 11,600 mt in 1988 to 9,000 mt in 1994. With the exception of shrimp tails, most categories exhibited a similar trend. No imports of these products have been reported recently. However, virtually all of the reported production has been exported. Interestingly, reported export volumes often exceed the volume reported for total production. One reason for this could be that the exports of live lobster, which are becoming increasingly important, are inadvertently included in the total export volumes. A comparison of export volumes and landings totals indicates that a large percent of the total landings of spiny lobster and shrimp are exported. In terms of total value, the major markets for Cuban spiny lobster are Japan (28%), France (24%), Spain (19%), Italy (15%), and Canada (10%). A percentage of the revenues generated from export sales, which averaged \$109 million annually during the 1988 to 1994 period, are reportedly used to purchase low-valued seafood items for domestic consumption.

Fresh or Frozen Finfish. The production of frozen finfish products has declined dramatically from 111,700 mt in 1988 to 6,600 mt in 1994 (Table

4). This is likely linked with the decline in the production of mackerels and herrings by the FCP (species that were destined for domestic consumption). At the same time that the production of these products was declining, the importation of similar products increased from 9,000 mt in 1991 to 45,600 mt in 1994. Revenues from the exportation of shellfish may have been used to procure these products on the world market for domestic consumption. Information describing the type of product being imported (i.e., species and specific product form) is currently unavailable. However, it is evident that the volume of seafood for domestic consumption has declined significantly, following the idling of the FCP. The decline in the availability of seafood products for domestic consumption is readily apparent from estimates of Cuban per-capita seafood consumption. Per-capita consumption declined from 21.8 kilograms during the 1985-87 period to 11.8 kilograms during the 1991-93 period (FAO).

Canned Products. Small amounts of canned finfish products are produced in Cuba (Table 5). The total volume of these products declined from 6,000 mt in 1988 to 700 mt in 1994. Tuna and bonito were the most important individual species used for this process. Before 1992, Cuba imported a significant amount of canned seafoods. However, the volume imported declined from 15,400 mt in 1988 to 5,700 mt in 1992. Reported imports of canned seafoods ceased in 1992. Also, relatively small amounts of canned products are exported. Smaller amounts of oily fish meal and smoked fish are now being produced.

Implications of Renewed Trade

Much interest has been directed toward the market implications of renewed trade with Cuba. The consequences resulting from renewed trade could be substantial for Florida's seafood market. Given the potential time lag required for domestic markets to develop in Cuba, the initial concern for Florida's market would be the volume of imports arriving from Cuba. Although increased quantities of products may be beneficial to seafood processors, wholesale distributors, and consumers, Florida's producers may be confronted with downward

pressure on ex-vessel prices for some products. Cuba produces many of the same species that are of traditional importance to Florida's market such as spiny lobster, pink shrimp, grouper, snapper, Spanish mackerel, sponges, and various other species. Cuba's producers may have an inherent advantage from a production and shipping cost perspective, with respect to other sources of similar products in the Caribbean and Central American region. And, for some species, substantial quantities may be available earlier than in Florida due to environmental or regulatory differences. Thus market opportunity "windows" may exist.

For example, the primary species that Cuba might wish to export to Florida would be spiny lobster (*Panulirus argus*). Cuba produces an average of 19.7 million pounds of spiny lobster annually, compared to 7.2 million pounds in Florida (Table 6). Interestingly, almost 40 percent, or 7.1 million pounds (almost equal to Florida's total landings), of the Cuban spiny lobster landings occur during Florida's closed season. Cuba produces mostly cooked whole lobster, with lesser quantities of raw whole lobster and frozen tails. Production of live lobster is increasing. Currently, most of Cuba's spiny lobsters are exported to Japan and the EU. These markets are well developed. The Cubans currently are faced with a seven percent duty on spiny lobster entering the EU market. Florida's suppliers currently experience a 15 percent duty. (The Uruguay Round of GATT provided a decrease from the previous duty of 25 percent.) The majority of whole lobster (cooked, raw, and live) produced in Florida is exported. Thus it is highly unlikely that the suppliers in Florida would accept similar products from Cuba. However, given the close proximity of the U.S. market and the existing relative price structure for the U.S., Cuba may attempt to divert quantities of spiny lobster tails into the Florida and southeast U.S. markets. Given existing U.S. dependence on imported spiny lobster, the downward pressure on ex-vessel prices in Florida may be mitigated. But, for Cuban products to enter the U.S. market, the price structure must be competitive with, for example, Honduras and Nicaragua, where significant supplies of spiny lobster currently originate.

Another species of importance to the commercial fisheries industries in both Florida and Cuba is pink shrimp (*Penaeus duorarum*). As with spiny lobster, Florida is virtually the sole domestic source of this product for the U.S. market. Unlike spiny lobster, pink shrimp landings vary considerably from year to year due to environmental conditions linked with Florida Bay. And, although Florida typically produced an annual average of 14.7 million pounds of pink shrimp during the 1994-96 period, compared to an average of 4.2 million pounds in Cuba for the same period, Cuba's pink shrimp would likely be accepted into the U.S. market (Table 7). The U.S. market is dominated by imported shrimp, particularly farm-raised shrimp. Additional supplies of pink shrimp would be easily accepted, particularly during those periods when Florida's pink shrimp landings are low. However, Cuban trawlers would be forced to comply with U.S. laws concerning the use of turtle excluder devices (TEDs). Non-compliance would result in Cuba's shrimp products being embargoed. All countries that import trawled shrimp into the U.S. must demonstrate that either sea turtles are not indigenous to the waters from which the shrimp were trawled or that TEDs are incorporated into all nets used by their shrimp trawlers. Additional supplies of pink shrimp, however, would likely provide additional downward pressure on ex-vessel prices received by Florida's producers. Previous studies have shown that ex-vessel prices for shrimp in Florida are inversely related to changes in quantities of imported shrimp (Adams, 1987).

Other species groups of traditional importance to both Florida and Cuba include reef fish such as snapper and grouper. Cuba produces a relatively small amount of Nassau grouper (*Epinephelus striatus*) (Table 8). [Red grouper (*E. morio*) is also produced, but monthly landings data are unavailable]. However, Cuba produces far greater volumes of various snapper species than does Florida (Table 9). During the 1994-96 period, Cuba produced an average of 7.9 million pounds of snapper, compared to 4.9 million pounds for Florida during the same period. The seasonal patterns of harvest are quite similar, with the highest landings levels occurring during the spring and summer months. As with shrimp, the markets for snapper and

grouper in the southeast U.S. are dominated by imported products. Imports of reef fish such as snapper and grouper would likely generate an additional downward pressure on ex-vessel prices for these species in Florida. Cuba's snapper would likely be very competitive with snapper arriving from more distant sources within the Central American and Caribbean region. Florida's market for reef fish is very strong and would probably absorb any additional sources of the product. And, if Cuba's product is priced competitively, other foreign sources may be displaced in the short run.

Finally, Cuban seafood exporters would have to meet the quality standards established by the new U.S. Food and Drug Administration's Hazard Analysis Critical Control Point (HACCP) program before any seafood could be imported into the U.S. This program, which became effective in December of 1997, requires all U.S. seafood processors and handlers to adopt a monitoring program to ensure that product safety is not compromised during the handling, processing, storing, and shipping of seafood. U.S. importers will be required to ensure foreign exporters also meet these new FDA quality and safety standards. Non-compliance with HACCP standards will result in products being labeled by FDA as adulterated and embargoed.

Conclusion

Whether renewed trade between the U.S. and Cuba would benefit both countries remains to be seen. It would certainly provide new market opportunities for high-valued seafood species and would make the fisheries industry more competitive. Renewed trade would demand shared management strategies between the U.S. and Cuba and cooperation concerning quality standards set by each country.

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Table 1. Commercial fisheries landings in Gulf of Mexico and Caribbean region.

Country	1988 (1,000 mt)	1994 (1,000 mt)
USA	5,288	5,941
Belize	1	2
Costa Rica	17	21
El Salvador	12	13
Guatemala	4	12
Honduras	20	23
Mexico	1,373	1,260
Nicaragua	5	12
Panama	125	165
Anguilla	<1	<1
Antigua	2	1
Aruba	1	<1
Bahamas	7	10
Barbados	9	3
British Virgin Islands	1	<1
Cayman Islands	<1	1
Cuba	232	88
Dominica	1	1
Dominican Republic	13	26
Grenada	2	2
Guadeloupe	8	9
Haiti	6	5
Jamaica	10	11
Martinique	3	6
Montserrat	<1	<1
Netherlands Antilles	1	1
Puerto Rico	2	2
St. Kitts Nev.	1	<1
St. Lucia	1	1
St. Vincent	5	2
Trinidad Tobago	5	2
Turks and Caicos	1	1
U.S. Virgin Islands	1	2
Source: FAO Yearbook of Fishery Statistics. Catches and Landings. (Various issues).		

Table 2. Cuban fisheries production by major species (1,000 mts).

Species	Year						
	1989	1990	1991	1992	1993	1994	1995
Silver Carp	1.4	2.3	3.0	3.3	5.4	6.9	9.9
Blue Tilapia	13.3	18.7	16.6	17.1	11.7	11.8	10.5
Silver Hake	9.0	13.9	23.7	27.5	22.7	8.1	16.8
Chilean Jack Mackerel	24.5	41.2	30.8	3.2	—	—	—
Cape Horse Mackerel	27.1	7.7	—	—	—	—	—
Araucanian Herring	4.4	12.9	18.9	—	—	—	—
Sharks	3.8	3.2	2.0	2.8	2.8	3.4	3.1
Tunas	3.0	3.0	2.8	2.6	1.6	1.8	1.3
Groupers	3.3	1.5	1.2	0.8	0.6	0.6	0.4
Snappers	4.8	4.1	3.6	3.2	2.5	3.2	3.8
Spiny Lobster	11.2	8.0	9.9	9.3	8.5	9.7	9.4
Pink Shrimp	4.0	2.4	2.9	2.3	2.7	2.2	1.9
Oysters/Clams	4.2	3.9	3.3	2.8	2.6	3.2	3.8
Squid	3.4	4.7	3.0	1.0	2.4	4.0	1.0
Total—All Species	192.1	188.2	171.1	121.3	93.7	87.7	94.2

Source: FAO Yearbook of Fishery Statistics. Catches and Landings. (Various years).

Table 3. Cuban production, imports and exports of processed fishery products (1,000 mts).

Commodity	1988	1989	1990	1991	1992	1993	1994
<i>Crustaceans and molluscs</i>							
fresh, frozen, dried, salted, etc.							
Production Total	11.6	10.7	8.1	9.0	7.4	8.0	9.0
Spiny lobster (<i>Panulirus spp</i>), whole, frozen	5.5	5.6	4.0	4.7	4.0	3.9	4.2
Spiny lobster (<i>Panulirus spp</i>), meat or tails, frozen	1.7	1.5	1.1	1.4	1.1	1.4	1.7
Shrimps and prawns, frozen	3.9	3.2	2.5	2.3	2.0	2.5	2.2
Shrimps and prawns tails, shell-on, frozen	0.4	0.3	0.5	0.6	0.3	0.2	0.5
Imports							
Volume	0	0	0	0	0	0	0
Value (million U.S.\$)	0	0	0	0	0	0	0
Exports							
Volume	11.3	11.1	8.5	9.5	8.7	7.1	9.3
Value (million U.S.\$)	139.5	123.3	96.6	126.0	109.3	72.8	102.1

Source: FAO Yearbook of Fishery Statistics. Commodities. (Various issues). U.S. dollar values reported in nominal terms.

Table 4. Cuban production, imports and exports of processed fishery products (1,000 mts).

Commodity	1988	1989	1990	1991	1992	1993	1994
<i>Fish</i>							
fresh, chilled or frozen							
Production Total	111.7	83.5	90.6	72.4	6.5	5.7	6.6
Marine fish fillets, frozen	4.9	2.6	1.6	0.4	0.3	0.3	0.2
Marine fish, nei, frozen	106.8	80.9	88.9	72.0	6.2	5.4	6.4
Imports							
Volume	31.4	30.9	32.3	9.0	32.7	52.4	45.6
Value (million U.S.\$)	24.4	24.3	22.2	7.3	11.8	18.9	18.7
Exports							
Volume	12.2	9.3	8.3	5.2	0.1	>0.1	0.2
Value (million U.S.\$)	5.4	4.4	3.2	3.1	0.1	0.1	0.5
Source: FAO Yearbook of Fishery Statistics. Commodities. (Various issues). U.S. dollar values reported in nominal terms.							

Table 5. Cuban production, imports and exports of processed fishery products (1,000 mts).

Commodity	1988	1989	1990	1991	1992	1993	1994
<i>Fish Products and Preparations</i>							
(whether or not in airtights containers)							
Production Totals	6.0	4.2	5.5	2.2	1.8	0.8	0.7
Bonitos, canned	0.9	0.9	1.0	0.9	0.8	0.8	0.4
Tunas, canned	0.9	0.2	0.3	0.3	0	0	0
Fish, nei, canned	4.2	3.0	4.2	1.1	1.0	<0.1	0.3
Imports							
Volume	15.4	11.2	10.3	5.7	0	0	0
Value (million U.S.\$)	22.4	16.4	14.3	8.1	0	0	0
Exports							
Volume	0.7	0.6	0.6	0.4	0.5	0.2	0.4
Value (million U.S.\$)	1.5	1.1	1.4	0.8	1.2	0.4	0.8
Source: FAO Yearbook of Fishery Statistics. Commodities. (Various issues). U.S. dollar values reported in nominal terms.							

Table 6. Monthly distribution of spiny lobster (*panulirus* spp) landings: 3-year averages for 1994-96.

Country	J	F	M	A	M	J	J	A	S	O	N	D	Total
<i>Cuba</i>													
1,000 lbs.	1,707	981	108	2	271	3,874	2,937	2,212	1,458	2,064	2,417	1,649	19,680
% Total	(8.7)	(4.9)	(0.5)	(<1)	(1.4)	(19.7)	(14.9)	(11.2)	(7.4)	(10.5)	(12.3)	(8.4)	
<i>Florida</i>													
1,000 lbs.	363	167	184	2	0	1	0	2,201	1,548	1,422	860	496	7,244
% Total	(5.0)	(2.3)	(2.5)	(<1)	(0)	(<1)	(0)	(30.2)	(21.3)	(19.5)	(11.9)	(6.8)	
Source: Cuba data — Unpublished landings data, Ministerio Industria Pesquera, Havana, Cuba. Florida data — Unpublished landings data, Florida Department of Environmental Protection, Florida Institute of Marine Science.													

Table 7. Monthly distribution of pink shrimp (*penaeus duorarum*) landings: 3-year averages for 1994-96.

Country	J	F	M	A	M	J	J	A	S	O	N	D	Total
<i>Cuba</i>													
1,000 lbs.	459	508	539	444	373	291	73	37	140	492	445	454	4,255
% Total	(10.7)	(11.9)	(12.6)	(10.4)	(8.8)	(6.8)	(1.7)	(0.8)	(3.3)	(11.6)	(10.5)	(10.7)	
<i>Florida</i>													
1,000 lbs.	1,467	1,293	1,348	1,733	1,441	1,240	892	599	562	927	1,729	1,435	14,665
% Total	(10.0)	(8.8)	(9.2)	(11.8)	(9.8)	(8.5)	(6.1)	(4.1)	(3.8)	(6.3)	(11.8)	(9.8)	
Source: Cuba data — Unpublished landings data. Ministerio Industria Pesquera, Havana, Cuba. Florida data — Unpublished landings data. Florida Department of Environmental Protection, Florida Institute of Marine Science.													

Table 8. Monthly distribution of grouper (*epinephelus* spp) landings: 3-year averages for 1994-96.

Country	J	F	M	A	M	J	J	A	S	O	N	D	Total
<i>Cuba</i>													
1,000 lbs.	28	17	5	3	3	3	6	4	5	7	4	8	93
% Total	(30.1)	(18.3)	(5.4)	(3.2)	(3.2)	(3.2)	(6.4)	(4.3)	(5.4)	(7.5)	(4.3)	(8.6)	
<i>Florida</i>													
1,000 lbs.	610	741	642	721	895	841	853	769	784	566	751	888	9,061
% Total	(6.7)	(8.2)	(7.1)	(8.0)	(9.5)	(9.3)	(9.4)	(8.5)	(8.7)	(6.3)	(6.2)	(9.8)	
Source: Cuba data — Unpublished landings data. Ministerio Industria Pesquera, Havana, Cuba. Includes Nassau grouper only. Florida data — Unpublished landings data. Florida Department of Environmental Protection, Florida Institute of Marine Science.													

Table 9. Monthly distribution of snapper (spp) landings: 3-year averages for 1994-96.

Country	J	F	M	A	M	J	J	A	S	O	N	D	Total
<i>Cuba</i>													
1,000 lbs.	195	271	363	733	2,266	1,176	845	547	417	435	323	319	7,890
% Total	(2.5)	(3.4)	(4.6)	(9.3)	(28.7)	(14.9)	(10.7)	(6.9)	(5.3)	(5.5)	(4.1)	(4.0)	
<i>Florida</i>													
1,000 lbs.	302	370	406	447	543	546	490	392	397	310	302	402	4,907
% Total	(6.2)	(7.5)	(8.3)	(9.1)	(11.1)	(11.1)	(10.0)	(8.0)	(8.1)	(6.3)	(6.2)	(8.2)	
Source: Cuba data — Unpublished landings data. Ministerio Industria Pesquera, Havana Cuba. Includes Lane, Red, Yellowtail and Grey.													
Florida data — Unpublished landings data. Florida Department of Environmental Protection, Florida Institute of Marine Science.													