Foreign Fishing Off the Southeastern United States Under the Currently Accepted Contiguous Sea Limitation

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INTRODUCTION

Under existing international law, foreign vessels can legally fish off the coasts of the United States beyond 12 nautical miles offshore. Federal laws grant U.S. nationals exclusive fishing rights in U.S. territorial waters, which extend offshore for 3 nautical miles, and in the 9 nautical mile U.S. contiguous fishery zone, which extends from the outer limits of the territorial sea to a distance of 12 nautical miles offshore. Only under certain international agreements are foreign fishing vessels allowed to operate within our contiguous zone. The control of foreign fishing beyond the 12 mile fishery zone can only be regulated by bilateral or multilateral international fishery agreements.

The rapid expansion of foreign fishing off the U.S. coasts during the last decade is well documented. We are all familiar with the extensive Soviet and Japanese fishing fleets that now operate in international waters adjacent to our coasts and the numerous conflicts between U.S. and foreign fishermen that have resulted from invasions of our historic fishing grounds off New England and the Pacific Northwest. Much less is known, however, about foreign fishing in the Gulf of Mexico and off the southern Atlantic states.

The Southeast Region of the National Marine Fisheries Service initiated a preliminary study in August 1970 to determine the extent of foreign fishing in that area. We reviewed all available data on foreign fishing operations and initiated an active surveillance program in cooperation with the U.S. Coast Guard and the various state conservation agencies. In a short time the need for a permanent foreign fishing surveillance program was demonstrated. As a result, an Enforcement and Surveillance Division was established in the Southeast Region in September of this year (1971).

This report summarizes foreign fishing off the southeastern U.S. between October 1970 and October 1971. The area covered includes the Atlantic coastal waters south of 37° north latitude (mouth of Chesapeake Bay) and Gulf coastal waters from Florida to the Mexican border.

METHODS OF SURVEILLANCE

Surveillance flights are scheduled through the Seventh and Eighth Coast Guard District Headquarters in Miami and New Orleans. Patrols are flown from air stations at Miami and St. Petersburg, Florida; Mobile, Alabama and Corpus Christi, Texas. Surveillance of foreign fishing off the southern mid-Atlantic area is conducted by our Northeast Region through the Fifth Coast Guard District Headquarters in Portsmouth, Virginia, with flights from the air station at Elizabeth City, North Carolina. The mainstay of our surveillance program is the

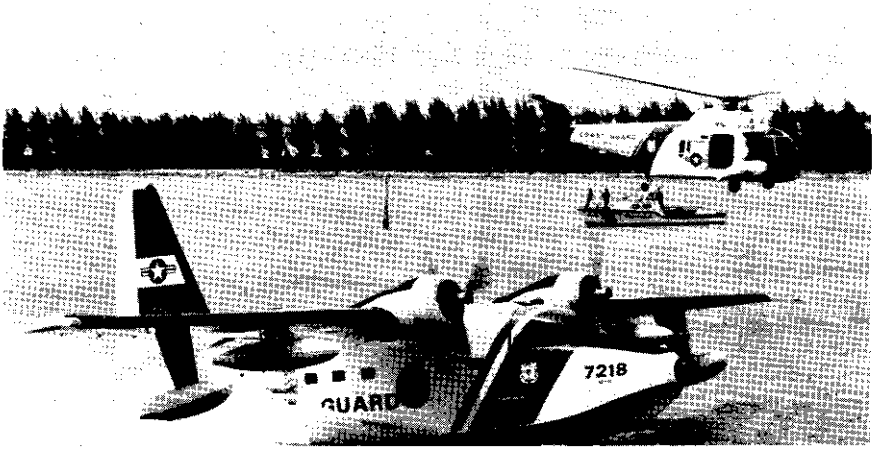

Fig. 1. Coast Guard HU-16E (Albatros) Grumman amphibian and HH-52A helicopter used in fishery surveillance patrols (official U.S. Coast Guard photograph).

Coast Guard HU-16E (Albatros) Grumman amphibian (Fig. 1). Helicopters are also used to patrol nearshore areas from shore stations or cutters.

A National Marine Fisheries Service observer accompanies the flights and records the nationality, position and type of fishing gear, and description or class of all foreign vessels sighted. He also attempts to determine the catch and estimates the volume of catches. When possible, photographs or motion pictures are made of the vessels. The accuracy of our surveillance varies in different areas because of weather conditions, type, number and activity of foreign vessels present, methods of fishing, the size of the area and the extent of patrol coverage.

We also receive sighting reports from Coast Guard fishery patrols and units engaged in other duties. Random sightings thus obtained are a valuable adjunct to our surveillance program and assist us in planning patrol requirements.

Additional sighting reports are obtained from state conservation agencies, commercial and sports fishermen and U.S. merchant vessels. Supplemental sighting reports are used to gauge the accuracy of our surveillance program.

OBSERVATIONS AND ESTIMATES OF FOREIGN FISHING

We observed 386 individual foreign fishing vessels from the Soviet Union, Cuba, Mexico, Japan, East Germany, Bulgaria, Poland and Spain fishing off the southeastern United States between October 1970 and October 1971. Of this total, 241 individual vessels were sighted fishing in the Atlantic and 145 in the Gulf of Mexico (Table 1). Fishing was concentrated in four areas: (1) the southern mid-Atlantic area off southern Virginia and North Carolina for sea herring, Atlantic mackerel and albacore tuna; (2) the Tortugas-east Gulf area off southwest and west-central Florida for snappers, groupers and shrimp; (3) the north-central Gulf area off Louisiana for yellowfin tuna and (4) the western Gulf area off lower Texas for shrimp (Fig. 2).

TABLE 1
Individual Foreign Vessels Observed Fishing Off the
Southeastern United States
October 1970 - October 1971

Nationality	Atlantic	Gulf	Total
Soviet	201	1	202
Cuban	-	77	77
Mexican	-	58	58
Japanese	11	9	20
East German	17	-	17
Bulgarian	7	-	7
Polish	4	-	4
Spanish	1	-	1
Total	241	145	386

Monthly sighting records and estimates of vessels actually fishing indicate that surveillance patrols observed about 57% of the foreign vessels operating off the southeastern U.S. We estimate 100% coverage of Japanese tuna vessels fishing in the southern mid-Atlantic and north-central Gulf areas because of their size, weather conditions during the fishing periods, the limited area of fishing during a given day and sighting reports from sports fishermen and merchant vessels. We also believe that all Cuban shrimp trawlers fishing off Texas were identified. Eighty percent coverage is estimated for the Soviet Bloc vessels fishing in the

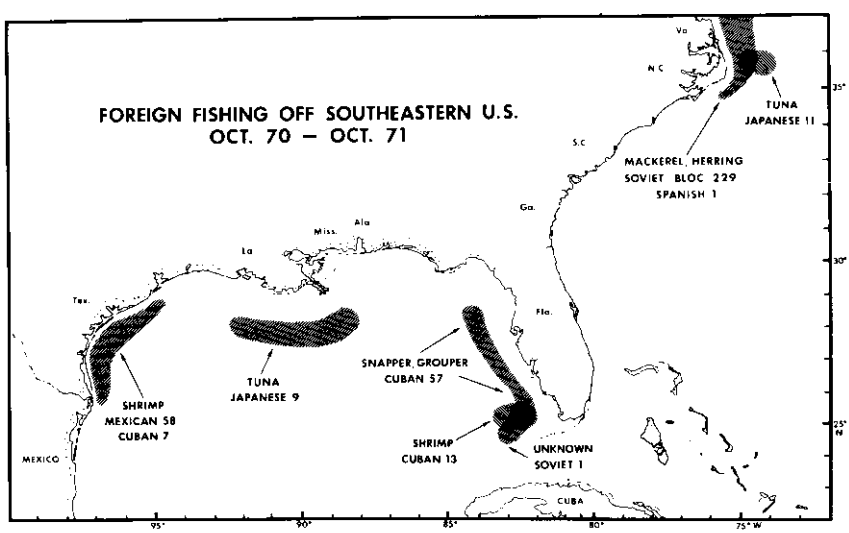

Fig. 2. Foreign fishing areas off the southeastern U.S. showing nationality of vessels and the principal catch in each area.

mid-Atlantic area because of adverse weather conditions during surveillance patrols, the extensive number of vessels fishing on a given day and past experience gained during the surveillance of large Soviet fleets operating off New England.[1] We also estimate 80% coverage of Cuban vessels operating in the Tortugas-east Gulf area because of the large size of the area, limited patrol coverage and sighting reports from commercial fishermen and merchant vessels. Coverage of Mexican shrimp vessels operating off Texas during the summer is estimated at 10 to 28%, based on extrapolations from the proportion of U.S. to Mexican trawlers sighted during each patrol and figured from the estimated total number of U.S. vessels fishing off the Texas coast, limited areas of patrol coverage and sighting reports from commercial fishermen. Estimates of total fishing effort are necessary for catch estimates when foreign catch statistics are not available (Table 2).

Foreign vessels caught an estimated 100 million pounds of fish and shrimp with an estimated ex-vessel value of $7 million between October 1970 and October 1971. The Atlantic catch is estimated at 91.6 million pounds valued at $3.8 million and the Gulf catch at 8.7 million pounds with a value of $3.2 million (Table 3). The species taken by foreign vessels in the Gulf (shrimp, snapper and tuna) are of much greater value than the principal southern mid-Atlantic catch of mackerel and herring. Catch estimates for the individual fishing areas were made from (1) reported foreign catch statistics; (2) estimated number of foreign vessels fishing, time on the grounds and catch capacity of the vessels; (3) catches by U.S. vessels in areas of foreign fishing; (4) interviews with foreign fishermen or (5) combinations of the above. The ex-vessel value of the catch was figured from values published in *Current Fishery Statistics, 1970.* Methods of estimating the catch in each fishing area are discussed in the following sections.

Southern Mid-Atlantic

The Soviet Bloc sea herring and Atlantic mackerel trawl fishery south of Chesapeake Bay has existed since 1964. This fishery is an extension of the current Soviet Bloc herring and mackerel fishery that began off New England in 1961 (Jensen, 1971) and is conducted largely within the terms of U.S. bilateral fishery agreements with Poland and the Soviet Union. The area considered here (south of 37° north latitude to Cape Fear, North Carolina) corresponds to Subdivision C, Statistical Subarea 6, of the U.S.-U.S.S.R., U.S.-Polish Middle Atlantic Agreement Area. The U.S. exerts some control over Soviet and Polish vessels fishing in this area through the two bilateral agreements which contain restrictions covering fishing for sea bass, menhaden, river herring, hake, scup and flounder but do not yet apply to sea herring or Atlantic mackerel.

Fishing occurs in the southern mid-Atlantic area primarily in January, February and March. During the period of this report, 201 individual Soviet; 17 East German; 7 Bulgarian and 4 Polish vessels were identified (Table 1). Cumulative monthly sighting records show that 433 Soviet; 27 East German and 8 Bulgarian vessels were observed fishing during the various patrols (Table 2). In addition, 1 Spanish trawler was sighted operating in this area.

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[1] Estimates of surveillance coverage in the southern mid-Atlantic area obtained from Mr. Charles Philbrook, Enforcement and Surveillance Division, National Marine Fisheries Service, Gloucester, Massachusetts, 01930.

TABLE 2

MONTHLY SIGHTINGS AND ESTIMATES OF FOREIGN FISHING VESSELS

Area	Estimated Percent Coverage	Nationality	Monthly Sightings and Estimates (in parentheses) of Vessels Fishing													Cumulative Totals 1/
			Oct.(70)	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.(71)	
Southern Mid-Atlantic	80%	Soviet	-	5(6)	7(9)	132(165)	118(148)	109(136)	60(75)	1	1	-	-	-	-	433(539)
		East German	-	-	-	3(4)	9(11)	15(19)	-	-	-	-	-	-	-	27(34)
		Bulgarian	-	-	-	2	2	3(4)	1	-	-	-	-	-	-	8(4)
		Polish	-	-	-	-	4(5)	-	-	-	-	-	-	-	-	4(5)
		Spanish	-	-	-	-	-	-	1	-	-	-	-	-	-	1
	100%	Japanese	-	-	-	-	-	-	-	-	-	-	-	-	11	11
Tortugas - East Gulf	80%	Cuban (Handline)	2	5(6)	11(14)	7(9)	4(5)	22(27)	2	22(27)	11(14)	19(25)	1	-	-	106(127)
		Cuban (Shrimp trawlers)	-	5(6)	13(16)	8(11)	5(6)	-	-	-	-	-	-	-	-	31(39)
		Soviet	-	-	-	-	1	-	-	1	1	-	-	-	-	3
North-Central Gulf	100%	Japanese	-	-	-	-	-	-	-	-	-	-	9	-	-	9
Western Gulf	10-28%	Mexican	-	-	-	-	-	-	-	-	13(128)	49(345)	3(11)	-	-	65(484)
	100%	Cuban	-	-	-	-	-	-	-	-	-	-	-	7	-	7
Average - All Areas	57%	TOTALS	2	15(18)	31(39)	152(189)	143(175)	149(186)	64(75)	24(27)	26(142)	68(370)	13(21)	7	11	705(1232)

1/ The cumulative number of vessels sighted during the year usually exceeds the number of individual vessels identified because of repetitive sightings and vessels recognized as foreign types but unidentified by name or number. Conversely, the number of vessels on the grounds at any one time is usually less than the number identified during the year because of vessels entering and leaving the area.

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TABLE 3

ESTIMATES OF FOREIGN FISHING EFFORTS, CATCHES, AND VALUES

Area	Bordering States	Principal Species Exploited	Nationality of Fishing Vessels	Principal Fishing Months	Estimated Number of Vessels	Estimated Fishing Days Per Vessel	Estimated Number of Vessel Days	Estimated Catch Per Vessel Day (Pounds)	Estimated Total Catch (Pounds)	Estimated Value of Total Catch (Dollars)
Southern Mid-Atlantic	Southern Virginia North Carolina	Herring and Mackerel	Soviet	January	165	1-30	165-4950	-	Total Catch Estimated From 1970 Soviet-Polish Statistics	
				February	148	1-30	148-4440	-		
				March	136	1-30	136-4080	-		
				April	65	1-30	65-1950	-		
			East German	February	11	1-30	11-330	-		
				March	19	1-30	19-570	-		
			Bulgarian	Jan.-April	Avg. 2/Month	1-30	8-240	-		
			Polish	February	4	1-30	4-120	-		
			Spanish	April	1	1-30	1-30	-	91,130,400	3,616,000
		Albacore Tuna	Japanese	October	11	10	110	4200	462,000	143,600
Tortugas-East Gulf	Florida	Snapper and Grouper	Cuban	Nov.-July	Avg. 15/Month (132 total)	25	3300	1600	5,280,000	1,689,600
		Shrimp	Cuban	November	6	16	96	320		
				December	16	16	256	275		
				January	10	16	160	215		
				February	6	16	96	240	158,400	74,400
		Exploratory Fishing	Soviet	Feb-May-June	1	-	-	-	-	-
North-Central Gulf	Louisiana	Yellowfin Tuna	Japanese	August	5 + 4 Catcher Boats = Six Vessels	15	90	4940	444,600	111,000
Western Gulf	Texas	Shrimp	Mexican	June	128	16	2048	195		
				July	345	16	5520	418		
				August	11	16	172	435	783,300	1,294,200
			Cuban	September	7	2	14	-	-	-
TOTALS									100,258,700	6,928,800

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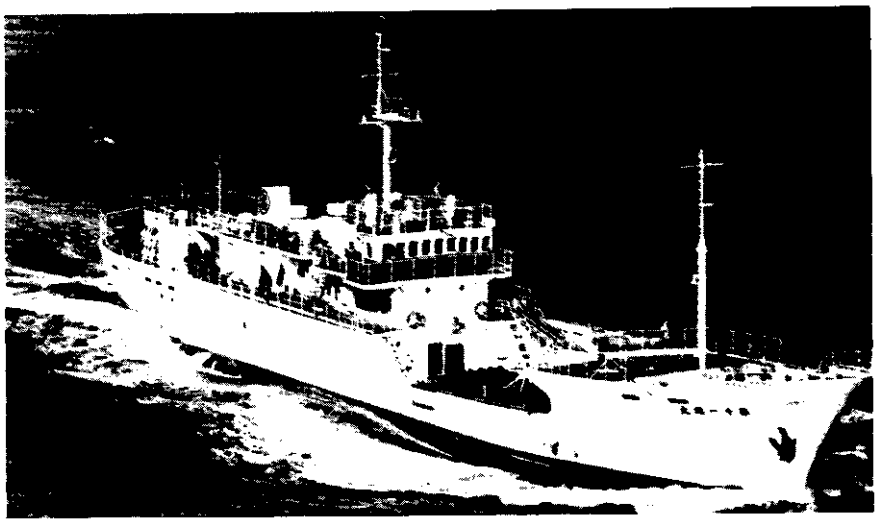

Fig. 3. A typical Japanese longliner used in the tuna fisheries off the U.S. Atlantic and Gulf coasts.

The Soviet Bloc vessels vary in size from the 125-foot SRT (medium side trawler) to the 278-foot BMRT (large freezer stern trawler)[2]. Other Bloc nations employ both side and stern trawlers in the same general size range. The fishing fleets are supported by factory ships, supply ships, refrigerated transports, tankers, base ships and seagoing tugs. Soviet vessels were described in detail by Hitz (1968).

The estimated herring, mackerel and incidental fish catch in the southern mid-Atlantic area was 91.1 million pounds valued at about $3.6 million. These figures are derived from catches reported by the Soviet Union and Poland in 1970 (Table 3). About 85% of the catch was sea herring and mackerel and about 10% river herring. Incidental species taken include hake, flounder, scup, shark and other miscellaneous fish. During the 1971 season there was some replacement of Soviet and Polish vessels by East German and Bulgarian vessels, but the general effort appeared to be approximately the same as in the 1970 season. Catch statistics for 1971 are not yet available.

Eleven Japanese longliners were observed fishing principally for albacore tuna off the North Carolina coast in October 1971 (Table 2 and Fig. 3). The vessels remained in the area for about 10 days and fished from 21 to 85 nautical miles offshore.

The albacore tuna, bluefin tuna and incidental billfish catch in the southern mid-Atlantic area for this period was estimated at about 462,000 pounds valued at about $143,600. The catch was based on an estimate of 70 fish taken each day by each longliner figured at 46 pounds for individual albacore, 220 pounds for bluefin tuna and 125 pounds for marlin;[3] giving an estimated daily catch of

[2] Trawlers and factory ships mentioned here are illustrated in "Soviet fisheries and fisheries research off the east coast of the United States," Proceedings of the 23rd Annual Session, Gulf and Caribbean Fisheries Institute (1971).

[3] Daily catch estimates obtained from Mr. John P. Wise, Southeast Fishery Center, National Marine Fisheries Service, Miami, Florida 33149.

4,200 pounds. Each of the 11 longliners was credited with 10 days of fishing, giving a total of 110 vessel days (11 x 10 = 110 vessel days) and an estimated total catch of 462,000 pounds (110 x 4200 = total catch) (Table 3). The marlin catch was estimated to be about 10 to 20% of the total catch. The value of the catch was figured at $0.26 a pound for albacore, $0.20 a pound for bluefin tuna, and $0.50 a pound for marlin. Marlin have no commercial value in the U.S. but they are of considerable value to sports fishermen. The monetary value of $0.50 a pound to sports fishermen was selected arbitrarily.

Some degree of control over Japanese longliners operating off our coast exists because of an informal understanding between an American sport fishing organization and the Japanese fishing companies involved which was achieved at the Rio Conference on Tuna and Tuna-Like Fishes in 1966. Under the terms of that agreement, the Japanese agree to remain a circumspect distance from areas of interest to U.S. sports fishermen.

Dry Tortugas - East Gulf

Cuban handline vessels have historically fished this area of the Gulf of Mexico for snappers and groupers on a limited scale. In recent years, with the advent of fishery expansion in Cuba facilitated by assistance from the Soviet Union, Cuban fishing efforts in the eastern Gulf have increased.

During the last year 57 individual Lambda and Sondero class vessels (47 Lambda, 10 Sondero) fishing in the Tortugas-east Gulf area were identified (Fig. 4). One hundred and six cumulative monthly sightings were recorded giving a total estimate of 132 monthly occurrences based on 80% surveillance coverage (Table 2). These vessels primarily fish for snappers and groupers using the so-called "creole longline" fished from motor dories (Young, 1971) (Fig. 5). Lambda boats operate 6 to 8 dories with a crew of 16 to 20 and Sondero boats usually fish 4 dories with a crew of 12 to 14.

The snapper and grouper catch in this area was estimated at 5.3 million pounds valued at about $1.7 million (Table 3). Catch estimates are based on the 1970 landings of 8,000 metric tons reported by the Cuban Gulf flotilla (Young, 1971) which primarily fishes the Tortugas and Campeche grounds, the capacity of Lambda class vessels (60,000 pounds), interviews with Cuban fishermen arrested for illegal fishing and the estimated number of vessels fishing each month. These vessels (average 15 per month for 9 months) were credited with a 25 day trip giving an estimated 3,300 vessel days of total fishing effort. Based on interviews with Cuban fishermen, we estimated the average catch per vessel day at 1,600 pounds, giving a total catch of 5,280,000 pounds by Cuban handline vessels (Table 3).

The value of the catch was estimated from the current average ex-vessel value of the various species probably included in the catch and figured at $0.32 per pound. Except for September and October 1971, fishing was observed in the area throughout the year. It peaked in March, May and July.

Cuban shrimp trawlers began to appear on the Tortugas grounds in 1968. These vessels were built in Spain (Fig. 6) and France (Fig. 7) and operated by the Cuban Caribbean (shrimp) flotilla. Five trawlers were sighted in November, 13 in December, 8 in January and 5 in February. We did not identify all of the vessels, but we know at least 13 individual trawlers (December sightings) were active in the area (Table 2).

The Cuban shrimp catch on the Tortugas grounds was estimated at 158,000

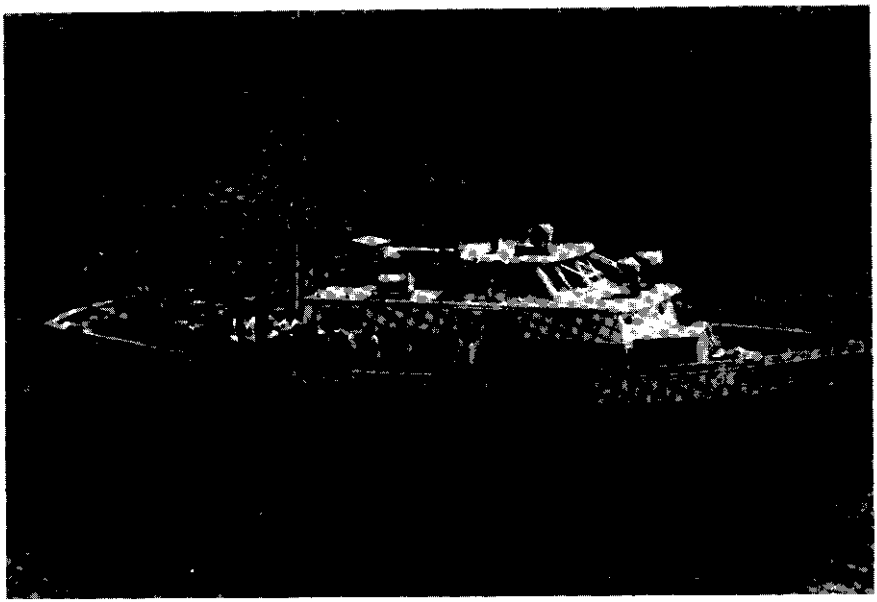

Fig. 4. Cuban Lambda class 75-foot fishing vessels used in the Tortugas - East Gulf area.

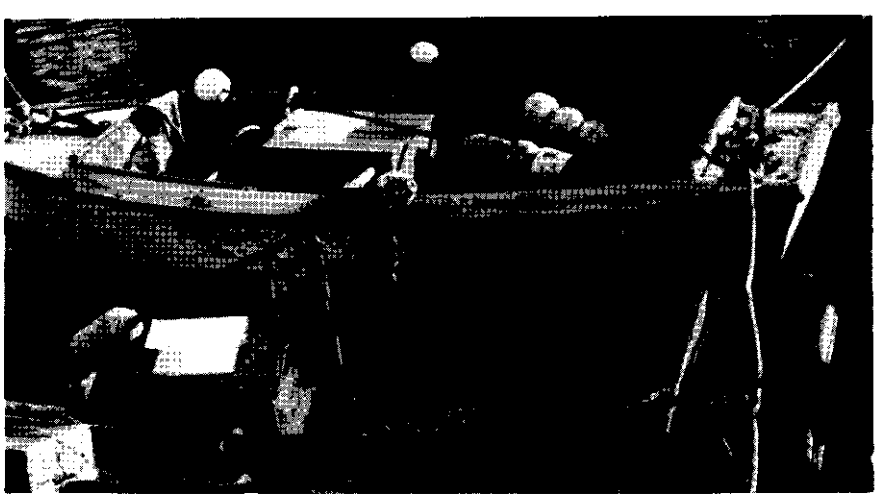

Fig. 5. Cuban motor dories with baited longlines used in the Tortugas - East Gulf area (official U.S. Coast Guard photograph).

Fig. 6. Spanish built Cuban 75-foot shrimp trawler observed on the Tortugas shrimp grounds in February 1971.

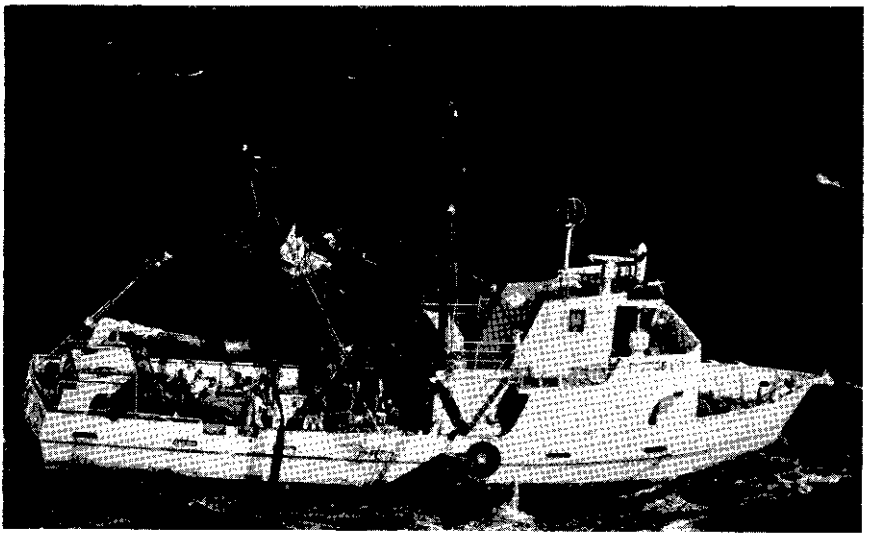

Fig. 7. French built Cuban 83-foot shrimp trawler observed on the Tortugas shrimp grounds in February 1971.

pounds valued at $74,000. This estimate was based on the average daily catch of U.S. shrimp trawlers on the Tortugas grounds during the past winter,[4] the estimated number of Cuban trawlers fishing each month, the number of fishing days per vessel (16 days) and the number of vessel days per month (Table 3). Each trawler was credited with a catch equal to 75% of the average daily production of U.S. trawlers for that month. The efficiency of the Cuban boats was probably not equal to that of U.S. vessels (Cuban fishermen interviews) and the catch was probably somewhat smaller because the Cuban vessels were generally fishing further offshore than U.S. vessels, in less productive areas. The estimated value of the shrimp catch was based on the general 1970 Gulf value of $0.47 per pound (heads-on weight) but may have been somewhat higher because larger shrimp, but fewer numbers, are usually taken in deeper areas.

The single Soviet trawler observed fishing in the Tortugas area was believed to be an exploratory fishing vessel engaged in systematic research. Past Soviet fishery research in the Gulf was described in detail by Sal'nikov (1965).

North - Central Gulf

Japanese longliners have fished for tuna in the north and western Gulf since 1963. The effort was limited and apparently escaped the attention of U.S. sport and commercial fishermen until the summer of 1969 when a longliner was seen operating in an area 38 to 54 miles south of the South Pass entrance to the Mississippi River. Because of concern for the billfish stocks in the famous sport fishing grounds south of the Mississippi Delta, many complaints to congressmen ensued. The Japanese, however, were operating well beyond the limits of the U.S. contiguous fishery zone and, therefore, beyond U.S. jurisdiction.

In August of this year (1971), five Japanese longliners accompanied by four small catcher vessels (approximately 70 feet long) were observed fishing primarily for yellowfin tuna between 43 and 80 nautical miles south and southwest of the Mississippi River Delta (Table 2). The catcher boats are towed by the longliners when in transit. Because of the size of the longliners (150-175 feet long) and the intense local interest in their operations, we believe that we identified all of the vessels engaged in this operation.

The yellowfin tuna and incidental billfish catch in the north-central Gulf area was estimated at 445,000 pounds valued at about $111,000. These figures are based on an estimate of 59 fish taken each day by each longliner with average weights figured at 92 pounds for individual yellowfin, 207 pounds for blue marlin and 51 pounds for white marlin,[5] giving an estimated daily catch of 4,940 pounds per vessel. Each longliner was credited with 15 days of fishing and the catcher vessels catch was considered to be equal to a single longliner, giving a total of six longliner units and 90 vessel days (Table 3). The marlin catch was estimated at about 10 to 20% of the total catch. The value of the catch was figured at $0.18 a pound for yellowfin and $0.50 a pound for marlin (arbitrary value of marlin catches explained previously).

The private agreement with the Japanese discussed in the southern mid-Atlantic section also applies to this area. Surveillance observations of Japanese

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[4] U.S. catch data obtained from Mr. John K. Bishop, Jr., Statistics and Market News Division, National Marine Fisheries Service, Key West, Florida 33040.

[5] Daily catch estimates obtained from Mr. John P. Wise, Southeast Fishery Center, National Marine Fisheries Service, Miami, Florida, 33149.

longline fishing this summer indicated that the Japanese vessels were generally complying with the agreement.

Western Gulf

Mexican shrimp trawlers began fishing off the Texas coast in about 1963. They appeared in force during the summer of 1970 when we received reports of 50 to 100 vessels from U.S. fishermen. Reports received this summer indicated that 50 to 200 Mexican trawlers were operating off the coast. A few complaints were registered by our shrimp fishermen but most of them accepted the Mexicans without comment — apparently because of extensive U.S. shrimping off the Mexican coast.

Surveillance patrols off the Texas coast during this summer identified 58 individual Mexican shrimp trawlers between Galveston and the Mexican border. Thirteen were sighted in June, 49 in July, and 3 in August (Table 2). Patrols were restricted to the area between the beach and about 30 nautical miles offshore because of the large number of U.S. trawlers operating on any one day and our interest in Mexican use of privileges granted under the U.S.-Mexican Fishery Agreement in the 9 to 12 mile zone. Mexican trawlers are very similar to U.S. trawlers, requiring close scrutinization at very low altitude. Many additional unidentified trawlers were observed outside of the patrol areas.

We made extrapolations of the possible number of Mexican trawlers operating off the Texas coast each month by using simple proportions including the number of Mexican vessels observed, the number of U.S. trawlers observed and the probable total number of U.S. trawlers operating off the coast on any one day. A minimum of approximately 1,500 U.S. trawlers consistently operated off Texas during the summer. Statistical trip records show that about two-thirds of the trawlers were at sea at all times so we can safely assume that at least one-half, or about 700 U.S. trawlers were at sea on any one day during favorable weather. Monthly surveillance patrols produced ratios of U.S. to Mexican vessels as follows: June 60 to 11; July 83 to 41; August 185 to 3.[6] Based on the conditions stated above, proportions indicate the possible number of Mexican trawlers as 128 in June; 345 in July and 11 in August. The reduction of Mexican vessels fishing in August was possibly because of adverse weather conditions in the Gulf due to hurricanes. These estimates seem reasonable when compared with fishermen reports of up to 200 Mexican vessels fishing off the Texas coast and the Mexican inventory of about 600 shrimp trawlers licensed to fish in the Gulf of Mexico. The July estimate of 345 vessels may be somewhat high but the catch per vessel day estimate was conservative.

The Mexican shrimp catch off the Texas coast was estimated at 2.8 million pounds valued at about $1.3 million. These estimates were derived by crediting the estimated number of Mexican vessels fishing each month with 16 fishing days[7] and a catch equal to 75% of the average daily catch of U.S. vessels landing at Port Aransas, Texas, during the month[8] (Table 3). The efficiency of Mexican shrimp trawlers was believed to be less than that of U.S. trawlers.

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[6] Sightings made during random enforcement patrols are not included because the number of U.S. vessels sighted during these patrols was not recorded.

[7] We believe that some of the Mexican trawlers fished 20 to 25 days.

[8] U.S. catch data obtained from Mr. Thomas N. Scott, Jr., Statistics and Market News Division, National Marine Fisheries Service, Port Aransas, Texas 78373.

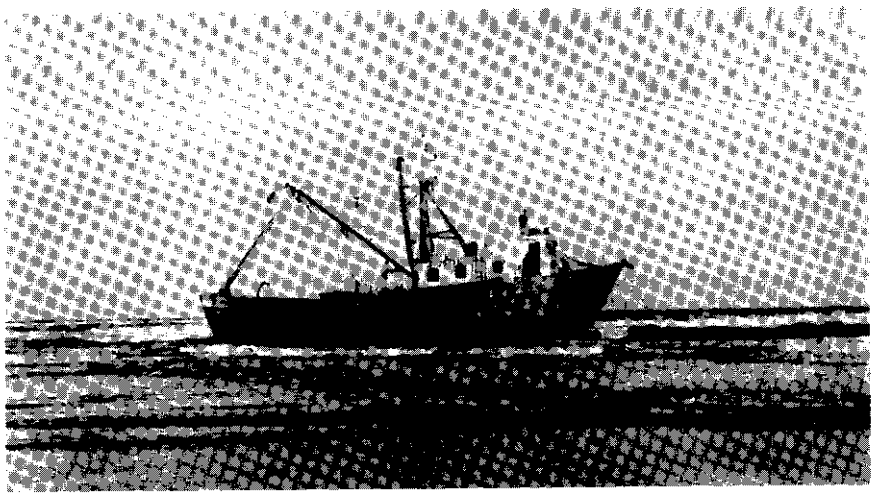

Fig. 8. Cuban shrimp trawler grounded on the Texas coast by Hurricane Fern (official U.S. Coast Guard photograph).

Mexican fishermen are allowed to fish in the outer 3 miles of the U.S. fishery contiguous zone under the terms of the U.S.-Mexican Bilateral Fishery Agreement in force from January 1968 to January 1973. This privilege is granted in return for similar rights given to U.S. fishermen off the Mexican coast. Under the agreement, the catches by each nation in the other's exclusive fishery zone are not to exceed the cumulative catch taken during the 5 years preceding the agreement.

Seven Cuban shrimp trawlers (five Spanish built, two French built) appeared off the Texas coast in September (1971) and began fishing between 20 and 35 miles offshore between Freeport and Pass Cavallo. Their operations were interrupted by Hurricane Fern and four of the vessels were grounded 6 miles south of Aransas Pass on September 12 (Fig. 8). The others were allowed to enter Port Aransas to effect repairs and await the salvage of the grounded boats by commercial tugs. Crewmen stated they were prepared to fish off Texas for 45 days. The flotilla departed Port Aransas on September 29, apparently for the Campeche area. The catch of the Cuban trawlers was considered negligible.

CONCLUSIONS

The estimated foreign catch of 100 million pounds off the southeastern United States between October 1970 and October 1971 amounted to about 8% of the foreign catch off the northeastern U.S. in 1970 (1.3 billion pounds) and about 5% of the U.S. domestic catch in the southeast region (2 billion pounds at $193.5 million, 1970). We are relatively fortunate in this region in comparison to the northeastern U.S. where the foreign catch is currently about 98% of the domestic catch. We have reason for concern, however, if we consider that foreign fishing off the southeastern U.S. before 1963-1964 was negligible.

A comparison of the estimated value of Atlantic and Gulf foreign catches

gives further insight into possible future problems in the Gulf area. Soviet Bloc vessels in the southern mid-Atlantic area accounted for about 91% (sea herring and Atlantic mackerel) of the total southeastern catch but only 52% of the value. Cuban, Mexican and Japanese vessels fishing in the Gulf accounted for only 8.6% of the catch (snapper, shrimp and tuna) but 46% of the value. Consequently, the monetary motivation for further foreign exploitation of Gulf fishery stocks is considerable.

The probability of a considerable expansion in foreign exploitation of Gulf snapper and grouper stocks is not great with existing fishing methods (creole longlines and handlines) and sea bottom conditions on the grounds (rock, coral and loggerhead sponges). Japanese longlining efforts for Gulf tuna, however, have apparently increased by about 50% in the last 3 years. In addition, Cuba now has about 30 longline vessels obtained from Spain, and they have shown an interest in the tuna stocks in the northwest Gulf. Increases in tuna exploitation are, therefore, likely.

Exploitation of shrimp stocks seems to offer the greatest possibility for foreign fishing expansion in the Gulf area. Foreign exploitation of shrimp in international waters off the U.S. Gulf coast has at least doubled in the last 3 years. The combined Mexican and Cuban shrimp fleet is currently estimated at 720 modern trawlers capable of distant water fishing. Development of a prototype shrimp trawler is underway in the Soviet Union and these vessels could be deployed in the Gulf and Caribbean from bases in Cuba. Approximately one-third of the Gulf coast shrimp catch, with a value of about $36 million, comes from international waters off the U.S. Gulf coast. Uncontrolled foreign fishing would constitute a significant threat to the shrimp industry of the southeastern United States.

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