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June 18-20, 1997

THE 1996 FISHING YEAR

IATTC

Working paper for the 7th Meeting of the Western Pacific Yellowfin Tuna Research Group,  
Nadi, Fiji, June 18 - 20, 1997.

**BACKGROUND PAPER 1**  
**58th meeting of the IATTC**  
**June 3-5, 1997**

**THE 1996 FISHING YEAR**

**INTER-AMERICAN TROPICAL TUNA COMMISSION**  
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## INTRODUCTION

This paper has been prepared for the Commissioners of the Inter-American Tropical Tuna Commission (IATTC), their advisors, and others attending the Commission's 58th meeting, to be held on June 3-5, 1997. It provides information on fleet size, capacity at sea, annual catches, geographical distribution of the catches, and yellowfin quotas. The statistics for 1996 are the most complete available at the time this report was prepared, but are subject to revision as more data become available.

## THE EASTERN PACIFIC TUNA FLEET

### Historical description

The IATTC staff maintains records of gear, flag, and fish-carrying capacity for most of the vessels which fish at the surface for yellowfin, skipjack, bigeye, or bluefin tuna in the Pacific Ocean east of 150°W (EPO). Records are not maintained for Far East-flag longline vessels, nor for sport-fishing vessels and small craft such as canoes and launches. The fleet described here includes vessels which have fished all or part of the year in the EPO for yellowfin, skipjack, bigeye, or bluefin tuna.

The owner's or builder's estimates of vessel carrying capacities are used until landing records indicate that revision of these is appropriate. The vessels are grouped, by carrying capacity, into the following size classes for reporting purposes: class 1, less than 51 short tons (st) (46 metric tons (mt)); class 2, 51-100 st (46-91 mt); class 3, 101-200 st (92-181 mt); class 4, 201-300 st (182-272 mt); class 5, 301-400 st (273-363 mt); and class 6, more than 400 st (363 mt). Except for longliners and the miscellaneous small vessels mentioned in the previous paragraph, all vessels which fished in the EPO during the year are included in the annual estimates of the size of the surface fleet.

Until about 1960, fishing for tunas in the EPO was dominated by baitboats operating in the more coastal regions and in the vicinity of offshore islands. During the late 1950s and early 1960s most of the larger baitboats were converted to purse seiners, and by 1961 the EPO surface fleet was dominated by these vessels. During the 1961-1991 period the number of baitboats decreased from about 95 to 20, where it has since remained, and their capacity decreased from about 9 to 2 thousand metric tons. During the same period the number of purse seiners increased from 125 to 152, and their capacity increased from 27 to 106 thousand metric tons. The peak in numbers and capacity of purse seiners occurred from the mid-1970s to the early 1980s, when the maximum number of vessels, 282, and the maximum capacity, 168 thousand metric tons, were reached (Table 1).

The construction of new and larger purse seiners, which began during the mid-1960s, resulted in an increase in the total fleet capacity from 42 thousand metric tons in 1966 to 167 thousand metric tons in 1976. During the 1977-1981 period the fleet capacity remained fairly stable. During this period the construction of new vessels continued, but the new capacity was offset by losses due to sinkings and vessels leaving the fishery. In 1982, due to poor fishing, the fleet capacity declined by 16 thousand metric tons as vessels were deactivated or left the EPO to fish in other areas, primarily the western Pacific. This trend continued through 1983 as the catch rates in the EPO declined further, due primarily to anomalous ocean conditions during 1982-1983. The fleet capacity declined by 24 thousand metric tons during both 1983 and 1984. The fleet capacity in 1984, about 107 thousand metric tons, was the lowest it had been since 1971. In 1985, however, due primarily to the return of vessels from the western Pacific, the capacity increased to about 120 thousand metric tons, but in 1986 it decreased slightly to about 114 thousand metric tons. During 1987, several new vessels were added to the fleet, and others returned to the EPO fishery from the western Pacific, causing the fleet capacity to increase to 132 thousand metric tons. This trend continued in 1988, resulting in a fleet capacity of 137 thousand metric tons. This was the greatest fleet capacity since 1982. In the spring of 1990, the U.S. tuna-canning industry adopted a policy of not purchasing tunas caught during trips during which sets on tunas associated with dolphins were made. This caused many of the U.S.-flag vessels fishing in the EPO to leave that fishery and enter the fisheries of the Atlantic or western Pacific. The U.S. canners have continued their "dolphin-safe" policy, resulting in further decreases in the number of U.S.-flag vessels fishing in the EPO, and a consequent reduction in the EPO fleet to 101 thousand metric tons in 1992. With increases in participation of non-U.S.-flag vessels in the fishery, the capacity has increased steadily since

1992, and the 1996 capacity was about 116 thousand metric tons.

The preliminary 1996 data for numbers and carrying capacities of surface-gear vessels of the EPO tuna fleet are shown in Table 2. The EPO tuna fleet was dominated by vessels operating under the Mexican and Venezuelan flags during 1996. The Mexican fleet has been the largest fleet since 1987, with about 35 percent of the total capacity during 1996, while Venezuelan-flag vessels comprised about 17 percent of the total capacity. In 1990 the U.S. fleet included 29 large purse seiners, with a total capacity of about 27 thousand metric tons, but following adoption of the U.S. canners' dolphin-safe policy, this number decreased to 13 in 1991. During the 1992-1996 period it has ranged from 5 to 9 vessels. At the end of 1996, seven large U.S.-flag seiners, with a total of about 8 thousand metric tons of capacity, were operating in the EPO. The U.S. canners' dolphin-safe policy has not had a significant effect on the sizes of the other fleets operating in the EPO, but in recent years the number of sets made on dolphin-associated fish has decreased moderately (see the section entitled CATCHES and Table 5).

The majority of the total capacity of the EPO tuna fleet consists of purse seiners with capacities of over 363 metric tons. This group of vessels comprised about 87 percent of the total fishing capacity operating in the EPO in 1996.

#### Capacity at sea

The average, minimum, and maximum metric tons of fleet capacity at sea (CAS) by month for the EPO during 1981-1995, and the 1996 values, are shown in Figure 1. These monthly values are the averages of the CAS estimates given in weekly reports prepared by the IATTC staff. The values for the 1981-1995 period were chosen for comparison with those of 1996 because the earlier years, when regulations were in effect, had somewhat different temporal distributions of effort due to restriction of yellowfin fishing in the Commission's Yellowfin Regulatory Area (CYRA; Figure 2). Overall the 1996 CAS values are generally the same as the previous 15-year (1981-1995) averages.

During the 1981-1995 period an average of 51 percent of the surface fleet capacity was at sea during each month; in 1996 the average was about 53 percent. Thus, while the total capacity of the fleet in 1996 was near historical lows for the period following introduction of large purse-seine vessels, the ratio of the CAS to the total fleet capacity was greater than the average observed during the preceding 15-year period. The extremes in the average monthly CAS were observed in 1983-1984, during and following the 1982-1983 El Niño event, when the average monthly CAS was about 38 percent, and in 1989, when the average monthly CAS was about 61 percent.

### CATCHES

#### Annual catches

Annual estimates of the catches of the various species of tunas and other fishes landed by vessels of the EPO fleet which fish for tunas with surface gear are shown in Table 3. The sub-surface (longline) catches of yellowfin and bigeye in the EPO are shown in Background Paper 2, Table 4, and Background Paper 5, Table 1, respectively. The catch data for skipjack are essentially complete except for insignificant catches made by the longline, sport, and artisanal fisheries. Recreational catches landed in California are included in the landings. In the case of bluefin, these landings have become an increasingly important component of the catch in recent years (Background Paper 8, Table 1).

There were no restrictions on fishing for tunas in the EPO during the 1981-1996 period, although regulations placed on purse-seine vessels directing their effort at tunas associated with dolphins have probably affected the way these vessels operate, especially during the late 1980s and the 1990s. Studies which may provide measures of this effect are currently in progress, but useful results are not yet available, so the statistics for 1996 are compared to those for 1981-1995. During this period, there was a major El Niño event which began in mid-1982 and persisted until late 1983. The catch rates in the EPO were low during the 1978-1981 period due to concentration of fishing effort on small fish, and the situation was exacerbated by the El Niño episode, which made

the fish less vulnerable to capture. This caused a shift of fishing effort from the eastern to the western Pacific, and the fishing effort remained relatively low during 1984-1986.

The average annual yellowfin catch in the CYRA during the 1981-1995 period was 195 thousand metric tons (range: 82 to 267 thousand). The preliminary estimate of the 1996 yellowfin catch in the CYRA is 220 thousand metric tons. During the 1981-1995 period, the annual yellowfin catch from the area between the CYRA boundary and 150°W averaged 25 thousand metric tons (range: 12 to 47 thousand). The preliminary estimate of the yellowfin catch from this area for 1996 is 29 thousand metric tons. The estimated 1996 yellowfin catch from the EPO, 249 thousand metric tons, is well below the maximum of 289 thousand metric tons taken in 1989, but about 13 percent greater than the 1981-1995 average of 220 thousand metric tons.

During the 1981-1995 period, the annual catch of skipjack in the EPO averaged 81 thousand metric tons (range: 49 to 139 thousand). The preliminary estimate of the skipjack catch in the EPO in 1996, 108 thousand metric tons, is nearly 35 percent greater than the average of the annual catches for the last 15 years, exceeding those in all years except 1981 (120 thousand metric tons) and 1995 (139 thousand metric tons).

Prior to 1994 the average catch of bigeye in the EPO by surface gear was about 4 thousand metric tons (range: <1 to 15 thousand) (Table 3). Since 1993 the catches have increased to 29 thousand metric tons in 1994, 37 thousand metric tons in 1995, and 52 thousand metric tons in 1996. These increasing catches of bigeye resulted from the discovery, made in late 1993, that bigeye associated with floating objects, but well below the surface, can be detected with sonar and caught with purse seines. Many of these floating objects are fish-aggregating devices (FADs) placed in the water by the fishermen.

While yellowfin, skipjack, and bigeye comprise the most significant portion of the catch made in the EPO, bluefin, albacore, black skipjack, bonito, and other species contribute to the overall harvest in this area. The total catch of these other species in the EPO was about 9 thousand metric tons in 1996, the same as the 1981-1995 average (range: 2 to 17 thousand).

Preliminary estimates of the 1996 catches in the EPO, by flag, and landings of tunas caught by surface gear in the EPO, by country, are given in Table 4. The estimated catch of all species in the EPO in 1996 was about 419 thousand metric tons, which exceeds the previous record total catch of 409 thousand metric tons, taken in 1995. Mexican-, Ecuadorian-, Venezuelan-, and Vanuatu-flag vessels harvested 35, 17, 16, and 8 percent, respectively, of the total EPO catch. The landings are fish unloaded during a calendar year, regardless of the year of catch. The country of landing is that in which the fish were unloaded from the fishing vessel or, in the case of transshipments, the country which received the transshipped fish. Preliminary landings data (Table 4) indicate that, of the 421 thousand metric tons of tunas landed in 1996, 141 thousand metric tons (34 percent) was landed in Ecuador. The landings in Mexico (120 thousand metric tons; 29 percent) and Colombia (54 thousand metric tons; 13 percent) were next in terms of magnitude. Other countries with significant landings of tunas caught in the EPO included Costa Rica (8 percent), the United States (5 percent), and Venezuela (5 percent). It is important to note that when final information is available the landings currently assigned to various countries may change due to exports from storage facilities to processors in other nations.

Tunas are caught in three types of schools by surface gear, those in which the fish are associated with dolphins, those in which the fish are associated with floating objects, such as logs, and those in which the fish are associated only with other fish. Data on the logged purse-seine sets of each type, the catches of yellowfin, skipjack, and bigeye tuna in these sets, and the total catches of these species by purse seines are listed in Table 5. The greatest numbers of sets on schools associated with floating objects and on schools of tuna associated only with other fish were made during the period from the mid-1970s to the early 1980s. Despite opposition to fishing for tunas associated with dolphins and the refusal of U.S. canners to accept tunas caught during trips during which sets were made on dolphin-associated fish, the numbers of sets made on fish associated with dolphins have decreased only moderately. The logged catches of tunas in these sets peaked at about 175 thousand metric tons in 1989, and then decreased to about 106 thousand metric tons in 1993. Since then, the logged catches taken in dolphin sets have increased, averaging about 122 thousand metric tons during 1994-1996.

### Geographical distribution

The average annual distribution of logged catches of yellowfin by purse seiners in the EPO during the 1981-1995 period is shown in Figure 3, and a preliminary estimate for 1996 is shown in Figure 4. In 1996 the catches were relatively greater south of the equator and west of about 100°W. As fishing conditions change throughout the year, the areas of greatest catches vary. The catch of yellowfin during the first quarter of 1996 was generally restricted to regions inside the CYRA, primarily in nearshore areas along the coast of North and Central America, in the vicinity of the Costa Rica Dome, and between about 10°N and 18°N from about 100°W to 105°W. In addition, good fishing occurred offshore in the southern hemisphere between about 10°S and 18°S from about 80°W to 90°W. During the second quarter, catches continued to be made nearshore, with high catches being made between about 5°N and 23°N. An area of high catches evident in the southern Gulf of California during the first quarter extended well into the Gulf during the second quarter. During the second quarter the catches increased in the offshore area between about 5°N and 15°N from about 110°W to 125°W, along the confluence of the North Pacific Current and the westwardly-flowing North Equatorial Current. The catches near the Costa Rica Dome, which had been relatively high during the first quarter decreased somewhat. During the third quarter, regions of relatively high catches occurred (1) in the area off Baja California between about 24°N and 27°N and in the southern part of the Gulf of California, (2) in the region of the Costa Rica Dome, (3) in the nearshore region off Ecuador and southern Colombia, and (4) in the offshore region between about 8°N and 16°N from about 115°W to 130°W. During the fourth quarter, fishing continued throughout most of the EPO, with areas of high catches scattered over the region. Somewhat concentrated areas of higher catches were located between about 8°N and 18°N from about 115°W to 125°W and in the area north of the Galapagos Islands. Also, the catches remained high in the area around the tip of Baja California.

The average annual distribution of logged catches of skipjack by purse seiners in the EPO during the 1981-1995 period is shown in Figure 5, and a preliminary estimate for 1996 is shown in Figure 6. In 1996 the catches were relatively greater south of the equator and west of about 100°W. High catches of skipjack were made during the first quarter of 1996 throughout the region between about 19°S and 7°S from about 77°W to 88°W. Another extensive region of high catches was located well offshore from about 105°W to 135°W between about 11°S and 2°S. Less extensive areas of high catches were also located in and near the Gulf of Guayaquil, in the Panama Bight, and along the coast of Mexico from about 19°N to 24°N. During the second quarter the zones of relatively high catches in the Panama Bight and Gulf of Guayaquil developed into a continuous zone of high catches along the coast of Central and South America between these regions. The extensive zone of high catches in the offshore region extended from about 85°W to 128°W between about 13°S and 6°S at the easternmost extension of the zone, and between about 9°S and 3°S at the westernmost, extension of the zone. The region of relatively high catches along the coast of Mexico persisted during the second quarter, exhibiting a slight northerly shift in the southern and northern limits of the region. During the third quarter the offshore zone of high catches persisted between about 100°W and 125°W and from about 2°S to 10°S. The catches remained high in the Panama Bight region, but decreased significantly off the coast of Mexico. During this quarter an area of higher catches developed to the west of the Galapagos Islands, extending from about 90°W to 98°W between about 0° and 3°N. As the year progressed, the catches decreased in the Panama Bight, and by the fourth quarter there remained a few scattered regions of higher catches in the vicinity of the Gulf of Guayaquil. During the fourth quarter regions of high catches were widely distributed in the offshore regions of the EPO and along the Inter-Tropical Convergence Zone from the coast of Ecuador to about 120°W.

The catch of bigeye by surface gear during the 1979-1993 period (IATTC Annual Report for 1995: Figure 6) was made in two principal areas, (1) within a region between about 17°S and 9°S from about 80°W to 83°W extending to between 13°S and 10°S at about 90°W and (2) within a region between about 5°S and 3°N at about 80°W to 88°W, thence extending westward to between about 0° to 5°N at about 105°W (Figure 7). With the development of catches of bigeye associated with floating objects, described above, the relative importance of the inshore areas has decreased, while that of the offshore areas has increased. In 1996 (as in 1994 and 1995) areas of relatively high bigeye catches were found widely distributed between about 10°S and 2°S from about 100°W to 122°W, and from about 0° to 6°N from about 93°W to 115°W (Figure 8).

## **YELLOWFIN QUOTAS**

The Director and scientific staff of the IATTC have the responsibility for conducting studies of the biology of the tunas and related species of fish inhabiting the eastern Pacific Ocean and the effects of fishing upon them, and recommending appropriate conservation measures when necessary so that the stocks of fish can be maintained at levels which will yield the maximum sustainable catches. The Director first recommended that an annual quota be set on the catch of yellowfin in the CYRA in 1962. However, the member governments could not reach agreement on a yellowfin quota until 1966. Agreement was reached on a quota for every year from 1966 through 1986 and 1988 through 1996. The Director did not recommend a quota for 1987 because, due primarily to exceptionally high levels of recruitment in 1984 and 1985, the abundance of yellowfin appeared to be at its greatest level in recent years.

The IATTC held its 57th meeting in La Jolla, California, USA, on October 21-23, 1996. The Director recommended a yellowfin quota of 235,000 short tons (213,188 metric tons) for that year, with the option to increase this limit by up to three increments of 20,000 short tons (18,144 metric tons) each. This quota was also adopted (Appendix).

## APPENDIX

*The Inter-American Tropical Tuna Commission*, having responsibility for the scientific study of the tunas and tuna-like fishes of the eastern Pacific Ocean, and for the formulation of recommendations to the High Contracting Parties with regard to these resources, and having maintained since 1950 a continuing scientific program directed toward the study of those resources,

*Notes* that the yellowfin tuna resource of the eastern Pacific supports one of the most important surface fisheries for tunas in the world, and

*Recognizes*, based on past experience in the fishery, that the potential production from the resource can be reduced by excessive fishing effort, and

*Recalls* that from 1966 through 1979 the implementation of a successful conservation program maintained the yellowfin stock at high levels of abundance, and

*Notes* that from 1980 through 1995, excepting 1987, although no conservation programs were implemented, conservation measures were recommended to the Commissioners by the scientific staff, and in turn such measures were approved by the Commissioners for recommendation to their respective governments, and

*Observes* that, although the stock of yellowfin is currently at a level of abundance greater than the optimum, nevertheless it can be over-exploited,

*Concludes* that, if conditions warrant, a limitation on the catch of yellowfin tuna should be implemented during 1996.

*The Inter-American Tropical Tuna Commission therefore recommends to the High Contracting Parties* that a quota of 235,000 short tons be established for the 1996 calendar year on the total catch of yellowfin tuna from the CYRA (as defined in the resolution adopted by the Commission on May 17, 1962), and that the Director should be authorized to increase this limit by no more than three successive increments of 20,000 short tons each if he concludes from examination of available data that such increases will pose no substantial danger to the stocks, and

*Finally recommends* that all member states and other interested states work diligently to achieve the implementation of such a yellowfin conservation program for 1996.



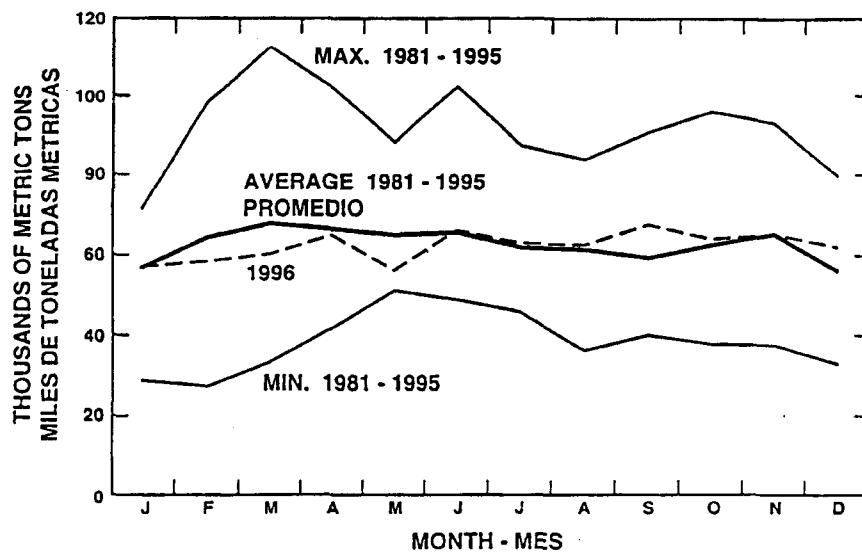


FIGURE 1. Average, minimum, and maximum values for monthly capacity at sea in the EPO during 1981-1995, and the 1996 monthly values.

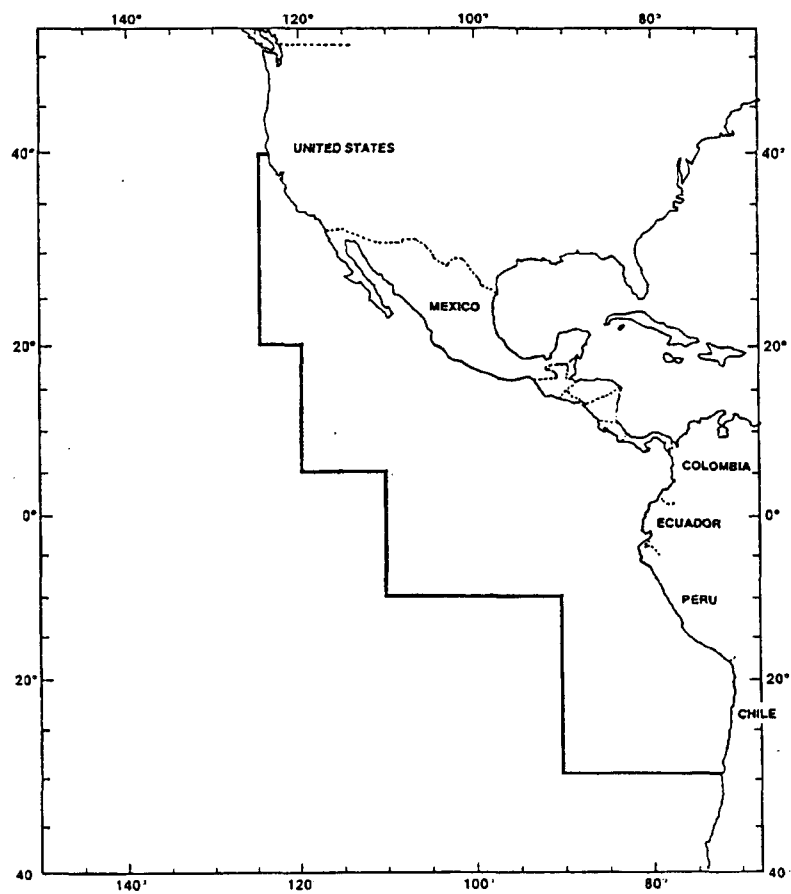


FIGURE 2. The Commission's Yellowfin Regulatory Area (CYRA).

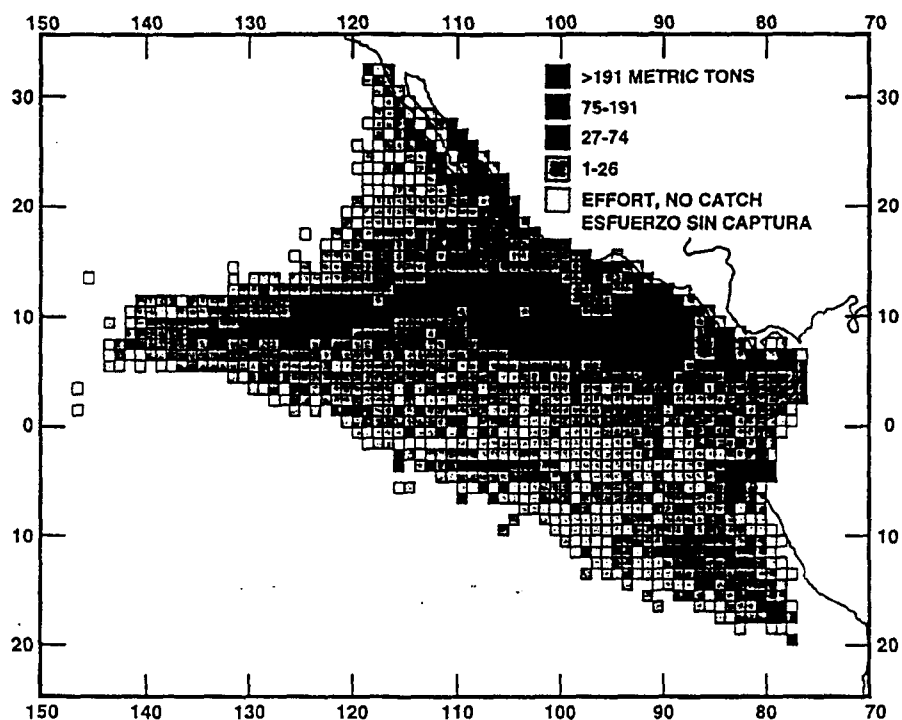


FIGURE 3. Average annual catches of yellowfin in the EPO during 1981-1995 for all purse-seine trips for which usable logbook data were obtained. The averages were calculated only for 1-degree areas for which three or more years of data were available.

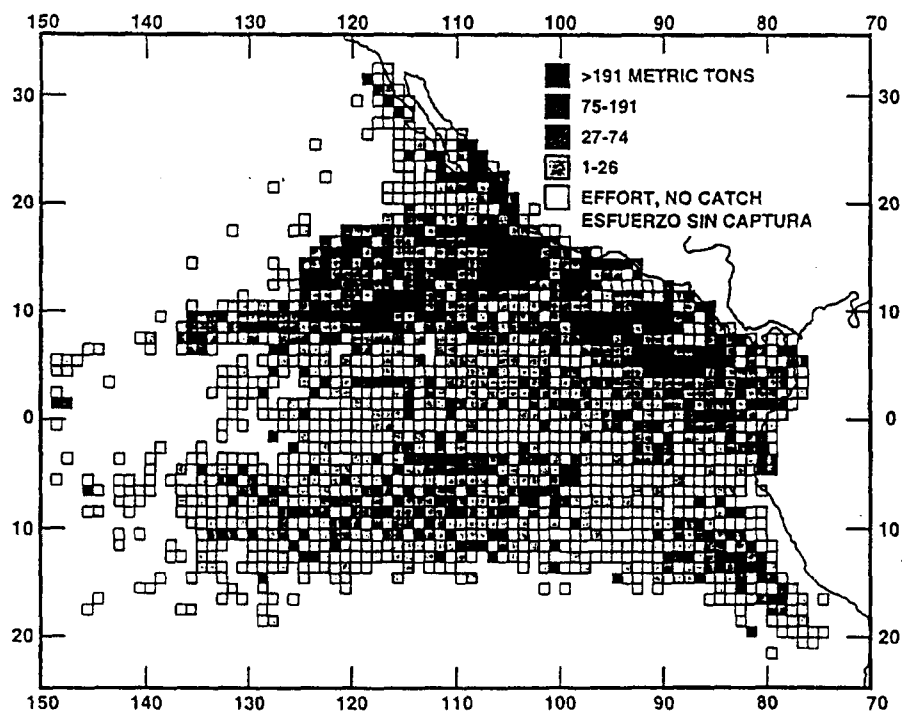


FIGURE 4. Catches of yellowfin in the EPO in 1996 for all purse-seine trips for which usable logbook data were obtained.

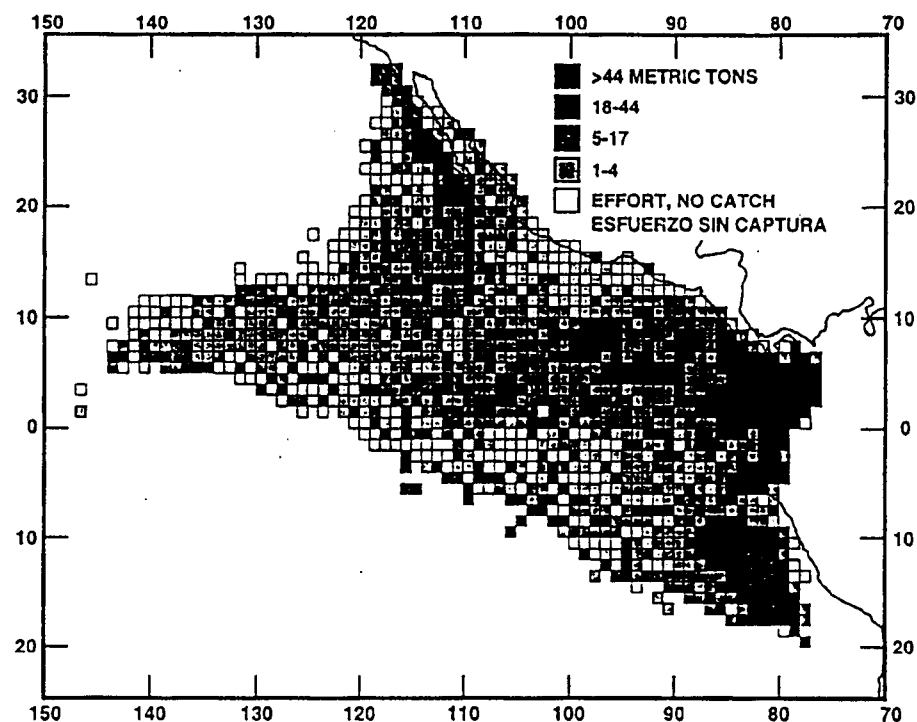


FIGURE 5. Average annual catches of skipjack in the EPO during 1981-1995 for all purse-seine trips for which usable logbook data were obtained. The averages were calculated only for 1-degree areas for which three or more years of data were available.

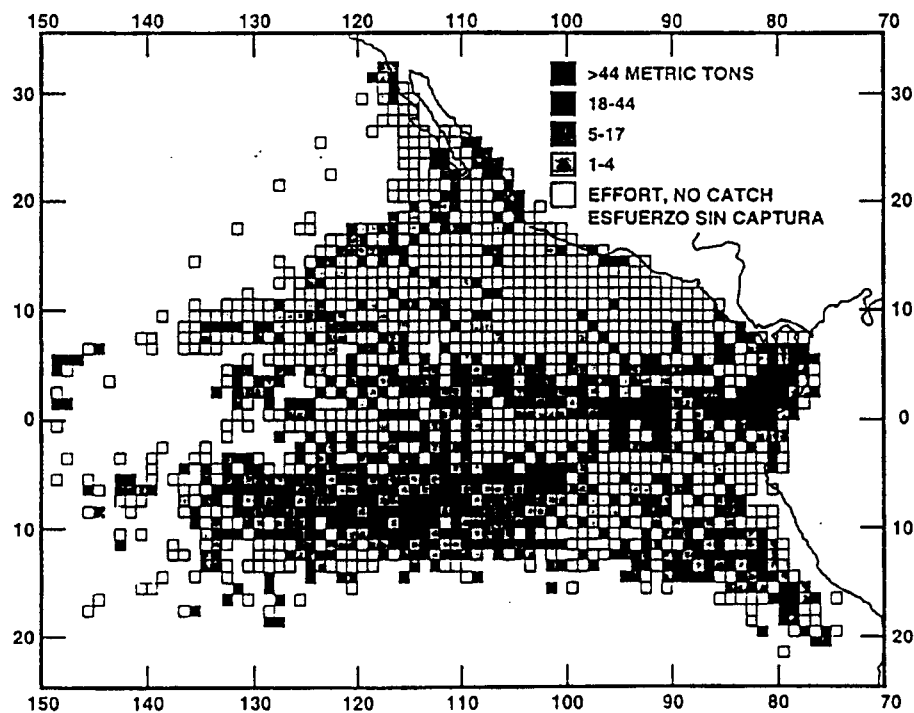


FIGURE 6. Catches of skipjack in the EPO in 1996 for all purse-seine trips for which usable logbook data were obtained.

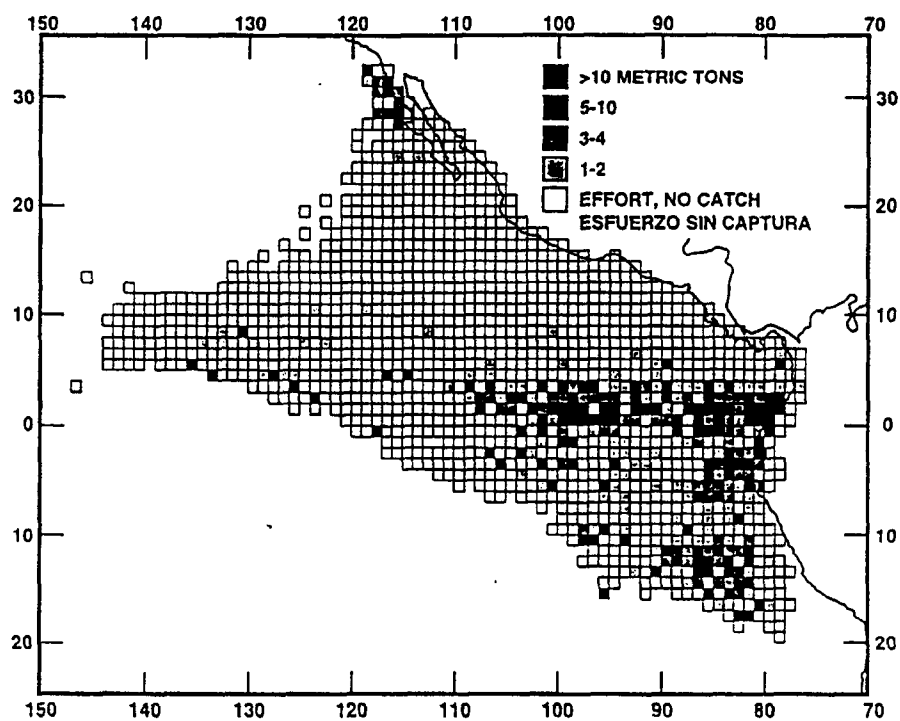


FIGURE 7. Catches of bigeye tuna in the EPO during 1981-1995 for all purse-seine trips for which usable logbook data were obtained. The averages were calculated only for 1-degree areas for which three or more years of data were available.

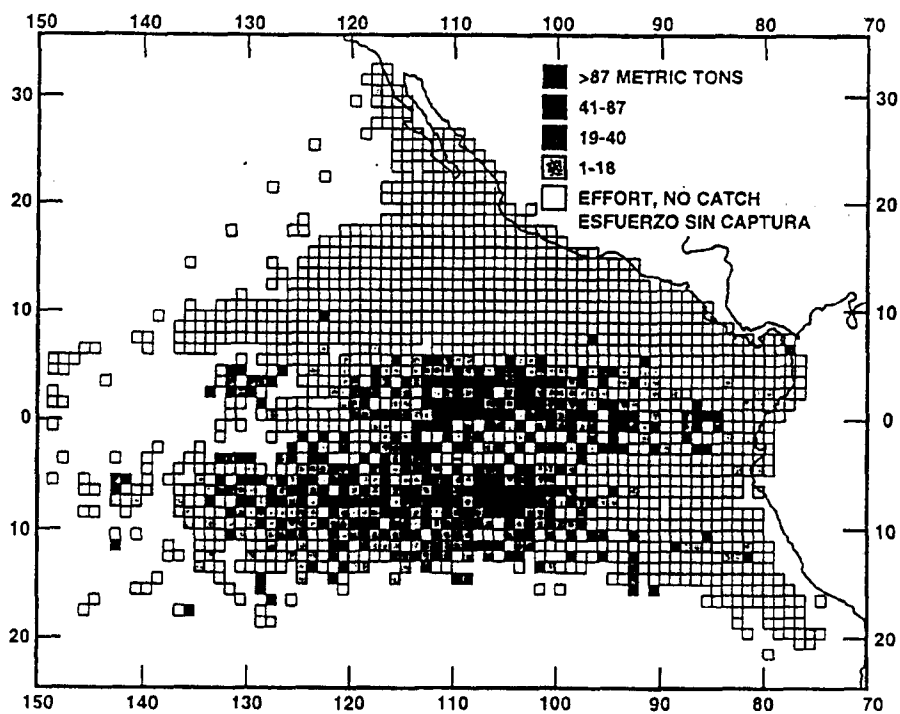


FIGURE 8. Catches of bigeye tuna in the EPO during 1996 for all purse-seine trips for which usable logbook data were obtained.

TABLE 1. Numbers and carrying capacities, in metric tons, of vessels of the eastern Pacific tuna fleet. Information for 1950-1960 is given in Table 4 of the IATTC Annual Report for 1988. The data for 1996 are preliminary.

TABLA 1. Número y capacidad de acarreo, en toneladas métricas, de los barcos de la flota atunera del Pacífico oriental. En la Tabla 4 del Informe Anual de la CIAT de 1988 se presentan los datos de 1950-1960. Los datos de 1996 son preliminares.

Year-Año	Seiners--Cerqueros		Baitboats--De carnada		Trollers--Curricaneros		Total	
	No.	Ton.	No.	Ton.	No.	Ton.	No.	Ton.
1961	125	27,250	93	9,544	0	0	218	36,794
1962	146	31,163	88	6,093	0	0	234	37,256
1963	159	36,550	108	5,425	3	50	270	42,025
1964	137	36,631	88	4,285	0	0	225	40,916
1965	163	38,728	109	5,249	7	166	279	44,143
1966	133	36,304	113	5,649	2	26	248	41,979
1967	130	36,650	108	5,326	0	0	238	41,976
1968	143	46,012	89	5,215	2	22	234	51,249
1969	153	51,807	69	4,501	3	64	225	56,372
1970	162	61,246	49	3,903	9	160	220	65,309
1971	191	80,668	102	5,054	66	1,375	359	87,097
1972	210	102,022	108	6,085	74	1,762	392	109,869
1973	219	119,734	106	6,219	28	660	353	126,613
1974	234	133,449	111	7,045	7	136	352	140,630
1975	253	148,667	102	6,717	9	165	364	155,549
1976	254	160,197	99	6,414	38	823	391	167,434
1977	253	162,294	79	4,926	37	866	369	168,086
1978	271	164,252	68	4,572	50	1,183	389	170,007
1979	282	167,016	45	3,608	5	101	332	170,725
1980	270	167,855	46	3,479	4	97	320	171,431
1981	251	167,862	39	2,776	2	50	292	170,688
1982	223	152,270	36	2,458	4	119	263	154,847
1983	215	127,640	52	3,145	8	221	275	131,006
1984	175	103,929	40	2,772	0	0	215	106,701
1985	178	117,738	25	2,199	0	0	203	119,937
1986	166	112,606	17	1,760	0	0	183	114,366
1987	178	130,240	28	1,948	0	0	206	132,188
1988	189	133,819	36	2,797	0	0	225	136,616
1989	178	121,277	30	2,678	0	0	208	123,955
1990	174	123,220	22	1,585	0	0	196	124,805
1991	155	106,365	19	1,392	0	0	174	107,757
1992	160	99,971	19	1,377	0	0	179	101,348
1993	152	101,434	15	1,318	0	0	167	102,752
1994	167	104,411	20	1,474	0	0	187	105,885
1995	175	106,019	19	1,497	0	0	194	107,516
1996	182	114,551	18	1,561	0	0	200	116,112

TABLE 2. Preliminary estimates of the numbers and carrying capacities, in metric tons, of vessels (exclusive of longliners and miscellaneous small vessels) operating in the EPO in 1996 by flag, gear, and size class. Each vessel is included in the totals for each flag under which it fished during the year, but is included only once in the fleet total. Therefore the totals for the fleet may not equal the sums of the individual flag entries. (PS = purse seiner; BB = baitboat; JB = jigboat)

TABLA 2. Estimaciones preliminares del número de barcos que pescaron en el OPO en 1996 (sin incluir palangreros y barcos pequeños diversos), y capacidad de acarreo de los mismos, en toneladas métricas, por bandera, arte de pesca, y clase de arqueo. Se incluye cada barco en los totales de cada bandera bajo la cual pescó durante el año, pero solamente una vez en el total de la flota; por consiguiente, los totales de las flotas no son necesariamente iguales a las sumas de las banderas individuales. (PS = cerquero; BB = barco de carnada; JB = curricán)

Flag--Bandera	Gear-- Arte	Size class--Clase de arqueo						Total
		1	2	3	4	5	6	
NUMBER--NUMERO								
Belize	PS	-	-	1	-	-	3	4
Colombia	PS	-	-	2	-	1	7	10
Costa Rica	PS	-	-	-	-	-	1	1
Cyprus	PS	-	-	-	-	-	1	1
Ecuador	PS	-	5	12	10	5	15	47
	BB	1	-	-	-	-	-	1
FSM	PS	-	-	-	-	-	1	1
Honduras	PS	-	-	-	-	-	1	1
Liberia	PS	-	-	-	-	-	1	1
México	PS	-	3	9	5	2	39	58
	BB	1	3	5	-	-	-	9
Panamá	PS	-	-	-	3	1	2	6
Spain	PS	-	-	-	-	-	2	2
USA	PS	1	7	4	-	2	8	22
	BB	1	6	1	-	-	-	8
Vanuatu	PS	-	-	-	-	-	12	12
Venezuela	PS	-	-	-	-	1	19	20
Others--otras	PS	-	-	-	-	-	-	-
All flags--	PS	1	15	28	18	11	109	182
Todas las	BB	3	9	6	-	-	-	18
banderas	All gear	4	24	34	18	11	109	200
CAPACITY--CAPACIDAD								
All flags--	PS	45	1,188	3,982	4,102	3,675	101,559	114,551
Todas las	BB	108	692	761	-	-	-	1,561
banderas	All gear	120	2,375	4,940	4,890	4,053	106,862	116,112

\* Asterisks indicate data pooled to avoid revealing the operations of individual vessels or companies.

\* Los asteriscos indican datos combinados para evitar revelar las actividades de barcos o empresas individuales.

<300   <400.

**TABLE 3.** Estimated catches by surface gear, in metric tons, of the eastern Pacific tuna fleet. The abbreviations used in the table are as follows: YFT, yellowfin; SKJ, skipjack; BET, bigeye; BFT, bluefin; BEP, bonito; ALB, albacore; BKJ, black skipjack; Misc, other species including sharks, other tunas, and miscellaneous fishes; CYRA, Commission's Yellowfin Regulatory Area; Outside, area between the CYRA and 150°W. The 1996 data are preliminary. Additional information concerning this table is given in the text.

**TABLA 3.** Capturas estimadas, en toneladas métricas, logradas con artes de superficie por la flota atunera del Pacífico oriental. En la tabla se usan las siguientes abreviaturas: YFT, aleta amarilla; SKJ, barrilete; BET, patudo; BFT, aleta azul; BEP, bonito; ALB, albacora; BKJ, barrilete negro; Misc., otras especies, incluyendo tiburones, otras túnidos; y peces diversos; CYRA, Área de Regulación de la Comisión para el Aleta Amarilla; Outside, zona entre el CYRA y 150°W. Los datos de 1996 son preliminares. En el texto se presentan mayor información sobre esta tabla.

Year-- Año	YFT			SKJ	BET	BFT	BEP	ALB	BKJ	Misc.	Total
	CYRA	Outside	Total								
1961	102,643	0	102,643	68,461	213	8,135	2,908	2,422	0	214	184,997
1962	71,452	0	71,452	68,725	328	11,145	3,243	1,151	0	166	156,210
1963	62,028	0	62,028	95,557	75	12,272	3,123	3,422	0	240	176,717
1964	88,650	0	88,650	59,258	68	9,217	6,702	3,331	5	225	167,456
1965	78,898	0	78,898	78,194	117	6,888	4,049	644	16	155	168,962
1966	80,611	0	80,611	60,482	266	15,897	4,454	1,941	9	422	164,083
1967	79,959	0	79,959	120,655	1,664	5,888	10,044	3,750	0	115	222,076
1968	100,921	1,095	102,016	71,109	2,559	5,976	7,958	4,495	0	126	194,238
1969	111,424	17,434	128,858	59,068	576	6,926	2,950	2,944	0	1	201,323
1970	127,793	27,833	155,626	56,020	1,332	3,966	4,738	4,476	0	27	226,186
1971	102,194	20,645	122,839	104,721	2,566	8,360	9,600	2,490	6	61	250,642
1972	136,515	40,612	177,128	33,409	2,238	13,347	8,872	4,832	601	367	240,795
1973	160,341	44,912	205,253	43,954	1,979	10,744	7,864	2,316	1,674	355	274,139
1974	173,180	37,184	210,364	78,803	890	5,617	4,436	4,783	3,742	985	309,620
1975	158,843	43,299	202,142	123,868	3,723	9,583	16,838	3,332	511	277	360,275
1976	190,216	46,111	236,327	126,161	10,186	10,645	4,370	3,733	1,526	1,327	394,274
1977	182,676	16,140	198,817	86,337	7,055	5,473	11,275	1,963	1,458	1,950	314,328
1978	165,985	14,549	180,534	169,810	11,714	5,397	4,837	1,745	2,162	806	377,004
1979	175,906	13,768	189,674	132,024	7,532	6,117	1,805	327	1,366	1,249	340,094
1980	131,853	26,888	158,740	130,420	15,421	2,939	6,110	600	3,680	953	318,863
1981	157,733	24,080	181,813	119,606	10,091	1,089	5,918	753	1,911	1,010	322,191
1982	106,846	18,216	125,062	98,685	4,102	3,150	2,121	553	1,338	783	235,794
1983	82,001	12,230	94,231	58,104	3,260	853	3,829	456	1,236	1,709	163,679
1984	128,559	16,502	145,061	60,551	5,936	881	3,514	5,351	666	987	222,947
1985	192,543	24,449	216,992	49,460	4,532	4,055	3,604	867	296	536	280,342
1986	228,125	40,149	268,274	63,552	1,939	5,085	490	134	595	1,140	341,208
1987	248,153	24,094	272,246	62,345	776	1,005	3,326	417	557	1,612	342,284
1988	267,223	20,811	288,034	85,366	1,053	1,424	9,550	288	1,267	1,297	388,279
1989	242,342	47,033	289,375	92,374	1,470	1,170	12,095	1	783	1,072	398,339
1990	226,422	46,864	273,286	72,619	4,712	1,542	13,856	184	792	944	367,934
1991	219,407	19,545	238,952	63,259	3,740	461	1,288	833	446	649	309,630
1992	221,309	18,540	239,849	83,964	5,497	1,999	978	306	104	762	333,459
1993	213,258	18,813	232,071	87,357	8,069	879	599	1	104	314	329,395
1994	196,345	22,042	218,387	75,320	29,375	1,062	8,607	85	188	419	333,444
1995	196,009	27,603	223,612	138,520	36,941	875	8,088	506	187	336	409,065
1996	219,983	29,334	249,317	107,975	52,132	6,820	633	0	615	1,023	418,516

TABLE 4. Preliminary estimates of the catches and landings, in metric tons, of tunas caught by surface gear in the EPO in 1996, by species and vessel flag.  
 TABLA 4. Estimaciones preliminares de las capturas y desembarcos de atunes capturados con artes de superficie en el OPO en 1996, por especie y bandera del barco, en toneladas métricas.

Flag--	YFT		SKJ	BET	BFT	BEP	ALB	BSJ	Misc. <sup>1</sup>	Total	Percentage of total
Bandera	CYRA	Outside									
CATCHES--CAPTURAS											
Colombia	7,126	2,841	12,154	6,665	0	0	0	70	0	28,856	6.9
Ecuador	16,270	2,193	34,478	17,348	0	0	0	319	236	70,844	16.9
México	106,970	16,452	16,574	1,042	3,566	394	0	113	169	145,280	34.7
U.S.A.	10,024	649	12,561	5,214	3,254	239	0	19	47	32,007	7.6
Vanuatu	10,033	1,979	11,085	9,894	0	0	0	0	571	33,526	8.0
Venezuela	60,558	2,197	3,550	528	0	0	0	54	0	66,887	16.0
Other-Otros <sup>2</sup>	9,013	3,007	17,552	11,407	0	0	0	40	0	41,019	9.8
Total	219,994	29,318	107,954	52,098	6,820	633	0	615	1,023	418,455	
LANDINGS--DESEMBARCOS											
Colombia	22,901	4,290	15,603	10,671	0	0	0	64	0	53,529	12.7
Costa Rica	25,456	602	3,511	1,996	0	0	0	0	0	31,565	7.5
Ecuador	33,480	5,757	64,218	36,086	0	0	0	461	921	140,923	33.5
Italy	2,635	0	0	0	0	0	0	0	0	2,635	0.6
México	87,419	16,148	12,927	388	2,564	394	0	103	90	120,033	28.5
Spain	9,079	347	1,132	0	0	0	0	0	0	10,558	2.5
U.S.A.	7,083	384	7,708	2,116	4,256	240	0	19	45	21,851	5.2
Venezuela	19,302	975	1,098	0	0	0	0	0	0	21,375	5.1
Other-Otros <sup>3</sup>	15,442	239	1,332	1,024	0	0	0	0	0	18,037	4.3
Total	222,797	28,742	107,529	52,281	6,820	634	0	647	1,056	420,506	

<sup>1</sup> Includes mackerel, sharks, other tunas, and miscellaneous fishes.

<sup>1</sup> Incluye macarelas, tiburones, otros túnidos, y peces diversos.

<sup>2</sup> Includes, Belize, Costa Rica, Cyprus, New Zealand, Panama, and Spain. This category is used to avoid revealing the operations of individual vessels or companies.

<sup>2</sup> Incluye Belice, Costa Rica, Chipre, España, Nueva Zelanda, y Panamá. Se usa esta categoría para no revelar información sobre faenas de barcos o empresas individuales.

<sup>3</sup> Includes Peru and unidentified locations. This category is used to avoid revealing the operations of individual vessels or companies.

<sup>3</sup> Incluye Perú y localidades no identificados. Se usa esta categoría para no revelar información sobre faenas de barcos o empresas individuales.



TABLE 5. Logged catches, in metric tons, of yellowfin (YFT), skipjack (SKJ), and bigeye (BET) tuna in three types of purse-seine sets, and total purse-seine catches of yellowfin, skipjack, and bigeye. The numbers of dolphin sets differ from those shown in Background Paper 6, Figure 1, because the values in the figure were obtained from the observer data base.

TABLA 5. Capturas registradas, en toneladas métricas, de aleta amarilla (YFT), barrilete (SKJ), y patudo (BET) en tres tipos de lance cerquero, y capturas totales de aleta amarilla, barrilete, y patudo por barcos cerqueros. Los números de lances sobre delfines no corresponden a aquellos en la Figura 1 del Documento 6 porque los valores en esa figura provienen de la base de datos de observadores.

Year	Logged sets and catches												Total catches		
	Dolphin				Floating object				Free-swimming				YFT	SKJ	BET
	Sets	YFT	SKJ	BET	Sets	YFT	SKJ	BET	Sets	YFT	SKJ	BET			
Año	Lances y capturas registradas												YFT	SKJ	BET
	Delfín				Objeto flotante				No asociados						
	Lances	YFT	SKJ	BET	Lances	YFT	SKJ	BET	Lances	YFT	SKJ	BET	YFT	SKJ	BET
1961	3,595	25,870	358	0	178	615	1,640	0	3,368	12,472	13,401	0	84,234	35,707	156
1962	2,822	16,212	170	0	108	501	605	0	7,548	25,338	31,733	18	56,444	50,547	160
1963	3,157	15,383	368	0	124	161	834	0	8,229	20,041	40,309	0	51,139	71,910	0
1964	5,832	31,491	915	0	169	367	551	0	6,596	27,794	28,817	0	80,152	44,158	0
1965	6,031	36,362	744	0	107	576	582	0	6,595	16,090	33,336	8	69,538	55,833	0
1966	5,326	33,061	1,400	0	145	887	551	0	6,060	22,252	27,740	91	74,010	44,225	109
1967	3,462	25,652	310	0	718	1,733	4,883	104	8,635	30,108	68,258	626	72,848	96,432	916
1968	3,754	39,065	509	317	844	6,631	10,024	35	7,246	38,524	36,315	873	93,836	54,268	2,496
1969	7,602	89,414	6,105	0	220	1,441	1,319	23	5,743	19,804	23,872	237	119,305	40,759	576
1970	7,855	91,526	7,262	8	241	1,256	1,717	0	8,536	41,253	25,190	127	145,652	41,461	1,332
1971	4,784	65,680	1,096	0	955	3,708	14,105	100	8,857	29,270	52,870	1,483	114,067	87,012	2,474
1972	8,084	117,890	641	0	577	6,668	4,609	380	4,085	22,540	12,467	1,343	169,425	26,338	2,172
1973	8,608	116,038	666	140	1,002	9,070	6,294	634	7,525	42,441	16,148	728	199,645	33,516	1,848
1974	7,759	89,158	501	16	3,384	29,878	29,665	200	7,466	42,891	25,891	406	199,756	70,924	886
1975	7,894	102,234	793	0	2,699	14,664	29,269	1,722	9,501	42,046	49,672	1,529	194,441	109,606	3,695
1976	7,084	109,192	2,905	0	4,805	32,258	45,007	2,084	10,597	54,010	41,893	5,766	231,876	114,578	10,137
1977	7,133	82,088	2,979	108	2,610	17,364	18,841	2,406	10,434	51,848	31,154	2,764	196,218	76,964	7,053
1978	5,098	51,321	938	5	8,422	41,085	88,423	2,476	11,201	51,665	42,674	7,104	175,400	162,723	11,714
1979	7,246	68,842	1,132	18	6,043	30,135	68,938	1,383	12,296	54,212	36,659	3,341	184,230	124,507	7,531
1980	6,456	61,187	1,762	48	5,542	26,461	63,892	2,360	11,755	44,844	31,787	10,883	156,044	123,365	15,318
1981	6,618	66,600	443	0	5,010	22,665	57,788	2,091	10,644	54,126	32,262	5,800	178,757	112,931	10,090
1982	4,940	48,645	336	0	5,095	21,705	51,864	2,616	6,517	25,020	27,949	918	123,246	94,671	4,079
1983	3,583	29,167	1,363	0	3,057	10,741	23,585	1,517	7,641	35,724	21,138	471	88,495	53,133	3,145
1984	5,919	79,930	627	1	2,278	8,263	30,907	1,691	6,804	43,777	15,646	2,403	141,494	56,948	5,919

TABLE 5. (continued)  
 TABLA 5. (continuación)

Year	Logged sets and catches												Total catches		
	Dolphin				Floating object				Free-swimming				YFT	SKJ	BET
	Sets	YFT	SKJ	BET	Sets	YFT	SKJ	BET	Sets	YFT	SKJ	BET			
Año	Lances y capturas registradas														
	Delfín				Objeto flotante				No asociados				Capturas totales		
	Lances	YFT	SKJ	BET	Lances	YFT	SKJ	BET	Lances	YFT	SKJ	BET	YFT	SKJ	BET
1985	10,156	151,013	71	0	1,434	10,373	19,053	2,221	4,730	31,540	23,296	952	215,608	48,374	4,496
1986	8,843	157,256	431	0	3,370	31,456	34,676	856	3,687	35,081	14,393	118	265,458	61,483	1,939
1987	11,514	165,348	429	20	2,596	23,892	25,309	392	5,090	42,945	22,399	133	266,684	58,622	771
1988	10,077	140,921	4,157	4	2,409	21,738	28,779	418	9,159	84,452	31,988	212	281,832	79,787	1,050
1989	11,308	173,437	1,178	12	2,568	24,387	33,515	554	7,181	54,409	37,228	133	282,870	88,218	1,470
1990	10,269	167,323	743	0	2,689	31,568	30,083	2,653	7,090	49,602	32,065	1,180	268,255	69,821	4,700
1991	8,932	146,216	789	0	2,222	21,555	30,354	1,500	5,435	45,542	17,608	1,209	234,546	59,516	3,702
1992	9,709	159,035	1,032	0	1,962	12,943	40,616	815	6,099	44,703	28,633	3,438	232,761	80,679	5,488
1993	6,660	105,617	698	72	1,777	15,243	40,361	2,506	8,537	84,506	27,481	1,932	223,518	81,500	8,043
1994	7,127	115,722	562	0	1,990	15,251	36,932	19,974	6,719	53,983	17,559	1,270	213,177	71,448	28,684
1995	6,767	131,561	1,221	0	2,478	17,351	48,422	24,096	7,991	55,445	37,324	2,810	221,160	131,366	35,786
1996	6,081	116,780	649	0	2,474	21,736	35,256	31,478	7,971	64,472	24,514	2,163	245,483	104,596	51,508

117.4  
39.

83.5  
29

297.

91.1  
30