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BACKGROUND PAPER A1

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**THE FISHERY FOR TUNAS AND TUNA-LIKE FISHES IN THE EASTERN
PACIFIC OCEAN IN 2001, AND OUTLOOK FOR 2002**

PREPARED APRIL 2002

THE FISHERY FOR TUNAS IN THE EASTERN PACIFIC OCEAN

The fleet

The IATTC maintains detailed records of gear, flag, and fish-carrying capacity for most of the vessels that fish with surface gear for yellowfin (*Thunnus albacares*), skipjack (*Katsuwonus pelamis*), bigeye (*Thunnus obesus*), or Pacific bluefin (*T. orientalis*) tuna in the eastern Pacific Ocean (EPO; Figure 1). Historically, detailed records have not been maintained for most longline vessels, nor for sport-fishing vessels and small craft such as canoes and launches, though recently the staff has begun compiling and maintaining these records, and will continue to do so in the future. The fleet described here includes purse seiners and baitboats (hereafter referred to as surface gear) that have fished all or part of the year in the EPO for yellowfin, skipjack, bigeye, or bluefin tuna.

Historically the owner's or builder's estimates of vessel-carrying capacities, in tons of fish, were used until landing records indicated that revision of these estimates was required. The vessels are grouped, by carrying capacity, into the following size classes for reporting purposes: class 1, less than 46 metric tons (mt); class 2, 46-91 mt; class 3, 92-181 mt; class 4, 182-272 mt; class 5, 273-363 mt; and class 6, more than 363 mt. During the past several years the IATTC staff has been estimating carrying capacity by volume in cubic meters instead of by weight in metric tons. Since a well can be loaded with different densities of fish, measuring carrying capacity in weight is subjective, as a load of fish packed into a well at a higher density will weigh more than a load of fish packed at a lower density. Using volume in cubic meters as a measure of capacity eliminates this problem. The six size classes used for reporting and monitoring purposes are still based on metric-ton capacity, but the total capacities by year and flag are reported in cubic meters. The IATTC staff began collecting vessel-capacity data in cubic meters in 1999, but the cubic meter capacity has not been reported for some vessels. In such cases a factor of 1.171 is used to convert metric tons to cubic meters. This conversion was also applied to all carrying capacity data for 1961-1998 to make comparisons among the years (Table 1).

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 1961-2001 period the number of baitboats decreased from 93 to 11, and their total capacity from about 11 to 1 thousand cubic meters (m^3). During the same period the number of purse seiners increased from 125 to 203, and their capacity from about 31 thousand m^3 to about 189 thousand m^3 , at an average of about 931 m^3 per vessel. An earlier peak in numbers and capacity of purse seiners occurred from the mid-1970s to the early 1980s, when the number of vessels reached 282 and the capacity about 196 thousand m^3 , at an average of about 695 m^3 per vessel.

The construction of new purse seiners, which began during the mid-1960s, resulted in an increase in the total surface fleet capacity from about 42 thousand m^3 in 1966 to about 188 thousand m^3 in 1976. During the 1976-1981 period the fleet capacity increased slightly. 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. A major El Niño event 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. In 1982 the fleet capacity declined by about 18 thousand m^3 as vessels were deactivated or left the EPO to fish in other areas, primarily

the western Pacific Ocean. This trend continued through 1983 as the catch rates in the EPO declined further, and the fleet capacity declined by about 30 thousand m³ during 1983 and 1984. The fleet capacity in 1984, about 121 thousand m³, 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 138 thousand m³, but in 1986 it decreased slightly to about 132 thousand m³. 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 about 152 thousand m³. This trend continued in 1988, resulting in a fleet capacity of about 156 thousand m³. 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, with a consequent reduction in the EPO fleet to about 117 thousand m³ in 1992. With increases in participation of non-U.S.-flag vessels in the fishery, the capacity has increased steadily since 1992, and the capacity in 2001 was 191 m³.

The 2000 and preliminary 2001 data for numbers and carrying capacities of purse seiners and baitboats that fished for tunas in the EPO are shown in Tables 2a and 2b. The EPO tuna fleet was dominated by vessels operating under the Mexican and Ecuadorian flags during 2001. The Mexican fleet has been the largest fleet since 1987, with about 25 percent of the total capacity during 2001, while vessels registered in Ecuador, Venezuela, Spain and Panama, comprised about 25, 17, 6, and 5 percent of the total capacity, respectively.

Class-6 purse seiners make up the majority of the total capacity of the surface gear operating in the EPO, comprising about 90 percent of the total surface gear capacity operating in the EPO during 2001.

The catches and landings

Tunas

Estimates of the catches and landings of tunas come from several sources, including log-books kept by the fishermen, data recorded by observers, export and import records, and unloading data provided by canneries and other processors. Estimating total catch from a fishery is difficult, however, due to the lack of information on fish that are caught, but, for various reasons, discarded at sea. Data on fish discarded at sea by Class-6 vessels have been collected by observers since 1993. This information allows for better estimation of the total amount of fish caught by the surface fleet. Estimates of the total amount of catch that is landed (hereafter referred to as landed catch or landings), are made principally from data from unloadings. Annual estimates of the landed catches and the discards of the various species of tunas captured by vessels of the EPO surface fleet are shown in Table 3. Landings data for U.S.-flag sport-fishing vessels, and other miscellaneous gear types, are also included in Table 3. In the case of bluefin, these landings have become an increasingly important component of the catch in recent years. The statistics for 2000 and 2001 are compared to those for 1985-1999.

There were no restrictions on fishing for tunas in the EPO during the 1980-1997 period. However, there were restrictions on fishing for yellowfin in the Commission's Yellowfin Regulatory Area (CYRA) (Figure 1) from November 26 through December 31, 1998, from October 14 through December 31, 1999, from December 1 through 31, 2000, and from October 27 through December 31, 2001. In addition, fishing for tunas associated with fish-aggregating devices (FADs) was prohibited in the EPO from November 9 through December 31, 1999, and from Sep-

tember 15 through December 15, 2000. Furthermore, 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. As mentioned previously, there was a major El Niño event during 1982-1983, which made the fish less vulnerable to capture and reduced the numbers of vessels operating in the EPO. The fishing effort remained relatively low during 1984-1986. During the 1997-1998 period another major El Niño event occurred in the EPO, and the effects of this on the vulnerability of the fish to capture are currently being studied.

The average annual total landed catch of yellowfin by surface gear fisheries from the EPO during the 1985-1999 period was 256 thousand mt (range: 217 to 297 thousand mt). In 2000 these fisheries landed about 273 thousand mt, and in 2001 about 395 thousand mt of yellowfin. The average amount of yellowfin discarded at sea by these fisheries during the 1993-2001 period was about 2.1 percent of the total catch (landings plus discards; range: 1.7 to 2.4 percent).

During the 1985-1999 period the annual total landings of skipjack from the EPO averaged 104 thousand mt (range: 49 to 268 thousand mt). The preliminary estimate of the 2000 skipjack landings from the EPO, 211 thousand mt, is less than that of 1999, but nearly twice the average of the annual catches for the last 15 years. The preliminary estimate of landings from surface gear fisheries in 2001 is about 144 thousand mt. The average amount of skipjack discarded at sea by these fisheries during the 1993-2001 period was about 12.3 percent of the total catch (range: 8.5 to 18.2 percent).

Prior to 1994 the average annual landings of bigeye from the EPO by surface gear was about 5 thousand mt (range: <1 to 15 thousand mt). Since 1993 the landings increased from 29 thousand mt in 1994 to 41 thousand mt in 1999. The preliminary estimate of the 2000 bigeye landings from the EPO is about 70 thousand mt, which was followed by a decline to about 44 thousand mt in 2001. These increasing catches of bigeye followed the development of fish-aggregating devices (FADs) placed in the water by the fishermen to aggregate skipjack and yellowfin. The average amount of bigeye discarded at sea by these fisheries during the 1993-2001 period was about 7.8 percent of the total catch (range: 6.8 to 11.2 percent).

While yellowfin, skipjack, and bigeye comprise the most significant portion of the landings made by vessels fishing for tunas at the surface in the EPO, Pacific bluefin, albacore (*Thunnus alalunga*), black skipjack (*Euthynnus lineatus*), bonito (*Sarda orientalis*), and other species contribute to the overall harvest in this area. The total landings of these other species by these fisheries from the EPO was about 6 thousand mt in 2000, and 3 thousand mt in 2001, both of which are well below the 1985-1999 annual average of landings of about 9 thousand mt (range: 1.9 to 17.3 thousand mt). The estimated discarded catches of these species for the 1993 to 2001 period are presented in Table 3. Estimates of the discards of other species, in numbers of individuals, can be found in Tables 11b and 11c of the IATTC Annual Report for 2000.

The estimated landed catches made in 2000 and 2001 from the EPO by surface gear fisheries, by flag, are given in Tables 4a and 4b, respectively. The estimated landings of all species in the EPO during 2001 was about 586 thousand mt, which was slightly greater than that of 2000, 560 thousand mt, and much greater than the average of 1985-1999 of 386 thousand mt. Ecuadorian- and Mexican-flag vessels each harvested about 25 percent, and Venezuelan-flag vessels about 19 percent, of the total landed catch made in 2001.

Tunas are caught by surface gear in three types of schools, those in which the fish are associated with dolphins, those in which the fish are associated with floating objects, such as flotsam or FADs, and those in which the fish are associated only with other fish (unassociated schools).

Estimates of the numbers of purse-seine sets of each type in the EPO during the 1987-2001 period, and the landed catches of these sets, are listed in Table 5. The estimates for Class-1 to -5 vessels were calculated from logbook data in the IATTC statistical data base, and those for Class-6 vessels were calculated from logbook data and from the observer data bases of the IATTC, the Programa Nacional de Aprovechamiento del Atún y de Protección de Delfines (PNAAPD) of Mexico, the Programa Nacional de Observadores de Venezuela (PNOV), the Programa de Observadores Pesqueros de Ecuador (PROBECUADOR), and the U.S. National Marine Fisheries Service. The greatest numbers of sets on schools associated with floating objects and on unassociated schools of tuna 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 decreased only moderately during the mid-1990s, and in 1998 were the greatest since 1990.

There are two types of floating objects, flotsam and FADs. The occurrence of the former is fortuitous, whereas the latter are constructed by fishermen specifically for the purpose of attracting fish. FADs have been in use for only a few years, but their importance has increased during that period while that of flotsam has decreased, as shown by the data on numbers and percentages of the sets made on floating objects by Class-6 vessels with IATTC observers aboard.

	Flotsam		FADs		Unknown		Total
	Number	Percent	Number	Percent	Number	Percent	
1992	945	63.3	521	34.9	26	1.7	1,492
1993	1,118	57.7	811	41.8	9	0.5	1,938
1994	709	27.6	1,830	71.3	28	1.1	2,567
1995	579	17.8	2,647	81.6	19	0.6	3,245
1996	520	12.9	3,523	87.1	0	0.0	4,043
1997	718	12.8	4,859	86.9	16	0.3	5,593
1998	663	12.5	4,588	86.6	46	0.9	5,297
1999	778	17.3	3,719	82.5	10	0.2	4,507
2000	378	10.3	3,285	89.3	16	0.4	3,679

The average annual distributions of the logged catches of yellowfin, skipjack, and bigeye by set type, by purse seiners in the EPO during the 1986-2000 period, are shown in Figures 2a, 3a, and 4a. The preliminary estimates for 2001 are shown in Figures 2b 3b, and 4b. During the first half of 2001, large catches of yellowfin were taken off Peru from about 5°N to 15°S and east of about 90°W. Catches of yellowfin associated with dolphins remained relatively high for the rest of the year. Yellowfin catches were higher in the inshore coastal areas during 2001 compared to the average of the past 15 years. Similarly, large amounts of skipjack were caught off Peru during the beginning of 2001. Generally, catches of skipjack are relatively greater offshore between 5°S and 5°N between about 80°W and 125°W, and relatively less in waters off Baja California and off Central America.

Bigeye are not often caught by surface gear north of about 7°N. The catches of bigeye by purse seiners during the 1994-2000 period were made in two principal areas, (1) between about 6°N and 16°S from about 93°W to 140°W, and (2) between about 3°N and 3°S from about 82°W to 88°W (Figure 4a). A preliminary estimate of these catches in 2001 shows that the most of them were made between about 10°S and 5°N from the coast of South America to about 130°W. With the development of the fishery for tunas associated with floating objects, described above, the

relative importance of the nearshore areas has decreased, while that of the offshore areas has increased.

Billfishes

Swordfish (*Xiphias gladius*) are fished in the EPO with longline gear and gillnets, and occasionally with recreational gear. Most of those caught with commercial gear are retained. Marlins (*Makaira nigricans*, *M. indica*, and *Tetrapturus audax*), shortbill spearfish (*T. angustirostris*), and sailfish (*Istiophorus platypterus*) are fished with longline and recreational gear, and they comprise a small part of the bycatches of purse-seine vessels. Most of the longline-caught marlins, spearfish, and sailfish are retained, and most of those caught with commercial surface gear are discarded at sea. Information on the commercial catches and bycatches of billfishes in the EPO is given in Table 7.

Longline Fleet

Landings data for most of the larger, and an increasing portion of the smaller, longline vessels operating in the EPO are also obtained from various sources. These vessels, particularly the larger ones, target primarily bigeye and yellowfin tuna. Annual landings by these fisheries are shown in Tables 8a and 8c. During the 1985-1997 (the last year for which complete data are available) period the landings of yellowfin have remained relatively stable, with average annual landings of about 20 thousand mt (range: 13 to 30 thousand mt), or about 7.5 percent of the total landings. Prior to 1985 the landings of bigeye by longline averaged about 51 thousand mt (range: 31 to 74 thousand mt). In about 1985 the general level of landings of bigeye increased significantly, and during the period of 1985-1994 the average annual landings were about 81 thousand mt (range: 66 to 102 thousand mt). During the 1970-1993 period, prior to the increased use of FADS and resultant landing of bigeye by purse seine vessels, longline fisheries, on average, made 93 percent of the landings of this species from the EPO. During the 1995-1997 period the landings of bigeye by longline fisheries ranged from about 40 to 56 thousand mt (average: 46 thousand mt), which is well within the pre-1985 historical range, but is significantly less than the landings observed during the period of high landings seen during 1985-1994.

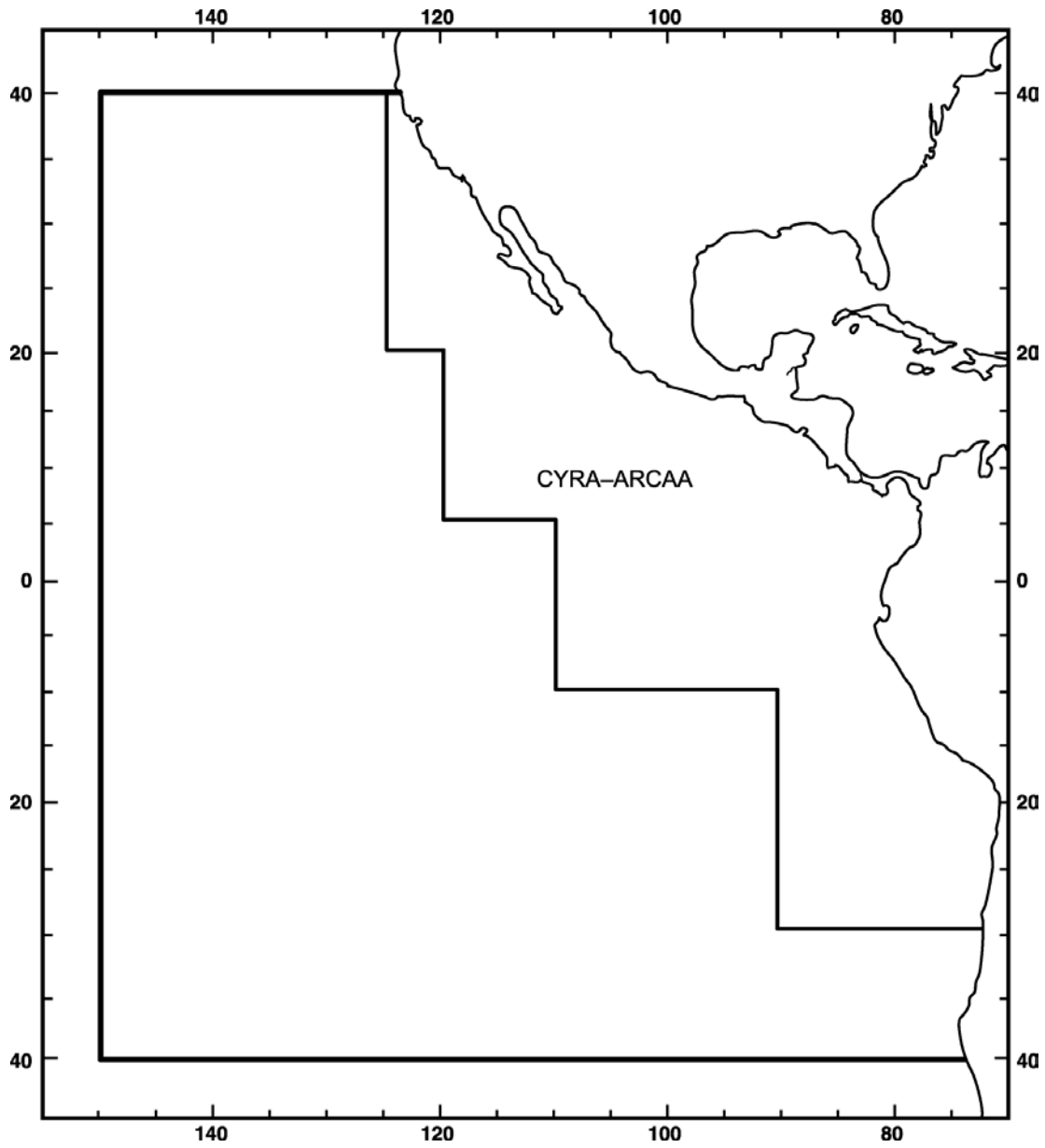


Figure 1. Eastern Pacific Ocean (EPO) showing the Commission Yellowfin Regulatory Area (CYRA) and the Outside Area.

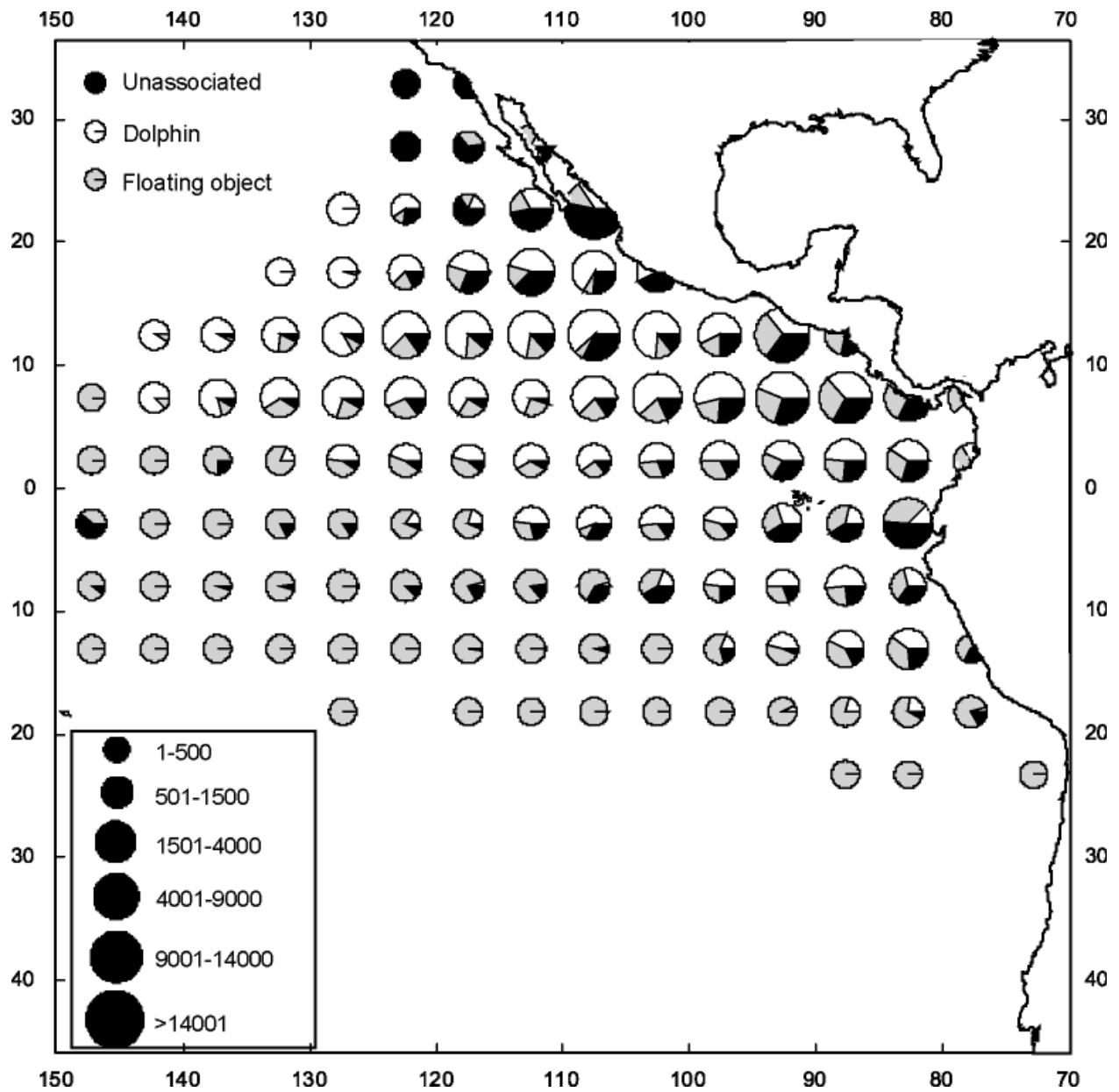


Figure 2a. Average annual distribution of logged catch of yellowfin in the eastern Pacific Ocean, 1986-2000.

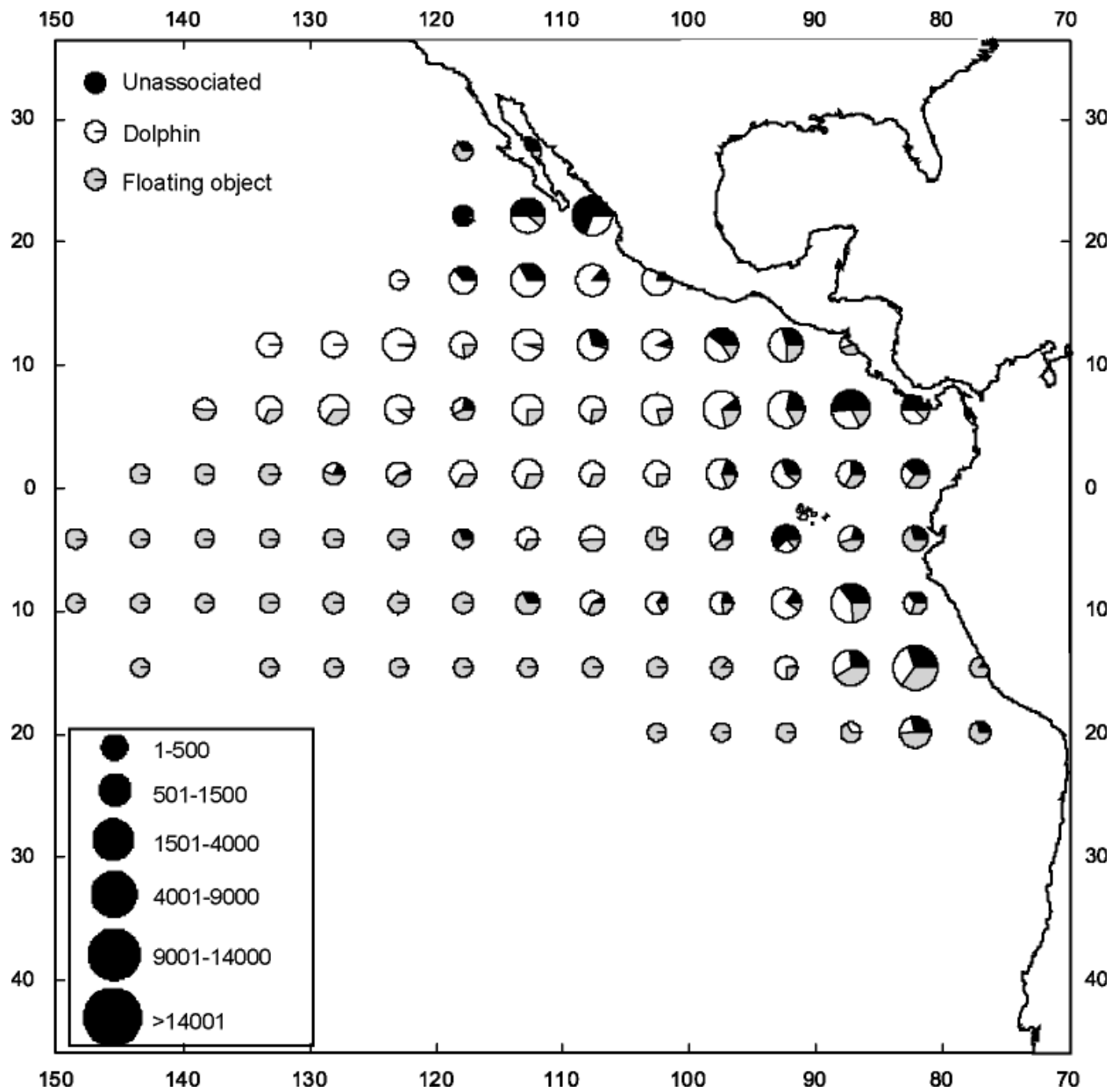


Figure 2b. Average annual distribution of logged catch of yellowfin in the eastern Pacific Ocean, 2001.

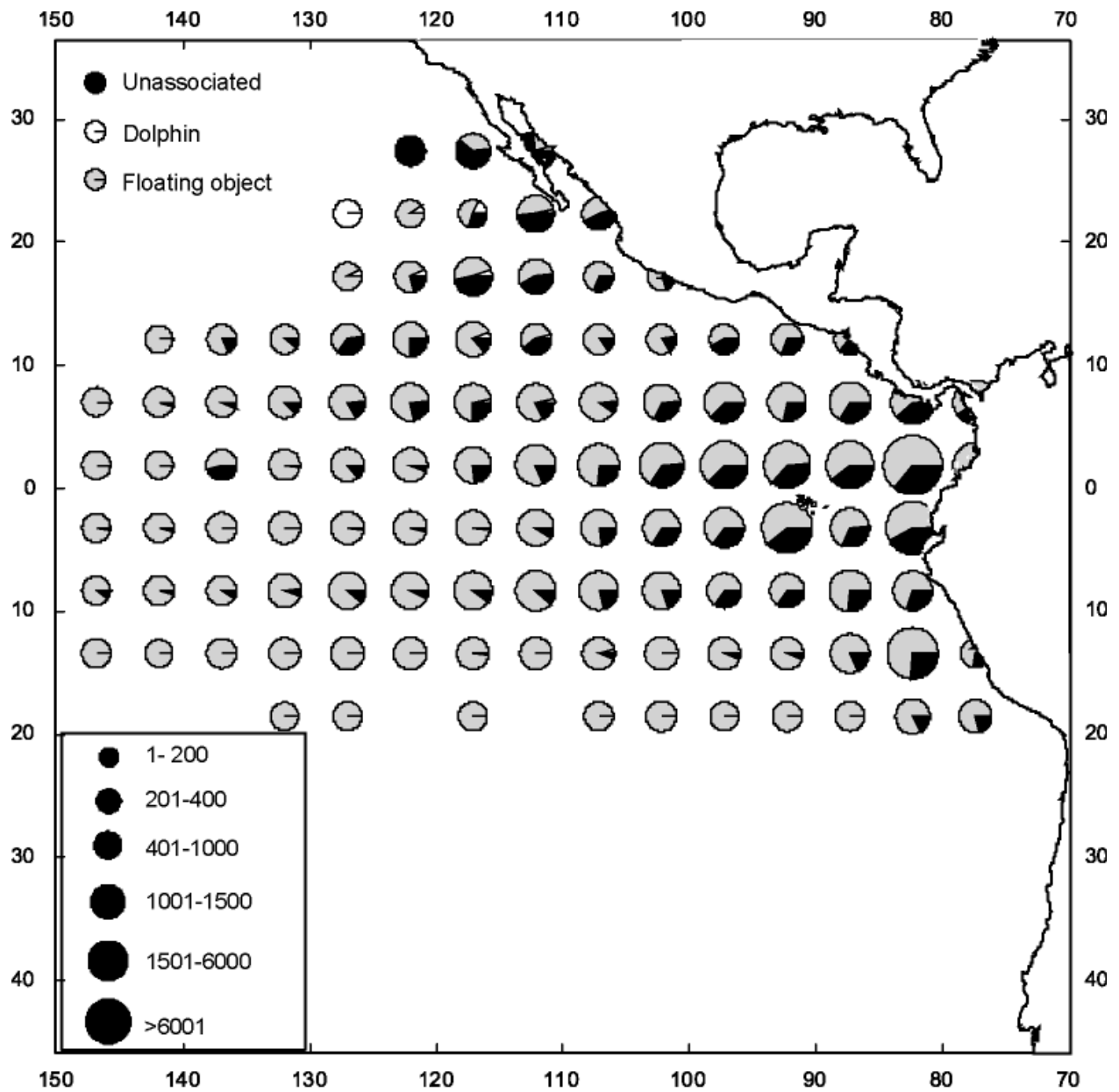


Figure 3a. Average annual distribution of logged catch of skipjack in the eastern Pacific Ocean, 1986-2000.

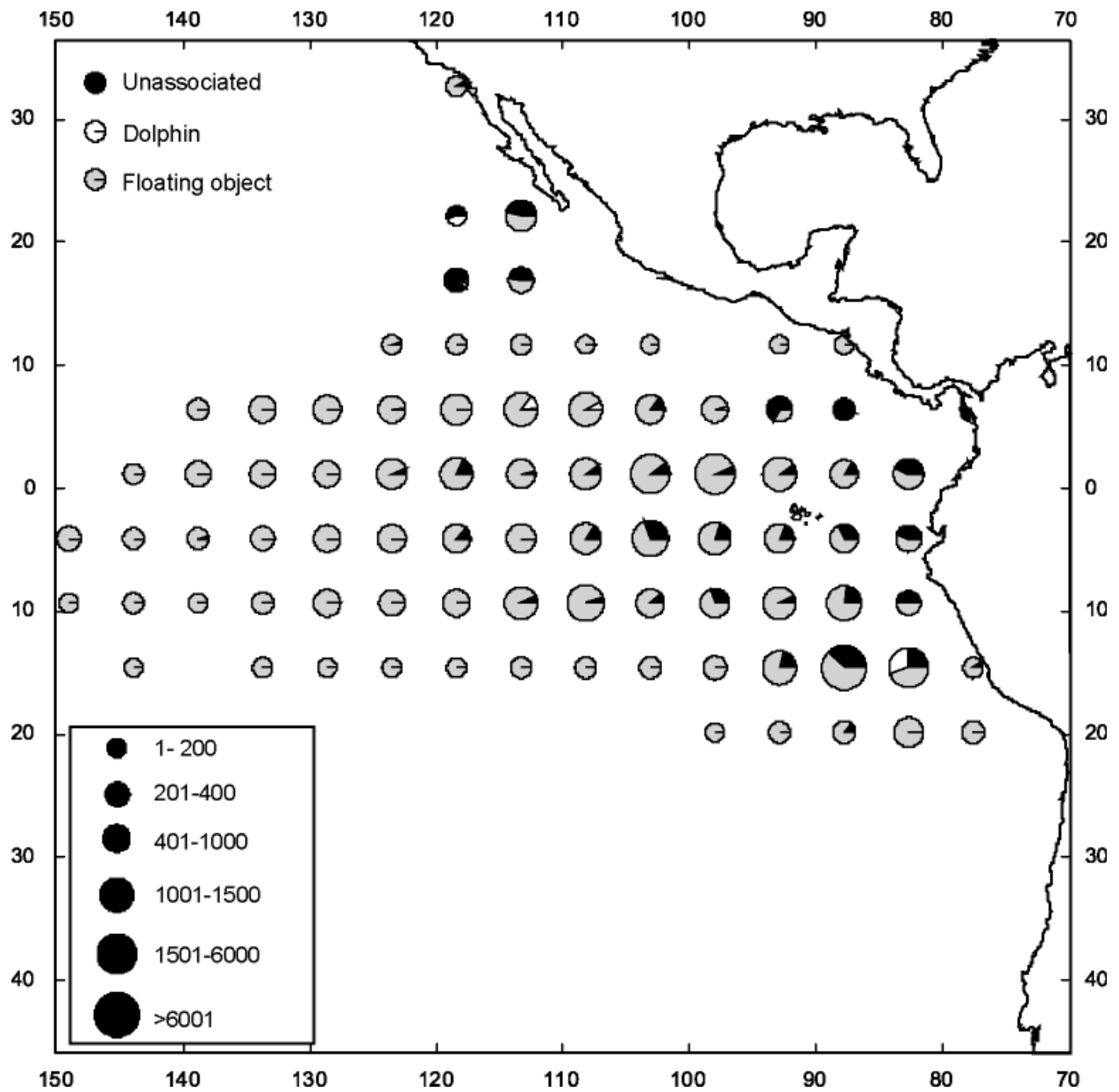


Figure 3b. Average annual distribution of logged catch of skipjack in the eastern Pacific Ocean, 2001.

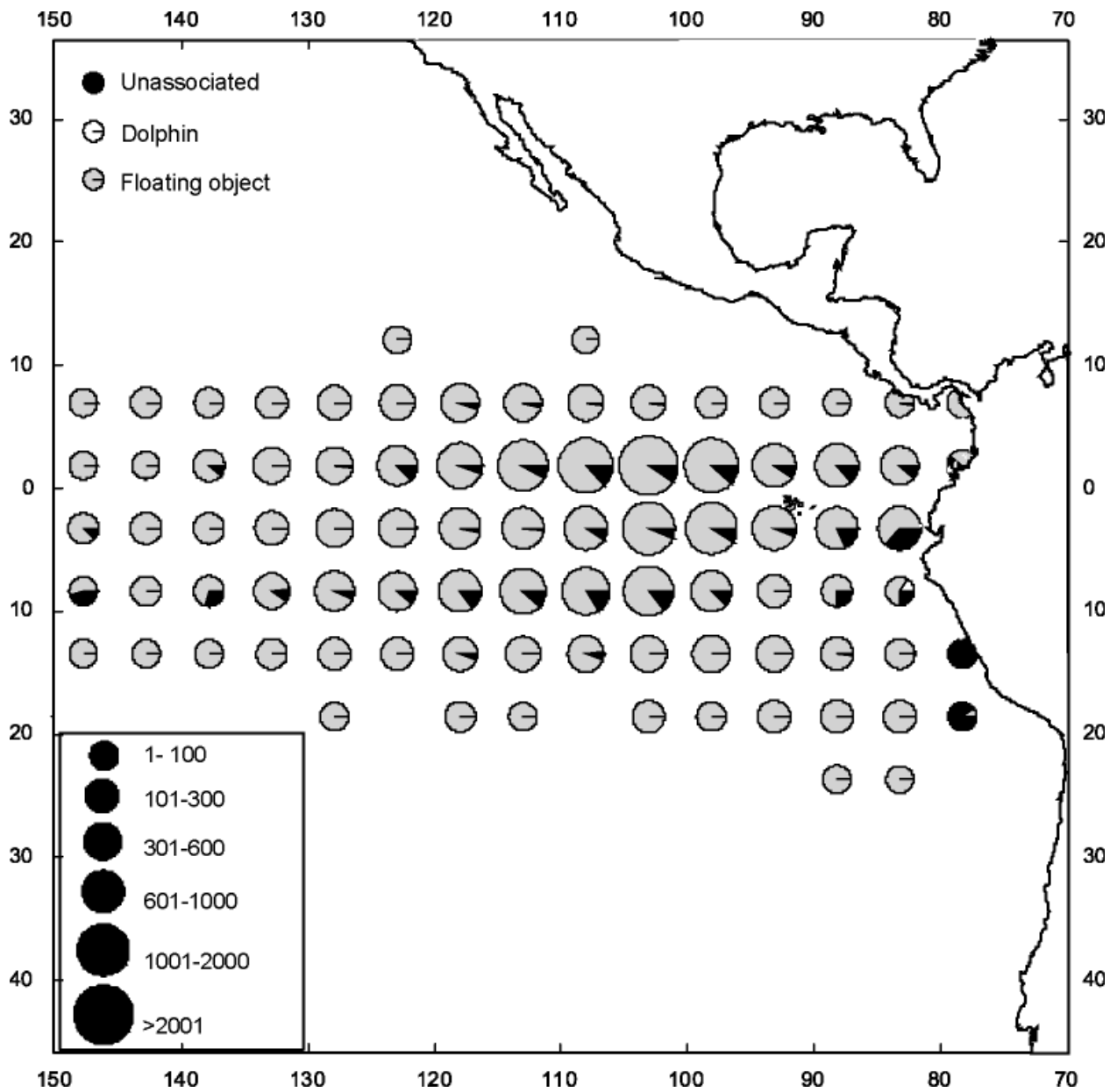


Figure 4a. Average annual distribution of logged catch of bigeye in the eastern Pacific Ocean, 1994-2000.

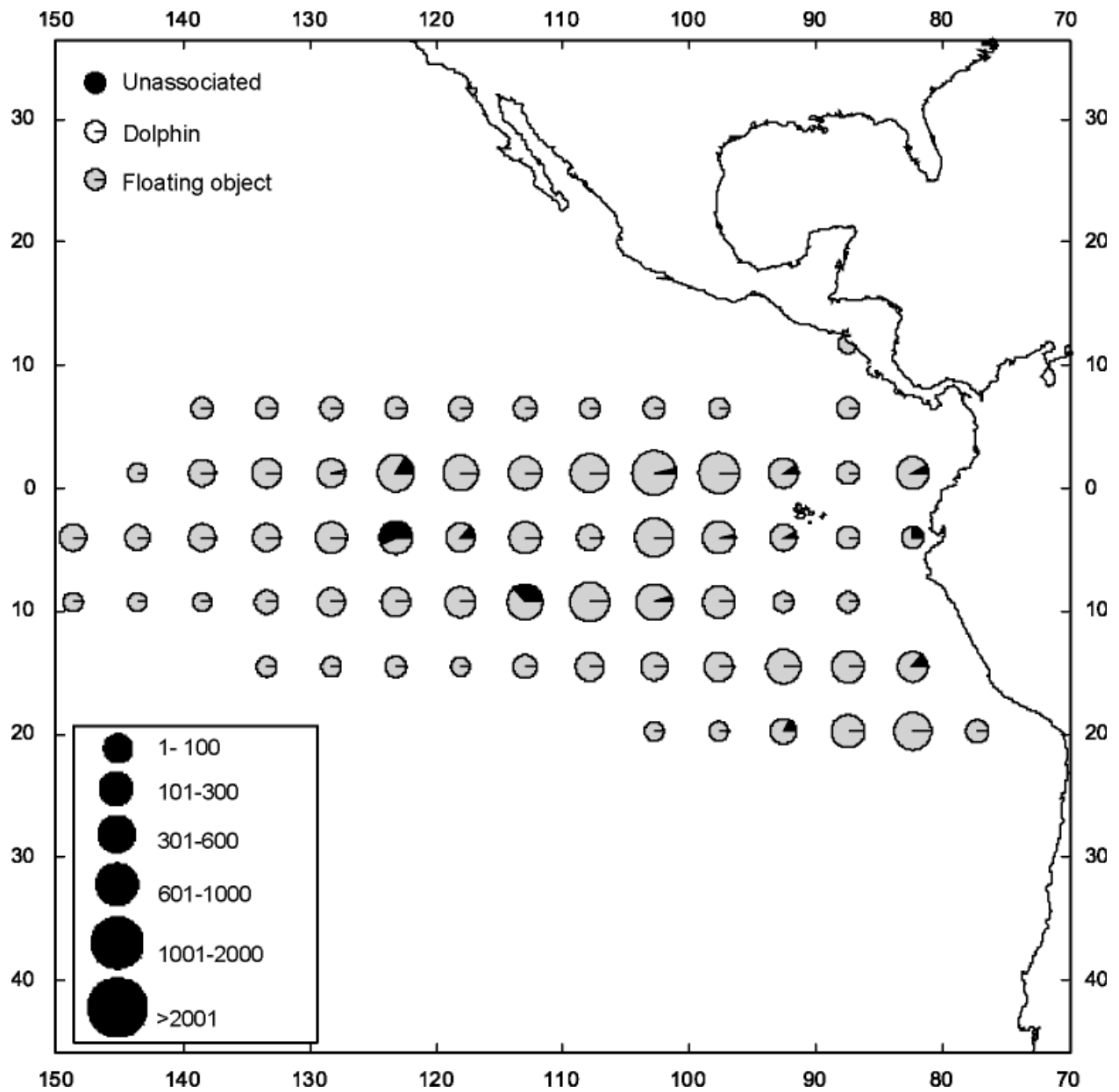


Figure 4b. Average annual distribution of logged catch of bigeye in the eastern Pacific Ocean, 2001.

TABLE 1. Numbers and carrying capacities, in cubic meters, of purse seiners and baitboats of the eastern Pacific Ocean (EPO) tuna fleet. Information for 1950-1960 (in short tons) is given in Table 4 of the IATTC Annual Report for 1988. The data for 2001 are preliminary.

TABLA 1. Número y capacidad de acarreo, en metros cúbicos, de los buques cerqueros y de carnada de la flota atunera del Océano Pacífico oriental (OPO). En la Tabla 4 del Informe Anual de la CIAT de 1988 se presentan los datos de 1950-1960 (en toneladas cortas). Los datos de 2001 son preliminares.

Year	Purse seiners		Baitboats		Total	
	Number	Capacity	Number	Capacity	Number	Capacity
Año	Cerqueros		Buques de carnada		Total	
	Número	Capacidad	Número	Capacidad	Número	Capacidad
1961	125	31,896	93	11,171	218	43,068
1962	146	36,477	88	7,132	234	43,609
1963	159	42,782	108	6,350	267	49,132
1964	137	42,877	88	5,016	225	47,893
1965	163	45,332	109	6,144	272	51,476
1966	133	42,494	113	6,612	246	49,106
1967	130	42,899	108	6,234	238	49,133
1968	143	53,858	89	6,104	232	59,962
1969	153	60,641	69	5,268	222	65,909
1970	162	71,689	49	4,569	211	76,258
1971	191	94,423	102	5,916	293	100,338
1972	210	119,418	108	7,123	318	126,540
1973	219	140,150	106	7,279	325	147,429
1974	234	156,203	111	8,246	345	164,450
1975	253	174,016	102	7,862	355	181,879
1976	254	187,512	99	7,508	353	195,020
1977	253	189,967	79	5,766	332	195,733
1978	271	192,259	68	5,352	339	197,610
1979	282	195,494	45	4,223	327	199,717
1980	270	196,476	46	4,072	316	200,548
1981	251	196,484	39	3,249	290	199,733
1982	223	178,234	36	2,877	259	181,111
1983	215	149,404	52	3,681	267	153,085
1984	175	121,650	40	3,245	215	124,895
1985	178	137,814	25	2,574	203	140,387
1986	166	131,806	17	2,060	183	133,867
1987	177	152,351	29	2,376	206	154,727
1988	189	156,636	36	3,274	225	159,910
1989	178	141,956	30	3,135	208	145,091
1990	172	143,946	23	2,044	195	145,990
1991	155	124,501	19	1,629	174	126,131
1992	160	117,017	19	1,612	179	118,629
1993	152	118,730	15	1,543	167	120,272
1994	167	122,214	20	1,725	187	123,939
1995	175	124,096	20	1,784	195	125,880
1996	183	132,731	17	1,639	200	134,370
1997	194	146,533	23	2,105	217	148,637
1998	203	161,560	22	2,217	225	163,777
1999	208	180,009	14	1,642	222	181,651
2000	205	180,808	11	1,229	216	182,037
2001	203	189,430	11	1,291	214	190,721

TABLE 2a. Estimates of the numbers and carrying capacities, in cubic meters, of the purse seiners and baitboats of the EPO tuna fleet in 2000 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 “Grand total.” Therefore the grand totals may not equal the sums of the individual flag entries. PS = purse seiner; BB = baitboat.

TABLA 2a. Estimaciones del número y capacidad de acarreo, en metros cúbicos, de buques cerqueros y de carnada de la flota atunera en el OPO en 2000, por bandera, arte de pesca, y clase de arqueo. Se incluye cada buque en los totales de cada bandera bajo la cual pescó durante el año, pero solamente una vez en el “Total general”; por consiguiente, los totales generales no equivalen necesariamente a las sumas de las banderas individuales. PS = cerquero; BB = barco de carnada.

Flag Bandera	Gear Arte	Size class—Clase de arqueo						Total	Capacity Capacidad
		1	2	3	4	5	6		
Number—Número									
Belize—Belice	PS	-	-	-	1	1	2	4	2,249
Bolivia	PS	-	-	-	-	-	3	3	3,956
Colombia	PS	-	-	2	-	2	5	9	7,127
Ecuador	PS	-	7	13	13	6	36	75	45,888
	BB	1							32
España—Spain	PS	-	-	-	-	-	5	5	11,438
Guatemala	PS	-	-	-	-	-	4	4	7,640
Honduras	PS	-	-	-	-	-	1	1	628
México	PS	-	-	7	3	4	40	54	48,358
	BB	1	4	5	-	-	-	10	1,197
Nicaragua	PS	-	-	-	-	-	1	1	1,229
Panamá	PS	-	-	2	2	-	5	9	8,413
USA—EE.UU.	PS	-	3	2	-	2	6	13	9,229
Venezuela	PS	-	-	-	-	-	22	22	28,025
Vanuatu	PS	-	-	-	-	-	11	11	13,668
Grand total	PS	-	10	26	19	15	135	205	
Total general	BB	2	4	5	-	-	-	11	
	PS+BB	2	14	31	19	15	135	216	
Capacity—Capacidad									
Grand total	PS	-	984	4,677	5,470	7,166	162,511	180,808	
Total general	BB	85	383	761	-	-	-	1,229	
	PS+BB	85	1,367	5,438	5,470	7,166	162,511	182,037	

TABLE 2b. Preliminary estimates of the numbers and carrying capacities, in cubic meters, of the purse seiners and baitboats of the EPO tuna fleet in 2001 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 “Grand total.” Therefore the grand totals may not equal the sums of the individual flag entries. PS = purse seiner; BB = baitboat.

TABLA 2b. Estimaciones preliminares del número y capacidad de acarreo, en metros cúbicos, de buques cerqueros y de carnada de la flota atunera en el OPO en 2001 por bandera, arte de pesca, y clase de arqueo. Se incluye cada buque en los totales de cada bandera bajo la cual pescó durante el año, pero solamente una vez en el “Total general”; por consiguiente, los totales generales no equivalen necesariamente a las sumas de las banderas individuales. PS = cerquero; BB = barco de carnada.

Flag Bandera	Gear Arte	Size class—Clase de arqueo						Total	Capacity Capacidad
		1	2	3	4	5	6		
Number—Número									
Belize—Belice	PS	-	-	-	-	-	2	2	1,850
Bolivia	PS	-	-	-	-	-	5	5	5,830
Colombia	PS	-	-	2	1	2	5	10	7,397
Ecuador	PS		5	12	10	7	38	72	48,034
	BB	1	-	-	-	-	-	1	32
El Salvador	PS	-	-	-	-	-	2	2	4,469
España—Spain	PS	-	-	-	-	-	5	5	12,137
Guatemala	PS	-	-	-	-	-	4	4	7,640
Honduras	PS	-	-	-	-	-	3	3	2,254
México	PS	-	-	4	4	9	37	54	47,145
	BB	1	3	6	-	-	-	10	1,259
Nicaragua	PS	-	-	-	-	-	1	1	1,229
Panamá	PS	-	-	2	2	-	6	10	9,517
USA—EE.UU.	PS	-	-	1	-	2	5	8	7,362
Unknown	PS	-	-	-	1	-	2	3	1,512
Venezuela	PS	-	-	-	-	-	25	25	31,687
Vanuatu	PS	-	-	-	-	-	6	6	7,803
Grand total	PS	-	5	21	17	20	140	203	
Total general	BB	2	3	6	-	-	-	11	
	PS+BB	2	8	27	17	20	140	214	
Capacity—Capacidad									
Grand total	PS	-	453	3,801	4,931	9,166	171,079	189,430	
Total general	BB	85	293	913	-	-	-	1,291	
	PS+BB	85	746	4,714	4,931	9,166	171,079	190,721	

TABLE 3. Estimated retained and discarded catches by surface gear, in metric tons, of the EPO tuna fleet. "Others" includes sharks, other tunas, and miscellaneous fishes; CYRA = Commission's Yellowfin Regulatory Area; Outside = area between the CYRA and 150°W. The 2000 and 2001 data are preliminary. Additional information concerning this table is given in the text.
TABLA 3. Estimaciones de capturas retenidas y descartadas, en toneladas métricas, por artes de superficie de la flota atunera del OPO. "Otros" incluye tiburones, otros atunes, y peces diversos; ARCAA = Area de Regulación de la Comisión para el Aleta Amarilla; Exterior = zona entre el ARCAA y 150°O. Los datos de 2000 y 2001 son preliminares. En el texto se presenta información adicional sobre esta tabla.

Year	Yellowfin					Skipjack			Bigeye			Bluefin		
	Retained			Discarded	Total	Retained	Discarded	Total	Retained	Discarded	Total	Retained	Discarded	Total
	CYRA	Outside	Total											
Año	Aleta amarilla					Barrilete			Patudo			Aleta azul		
	Retenido			Descartado	Total	Retenido	Descartado	Total	Retenido	Descartado	Total	Retenido	Descartado	Total
	ARCAA	Afuera	Total											
1970	127,793	27,833	155,626		155,626	56,020		56,020	1,332		1,332	3,966		3,966
1971	102,194	20,645	122,839		122,839	104,721		104,721	2,566		2,566	8,360		8,360
1972	136,515	40,612	177,127		177,127	33,409		33,409	2,238		2,238	13,347		13,347
1973	160,341	44,912	205,253		205,253	43,954		43,954	1,979		1,979	10,744		10,744
1974	173,180	37,184	210,364		210,364	78,803		78,803	890		890	5,617		5,617
1975	158,843	43,299	202,142		202,142	123,868		123,868	3,723		3,723	9,583		9,583
1976	190,236	46,111	236,347		236,347	126,287		126,287	10,243		10,243	10,645		10,645
1977	182,676	16,140	198,816		198,816	86,337		86,337	7,055		7,055	5,473		5,473
1978	166,045	14,549	180,594		180,594	169,895		169,895	11,759		11,759	5,397		5,397
1979	175,906	13,768	189,674		189,674	132,024		132,024	7,532		7,532	6,117		6,117
1980	131,998	27,427	159,425		159,425	130,671		130,671	15,421		15,421	2,939		2,939
1981	157,733	24,080	181,813		181,813	119,606		119,606	10,091		10,091	1,089		1,089
1982	106,868	18,216	125,084		125,084	98,757		98,757	4,102		4,102	3,150		3,150
1983	82,026	12,230	94,256		94,256	58,142		58,142	3,260		3,260	853		853
1984	128,559	16,502	145,061		145,061	60,551		60,551	5,936		5,936	881		881
1985	192,543	24,449	216,992		216,992	49,460		49,460	4,532		4,532	4,055		4,055
1986	228,125	40,149	268,274		268,274	63,552		63,552	1,939		1,939	5,085		5,085
1987	248,153	24,094	272,247		272,247	62,345		62,345	776		776	1,005		1,005
1988	267,592	20,811	288,403		288,403	85,326		85,326	1,053		1,053	1,424		1,424
1989	242,342	47,033	289,375		289,375	92,374		92,374	1,470		1,470	1,170		1,170
1990	226,465	46,864	273,329		273,329	72,575		72,575	4,712		4,712	1,542		1,542
1991	219,525	19,596	239,121		239,121	63,260		63,260	3,740		3,740	461		461
1992	221,309	18,540	239,849		239,849	83,964		83,964	5,497		5,497	1,999		1,999
1993	213,258	18,813	232,071	5,040	237,111	87,357	10,589	97,946	8,069	585	8,654	879	0	879
1994	197,064	22,197	219,261	4,614	223,875	74,534	10,314	84,848	29,375	2,304	31,679	1,062	0	1,062
1995	196,220	27,556	223,776	5,344	229,120	138,239	16,614	154,853	37,328	3,260	40,588	874	0	874
1996	218,114	32,056	250,170	6,660	256,830	112,205	24,970	137,175	51,353	5,786	57,139	8,259	0	8,259
1997	214,277	43,554	257,831	5,631	263,462	161,809	31,867	193,676	51,619	5,627	57,246	2,807	3	2,810
1998	236,503	29,216	265,719	4,718	270,437	145,000	22,856	167,856	35,155	2,853	38,008	2,223	0	2,223
1999	264,739	32,176	296,915	6,628	303,543	268,021	26,813	294,834	41,163	5,166	46,329	3,091	55	3,146
2000	221,702	51,000	272,702	6,815	279,517	211,263	26,364	237,627	70,134	5,624	75,758	4,218	0	4,218
2001	344,060	50,448	394,508	7,918	402,426	144,305	13,518	157,823	43,614	1,262	44,876	1,232	3	1,235

TABLE 3. (continued)
 TABLA 3. (continuación)

Year	Albacore			Bonito			Black skipjack			Others			All species combined		
	Retained	Discarded	Total	Retained	Discarded	Total	Retained	Discarded	Total	Retained	Discarded	Total	Retained	Discarded	Total
Año	Albacora			Bonito			Barrilete negro			Otros			Todas las especies		
	Retenido	Descartado	Total	Retenido	Descartado	Total	Retenido	Descartado	Total	Retenido	Descartado	Total	Retenido	Descartado	Total
1970	4,476		4,476	4,738		4,738	0		0	27		27	226,185		226,185
1971	2,490		2,490	9,600		9,600	6		6	61		61	250,643		250,643
1972	4,832		4,832	8,872		8,872	601		601	367		367	240,793		240,793
1973	2,316		2,316	7,864		7,864	1,674		1,674	355		355	274,139		274,139
1974	4,783		4,783	4,436		4,436	3,742		3,742	985		985	309,620		309,620
1975	3,332		3,332	16,838		16,838	511		511	277		277	360,274		360,274
1976	3,733		3,733	4,370		4,370	1,526		1,526	1,327		1,327	394,478		394,478
1977	1,963		1,963	11,275		11,275	1,458		1,458	1,950		1,950	314,327		314,327
1978	1,745		1,745	4,837		4,837	2,162		2,162	806		806	377,195		377,195
1979	327		327	1,805		1,805	1,366		1,366	1,249		1,249	340,094		340,094
1980	601		601	6,110		6,110	3,680		3,680	953		953	319,800		319,800
1981	739		739	5,918		5,918	1,911		1,911	1,010		1,010	322,177		322,177
1982	553		553	2,121		2,121	1,338		1,338	783		783	235,888		235,888
1983	456		456	3,829		3,829	1,236		1,236	1,709		1,709	163,741		163,741
1984	5,351		5,351	3,514		3,514	666		666	987		987	222,947		222,947
1985	919		919	3,604		3,604	296		296	536		536	280,394		280,394
1986	133		133	490		490	595		595	1,140		1,140	341,208		341,208
1987	417		417	3,326		3,326	557		557	1,612		1,612	342,285		342,285
1988	288		288	9,550		9,550	1,267		1,267	1,297		1,297	388,608		388,608
1989	1		1	12,095		12,095	783		783	1,072		1,072	398,340		398,340
1990	184		184	13,856		13,856	792		792	944		944	367,934		367,934
1991	834		834	1,288		1,288	446		446	649		649	309,799		309,799
1992	255		255	978		978	104		104	762		762	333,408		333,408
1993	1	0	1	599	12	611	104	3,950	4,054	314	1,981	2,295	329,394	22,157	351,551
1994	85	0	85	8,692	145	8,837	188	805	993	419	522	941	333,616	18,704	352,320
1995	465	2	467	8,009	55	8,064	187	1,415	1,602	172	668	840	409,050	27,358	436,408
1996	83	0	83	655	1	656	704	2,417	3,121	219	1,052	1,271	423,648	40,886	464,534
1997	60	0	60	1,104	4	1,108	101	2,582	2,683	148	3,407	3,555	475,479	49,121	524,600
1998	124	0	124	1,337	4	1,341	527	1,857	2,384	168	1,233	1,401	450,253	33,521	483,774
1999	276	0	276	1,597	0	1,597	178	3,412	3,590	240	3,096	3,336	611,481	45,170	656,651
2000	151	0	151	605	0	605	293	1,885	2,178	388	1,496	1,884	559,754	42,184	601,938
2001	24	0	24	18	0	18	1,760	1,261	3,021	284	766	1,050	585,745	24,728	610,473

TABLE 4a. Preliminary estimates of the landings of catches of tuna taken from the EPO in 2000, by species and vessel flag, in metric tons. YFT = yellowfin; SKJ = skipjack; BET = bigeye; PBF = Pacific bluefin; BEP = bonito; ALB = albacore; BKJ = black skipjack; Misc. = other species, including sharks, other tunas, and miscellaneous fishes.

TABLA 4a. Estimaciones preliminares de las descargas de atun capturado en el OPO de 2000, por especie y bandera del buque, en toneladas metricas. YFT = aleta amarilla; SKJ = barrilete; BET = patudo; PBF = aleta azul del Pacifico; BEP = bonito; ALB = albacora; BKJ = barrilete negro; Misc. = otras especies, incluyendo tiburones, otros túnidos, y peces diversos.

Flag Bandera	YFT		SKJ	BET	PBF	BEP	ALB	BSJ	Misc.	Total	% of total % del total
	CYRA	Outside									
Colombia	13,202	3,254	6,293	1,022	-	-	-	-	-	23,771	4.3
Ecuador	33,655	4,578	110,421	27,937	-	-	-	268	98	176,957	31.6
España—Spain	3,144	2,876	16,368	17,482	-	-	-	-	-	39,870	7.1
México	78,331	23,565	16,384	82	3,091	428	92	2	221	122,196	21.8
Panamá	5,735	466	12,477	3,926	-	-	-	10	29	22,643	4.1
U.S.A.—EE.UU.	3,468	1,077	10,669	2,067	1,127	177	59	1	40	18,645	3.3
Venezuela	59,475	10,331	5,118	206	-	-	-	12	-	75,142	13.4
Vanuatu	11,476	2,722	11,037	6,041	-	-	-	-	-	31,276	5.6
Other—Otros ¹	13,216	2,131	22,496	11,371	-	-	-	-	-	49,214	8.8
Total	221,702	51,000	211,263	70,134	4,218	605	151	293	388	559,754	

¹ Includes Belize, Bolivia, Guatemala, Honduras, and Nicaragua. This category is used to avoid revealing the operations of individual vessels or companies.

¹ Incluye Belice, Bolivia, Guatemala, Honduras, y Nicaragua. Se usa esta categoría para no revelar información sobre las actividades de buques o empresas individuales.

TABLE 4b. Preliminary estimates of the landings of catches of tuna taken from the EPO in 2001, by species and vessel flag, in metric tons. YFT = yellowfin; SKJ = skipjack; BET = bigeye; PBF = Pacific bluefin; BEP = bonito; ALB = albacore; BKJ = black skipjack; Misc. = other species, including sharks, other tunas, and miscellaneous fishes

TABLA 4b. Estimaciones preliminares de las descargas de atun capturado en el OPO de 2001, por especie y bandera del buque, en toneladas metricas. YFT = aleta amarilla; SKJ = barrilete; BET = patudo; PBT = aleta azul del Pacifico; BEP = bonito; ALB = albacora; BKJ = barrilete negro; Misc. = otras especies, incluyendo tiburones, otros túnidos, y peces diversos

Flag Bandera	YFT		SKJ	BET	PBF	BEP	ALB	BSJ	Misc.	Total	% of total
	CYRA	Outside									% del total
Ecuador	48,851	4,062	70,678	19,980	-	-	-	1,608	269	145,448	24.8
España—Spain	6,282	3,991	20,974	7,199	-	-	-	-	-	38,446	6.6
México	112,139	22,654	8,078	91	786	18	22	-	-	143,788	24.5
Panamá	11,890	1,238	6,586	1,842	-	-	-	-	3	21,559	3.7
U.S.A.—EE.UU.	4,060	1,383	4,137	2,194	446	-	2	73	-	12,295	2.1
Venezuela	100,001	9,708	2,171	53	-	-	-	-	-	111,933	19.1
Vanuatu	9,647	1,029	8,025	3,954	-	-	-	-	-	22,655	3.9
Other—Otros ¹	51,190	6,383	23,656	8,301	-	-	-	79	12	89,621	15.3
Total	344,060	50,448	144,305	43,614	1,232	18	24	1,760	284	585,745	

¹ Includes Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, and unidentified. This category is used to avoid revealing the operations of individual vessels or companies.

¹ Incluye Belice, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, y no identificados. Se usa esta categoría para no revelar información sobre las actividades de buques o empresas individuales.

TABLE 5. Estimated numbers of sets by set type and vessel size class, and estimated catches, in metric tons, for yellowfin, skipjack, and bigeye tuna in the EPO, by purse-seine vessels. The data for 2000 are preliminary.

TABLA 5. Números estimados de lances, por tipo de lance y clase de arqueo de los buques, y capturas estimadas, en toneladas métricas, de atunes aleta amarilla, barrilete, y patudo en el OPO. Los datos de 2000 son preliminares.

Year	Sets on fish associated with dolphins					
	Number of sets			Catch		
	Classes 1-5	Class 6	Total	Yellowfin	Skipjack	Bigeye
	Lances sobre peces asociados con delfines					
Año	Número de lances			Captura		
	Clases 1-5	Clase 6	Total	Aleta amarilla	Barrilete	Patudo
1987	33	13,286	13,319	190,431	332	20
1988	41	11,160	11,201	157,174	4,898	0
1989	29	12,827	12,856	194,845	1,447	0
1990	29	10,997	11,026	179,254	867	0
1991	0	9,661	9,661	159,259	786	38
1992	26	10,398	10,424	169,348	869	0
1993	34	6,953	6,987	110,046	714	97
1994	3	7,804	7,807	125,380	516	0
1995	0	7,185	7,185	131,934	1,032	0
1996	2	7,472	7,474	137,256	729	0
1997	35	8,977	9,012	156,163	6,004	35
1998	0	10,645	10,645	151,677	2,879	66
1999	0	8,648	8,648	143,144	1,077	0
2000	1	9,235	9,236	155,127	484	0
2001	0	9,623	9,623	235,492	1,352	12

Year	Sets on fish associated with floating objects					
	Number of sets			Catch		
	Classes 1-5	Class 6	Total	Yellowfin	Skipjack	Bigeye
	Lances sobre peces asociados con objetos flotantes					
Año	Número de lances			Captura		
	Clases 1-5	Clase 6	Total	Aleta amarilla	Barrilete	Patudo
1987	1,314	1,813	3,127	27,189	32,160	562
1988	813	2,281	3,094	23,933	35,950	569
1989	960	2,339	3,299	28,362	41,452	1,215
1990	718	2,558	3,276	34,248	34,980	3,359
1991	802	2,165	2,967	23,758	37,655	1,950
1992	873	1,763	2,636	13,058	45,556	1,154
1993	498	2,063	2,561	15,964	48,144	4,547
1994	619	2,770	3,389	17,360	47,991	27,472
1995	669	3,521	4,190	20,569	81,253	32,765
1996	1,197	4,007	5,204	31,839	74,260	48,253
1997	1,662	5,652	7,314	27,623	123,002	50,226
1998	1,198	5,481	6,679	31,271	115,370	31,332
1999	623	4,620	5,243	39,165	181,817	36,072
2000	516	3,916	4,432	42,396	121,049	67,281
2001	698	5,168	5,866	64,628	121,711	42,352

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

Year	Sets on fish in unassociated schools					
	Number of sets			Catch		
	Classes 1-5	Class 6	Total	Yellowfin	Skipjack	Bigeye
	Lances sobre peces en cardúmenes no asociados					
Año	Número de lances			Captura		
	Clases 1-5	Clase 6	Total	Aleta amarilla	Barrilete	Patudo
	1987	1,804	3,981	5,785	49,400	26,303
1988	4,161	7,536	11,697	102,042	39,536	481
1989	2,925	5,878	8,803	60,228	46,332	255
1990	3,656	5,397	9,053	56,548	35,788	1,351
1991	3,577	3,612	7,189	52,772	22,958	1,726
1992	4,160	4,079	8,239	53,506	35,333	4,344
1993	5,708	6,267	11,975	100,974	34,865	3,423
1994	5,407	5,064	10,471	72,764	22,916	1,903
1995	6,021	4,782	10,803	69,984	50,715	4,561
1996	5,719	5,118	10,837	77,342	34,635	3,100
1997	5,294	4,694	9,988	69,657	29,510	1,354
1998	5,645	4,631	10,276	77,642	25,108	3,758
1999	5,552	6,143	11,695	111,677	81,150	4,539
2000	6,023	5,482	11,505	72,761	89,491	2,854
2001	4,635	3,081	7,716	90,485	20,795	1,252

Year	Sets on all types of schools					
	Number of sets			Catch		
	Classes 1-5	Class 6	Total	Yellowfin	Skipjack	Bigeye
	Lances sobre todos tipos de cardumen					
Año	Número de lances			Captura		
	Clases 1-5	Clase 6	Total	Aleta amarilla	Barrilete	Patudo
	1987	3,151	19,080	22,231	267,020	58,795
1988	5,015	20,977	25,992	283,148	80,383	1,050
1989	3,914	21,044	24,958	283,436	89,231	1,471
1990	4,403	18,952	23,355	270,050	71,635	4,710
1991	4,379	15,438	19,817	235,789	61,399	3,713
1992	5,059	16,240	21,299	235,912	81,758	5,498
1993	6,240	15,283	21,523	226,984	83,723	8,068
1994	6,029	15,638	21,667	215,505	71,423	29,375
1995	6,690	15,488	22,178	222,488	133,000	37,327
1996	6,918	16,597	23,515	246,437	109,624	51,353
1997	6,991	19,323	26,314	253,443	158,515	51,615
1998	6,843	20,757	27,600	260,591	143,357	35,156
1999	6,175	19,411	25,586	293,986	264,043	40,611
2000	6,540	18,633	25,173	270,284	211,024	70,135
2001	5,333	17,872	23,205	390,606	143,857	43,616

TABLE 6. Preliminary estimates of commercial catches, in metric tons, of billfishes in the eastern Pacific Ocean. Most of the longline-caught fish were retained, and most of those caught by surface gear were discarded.

TABLA 6. Estimaciones preliminares de las capturas comerciales, en toneladas métricas, de peces picudos en el Océano Pacífico oriental. La mayoría del pescado capturado con palangre fue retenida, y la mayoría de la captura de superficie desechada.

Year	Swordfish		Blue marlin		Black marlin		Striped marlin		Shortbill spearfish		Sailfish	
	Longline	Surface	Longline	Surface	Longline	Surface	Longline	Surface	Longline	Surface	Longline	Surface
Año	Pez espada		Marlín azul		Marlín negro		Marlín rayado		Marlín trompa corta		Pez vela	
	Palangre	Superficie	Palangre	Superficie	Palangre	Superficie	Palangre	Superficie	Palangre	Superficie	Palangre	Superficie
1970	9,294		4,126		275		10,976					
1971	4,844		2,832		308		10,118					
1972	2,847		2,653		455		7,106					
1973	5,105		3,825		307		5,277					
1974	5,014		2,826		249		5,402					
1975	3,065		2,281		182		5,429				554	
1976	2,700		3,271		285		6,473				494	
1977	4,258		3,106		188		3,086				753	
1978	6,555		3,630		283		2,496				878	
1979	4,722		4,500		291		4,123				251	
1980	4,209		4,030		182		4,879				243	
1981	6,572		4,453		169		4,870				379	
1982	5,918		4,717		143		4,682				1,083	
1983	5,008		4,432		209		4,455				889	
1984	6,604		5,163		121		2,652				345	
1985	6,557		3,574		194		1,592				392	
1986	5,717		5,268		313		3,534		5		529	
1987	7,357		7,232		199		7,282		15		604	
1988	10,393		5,190		135		5,130		13		642	
1989	12,159		5,064		151		3,311		0		171	
1990	13,797		4,925		112		2,959		0		2	
1991	15,683	17	5,780	81	145	58	2,594		1		710	40
1992	15,234	4	6,391	59	208	95	2,674	80	1	1	980	41
1993	12,695	4	6,831	85	178	85	3,354	67	3	0	1,963	47
1994	10,217	3	9,278	112	170	89	3,295	63	143	0	1,516	24
1995	8,483	7	7,160	124	95	111	3,082	35	156	1	1,297	38
1996	9,655	3	3,426	140	112	139	2,834	41	127	1	704	29
1997	13,318	13	5,531	220	183	154	3,932	40	164	1	1,186	32
1998	14,104		4,451		52		2,229	40	142		1,023	
1999	15,839		2,829		6		1,536		174		1,135	

TABLE 7a. Annual catches of yellowfin tuna, in thousands of metric tons. JPN: Japan; KOR: Republic of Korea; TWN: Taiwan; WCPO = western and central Pacific Ocean.

TABLA 7a. Capturas anuales de atún aleta amarilla, en miles de toneladas métricas. JPN: Japón; KOR: República de Corea; TWN: Taiwan; OPOC = Océano Pacífico occidental y central.

Year	Pacific Ocean							WCPO ³	Total ⁴	Atlantic Ocean ⁵	Indian Ocean ⁶	Total
	Surface ¹	Eastern					Total					
		Longline ²										
		JPN	KOR	TWN	Others	Total						
Año	Océano Pacífico							OPOC ³	Total ⁴	Océano Atlántico ⁵	Océano Indico ⁶	Total
	Superficie ¹	Oriental					Total					
		Palangre ²										
		JPN	KOR	TWN	Otros	Total						
1970	155.6	13.8	*	0.1	0.0	13.9	169.5	89.4	259.0	74.3	41.1	374.4
1971	122.8	7.4	*	0.3	0.0	7.7	130.5	81.0	211.5	73.8	40.6	325.9
1972	177.1	16.0	*	0.5	0.0	16.5	193.7	105.7	299.4	94.1	42.1	435.5
1973	205.3	11.4	*	0.3	0.0	11.7	217.0	127.8	344.8	95.1	33.7	473.6
1974	210.4	6.9	*	0.3	0.0	7.2	217.5	133.6	351.1	107.1	36.0	494.3
1975	202.1	10.3	0.2	0.3	0.0	10.8	213.0	134.1	347.0	124.8	35.4	507.3
1976	236.3	15.0	0.4	0.2	0.0	15.6	251.9	145.0	396.9	125.0	35.4	557.2
1977	198.8	11.2	0.8	0.1	0.0	12.1	210.9	166.6	377.5	131.0	56.5	565.0
1978	180.6	9.2	0.8	0.1	0.0	10.1	190.7	183.2	373.9	134.0	46.1	554.1
1979	189.7	10.9	0.4	0.1	0.0	11.4	201.1	187.0	388.1	127.5	39.9	555.5
1980	159.4	11.5	1.9	0.1	0.0	13.5	173.0	200.4	373.4	131.0	35.1	539.5
1981	181.8	7.1	0.8	0.1	0.0	8.0	189.8	196.0	385.8	155.8	37.6	579.2
1982	125.1	9.8	1.1	0.1	0.0	11.0	136.0	221.6	357.6	165.0	51.9	574.5
1983	94.3	9.4	1.4	0.0	0.1	10.9	105.2	257.5	362.6	165.4	61.6	589.6
1984	145.1	9.1	1.2	0.0	0.0	10.3	155.4	229.2	384.6	113.9	100.8	599.4
1985	217.0	10.6	2.5	0.0	0.0	13.1	230.1	214.3	444.4	156.5	120.6	721.6
1986	268.3	17.8	4.8	0.1	0.1	22.7	291.0	208.9	499.9	146.5	141.0	787.5
1987	272.2	13.5	4.1	0.1	0.3	18.0	290.3	273.5	563.8	144.4	157.1	865.4
1988	288.4	12.5	0.5	0.0	0.3	13.3	301.7	256.8	558.5	135.2	212.0	905.7
1989	289.4	15.3	0.3	0.2	0.0	15.8	305.2	288.4	593.6	161.3	212.2	967.2
1990	273.3	29.3	0.9	0.3	0.0	30.5	303.8	319.6	623.4	192.5	264.6	1080.5
1991	239.1	23.7	1.6	0.3	0.2	25.8	264.9	333.1	598.0	166.2	245.4	1009.5
1992	239.8	15.3	0.8	0.0	0.1	16.2	256.1	388.4	644.5	162.3	317.3	1124.1
1993	232.1	20.3	3.6	0.1	0.2	24.2	256.3	363.0	619.3	160.1	397.7	1177.1
1994	219.3	26.0	2.3	0.2	0.8	29.4	248.6	383.9	632.5	170.5	310.8	1113.9
1995	223.8	17.0	2.0	0.0	0.7	19.8	243.5	326.7	570.3	152.0	319.1	1041.4
1996	250.2	12.6	1.8	0.0	0.6	15.0	265.2	252.7	517.9	153.4	310.8	982.1
1997	257.8	13.6	2.8	0.1	1.0	17.5	275.4	406.9	682.2	138.2	284.7	1105.1
1998**	265.7	10.0	*	0.1	1.5	11.7	277.4	399.5	676.9	148.0	272.4	1097.4
1999**	296.9	7.4	*	*	1.7	9.2	306.1	358.6	664.7	143.9	301.9	1110.5
2000**	272.7	15.0	*	*	*	15.0	287.7	343.0	630.8	135.2	*	766.0
2001**	394.5											

¹ Source: Table 3—Fuente: Tabla 3

² Sources: published and unpublished data from the National Research Institute of Far Seas Fisheries (NRIFSF), Shimizu, Japan, Institute of Oceanography, National Taiwan University, Taipei, Taiwan, and National Fisheries Research and Development Agency, Republic of Korea. The data were converted from numbers of fish to weight in metric tons with average weight data estimated by the IATTC staff.

² Fuentes: datos publicados e inéditos del Instituto Nacional de Investigación de Pesquerías de Ultramar (NRIFSF) en Shimizu (Japón), el Instituto de Oceanografía de la Universidad Nacional de Taiwan en Taipei, y la Agencia Nacional de Investigación y Desarrollo Pesquero de Corea. Se convirtieron los datos de números de peces a peso en toneladas métricas usando datos de peso promedio estimados por el personal de la CIAT.

³ Source: Column 10 - Column 8—Fuente: Columna 10 - Columna 8

⁴ Source: FAO data set for Fishstat+—Fuente: datos de FAO para Fishstat+

⁵ Source: ICCAT data set for Fishstat+—Fuente: datos de CICAA para Fishstat+

⁶ Source: IOTC data set for Fishstat+—Fuente: datos de CTOI para Fishstat+

* not available—no disponible

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TABLE 7b. Annual catches of skipjack tuna, in thousands of metric tons. WCPO = western and central Pacific Ocean.

TABLA 7b. Capturas anuales de atún barrilete, en miles de toneladas metricas. OPOC = Océano Pacífico occidental y central.

Year	Eastern Pacific ¹	WCPO ²	Total Pacific ³	Atlantic ⁴	Indian ⁵	Total
Año	Pacífico oriental ¹	OPOC ²	Pacífico total ³	Atlántico ⁴	Indico ⁵	Total
1970	56.0	258.5	314.5	50.3	46.9	411.7
1971	104.7	246.6	351.3	78.4	45.2	474.9
1972	33.4	311.1	344.5	77.4	40.3	462.2
1973	44.0	402.2	446.2	78.4	43.0	567.6
1974	78.8	445.9	524.7	117.3	55.0	697.0
1975	123.9	344.5	468.4	56.0	42.2	566.6
1976	126.3	432.4	558.7	69.3	43.8	671.9
1977	86.3	420.0	506.4	110.6	35.7	652.6
1978	169.9	531.3	701.2	108.1	34.3	843.6
1979	132.0	469.5	601.6	89.7	41.2	732.5
1980	130.7	502.8	633.5	111.4	49.8	794.7
1981	119.6	455.7	575.3	131.1	50.6	757.0
1982	98.8	469.8	568.6	154.9	54.0	777.5
1983	58.1	651.0	709.2	135.0	64.7	908.9
1984	60.6	770.9	831.4	126.8	106.5	1,064.7
1985	49.5	610.5	659.9	118.7	133.6	912.2
1986	63.6	751.2	814.8	122.2	148.2	1,085.2
1987	62.3	687.0	749.4	114.6	161.5	1,025.4
1988	85.3	851.9	937.2	140.0	197.9	1,275.1
1989	92.4	772.7	865.0	116.1	246.7	1,227.8
1990	72.6	867.3	939.9	138.7	226.0	1,304.5
1991	63.3	1,194.8	1,258.0	213.8	242.5	1,714.4
1992	84.0	924.8	1,008.8	161.4	268.2	1,438.3
1993	87.4	921.9	1,009.3	192.4	284.2	1,485.9
1994	74.5	988.0	1,062.5	175.5	319.7	1,557.8
1995	138.2	1,046.4	1,184.7	161.6	313.6	1,659.9
1996	112.2	1,040.6	1,152.8	150.3	280.0	1,583.1
1997	161.8	1,010.6	1,172.4	144.4	288.2	1,605.1
1998	145.0	1,281.5	1,426.5	147.7	309.5	1,883.7
1999**	268.0	1,157.7	1,425.7	166.4	399.3	1,991.5
2000**	211.3	1,210.8	1,422.1	139.3	*	1,561.4
2001**	144.3					

¹ Source: Table 3—Fuente: Tabla 3

² Column 4 - Column 2—Columna 4 - Columna 2

³ Source: FAO data set for Fishstat+—Fuente: datos de FAO para Fishstat+

⁴ Source: ICCAT data set for Fishstat+—Fuente: datos de ICCAT para Fishstat+

⁵ Source: IOTC data set for Fishstat+—Fuente: datos de IOTC para Fishstat+

* not available—no disponible

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TABLE 7c. Annual catches of bigeye tuna, in thousands of metric tons. JPN: Japan; KOR: Republic of Korea; TWN: Taiwan; WCPO = western and central Pacific Ocean.

TABLE 7c. Capturas anuales de atún patudo, en miles de toneladas métricas. JPN: Japón; KOR: República de Corea; TWN: Taiwán; OPOC = Océano Pacífico occidental y central.

Year	Pacific Ocean								WCPO ³	Total ⁴	Atlantic Ocean ⁵	Indian Ocean ⁶	Total
	Eastern						Total						
	Surface ¹	Longline ²											
JPN		KOR	TWN	Others	Total								
Año	Océano Pacífico								OPOC ³	Total ⁴	Océano Atlántico ⁵	Océano Indico ⁶	Total
	Oriental						Total						
	Superficie ¹	Palangre ²											
JPN		KOR	TWN	Otros	Total								
1970	1.3	31.8	*	0.7	0.4	32.9	34.2	50.0	84.2	42.3	24.9	151.5	
1971	2.6	28.9	*	1.7	0.3	30.9	33.5	32.5	66.0	55.8	20.4	142.2	
1972	2.2	35.1	*	2.4	0.8	38.3	40.6	47.2	87.7	47.2	18.8	153.7	
1973	2.0	49.7	*	1.2	1.3	52.2	54.2	36.2	90.4	57.0	15.8	163.2	
1974	0.9	36.0	*	0.9	0.6	37.5	38.4	49.6	87.9	64.1	26.3	178.3	
1975	3.7	40.7	0.6	0.5	0.4	42.2	46.0	57.1	103.1	61.3	35.8	200.2	
1976	10.2	52.8	1.2	0.4	0.2	54.6	64.9	64.1	129.0	45.3	27.4	201.7	
1977	7.1	70.0	3.5	0.4	0.2	74.1	81.2	63.8	145.0	54.9	33.9	233.8	
1978	11.8	67.2	3.0	0.3	0.2	70.7	82.4	39.2	121.6	52.7	48.3	222.6	
1979	7.5	54.4	0.8	0.8	0.1	56.2	63.7	65.3	129.0	46.0	32.9	207.9	
1980	15.4	62.0	2.2	1.3	0.6	66.1	81.5	51.0	132.5	63.6	33.8	229.9	
1981	10.1	50.0	3.0	0.6	0.4	54.0	64.1	40.1	104.2	67.8	34.5	206.5	
1982	4.1	50.2	3.0	0.4	0.1	53.7	57.8	51.6	109.4	73.5	43.2	226.2	
1983	3.3	57.2	2.6	0.2	0.1	60.1	63.3	48.1	111.4	59.4	48.1	218.9	
1984	5.9	44.6	1.6	0.2	0.0	46.5	52.4	51.4	103.8	71.1	40.9	215.8	
1985	4.5	61.6	4.5	0.2	0.0	66.3	70.8	53.9	124.7	78.2	49.2	252.1	
1986	1.9	92.0	10.2	0.1	0.1	102.4	104.4	46.2	150.5	65.4	56.3	272.3	
1987	0.8	87.9	9.8	0.6	0.4	98.6	99.4	49.6	149.0	56.0	63.0	268.0	
1988	1.1	66.0	1.6	0.4	0.4	68.5	69.5	50.4	119.9	65.8	71.8	257.4	
1989	1.5	67.5	1.1	0.1	0.5	69.2	70.7	54.9	125.6	78.1	62.3	266.0	
1990	4.7	86.1	4.2	0.1	0.3	90.7	95.4	67.2	162.6	84.3	68.0	315.0	
1991	3.7	85.0	4.5	0.0	0.2	89.8	93.5	50.1	143.6	95.9	68.1	307.6	
1992	5.5	74.5	2.5	0.0	0.1	77.1	82.6	75.8	158.4	99.0	64.3	321.8	
1993	8.1	63.2	10.7	0.1	0.2	74.2	82.3	47.6	129.9	112.2	92.5	334.5	
1994	29.4	61.5	7.3	0.4	0.3	69.4	98.8	47.5	146.3	132.2	95.4	374.0	
1995	37.3	49.0	6.6	0.4	0.0	56.0	93.4	46.7	140.1	126.3	115.5	381.9	
1996	51.4	36.7	5.4	0.5	0.1	42.7	94.0	38.9	132.9	121.5	122.9	377.4	
1997	51.6	32.9	6.8	0.3	0.1	40.1	91.8	71.4	163.2	106.8	132.6	402.6	
1998**	35.2	35.8	*	0.1	0.2	36.1	71.2	82.0	153.3	109.8	140.8	403.9	
1999**	41.2	22.5	*	0.1		22.6	63.8	92.8	156.6	123.8	143.5	423.9	
2000**	70.1	26.6	*	*		26.6	96.7	92.9	189.6	100.0	*	*	
	43.6						43.6						

¹ Source: Table 3—Fuente: Tabla 3

² Sources: published and unpublished data from the National Research Institute of Far Seas Fisheries (NRIFSF), Shimizu, Japan, Institute of Oceanography, National Taiwan University, Taipei, Taiwan, and National Fisheries Research and Development Agency, Republic of Korea. The data were converted from numbers of fish to weight in metric tons with average weight data estimated by the IATTC staff.

² Fuentes: datos publicados e inéditos del Instituto Nacional de Investigación de Pesquerías de Ultramar (NRIFSF) en Shimizu (Japón), el Instituto de Oceanografía de la Universidad Nacional de Taiwán en Taipei, y la Agencia Nacional de Investigación y Desarrollo Pesquero de Corea. Se convirtieron los datos de números de peces a peso en toneladas métricas usando datos de peso promedio estimados por el personal de la CIAT.

³ Source: Column 10 - Column 8—Fuente: Columna 10 - Columna 8

⁴ Source: FAO data set for Fishstat+—Fuente: datos de FAO para Fishstat+

⁵ Source: ICCAT data set for Fishstat+—Fuente: datos de CICAA para Fishstat+

⁶ Source: IOTC data set for Fishstat+—Fuente: datos de CTOI para Fishstat+

* not available—no disponible

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TABLE 7d. Annual catches of Pacific bluefin, in metric tons.

TABLA 7d. Capturas anuales de aleta azul del Pacífico, en toneladas métricas.

Year	Western Pacific nations ¹			Eastern Pacific nations			Total	
	Surface	Longline	Subtotal	Surface		Longline ⁴		Subtotal
				Commercial ²	Recreational ³			
Año	Naciones de Pacífico occidental ¹			Naciones de Pacífico oriental			Total	
	Superficie	Palangre	Subtotal	Superficie		Palangre ⁴		Subtotal
				Comercial ²	Deportiva ³			
1970	7,505	1,123	8,629	3,951	15		3,966	12,595
1971	8,672	757	9,428	8,354	6		8,360	17,788
1972	7,951	724	8,674	13,335	12		13,347	22,021
1973	8,798	1,158	9,956	10,700	44		10,744	20,700
1974	14,762	3,533	18,295	5,570	47		5,617	23,912
1975	10,770	1,558	12,328	9,556	27		9,583	21,911
1976	9,185	520	9,705	10,628	17		10,645	20,350
1977	12,618	712	13,330	5,458	15		5,473	18,803
1978	21,285	1,049	22,334	5,393	4		5,397	27,731
1979	25,311	1,223	26,534	6,108	9		6,117	32,651
1980	18,372	1,170	19,542	2,933	6		2,939	22,481
1981	29,576	975	30,551	1,084	5		1,089	31,640
1982	24,095	1,056	25,151	3,145	5		3,150	28,301
1983	18,047	8,634	18,911	837	16		853	19,764
1984	10,564	831	11,395	858	23		881	12,276
1985	11,985	706	12,691	4,014	41		4,055	16,746
1986	14,496	319	14,815	5,079	6		5,085	19,900
1987	13,315	711	14,026	990	15		1,005	15,031
1988	7,331	349	7,680	1,421	3		1,424	9,104
1989	9,099	645	9,744	1,117	53		1,170	10,914
1990	6,294	585	6,879	1,511	31		1,542	8,421
1991	14,084	627	14,711	418	43		461	15,172
1992	10,221	1,037	11,258	1,929	70	1	2,000	13,258
1993	7,818	1,328	9,146	581	298	45	924	10,070
1994	11,052	1,521	12,573	974	88	24	1,086	13,659
1995	22,825	920	23,745	629	245	27	901	24,646
1996	10,148	1,873	12,021	8,222	37	53	8,312	20,333
1997	14,757	2,823	17,580	2,657	150	52	2,859	20,439
1998**	7,389	3,134	10,523	1,826	397	56	2,279	12,802
1999**	16,868	3,490	20,358	2,644	447	39	3,130	23,488
2000**	*	*	*	3874	344	*	4218	*
2001**	*	*	*	929	303	*	*	*

¹ Sources: The data for Japan were obtained from the National Research Institute of Far Seas Fisheries of Japan. The data for Taiwan and the Republic of Korea were obtained from FAO yearbooks of fisheries statistics and data published by the Institute of Oceanography, National Taiwan University, Taipei, Taiwan, and the National Fisheries Research and Development Agency of Korea.

¹ Fuentes: Los datos de Japón provienen del Instituto Nacional de Investigación de Pesquerías de Ultramar del Japón. Los datos de Taiwan y la República de Corea provienen de compendios anuales de estadísticas pesqueras de la FAO y datos publicados por el Instituto de Oceanografía de la Universidad Nacional de Taiwan en Taipei y la Agencia Nacional de Investigación y Desarrollo Pesquero de Corea.

² Source: Table 3 minus recreational catch—Fuente: Tabla 3, menos la captura deportiva.

³ Sources: 1970-1990, California's Living Marine Resources and their Utilization, published by the California Department of Fish and Game; 1991-1992, California Department of Fish and Game, unpublished data; 1993-1999, Calif. Coop. Ocean. Fish. Inves., Rep., 35-41.

³ Fuentes: 1970-1990, *California's Living Marine Resources and their Utilization*, publicado por el California Department of Fish and Game; 1991-1992, California Department of Fish and Game, datos inéditos; 1993-1998, Calif. Coop. Ocean. Fish. Inves., Rep., 35-41.

⁴ Sources: NOAA Tech. Rep. NMFS 142: page 149, and Pelagic Fisheries of the Western Pacific Region, 1998 Annual Report, Western Pacific Fishery Management Council, Honolulu, Hawaii: page 3-57.

⁴ Fuentes: NOAA Tech. Rep. NMFS 142: página 149, y *Pesquerías Pelágicas de la Región del Pacífico Occidental*, Informe Anual de 1998, Western Pacific Fishery Management Council, Honolulu, Hawaii: página 3-57.

* not available—no disponible

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