

ANALYSIS OF LEVELS OF SAMPLING FOR CATCH AND EFFORT BY SPECIES AND COUNTRY IN THE ICCAT TASK II DATA BASE, 1976-83

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SUMMARY

ICCAT reports catches of nearly 30 species of tunas and tuna-like fishes for about 80 countries. Collection of adequate catch and effort data from the fisheries is necessary for various purposes, including assessment of status of the stocks. Catch and effort sampling is analyzed for more than 15 species and fisheries (excluding bluefin tuna) and for more than 30 countries plus the ICCAT Secretariat. Fisheries for yellowfin, bigeye and skipjack tunas and albacore are sampled for catch and effort at generally high levels. Swordfish and blue marlin are reasonably well covered. Fisheries for other billfish and for small tunas are sampled for catch and effort data only at low levels or not at all.

RESUME

L'ICCAT déclare les prises de près de 30 espèces de thonidés et espèces voisines d'environ 80 pays. Le rassemblement de données adéquates de prise et effort dans les pêcheries est nécessaire pour plusieurs raisons, entre autres l'évaluation des stocks. L'échantillonnage de prise et effort est analysé sur plus de 15 espèces et pêcheries (sauf pour le thon rouge) et pour plus de 30 pays ainsi que le Secrétariat de l'ICCAT. Les pêcheries d'albacore, de thon obèse, de bonite à ventre rayé et de germon sont échantillonnées pour obtenir la prise et effort, en général à de hauts niveaux. L'espadon et le makaira bleu sont couverts d'une manière assez satisfaisante. Les pêcheries d'autres istiophoridés et de petits thonidés sont échantillonnées pour obtenir les données de prise et effort mais uniquement à des niveaux faibles ou pas du tout.

RESUMEN

ICCAT informa las capturas de casi 30 especies de túnidos y especies afines efectuadas por unos 80 países. La recopilación de datos adecuados de captura y esfuerzo de las pesquerías es necesaria para llevar a cabo diversas tareas, entre las que se cuenta la evaluación de la condición de las poblaciones. Se analiza el muestreo de la captura y esfuerzo en el caso de más de 15 especies y pesquerías (excluyendo el atún rojo) y más de 30 países, además de la Secretaría de ICCAT. Las pesquerías de rabil, patudo, listado y atún blanco se muestrean respecto a captura y esfuerzo, a niveles generalmente altos. La cobertura de pez espada y aguja azul es relativamente satisfactoria. Las pesquerías de otros marlines y de pequeños túnidos se muestrean respecto a datos de captura y esfuerzo, pero a niveles bajos, o bien no se muestrean.

INTRODUCTION

The adequacy of sampling of catches of Atlantic tunas and tuna-like fishes has been a matter of concern since the inception of studies by ICCAT. However, as Hennemuth (1974) pointed out, while hardly any statistical subject is better known in theory than sampling, little attention has been paid to sampling in the fisheries literature. This is true for ICCAT. In addition, the few ICCAT studies dealing with sampling almost invariably concern sampling for size. Almost none deal with sampling for catch and effort data.

Wise (1984) summarized ICCAT sampling for size for 1959-82, and for catch and effort for 1950-82, considering only presence or absence of sampling. The relation between the amount caught and the amount of sampling for size was reviewed by Wise (1985). (Occasional mentions of size sampling below refer to the second paper.)

This paper examines relative levels of sampling for catch and effort data, compared to catches, within and between species and countries, for 1976-83. The bases of the analyses are the ICCAT Data Record through Number 25 and the ICCAT Statistical Series through Number 12. A period beginning in 1976 was chosen so as to include the most recent years, and a cutoff of 1983 was adopted because of frequent delays of a year or more between collection of catch and effort information and its publication by the Secretariat.

Sampling not carried out at sea or at landing ports, such as the work done on transshipped tunas at Puerto Rico, is not considered. Sampling of fisheries for bluefin tuna for catch and effort is not covered, since it has been analyzed in considerable detail by specialists who have participated in several recent meetings of the bluefin working group.

When a lack of sampling for catch and effort is cited, it means that there are no samples reported in the ICCAT publications, and not necessarily that there was no sampling. For this reason a lack of reported samples for 1983 often means only that the data had not been received and published as of the cutoff date. In other cases, data probably exist in national files that could be recovered for inclusion in the data base.

In some instances, the Data Record contains data labelled "catch and effort" with no fishing effort data. These are actually extensions of catch data with detailed information on periods and areas of capture. They were ignored in the following tables and discussions.

Data on sampling for size and for catch and effort in the France-FIS-FISM and Spanish surface catches in the eastern tropical Atlantic for 1976-83 are presently under revision (Cayré, 1984 and Pallarés, 1984).

Catch and effort data are usually presented either in estimated weight of the samples or in numbers of fish. In the occasional case where they are shown in both, the estimated weight is used in the following discussions and tables. No account has been taken of the few instances in which weight has been expressed in terms other than round fresh-- in gilled and gutted weight for example.

Sampling rates are expressed as "%" when the sampling is shown in weight, and in number of fish per ton caught when the sampling is in number of fish. Rates of 100% and very high rates in numbers should be treated with caution, since the data may have been raised before submission.

Tables 1-16 show the relationships between catches and the part of the catch covered by catch and effort sampling for principal species and species groups and fishing countries for 1976-83. In each table, catches by the countries shown include at least 95 percent of the 1981-83 Atlantic catch for the species or species group.

REVIEW OF SAMPLING BY SPECIES

YELLOWFIN TUNA (Tables 1, 2)

Surface catches of yellowfin tuna have averaged record levels of 130,000 tons/year in 1981-83. Nearly 90 percent of the catch is taken by Spain, FIS, Venezuela and Ghana. Catch and effort data for 1976-83 for yellowfin tuna taken in surface fisheries by Spain and FIS (nearly 75 percent of the total) are currently under revision. Venezuelan catches have been sampled for catch and effort since 1981 at 20% or less. Ghanaian catches have been sampled regularly (1982-83 rates are less than 10%). Japanese catches have been sampled at rates close to 100% by Japan, and by Ghana. Brazilian catches have been sampled since 1981. Portugal, the USSR, Cape Verde, Angola, the USA, Korea and South Africa also have sampled their surface catches of yellowfin tuna. Korean surface catches have also been sampled by Ghana. Thus, well over 90 percent of the surface-caught yellowfin tuna is sampled for catch and effort.

Recent (1981-83) longline catches of yellowfin have been ~~some~~ 17,000 tons/year, well below the 50,000 or more tons/year taken around 1960. Over 80 percent is taken by Korea, Cuba, Japan and Panama. Korea has sampled regularly for catch and effort, at rates of 40% or higher since 1980. Cuba samples at 20 fish/ton or higher, as does Japan. Brazil, China, Venezuela, the USSR and South Africa also collect catch and effort data. The Secretariat has sampled Chinese and Korean longline catches regularly at varying rates, usually 40% or higher. Over 90 percent of the longline catch is sampled for catch and effort.

BIGEYE TUNA (Tables 3, 4)

Surface catches of bigeye tuna were at record levels of around 23,000 tons/year in 1981-83. About 80 percent is taken by Spain, FIS and Portugal. The 1976-83 catch and effort data for the Spanish and FIS surface fisheries are under revision. Portuguese catches have been sampled continuously since 1979 at levels above 60%. Ghana, Cape Verde (since 1981), South Africa and other countries have sampled regularly. About 90 percent of the surface catch is sampled for catch and effort.

Recent longline catches of bigeye have been around 41,000 tons/year, comparable to the levels of the mid-1970s. Over 90 percent is taken by Japan, Korea, Panama and China. Japan and China have sampled regularly at about 20 fish/ton. Korea has sampled regularly, usually at over 40%. Panama has not sampled. Brazil, Cuba, the USSR and South Africa have sampled for catch and effort. The Secretariat has sampled Chinese and Korean longline catches regularly, at considerably varying rates. Some 90 percent of the longline catch is sampled for catch and effort.

ALBACORE (Table 5)

Catches of albacore in 1981-83 have been some 66,000 tons/year, well below the 90,000 tons or more per year taken in 1964-65. About 90 percent is taken by Spain, China, France and South Africa. The first two take over 80 percent of the total. Spanish, French and South African catches are taken almost entirely in surface fisheries, while the Chinese catch is exclusively by longline.

Spanish sampling of albacore fisheries for catch and effort was at a rate of 5% or less until 1981, but has been 40% or higher since. Chinese catches have been sampled regularly at 50-60 fish per ton. France reports samples for only two years in the 1976-83 period. South African sampling of catch and effort has been regular, usually at 100%. Portugal, Japan, Korea, Brazil, Venezuela (recently), Cuba, and the USSR have sampled albacore fisheries for catch and effort data. The Secretariat has sampled Chinese and Korean longline catches of albacore regularly, at rates usually above 40%. Over 90 percent of the Atlantic catches is covered by catch and effort sampling.

SKIPJACK TUNA (Tables 6, 7)

Recent (1981-83) catches of skipjack tuna in the eastern Atlantic have been some 109,000 tons/year. Over 80 percent is taken by Spain, FIS, Ghana and Japan in the eastern Atlantic. The data from Spanish and FIS catch and effort sampling for 1976-83 are presently under review. Ghana has sampled its catches continuously, at rates below 15% in recent years. Japanese catches have been sampled

regularly, most years at 100% by Japan, and also by Ghana. Most fishing countries have catch and effort sampling programs, with the notable exceptions of Morocco and Panama. Overall, more than 90 percent of the eastern Atlantic skipjack catches is sampled for catch and effort.

Catches of western Atlantic skipjack have increased from less than 5,000 tons/year previous to 1978 to over 30,000 tons/year in 1981-82. Nearly 90 percent of the western Atlantic catch is taken by Brazil and Venezuela. Brazil has sampled skipjack fisheries for catch and effort at rates of 20% or higher since 1981. Venezuela has recently initiated a sampling program. Several countries catching a few hundred to a few thousand tons per year, notably Cuba, the USA, Mexico and Argentina, have sampled intermittently or not at all. About 90 percent of the western Atlantic skipjack catches is sampled for catch and effort.

Minor catches of skipjack tuna by longline, for which catch and effort data are occasionally reported, are not considered here.

SOUTHERN BLUEFIN TUNA (Table 8)

Recent (1981-83) catches of southern bluefin in the Atlantic have been as low as 600 tons/year, much less than the 3,000-6,000 tons per year taken in 1977-79. Nearly all of the southern bluefin is caught by Japan, and Japan has sampled regularly, so over 90 percent of the southern bluefin tuna catches are sampled for catch and effort.

SWORDFISH (Table 9)

Catches of swordfish in the Atlantic have been at record levels near 20,000 tons/year in 1981-83. Over 70 percent of the catch is taken by Spain, Italy, the USA and Japan. Spanish sampling of swordfish fisheries for catch and effort is close to 100%, but there are no data for 1981 and 1983. Italian catches are not sampled, and the USA has sampled in only one year of the last five, at a very low level. Japanese sampling has been carried out regularly at about 20 fish/ton. Cuban sampling has been regular, as has Brazilian, Korean and Chinese. Canadian sampling has been intermittent. About 60-65 percent of the Atlantic swordfish catch is sampled more or less regularly for catch and effort.

OTHER BILLFISHES (Tables 10-12)

Catches of blue marlin in 1981-83 have been some 2,000 tons/year, considerably below the more than 5,000 tons/year registered in the early 1960s. Over 80 percent of the present catch is taken by Japan, Cuba, the USA, Venezuela and China. Japan and China (since 1978) have sampled catch and effort regularly at about 10 fish/ton. Cuba started sampling blue marlin separately in 1982. The USA has not sampled since 1978. Venezuela has not sampled. Korea and

Brazil (since 1978) have sampled catch and effort regularly, usually at 20% or higher. Around 80 percent of the blue marlin catch is sampled for catch and effort.

Recent (1981-83) catches of white marlin have been some 1,300 tons/year, well below the 3,000-5,000 tons/year of the mid-1960s. Over 80 percent of the catch is taken by Cuba, China, Venezuela and the USA. China has sampled catch and effort regularly since 1978, usually at about 20 fish/ton or higher. Cuba's white marlin catch and effort data are lumped with those for other billfish except swordfish and, since 1982, blue marlin. Venezuela has not sampled; the USA has not sampled since 1978. Brazil, Korea (since 1978) and Japan have sampled regularly. Nonetheless, only some 30 percent of the overall catch is sampled for catch and effort.

Catches of sailfish and spearfish have been around 2,500 tons/year in 1981-83. Nearly 80 percent of the catch is taken by Ghana, Senegal, the USA and Cuba. None of these countries has sampled sailfish-spearfish catches, with rare exceptions, nor has Venezuela or China. Thus, in spite of regular sampling by Japan, Brazil and Korea, only 10 percent of the sailfish-spearfish catch is covered by sampling for catch and effort.

SMALL TUNAS (Tables 13-16)

Recent (1981-83) catches of small tunas have been 105,000 tons/year. Nearly half (46,000 tons) is made up of Atlantic bonito. Little tuna catches have been around 16,000 tons/year, and frigate tuna catches have been about 12,000 tons/year.

Turkey takes almost 70 percent of the Atlantic bonito and the USSR almost 10 percent. Only Angola and Portugal, with less than one percent of the catch of Atlantic bonito, sample for catch and effort. Ninety-nine percent of the catch is not sampled.

The USSR, Senegal, Ghana, Angola and FISM take over 85 percent of the little tuna. Angola samples little tuna regularly for catch and effort, and Cape Verde has sampled since 1981. The USSR's sampling has been irregular; Senegal and Ghana have not sampled since 1978. Only 10 percent of the little tuna catch is sampled for catch and effort.

Over 80 percent of the blackfin tuna is taken by Cuba, Guadeloupe and Martinique. The only sampling for catch and effort has been by Brazil. Ninety-five percent of the catch is not sampled.

Ghana, Spain, the USSR and FISM take 80 percent of the frigate tuna. The only sampling of catch and effort by these countries has been by the USSR on an irregular basis. The only regular sampling has been by Angola, since 1978. About 80 percent of the catch is not sampled.

There is no catch and effort sampling for other bonitos or wahoo, nor for king and Spanish mackerels.

REVIEW OF SAMPLING BY COUNTRIES AND BY ICCAT SECRETARIAT

ALGERIA (Tables 9, 13)

Algerian catches of swordfish and Atlantic bonito, both approaching 1,000 tons/year, are not sampled.

ANGOLA (Tables 1, 6, 13, 14, 16)

Angola's catches are variable, 3,000-6,000 tons/year in 1979-83, principally yellowfin, skipjack and small tunas taken by baitboats. Sampling of catch and effort has been carried out regularly since 1978. Yellowfin, skipjack and frigate tuna and little tuna catches have usually been sampled at 60% or higher levels. Atlantic bonito has been sampled at 10-30%.

ARGENTINA (Tables 7, 13)

Argentina's catches are variable, up to 2,600 tons in 1980, principally of Atlantic bonito. There has been almost no sampling for catch and effort nor for size.

BENIN

Catches have been up to a total of a few hundred tons per year of several species. These catches are not sampled.

BRAZIL (Tables 1, 2, 4, 5, 7, 9-12, 15, 16)

Catches by Brazil, plus vessels of other nationalities leased or licensed by Brazil, have been increasing rapidly. The increase has been due almost entirely to the baitboat fishery for skipjack, which took less than 1,000 tons/year previous to 1979, but by 1982-83 had risen to 16,000-18,000 tons per year. The surface fishery for skipjack and yellowfin tunas has been sampled for catch and effort since 1981, at rates from 15 to over 50%. Longline fisheries for yellowfin and bigeye tunas and albacore have been sampled regularly, since 1980 at rates of 75% or higher. Billfishes in the same fisheries have been sampled at rates of 30% or higher. Small tunas have been sampled intermittently at varying rates.

CANADA (Tables 7, 9)

Canadian Atlantic tuna catches are on the order of 1,000-3,000 tons/year, almost exclusively swordfish and bluefin tuna in the last ten years. Catch and effort samples for swordfish are available for only two years in the 1976-83 period. No size samples of swordfish have been reported.

CAPE VERDE (Tables 1, 3, 6, 14)

Catches in recent years have been on the order of 3,000 tons/year, roughly half skipjack tuna. Catch and effort sampling has been carried out since 1981, at rates approaching 100% for all species since 1982.

CHINA-TAIWAN (Tables 2, 4, 5, 8-12)

Recent catches have been about 32,000 tons/year, all by longliners and over 85 percent albacore. Albacore have sampled regularly for catch and effort at 50-60 fish per ton. Yellowfin and bigeye tunas have been sampled regularly at 20-30 fish/ton. Swordfish and other billfishes except sailfish-spearfish have been sampled since 1978 at 10-40 fish per ton. Chinese catches of yellowfin and bigeye tunas and albacore are also sampled by the Secretariat.

CUBA (Tables 1, 2, 4, 5, 7, 9-12, 14, 15)

Cuban catches of tunas have been on the order of 10,000 tons/year for several years. A third to a half of the total is made up of yellowfin tuna taken by longliners. Longline catches of yellowfin and bigeye tunas and albacore have been sampled regularly for catch and effort at 20 fish per ton or higher. Swordfish have been sampled regularly at 10 fish/ton. All other billfish were grouped in the catch-effort data until 1982, when blue marlin was separated and sampled at about 10 fish per ton-- the other billfishes are still grouped. There has been no catch and effort sampling of surface catches of yellowfin, skipjack nor small tunas.

FRANCE AND FIS-FISM (Tables 1, 3, 5, 6, 10, 14, 16)

All French and Ivory Coast plus most Moroccan and Senegalese Atlantic tuna catches and sampling are included in the France-FIS-FISM complex. About 90,000 tons/year of tunas were taken in 1981-83. Over 80 percent is surface-caught yellowfin, skipjack and bigeye tunas. Catch-effort data for these fisheries is under review (Cayré, 1984). French albacore fisheries have been sampled for catch and effort only twice in the 1976-83 period. (Size samples are available only for combined French-Spanish catches.) Catches of marlins and small tunas are not sampled except as covered below under Senegal.

GABON

Catches are on the order of 200 tons of billfishes per year. They are not sampled.

GHANA (Tables 1, 3, 6, 12, 14, 16)

Ghana's increasing catches of Atlantic tunas reached 46,000 tons in 1983. More than half of the catch is surface-caught skipjack tuna. Yellowfin tuna plus small tunas and sailfish make up most of the rest. Skipjack tuna catch and effort sampling has been continuous, at decreasing rates, since 1977, as has been sampling of yellowfin and bigeye tunas (1982-83 rates are less than 15%). Sampling of small tunas and sailfish has been irregular or lacking, particularly in recent years.

Ghana has also sampled surface fisheries by Japan and Korea, primarily baitboats, based in Ghana. See under Japan and Korea for details. (The sampling of Korean catches includes some vessels flying the Panamanian flag of convenience.)

ITALY (Tables 5, 9, 13, 16)

Total catches in recent years have been some 12,000 tons per year, about half bluefin tuna. Swordfish catches have been about 3,000 tons/year, and there are catches of 2,000-3000 tons of small tunas each year. The lack of sampling (except for some sampling of bluefin tuna for catch and effort and size) represents a serious gap in knowledge of Mediterranean fisheries.

IVORY COAST

All Ivory Coast tuna statistics and sampling are included in the France-FIS-FISM complex.

JAPAN (Tables 1-6, 8-12, 16)

Recent Japanese Atlantic tuna catches (1981-83) have been as high as 63,000 tons/year. About half of the total is bigeye tuna taken by longline. The rest is principally bluefin tuna (c. 4,000 tons), yellowfin tuna (4,000-8,000 tons) and skipjack tuna (6,000-13,000 tons). There are surface fisheries by baitboats and purse seiners based in Ghana.

Longline-caught bigeye and yellowfin tunas and swordfish have been sampled regularly for catch and effort at about 20 fish per ton. Longline albacore is sampled at about 70 fish per ton. Blue marlin are sampled at about 10 fish/ton, and white marlin at 30-50 fish/ton. Catch and effort samples of sailfish-spearfish are available for most years.

Japanese surface catches of skipjack tuna have been sampled for catch and effort by Japan at rates close to 100%, except in 1982 (15%). They have been sampled by Ghana at irregular rates up to 50%. Surface catches of yellowfin tuna have been sampled by Japan at varying rates, usually around 100% in recent years, and by Ghana at varying rates.

Surface catches of bigeye tuna have been sampled at widely varying rates, less than 1% in 1981-82. Ghanaian sampling of Japanese surface-caught bigeye tuna has also varied, with very low rates in recent years.

KOREA (Tables 1-6, 9-12)

Korean catches of Atlantic tunas were 18,000-32,000 tons/year in 1981-83. Over half is bigeye and yellowfin tunas and albacore taken by longlines. Baitboats based in Ghana take up to 8,000 tons/year of skipjack, yellowfin and bigeye tunas.

Longline fisheries for bigeye and yellowfin tunas and albacore have been sampled regularly for catch and effort, since 1980 at rates of 40% or higher. Swordfish has been sampled at similar rates, and marlins and sailfish-spearfish at lower rates. Catches of yellowfin and bigeye tunas and albacore have been sampled by the Secretariat.

Surface catches of skipjack have been sampled regularly for catch and effort at rates higher than 50%, of yellowfin and bigeye tunas at irregular rates. Ghanaian sampling of Korean surface fisheries has been at varying rates.

MOROCCO (Tables 1, 6, 9, 13, 16)

A large part of the Moroccan catch and sampling is included in the France-FIS-FISM statistics. Some 7,000-12,000 tons/year is reported separately, principally yellowfin and skipjack tunas and small tunas. There has been almost no sampling for catch and effort nor for size.

PANAMA (Tables 1, 2, 4-7, 10)

Longliners and baitboats registered under the Panamanian flag of convenience catch several thousand tons of yellowfin, skipjack and bigeye tunas and albacore each year. These catches are not sampled by Panama for catch and effort, nor for size, but some are covered in Ghanaian and Secretariat sampling of Korean catches.

PORTUGAL (Tables 1, 3, 5, 6, 13)

Portuguese tuna catches, principally from surface fisheries in the Azores, have been 6,000-9,000 tons/year in recent years. The species composition is variable, with bigeye and skipjack tunas most important. Bigeye and skipjack tunas have been sampled regularly for catch and effort, since 1979 at 65% or higher. Albacore catches have been sampled regularly since 1980, usually at 90% or higher. Yellowfin tuna has also been sampled since 1980, but usually at rates less than 5%.

SAO TOME AND PRINCIPE

Catches are 200-300 tons per year. They are not sampled.

SENEGAL (Tables 12-14)

A large part of the Senegalese catch and sampling is included in the France-FIS-FISM statistics. Billfish and some small tuna catches are reported separately. There is no sampling of billfish for catch and effort nor for size. There has been no sampling of little tuna for catch and effort nor for size since 1979.

SOUTH AFRICA (Tables 1-6, 8, 9, 13)

South Africa's Atlantic tuna catches in 1981-83 (those made west of 20°E.) have been 2,000-3,000 tons/year. In most years the catch is 75 percent or more albacore. Catch and effort sampling of albacore is usually at 100%. Catch-effort sampling of swordfish has been occasional. Catch-effort data for other species frequently indicates sampling of catches larger than those reported. This phenomenon is probably due to reporting sampling of total catches, including those made in the Indian Ocean.

SPAIN (Tables 1, 3-7, 9, 13, 14, 16)

Spain's catches in 1981-83 averaged just over 140,000 tons/year, a quarter of the total Atlantic tuna catch. More than half is yellowfin and skipjack tunas, mostly taken by purse seiners in the eastern tropical Atlantic. Catch-effort and size samples for these fisheries are presently under review (Pallarés, 1984). Spain is the leading country in Atlantic fisheries for albacore and swordfish. There are also significant catches of bluefin tuna and small tunas.

Catch-effort sampling of albacore was 5% or less until 1982, but recently has been 40% or higher. Catch-effort sampling of swordfish is usually around 100%, except for 1981 and 1983, when there was none. There is no catch-effort sampling for small tunas.

TURKEY (Table 13)

Variable; occasionally large (50,000 tons/year), catches of Atlantic bonito are not sampled for catch and effort nor for size, nor are small amounts of several other species.

USSR (Tables 1-6, 9, 12-14, 16)

USSR catches of Atlantic tunas have been variable, averaging about 15,000 tons/year in 1981-83. Small tunas make up 60% or more of the total since 1980. Varying amounts of yellowfin, skipjack and bigeye tunas and albacore account for most of the rest. Catch-effort sampling of small tunas has been irregular. Longline catches of yellowfin and bigeye tunas and albacore and surface catches of skipjack have usually been sampled at 100% in recent years. Catch and effort sampling of swordfish and sailfish-spearfish has been irregular.

USA (Tables 1, 3, 6, 7, 9-15)

United States catches of Atlantic tunas have recently been about 15,000 tons/year. About 6,000-7000 tons is small tunas, 2,000-4,000 tons swordfish, 700-1,500 tons bluefin tuna, and the rest mostly less than 1,000 tons each of yellowfin, skipjack and bigeye tunas, albacore, and marlins.

There is no sampling of catch and effort for small tunas. Catch and effort sampling for swordfish was done only for 1976-78 and 1983, at low rates, less than one fish/ton. Sampling of yellowfin, skipjack and bigeye tunas for catch and effort was at rates usually above 70% through 1981, but none has been done since. There has been almost no sampling of catch and effort for billfish other than swordfish since 1978.

URUGUAY (Table 9)

Uruguayan catches have been up to 3,000 tons/year since 1981, all taken by longline and about half swordfish, with some yellowfin and bigeye tunas and albacore. Catch and effort sampling for these species began in 1981.

VENEZUELA (Tables 1, 2, 5, 7, 11-14, 16)

Venezuelan catches have been increasing rapidly in recent years, and in 1983 were 37,000 tons, three quarters surface-caught yellowfin and skipjack tunas. Catch and effort sampling for these species began in 1981. Catches of marlins and of small tunas are not sampled.

OTHER COUNTRIES

Skipjack catches by Barbados, Cayman Islands, the Dominican Republic, Mexico and St. Lucia, usually some hundreds of tons per year in total, are not sampled for catch and effort nor for size (Tables 6-7).

Small tuna catches by the Dominican Republic, German Democratic Republic, Greece, Guadeloupe, Israel, Martinique, Romania and Tunisia, several thousands of tons per year in total, are not sampled for catch and effort nor for size (Tables 14-16).

ICCAT SECRETARIAT (Tables 2, 4, 5)

The Secretariat has sampled longline catches of yellowfin tuna and albacore by China and Korea regularly, at varying rates, usually 40% or higher. Sampling of Chinese and Korean longline catches of bigeye tuna has been regular, at considerably varying rates. The sampling of Korean catches includes some vessels flying the Panamanian flag of convenience.

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Table I - Summary of Atlantic yellowfin tuna surface catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Spain Weight	33,423	35,791	31,535	41,135	38,759	51,428	54,164	47,290
	----- Under revision -----							
FISA Weight	50,001	47,732	51,701	45,441	49,136	51,874	42,537	37,567
	----- Under revision -----							
Venezuela Weight	0	0	0	0	4,397	3,500	13,942	14,919
	-	-	-	-	0	692	1,726	0
Ghana Weight	945	621	546	1,426	2,239	5,510	9,797	7,689
	60	525	541	228	888		631	119
Japan Weight(1)	4,941	2,588	1,446	962	495	1,701	2,041	2,211
Weight(2)	2,225	2,488	767	568	598	2,301	2,482	2,258
			340	275	1,028		313	86
Brazil** Weight	34	374	31	277	487	936	1,044	1,957
	0	0	0	0	0	136	453	1,273
Morocco Weight	1,574	2,167	3,400	2,986	2,113	4,817	4,540	1,902
	0	0	0	0	0	0	0	0
Portugal Weight	3	0	125	185	77	208	981	1,333
	3	-	0	0	14	1	39	3
USSR Weight	89	0	192	292	294	327	903	1,247
	0	-	91	0	0	92	903	1,247
Cape Verde Weight	46	130	174	581	864	877	789	950
	0	0	0	0	0	93	841	950
Angola Weight	1,005	2,085	2,296	904	558	959	1,467	788
	0	0	1,983	1,010	538	748	1,362	706
Cuba Weight	600	100	400	600	200	400	109	349
	0	0	0	0	0	0	0	0
USA Weight	2,252	7,208	9,747	3,812	2,118	1,866	883	150
	1,771	5,566	8,751	3,090	1,270	1,638	0	0
Korea Weight(1)	999	1,235	1,372	3,866	1,413	963	387	144
Weight(2)	251	296	669	1,329	1,508	563	14	104
		1,076	2,206	1,615	1,774		93	19
South Africa Weight	6	167	281	4,494	344	69	49	104
	6	91	240	8,686	476		49	425
Panama Weight	1,030	860	385	299	16	78	348	59
	0	0	0	0	0	0	0	0

*France, Ivory Coast, Senegal

**Includes leased/licensed vessels.

Notes:

- Figures following country name are catch in metric tons.
- "Weight" (metric tons) in catch-effort samples. For Japan and Korea, "Weight(1)" is national sampling and "Weight(2)" is Ghanaian sampling.

Sources:

- Catches from ICCAT Statistical Bulletin, Volume 14.
- Weight of samples from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 2 - Summary of Atlantic yellowfin tuna longline catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Korea	11,211	16,347	11,512	6,997	5,869	6,650	5,872	3,405
Weight(1)	5,815	5,565	5,557	2,809	3,610	4,655	2,897	2,132
Weight(2)	11,064	14,591	10,336	2,387	5,418	3,948	2,403	2,425
Cuba	3,000	3,800	2,600	2,800	5,600	4,500	3,623	2,360
No. fish (K)	64	98	727	63	104	98	72	39
Japan	3,366	1,467	1,923	1,986	2,839	4,145	6,062	2,069
No. fish (K)	104	41	563	63	70	112	137	0
Panama	3,145	1,458	1,843	542	2,452	525	1,763	1,685
Weight	0	0	0	0	0	0	0	0
Brazil	675	929	781	932	520	1,257	1,034	842
Weight	394	635	294	489	465	1,052	805	745
China-Taiwan	1,736	329	340	918	608	767	540	477
No. fish (K)	29	31	34	15	12	16	16	11
Weight	723	871	653	548	444	97	95	333
Venezuela	626	827	1,306	1,000	1,000	1,000	484	341
Weight	0	0	0	0	0	406	762	0
USSR	1,563	1,794	495	514	147	214	101	35
Weight	0	327	0	514	147	214	101	35
South Africa	0	0	0	101	60	48	0	0
Weight	-	-	-	222	60	-	-	32

*Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples. For China, 'No. fish' is national sampling; 'Weight' is Secretariat sampling. For Korea, 'Weight(1)' is national sampling; 'Weight(2)' is Secretariat sampling.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 3 - Summary of Atlantic bigeye tuna surface catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Spain	5,921	8,380	6,528	5,419	8,430	10,010	9,332	9,332
Weight	-	-	-	Under revision	-	-	-	-
EISA	6,268	8,598	8,532	6,922	5,742	7,588	6,592	7,294
Weight	-	-	-	Under revision	-	-	-	-
Portugal	2,929	4,522	5,350	3,385	3,706	3,086	1,861	4,075
Weight	903	703	1,978	2,213	2,999	2,671	1,765	3,554
Ghana	170	237	124	238	332	780	791	491
Weight	216	215	95	87	121	54	3	
Cape Verde	20	58	171	45	27	13	138	291
Weight	0	0	0	0	0	1	124	291
USA	28	331	248	212	202	152	377	224
Weight	31	19	218	211	113	118	0	0
South Africa	0	0	0	19	141	263	132	109
Weight	-	-	-	19	141	136	178	
Japan	872	1,007	562	193	445	1,047	616	49
Weight(1)	3,588	1,095	940	590	169	165	34	23
Weight(2)	-	-	437	499	498	5	1	
Korea	176	480	534	717	1,272	592	194	0
Weight(1)	404	31	630	1,139	464	47	0	-
Weight(2)	-	701	2,461	2,023	1,566	0	57	
USSR	0	0	144	185	195	1,151	0	0
Weight	-	-	79	0	0	979	-	-

*France, Ivory Coast, Senegal

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) in catch-effort samples. For Japan and Korea, 'Weight(1)' is national sampling and 'Weight(2)' is Ghanaian sampling.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 4 - Summary of Atlantic bigeye tuna longline catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Japan	7,298	9,137	9,301	11,957	20,477	21,044	32,867	15,163
No. fish (K)	171	190	2,096	271	455	471	702	0
Korea	6,747	7,610	9,182	7,305	8,963	11,682	10,615	9,893
Weight(1)	3,837	3,405	3,527	3,205	4,780	7,268	6,603	5,979
Weight(2)	5,914	7,445	9,002	2,687	8,587	9,230	4,264	3,017
Panama	1,953	1,158	1,990	477	4,504	2,452	2,933	2,732
Weight	0	0	0	0	0	0	0	0
China-Taiwan	3,274	2,978	2,628	2,200	2,266	1,670	1,900	1,436
No. fish (K)	62	76	84	41	42	49	43	28
Weight	621	619	233	1,022	1,368	1,462	2,296	1,985
Brazil*	192	463	557	568	567	463	646	505
Weight	109	177	264	645	504	393	577	448
Cuba	1,300	1,800	2,300	2,300	1,400	700	521	385
No. fish (K)	32	31	457	38	22	13	10	7
USSR	4,907	4,086	2,058	2,041	2,618	1,681	635	352
Weight	0	1,056	0	2,041	2,618	1,681	635	352
Spain	1,515	1,356	0	0	0	7	250	72
Weight	0	0	-	-	-	0	0	0
South Africa	0	0	0	0	281	118	1	69
Weight	-	-	-	-	281		1	69

*Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples. For China, 'No. fish' is national sampling; 'Weight' is Secretariat sampling. For Korea, 'Weight(1)' is national sampling; 'Weight(2)' is Secretariat sampling.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 5 - Summary of Atlantic albacore catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Spain	26,910	25,155	25,404	29,810	25,202	22,631	26,156	30,387
Weight	656	975	1,160	604	518	1,009	10,648	18,725
China-Taiwan	29,437	29,815	29,791	27,313	25,800	24,771	33,300	23,756
No. fish (K)	1,719	1,798	7,408	1,348	1,391	1,488	2,025	1,445
Weight	20,394	20,014	12,178	12,329	12,667	3,214	10,780	11,792
France*	6,800	6,823	8,823	8,054	3,463	3,841	3,802	2,763
No. fish (K)**	0	0	15,765	0	0	0	0	2,389
South Africa	35	74	126	378	1,459	1,856	2,547	2,210
Weight	34	0	126	382	1,468		2,546	2,210
Portugal	610	52	85	149	79	442	321	1,788
Weight	0	24	8	0	72	441	117	1,659
Japan	1,419	932	666	1,324	1,369	2,298	1,350	1,344
No. fish (K)	93	59	438	88	94	153	90	0
Korea	8,755	9,408	4,461	3,875	1,600	1,620	1,889	1,077
Weight(1)	4,079	3,008	1,825	1,087	703	671	974	667
Weight(2)	8,643	6,204	3,344	1,457	1,091	909	848	674
Brazil***	282	685	478	501	475	289	919	722
Weight	183	275	77	223	388	250	710	768
Italy	560	613	590	500	500	600	700	700
Weight	0	0	0	0	0	0	0	0
Panama	1,997	934	1,122	550	360	306	357	357
Weight	0	0	0	0	0	0	0	0
Venezuela	133	102	397	1	300	328	57	282
Weight	0	0	0	0	0	0	376	0
Cuba	100	100	100	0	100	100	111	74
No. fish (K)	4	2	21	1	3	4	5	3
USSR	84	212	74	59	99	51	0	0
Weight	0	0	68	0	0	51	-	-

A1981-83 includes Ivory Coast and Senegal.

**1983 is tons.

***Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples. For China, 'No. fish' is national sampling; 'Weight' is Secretariat sampling. For Korea, 'Weight(1)' is national sampling; 'Weight(2)' is Secretariat sampling.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 6 - Summary of eastern Atlantic skipjack tuna catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Spain	16,255	22,257	29,522	18,748	26,384	35,458	38,016	33,311
Weight	----- Under revision -----							
FISA	16,470	29,479	23,961	17,203	22,989	25,023	28,638	25,715
Weight	----- Under revision -----							
Ghana	8,167	4,623	2,842	4,299	5,997	7,858	18,272	24,376
Weight	482	2,898	1,186	1,140	1,111		2,041	471
Japan	15,042	16,845	14,614	14,686	12,304	12,935	9,330	6,002
Weight(1)	15,042	16,760	13,528	14,481	15,227	11,611	1,368	6,001
Weight(2)	46		6,041	7,171	4,212		1,026	152
Morocco	538	3,851	1,891	1,863	4,294	3,017	3,956	2,006
Weight	0	0	0	0	664	0	0	0
Panama	2,467	3,970	2,980	1,750	1,735	144	2,541	1,611
Weight	0	0	0	0	0	0	0	0
Korea	1,948	3,600	8,132	12,017	6,718	7,538	2,827	1,553
Weight(1)	1,207	6,761	4,816	6,469	4,439	5,430	2,139	1,115
Weight(2)			10,660	7,289			443	132
Cape Verde	330	928	474	997	2,094	1,584	1,564	1,337
Weight	0	0	0	0	0	260	1,557	1,337
USSR	3,633	6,674	2,856	1,161	2,991	1,750	3,957	1,223
Weight	0	0	2,856	0	0	1,750	3,462	563
Portugal	2,068	4,388	4,584	3,074	1,954	2,825	5,530	1,113
Weight	936	2,515	3,532	2,278	1,357	2,369	4,164	891
Angola	1,514	4,036	3,501	3,628	3,482	2,532	2,257	318
Weight	0	0	3,239	3,992	3,465	2,254	1,733	318
South Africa	0	40	90	2	17	88	38	104
Weight	-	39	90	12	45		38	44
USA	1,766	5,859	6,797	2,073	2,608	2,800	79	0
Weight	1,719	4,680	5,421	1,589	2,238	2,955	0	-
Cayman Islands	0	0	0	0	289	1,800	30	0
Weight	-	-	-	-	0	0	0	-
A France, Ivory Coast, Senegal								

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) in catch-effort samples. For Japan and Korea, 'Weight(1)' is national sampling and 'Weight(2)' is Ghanaian sampling.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 7 - Summary of western Atlantic skipjack tuna catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Brazil ^A	83	190	635	2,065	6,334	13,964	17,922	15,930
Weight	0	0	0	0	0	2,707	5,117	8,745
Venezuela	0	0	0	0	1,890	4,900	12,645	13,031
Weight ^{AA}	-	-	-	-	0	211,511	2,517	0
Cuba	2,800	2,400	1,800	2,000	2,300	1,100	1,134	1,700
Weight	0	0	0	0	0	0	0	0
USA	519	320	1,695	1,029	980	2,573	646	589
Weight	552	24	1,145	299	0	450	0	0
Mexico	237	81	59	174	274	412	357	384
Weight	0	0	0	0	0	0	0	0
Argentina	0	33	4	0	17	1	137	243
Weight	-	0	0	-	0	0	0	0
St. Lucia	88	100	100	105	100	100	100	100
Weight	0	0	0	0	0	0	0	0
Dominican Rep.	78	41	64	87	59	71	80	80
Weight	0	0	0	0	0	0	0	0
Barbados	0	0	0	0	0	78	72	60
Weight	-	-	-	-	-	0	0	0
Spain	0	266	2,031	1,052	0	0	0	55
Weight	-	0	0	0	-	-	-	0
Canada	181	0	86	0	0	180	0	0
Weight	0	-	86	-	-	0	-	-
Panama	0	0	689	161	1,026	0	0	0
Weight	-	-	0	0	0	-	-	-

^AIncludes leased/licensed vessels.

^{AA}No. fish for 1981

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAT Data Record, various numbers.

Table 8 - Summary of Atlantic southern bluefin tuna catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Japan	692	3,168	4,651	6,192	2,116	1,667	643	594
No. fish (K)	19	81	125	154	48	37	13	0
Poland	0	0	0	0	0	0	0	20
Weight	-	-	-	-	-	-	-	0
South Africa	0	0	0	0	13	6	0	0
Weight	-	-	-	-	0	-	-	-
China-Taiwan	53	0	29	11	22	0	0	0
Weight	0	-	0	0	0	-	-	-

Notes:

1. Figures following country name are catch in metric tons.
2. "Weight" (metric tons) or "No. fish" in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record, various numbers.

Table 9 - Summary of Atlantic swordfish catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Spain	2,905	3,976	4,342	3,382	4,560	5,134	5,454	8,422
Weight	2,904	3,977	4,430	3,383	4,559	0	5,453	0
Italy	3,346	3,345	4,031	3,375	3,699	2,500	3,000	2,702
Weight	0	0	0	0	0	0	0	0
USA	1,429	912	3,039	3,405	3,630	2,074	3,746	2,132
No. fish	849	563	299	0	0	0	0	35
Japan	809	792	855	971	2,108	2,233	3,728	1,899
No. fish (K)	15	14	15	16	37	39	65	0
Uruguay	0	0	0	0	0	115	663	1,460
Weight	-	-	-	-	-	115	607	0
Cuba	600	700	600	400	600	400	686	1,228
No. fish (K)	4	6	5	6	6	3	10	15
Canada	15	113	2,314	2,970	1,885	561	554	1,088
Weight	0	0	0	440	611	0	0	0
Algeria	368	370	320	521	650	760	870	944
Weight	0	0	0	0	0	0	0	0
Brazil	399	401	298	387	1,479	619	979	754
Weight	310	0	115	209	1,227	497	790	594
Korea	1,147	1,240	1,333	606	683	447	684	462
Weight	477	352	431	386	315	392	371	296
China-Taiwan	935	708	607	1,254	643	546	600	410
No. fish (K)	0	0	3	14	7	9	8	5
Morocco	198	151	183	208	136	124	91	171
Weight	0	0	0	0	0	0	0	0
USSR	157	121	184	80	175	40	95	46
Weight	0	0	0	80	175	0	95	46
South Africa	0	0	0	28	31	9	3	7
Weight	-	-	-	28	0	0	0	0

*Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. "Weight" (metric tons) or "No. fish" in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record and ICCAT Statistical Series, various numbers.

Table 10 - Summary of Atlantic blue marlin catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Japan	264	135	69	134	308	468	1,132	440
No. fish (K)	3	3	1	1	3	5	12	0
Cuba	409	320	210	336	336	300	436	396
No. fish (K)	0	0	0	0	0	0	3	2
USA	265	295	295	295	295	295	295	187
No. fish	402	559	667	0	0	0	0	0
Venezuela	78	78	93	132	79	102	81	167
Weight	0	0	0	0	0	0	0	0
China-Taiwan	409	171	258	190	289	202	250	145
No. fish (K)	0	0	1	1	3	3	3	1
FISM*	0	0	0	0	0	150	180	100
Weight	-	-	-	-	-	0	0	0
Korea	566	663	325	145	137	126	51	92
Weight	63	0	152	45	5	199	11	44
Brazil**	45	223	43	29	27	25	36	19
Weight	0	0	10	11	18	6	11	12
Panama	154	190	74	13	0	0	0	0
Weight	0	0	0	0	-	-	-	-

*France, Ivory Coast, Senegal, Morocco
 **Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record, various numbers.

Table 11 - Summary of Atlantic white marlin catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Cuba	106	124	170	273	273	353	250	840
No. fish (K)	0	0	0	0	0	0	0	0
China-Taiwan	519	163	276	217	250	310	350	290
No. fish (K)	0	0	2	4	8	13	9	6
Venezuela	107	108	127	181	110	140	112	230
Weight	0	0	0	0	0	0	0	0
USA	109	109	109	109	109	109	109	161
No. fish	787	825	836	0	0	0	0	0
Brazil*	66	129	165	132	61	36	82	66
Weight	25	0	17	40	48	29	66	54
Japan	543	106	41	57	106	143	111	44
No. fish (K)	16	3	2	2	4	6	6	0
Korea	284	182	38	40	37	85	72	41
Weight	0	0	9	3	1	134	15	5

*Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record, various numbers.

Table 12 - Summary of Atlantic sailfish and spearfish catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Ghana	11	638	1,574	2,246	1,191	449	16	2,161
Weight	0	0	0	0	0	0	0	0
Senegal	167	165	150	105	326	530	641	463
Weight	0	0	0	0	0	0	0	461
USA	261	308	308	308	308	308	308	308
No. fish	0	0	0	0	0	0	0	102
Cuba	185	156	120	191	191	247	339	228
No. fish	0	0	0	0	0	0	0	0
Venezuela	54	54	64	91	55	70	56	115
Weight	0	0	0	0	0	0	0	0
China-Taiwan	270	64	52	37	49	86	140	108
No. fish (K)	0	0	1	1	0	0	0	0
Japan	137	47	20	39	55	94	173	69
No. fish (K)	7	2	0	0	3	5	25	0
Brazil	186	256	229	152	180	101	121	57
Weight	95	0	82	41	80	39	57	40
Neth. Antilles	28	28	51	51	51	51	51	51
Weight	0	0	0	0	0	0	0	0
Korea	165	111	32	24	23	65	48	7
Weight	17	22	0	137	5	102	11	2
USSR	1	13	5	8	0	37	0	0
Weight	0	0	0	0	-	37	-	-

*Includes leased/licensed vessels.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) or 'No. fish' in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight or number of fish from ICCAT Data Record, various numbers.

Table 13 - Summary of Atlantic bonito catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Turkey	3,178	4,503	5,536	9,082	14,910	29,174	30,978	33,993
Weight	0	0	0	0	0	0	0	0
USSR	1,281	4,164	1,602	2,125	6,433	4,559	6,329	2,375
Weight	0	0	849	0	0	0	0	0
Spain	4,776	2,588	2,630	1,430	700	1,299	1,424	1,639
Weight	0	0	0	0	0	0	0	0
Italy	955	1,533	1,378	1,349	1,180	1,096	1,188	1,806
Weight	0	0	0	0	0	0	0	0
Greece	511	580	470	798	809	193	1,102	1,320
Weight	0	0	0	0	0	0	0	0
Algeria	143	206	196	515	640	740	860	933
Weight	0	0	0	0	0	0	0	0
Morocco	933	587	299	351	374	786	571	651
Weight	0	0	0	0	0	0	0	0
Tunisia	619	768	791	865	2,486	381	748	600
Weight	0	0	0	0	0	0	0	0
Senegal	164	614	523	159	140	615	920	560
Weight	0	0	0	0	0	0	0	0
Venezuela	756	767	382	283	861	833	864	554
Weight	0	0	0	0	0	0	0	0
Argentina	283	2,026	1,746	1,288	2,600	846	1,755	310
Weight	283	0	0	0	0	0	0	0
USA	23	268	224	502	198	333	209	253
Weight	0	0	0	0	0	0	0	0
Romania	81	139	19	0	64	81	249	192
Weight	0	0	0	-	0	0	0	0
Angola	831	938	531	251	377	196	253	124
Weight	0	0	118	42	39	64	47	45
Portugal	0	0	0	6	13	31	55	86
Weight	-	-	-	0	13	7	1	1
South Africa	0	2	16	0	0	0	0	0
Weight	-	3	16	-	9	-	-	0

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAT Data Record, various numbers.

Table 14 - Summary of Atlantic little tuna catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
USSR	470	690	6,127	2,184	6,307	3,615	1,085	6,528
Weight	0	0	5,482	0	0	0	444	1,613
Senegal	705	1,540	1,446	1,697	2,716	2,285	3,384	5,891
Weight	0	1,329	839	876	0	0	0	0
Ghana	76	54	6,049	5,547	4,134	3,287	2,141	5,009
Weight	45	96	25	10	0	0	0	0
Angola	10	1,326	826	646	1,328	1,171	1,734	1,632
Weight	0	0	326	530	836	732	1,113	1,178
FISM*	400	431	38	57	177	1,500	1,500	1,500
Weight	0	0	0	0	0	0	0	0
Venezuela	501	426	390	289	721	791	311	573
Weight	0	0	0	0	0	0	0	0
German D.R.	0	0	0	0	0	0	397	543
Weight	-	-	-	-	-	-	0	0
Israel	300	300	200	170	332	238	750	317
Weight	0	0	0	0	0	0	0	0
USA	5	53	113	12	88	97	87	107
Weight	0	0	67	0	0	0	0	0
Cuba	0	0	0	0	0	100	77	6
Weight	-	-	-	-	-	0	0	0
Cape Verde	0	0	0	0	128	235	233	3
Weight	-	-	-	-	0	23	232	3
Spain	1,140	1,092	1,248	997	1,285	13	708	2
Weight	0	0	0	0	0	0	0	0

*Includes catches by France, Ivory Coast, and some by Senegal and Morocco.

Notes:

1. Figures following country name are catch in metric tons.
2. "Weight" (metric tons) in catch-effort samples.

Sources:

1. Catches from ICCAI Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAI Data Record, various numbers.

Table 15 - Summary of Atlantic blackfin tuna catches and catch and effort sampling, 1976-83.

	1976	1977	1978	1979	1980	1981	1982	1983
Cuba	0	0	0	0	0	700	622	558
Weight	-	-	-	-	-	0	0	0
Guadeloupe	190	530	530	470	440	460	490	482
Weight	0	0	0	0	0	0	0	0
Martinique	580	300	400	300	300	300	300	300
Weight	0	0	0	0	0	0	0	0
Dominican Rep.	90	68	78	105	125	124	144	144
Weight	0	0	0	0	0	0	0	0
Brazil	56	273	195	173	181	87	100	36
Weight	1	89	5	72	0	0	16	11
USA	0	0	0	0	0	139	41	7
Weight	-	-	-	-	-	0	0	0

Notes:

1. Figures following country name are catch in metric tons.
2. "Weight" (metric tons) in catch-effort samples.

Sources:

1. Catches from ICCAI Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAI Data Record, various numbers.

Table 16 - Summary of Atlantic frigate tuna catches and catch and effort sampling, 1976-83.

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Ghana	4,311	13,914	1,047	4,286	7,566	2,048	1,009	3,570
Weight	0	0	0	0	0	0	0	0
Spain	2,053	1,758	2,325	2,182	2,580	2,310	2,602	2,354
Weight	0	0	0	0	0	0	0	0
USSR	162	242	803	450	694	407	5,623	1,655
Weight	0	0	605	0	0	0	376	305
France*	0	0	0	0	0	1,000	1,500	1,500
Weight	-	-	-	-	-	0	0	0
Italy	912	1,147	1,177	1,290	1,376	1,193	1,299	1,494
Weight	0	0	0	0	0	0	0	0
Morocco	629	922	839	767	802	1,261	326	1,288
Weight	0	0	0	0	0	0	0	0
Venezuela	1,253	907	550	407	1,176	944	509	1,171
Weight	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	45	72	265
Weight	-	-	-	-	-	87	0	0
Angola	27	197	357	357	256	351	515	212
Weight	0	0	146	307	191	282	388	149
Japan	14	89	0	0	0	0	0	0
Weight	14	73	-	-	-	-	-	-

*Includes catches by Ivory Coast, Senegal and Morocco for 1981.

Notes:

1. Figures following country name are catch in metric tons.
2. 'Weight' (metric tons) in catch-effort samples.

Sources:

1. Catches from ICCAT Statistical Bulletin, Volume 14.
2. Weight of samples from ICCAT Data Record, various numbers.