

REVIEW OF HISTORICAL FLEET SIZES FOR MAJOR FISHERIES

P. M. Miyake

I. INTRODUCTION

Since the presentation in 1976 (SCRS/76/13) of the estimates of the capacity of the major tuna-fishing fleets in the Atlantic, the SCRS has updated the table each year. However, as many scientists have been involved in the estimates and as there has been some ambiguity in much of the data, there has been some conflict in the interpretation of fleet statistics.

During 1983, the Secretariat requested all tuna fishing countries to review critically the historical fishing fleet statistics. Part III of the ICCAT Statistical Bulletin (Fleet Statistics) has improved considerably as a result of this survey. At the same time, the Secretariat asked tuna fishing countries' scientists to present estimates of total fleet size (gross tons for longliners, carrying capacity for surface gears) for past years. Thanks to the cooperation of many scientists, much data has become available for the first time.

Based on the total fleet size data and other information, the sizes of major fleets are estimated and presented in this paper.

II. FLEET SIZE ESTIMATES

A. Longline fleets (Table 1)

The following data have been received from national correspondents:

Cuba	1972-82
China (Taiwan)	1970-82
Japan	1960-81
Korea	1970-82
U.S.S.R.	1960-82

For earlier years for the above countries, fleet capacity was estimated based on the catch data and the average catch per gross ton. For Panama, the average catch per gross ton of Korea was applied. Minor longline countries include Brazil, South Africa, Venezuela, Spain, Canada, U.S.A., Norway, Argentina and probably others. However, these fleets are fishing only in local areas and generally for a specific species (e.g., swordfish). Therefore, they are not included in the estimates in Table 1.

B. Major baitboat fleets in the eastern tropical Atlantic (Table 2)

Statistics on the Tema-based baitboat fleets needed very special attention since the actual flags of vessels are different from those reported by various countries. For example, Korean baitboats as reported by Korea include some, but not all, Panamanian and Dutch flag boats. In Table 2, those boats which are not apparently included in any of the Ghanaian, Korean, and Japanese national reports are estimated under the category of "Others."

Ghana and "Others" capacities are estimated based on registered gross tons and on a variety of other information. Please also note that the number of boats by nation reported in the Statistical Bulletin does not match the capacity if you only consider the flags. However, the total capacity of Tema-based fleets should correspond to the total number of the Tema-based baitboats reported in the Statistical Bulletin.

C. Other baitboat fleets (Table 3)

The estimates given in this table are much less reliable than other tables. These estimates are mostly made by multiplying the number of boats by the average capacity. Because most of the fleets are multi-purpose local fishing boats, even if the capacity is correctly estimated, it does not represent the actual capacity engaged in the fishery.

The Venezuelan fleet capacity is estimated based on catches and partly based on the individual vessel records we have, and therefore, could be more accurate than the estimates for other fleets.

Cuba reported its fleet capacity.

D. Eastern tropical Atlantic purse seine fleets (Table 4)

Spain, France (1977-83), Morocco, Japan, Cuba and the U.S.S.R. reported their capacity estimates. In addition, Dr. P. X. Bard provided figures for the Cayman Islands, Congo and a part of Morocco. Since Morocco reported its fleet capacity, the portion of the Moroccan fleet which had been included in FISM was subtracted from the FISM estimated capacity (for 1978-83).

E. Other fleets (Table 5)

Estimates for some major fleets' capacities are not included in this table due to the lack of information. The fleets for which we have insufficient information include the following:

Italian Mediterranean Bluefin purse seiners
 French Mediterranean Bluefin purse seiners
 Moroccan coastal bluefin purse seiners
 South African multi-fishery purse seiners
 U.S.A. northwest Atlantic purse seiners
 Canadian and U.S.A. sport fishing boats
 All swordfish longliners (Spain, U.S.A., Canada)

All capacity estimates presented in Table 5 are made by the author. For Spanish and French fleets in the Bay of Biscay, the capacity was estimated by multiplying the number of boats by the average capacity per boat.

For Venezuelan purse seine fleets, the capacity was estimated based on individual boat records and catch statistics.

III. CONSIDERATIONS

Although Tables 1-5 present fleet sizes of the major tuna fleets, they should be considered as an index for general trends, not as absolute values, due to the following reasons:

- a) Many estimates are inaccurate.
- b) For most of the fleets, the fleet sizes are not adjusted for the period of fishing. For example, one fleet may operate 12 months of the year while another may operate for only two months of the year.
- c) The fleet sizes are not proportional to the fishing power. For example, two purse seiners of 1,000 MT capacity do not have the same fishing power as 1,000 Boats of 2 MT capacity. In the tables they are all together and no standardizations by vessel classes or by type are made.
- d) Fishing areas, seasons and target species are quite variable between the fleets. For example, in Table 1, among the longliners whose efficiency is considered rather similar between countries, Japanese longliners operate in high latitude areas for bigeye, bluefin and southern bluefin, while Cuban longliners fish in tropical waters for yellowfin. There has been no overlap in the fishing areas in recent years between these two fisheries.

TABLE 1. ESTIMATED TOTAL GROSS TONS OF THE MAJOR TUNA LONGLINERS OPERATING IN THE ATLANTIC OCEAN

	CUBA	CHI(TAI)	JAPAN	KOREA	USSR	PANAMA	TOTAL
1960	0	0	26.4	0	.7		27.1
1961	0	0	26.4	0	.7		27.1
1962	0	.3*	42.6	0	2.1		45.0
1963	3.2*	.4*	48.1	0	2.1		53.8
1964	3.2*	.5*	69.9	0.3*	2.8		75.7
1965	3.7*	.3*	76.9	0.4*	7.3		88.6
1966	4.9*	2.0*	59.8	5.3*	12.5		84.5
1967	13.2*	7.0*	24.8	8.0*	11.8		64.8
1968	13.2*	22.1*	29.4	9.2*	13.9		87.8
1969	13.2*	33.9*	24.0	18.8*	13.2		103.1
1970	13.2*	38.9	32.0	26.5	13.2		123.8
1971	13.2*	35.4	60.2	30.4	13.9		153.1
1972	13.2	41.7	65.1	31.2	13.2	1.1*	165.5
1973	13.2	46.2	60.6	31.4	6.1	9.7*	167.2
1974	13.2	60.5	67.0	35.1	13.2	3.8*	192.8
1975	13.2	47.4	69.4	31.6	12.5	3.9*	178.0
1976	13.2	59.9	43.8	32.1	6.1	6.2*	161.3
1977	13.0	62.7	53.7	32.5	2.1	4.5*	168.5
1978	13.0	58.7	64.8	29.5	6.1	5.0*	177.1
1979	13.0	50.7	74.7	17.9	12.5	1.2*	170.0
1980	12.1	46.5	90.0	14.1	15.0	5.0*	182.7
1981	11.9	52.5	96.0	14.8	7.3	2.4*	184.9
1982	11.9	58.1	**	16.3	6.8	4.1*	**
1983							

*Estimated by author.

**Not yet available.

TABLE 2. CAPACITY (IN 1,000 MT) OF MAJOR EASTERN TROPICAL BAITBOAT FLEET

YEAR	IVORY COAST & SENEGAL	SPAIN	TEMA-BASED				TOTAL
			GHANA	JAPAN	KOREA**	OTHERS	
1961		.8		1.0			1.0
1962		3.0		1.0			1.0
1963		2.2		1.2			1.2
1964		2.0		1.2			1.2
1965		0.2		1.2			1.2
1966		0.2		1.2			1.2
1967		0.2		1.2			1.2
1968		0.3		1.2			1.2
1969	3.6 ¹	0.3		1.2			1.2
1970	3.4 ¹	0.3		1.2			1.2
1971	2.8 ¹	0.4		1.6	0		1.6
1972	2.7 ¹	0.6		2.8	.4		3.2
1973	2.1 ¹	1.0	.3*	2.8	.9	2.9*	6.9
1974	2.0 ¹	1.3	.9*	4.8	3.0	.5*	9.2
1975	1.8 ¹	1.0	1.0*	4.8	3.4	.8*	10.0
1976	1.0 ²	0	1.0*	3.0	3.3	.8*	8.1
1977	0.9 ²	0	1.3*	3.6	6.1	.8*	11.8
1978	1.0 ²	0	1.5*	3.8	7.5	.6*	13.4
1979	0.7 ²	0	1.7*	3.0	6.9	.4*	12.0
1980	1.3	0	2.0*	2.4	5.3	---	9.7
1981	1.3	0	4.3*	2.0	2.4	---	8.7
1982	1.3	0	5.0*	1.4	1.7	---	8.1
1983							

1 Miyake (SCRS/76/13)

2 SCRS (1983 Biennial)

* Estimates

**Includes some Panamanian boats

Figures without footnote were received from national correspondents.

TABLE 3. CAPACITY (1,000 MT) ESTIMATES FOR ATLANTIC BAITBOAT FLEETS (EXCEPT IVORY COAST-
SENEGAL-SPAIN TROPICAL AND TEMA-BASED)

YEAR	ANGOLA ¹	BRAZIL ²	BRAZIL CHARTERED	CAPE VERDE ¹	CUBA	PORTUGAL ³	SOUTH AFRICA ³	SPAIN (CAN. IS.) ⁴	VENEZUELA ⁵
1970						.5			.2
1971						.5			.4
1972	.3					.5			.2
1973					.3	.5	+		.2
1974					.3	.4	.1	.6	.3
1975					.3	.6	+	.6	.2
1976					.5	.3	-	.6	.3
1977	.5				.3	.3	+	.6	.3
1978	.5				.6	.3	-	.6	.5
1979	.5	.5			.5	.6	1.5	.6	.8
1980	.4	.7		.2	.5	.6	1.7	.6	1.0
1981	.5	1.5	.2	.2	.5	.5	1.4	.6	1.5
1982	.4	1.9	.2	1.0	.5	.3	1.3	.6	1.5

1 Estimated as no. of boats x 10 MT capacity.

2 Estimated as no. of boats x 20 MT capacity.

3 Estimated as no. of boats x 5 MT capacity + capacity of freezer baitboats.

4 Estimated as no. of boats x 1 MT capacity.

5 Estimated from catches and other various sources.

+ = less than .1.

TABLE 5. CAPACITY (1,000 MT) OF OTHER FLEETS

YEAR	FRANCE ² TROL	BAY OF BISCAY		SPAIN ² BB	NW ATLANTIC	
		SPAIN ¹ TROL	FRANCE ² BB		VENEZUELA PS	CANADA PS
1969						
1970						
1971						
1972	6.3		1.1			4.8
1973	7.1		1.0			.8
1974	5.6	10.3	.9	1.6		.8
1975	5.3	10.4	.8	1.6		.8
1976	4.2	9.9	.8	1.8		3.2
1977	3.8	9.3	.6	1.8		.4
1978	4.3	8.9	.5	1.2		.4
1979	3.9	8.3	.4	1.7	.7	
1980	3.5	8.6	.3	1.5	2.7	
1981	2.4	8.1	.3	1.5	2.7	.4
1982	2.7	7.8	.3	1.0	9.3	
1983					10.5	

1 Estimated by no. of boats x 30 MT.

2 Estimated by no. of boats x 25 MT.

TABLE 4. CAPACITY (1,000 MT) ESTIMATED FOR EASTERN TROPICAL PURSE SEINERS

YEAR	SPAIN (TROP)	FRANCE ² IVORY COAST	MOROCCO	JAPAN	GHANA*	CONGO	VENEZUELA*	CUBA	USSR	USA ¹	CANADA*	PORTUGAL*	OTHERS* ³	TOTAL
1960														
1961														
1962														
1963		.1												
1964		.2												
1965		.2												
1966		.2												
1967		.5												
1968		1.1												
1969		1.2	4.8 ²							4.4				12.5
1970														
1971		2.7	5.8 ²	1.5					.1	5.4				15.5
1972		3.6	7.2 ²	2.0					.1	3.8				16.7
1973		5.6	9.2 ²	1.9					.2	7.9				29.5
1974		9.1	12.4 ²	1.9					.1	2.9				25.9
1975		14.0	14.5 ²	.6					.1	5.5				30.0
1976		14.0	17.2 ²	.2					.1	10.4				42.3
1977		17.2	17.5 ²	0					.2	1.7				36.7
1978		20.4	14.6						.2	4.2				39.5
1979		24.3	14.5	2.5					.2	10.5				52.2
1980		25.2	13.2	4.5		0			.2	3.2				47.3
1981		27.9	14.0	4.5		.5			.2	2.2				53.3
1982		27.6	13.4	4.5		.8			.2	1.6				58.9
1983		31.5	13.0	4.5		0			.2	1.3				66.1
			13.4	4.5		0	1.2		.2	1.2				3.0

1 SCRS estimates--weighted by the number of months on the spot.

2 P. M. Miyake (SCRS/76/13).

3 "Others" includes Cayman Islands (French crew), Mexico (French and Spanish crew), Ecuador (Spanish crew) vessels.

* Author's estimates.