A BRIEF OUTLINE OF THE FIRST YEARS OF THE PAPUA NEW GUINEA SKIPJACK FISHERY

by

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In the late 1960's the realization that most of the world's large tuna species were being maximally exploited prompted greatly increased interest in the underexploited skipjack (Katsuwonus pelamis) resources, particularly in the western Pacific Ocean.

Evidence accumulated by Japanese longliners and several cruises by Japanese research vessels suggested that the waters adjacent to Papua New Guinea were likely to harbour stocks of skipjack and yellowfin tuna (Thunnus albacares) sufficient to support a sizeable industry. A survey of these stocks was commenced in 1970 by a joint Japanese - Australian company based in the north eastern Bismarck Sea.

During this first year of operation the company took a total of 2,431 tons* of skipjack and tuna (see table 1) and showed for the first time that commercial quantities of these species could be taken from these waters. Because of the problem associated with the establishment of operations in a new area and the difficulty in initially locating skipjack and bait stocks fishing was often interrupted. Consequently the figures given in table 1 do not give a real indication of seasonal fluctuation in ths availability of fish in 1970. They do however, indicate that reasonable catches were possibla for most of the year.

In 1971 two additional companies commenced survey operations in the Bismarck Sea and the total number of catcher boats in operation at any one time reached a high of 19.

* All figures used were taken from catch returns from each catcher boat.

All catcher boats successfully used were of Japanese or Okinawan origin and were crewed in the main, by Okinawan fishermen. In September, 1971, two Australian tuna clippers fished the north eastern Bismarck Sea for approximately three weeks each. During this period both boats failed to pole even a single skipjack. This lack of success was due mainly to the inability of the crews to catch good quantities of suitable bait but it also appears that the standard Australian tuna clipper is not an efficient skipjack poling unit in the waters of Papua New Guinea.

(1) Fishing Areas.

All commercial skipjack and tuna poling in Papua New Guinea waters during 1970-71 was conducted in, or on the boundaries of the Bismarck Sea. In 1970 the entire catch was taken from the north eastern sector but with the expansion in the number of fleets in 1971 fishing was concentrated in three main areas:

(a) the north eastern Bismarck Sea,
(b) the eastern Bismarck Sea,
(c) the south western Bismarck Sea.

Catches for 1971 have been divided according to the area from which they were taken and are given in table 3.

The distribution of the catch represented most areas of the Bismarck Sea but it was found that most fish were taken within 20 miles of the sizeable land masses. It must be notad however, that almost all of the vessels in use were not suitable for long distance survey voyages and thus many areas of the Bismarck Sea remained unexplored. Of the areas which were fished, the eastern sector proved most productive but the catches from all three areas were more than adequate for economic operations.

(2) The Catch by Species.

During 1970 only one joint venture company was in operation and the catches recorded by it were accurately divided into species. The monthly composition of the catch is given in table 1. In excess of 95% of the fish grouped under other species were mackerel tuna (Euthynnus affinis) or frigate mackerel (Auxis thazard).

In 1971 two of the three joint venture companies submitted accurate records of the species composition of the catch but the failure of the third company to do so means that the figures given for the amount of yellowfin taken in 1971 (table 2) are only estimates.

(3) The Bait Fishery.

All skipjack and tuna vessels registered in Papua New Guinea in 1970-71 were bait and pole boats and hence the importance of the associated bait fishery is obvious.

Until May 1971 fishermen operating in the western and northern sectors of the Bismarck Sea were catching bait by the "drive in" fishery technique during daylight hours. The species of greatest importance taken in this was Gymnocaesio gymnopterus. From May of that year night baiting operations with bright underwater bait lights were exclusively used. Stolephorus devisi was the dominant species taken by this later technique and proved to be excellent bait for skipjack but was, unfortuantely, very delicate and difficult to transport. The problems associated with the transport of this the most common bait species, necessitated daily bait catching operations in most areas and negated many of the advantages of the larger boats capable of carrying greater quantities of bait.

The fishing masters of all three fleets operating in Papua New Guinea waters in 1971 stated that the scarcity of suitable bait was the greatest limiting factor in their operations. While the lack of a really abundant, suitable bait species did undoubtedly restrict catches to some extent, the catches which were taken (table 2) show that sufficient bait was available to maintain a sizeable skipjack and tuna industry.

(4) Recent Developments.

During 1972 a fourth joint venture company commenced operations in the Bismarck Sea. Despite the increase in the number of boats in operation the 1972 catch fell to 13,123 tons, consequently the catch per unit effort was well down on previous years. Despite this drop in the 1972 catch the future of the pole fishing industry in Papua New Guinea is regarded with optimism.

TABLE 1 1970 SKIPJACK AND TUNA CATCH BY SPECIES
(All figures are in metric tons)

	SKIPJACK	YELLOWFIN	OTHERS	TOTAL	AV CATCH/DAY**
MARCH	279.2	27.8	0	307.0	3.743
APRIL	336.6	11.3	0.1	348.0	4.704
MAY	361.8	8.2	0.1	370.1	4.512
JUNE	438.5	2.5	0	441.0	5.444
JULY	472.8	7.5	0	480.3	6.403
AUGUST	101.4	11.3	0	112.7	4.026
NOVEMBER	143.9	0.3	1.0	145.2	4.539
DECEMBER	220.3	5.4	0.5	226.2	3.968
TOTAL	2354.5	74.3	1.7	2430.5	

** A fishing day was defined as a day on which a catcher boat proceeded to the fishing rounds with sufficient live bait to warrant fishing.

TABLE 2 1971 SKIPJACK AND TUNA CATCH BY SPECIES
(All figures are in metric tons)

	SKIPJACK	YELLOWFIN	OTHERS	TOTAL	AV CATCH/DAY**
JANUARY	899.7	16.7	1.3	917.7	3.543
FEBRUARY	969.8	21.3	0.8	991.9	3.493
MARCH	1445.0	13.8	0.8	1461.6	4.402
APRIL	1499.1	6.4	6.1	1511.6	4.270
MAY	1862.2	15.1	7.1	1884.4	5.510
JUNE	2037.9	1.3	0.4	2039.6	6.433
JULY	1950.6	0.8	1.1	1952.5	5.515
AUGUST	2021.9	3.0	1.9	2026.8	4.231
SEPTEMBER	1486.0	3.0	0.6	1489.6	3.547
OCTOBER	1056.3	2.7	2.6	1064.6	3.775
NOVEMBER	945.6	15.6	1.3	962.5	2.856
DECEMBER	687.6	8.3	3.7	699.6	2.332
TOTAL	16863.7	108.0	27.7	17002.4	

** A fishing day was defined as a day on which a catcher boat proceeded to the fishing rounds with sufficient live bait to warrant fishing.

TABLE 3 DISTRIBUTION BY AREA OF THE TOTAL CATCH AND AVERAGE WEIGHT OF SKIPJACK IN 1971

	NORTH EASTERN BISMARCK SEA		EASTERN BISMARCK SEA		SOUTH WESTERN BISMARCK SEA	
	TOTAL CATCH (tons)	AV. WEIGHT OF SKIPJACK (kg)	TOTAL CATCH (tons)	AV. WEIGHT OF SKIPJACK (kg)	TOTAL CATCH (tons)	AV. WEIGHT OF SKIPJACK (kg)
JANUARY	447.6	3.9	470.1	-	0	-
FEBRUARY	625.3	3.6	366.6	-	0	-
MARCH	477.3	3.9	569.4	-	414.9	5.0
APRIL	367.8	3.8	645.8	-	498.1	4.8
MAY	649.4	3.7	788.4	4.0	446.7	4.7
JUNE	224.3	3.3	1078.9	-	736.3	5.1
JULY	87.7	3.5	1348.3	4.2	516.5	4.9
AUGUST	353.3	3.3	1257.0	3.9	416.5	4.9
SEPTEMBER	534.9	3.4	818.9	3.8	135.8	4.7
OCTOBER	538.1	3.8	520.2	4.6	16.3	5.0
NOVEMBER	412.8	3.4	462.7	4.2	86.9	3.6
DECEMBER	129.5	3.2	381.6	4.0	188.5	4.5
TOTAL	4837.1		8707.9		3456.5	

GRAND TOTAL 17002.4

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