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Indonesian Fisheries For Yellowfin Tuna

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**INDONESIAN FISHERIES FOR YELLOWFIN TUNA IN THE
WESTERN PACIFIC - EASTERN INDONESIA**

By

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INTRODUCTION

The term eastern Indonesia denotes nine provinces that are rather left behind in their economic development compared with the provinces in western Indonesia. These provinces are West Nusa Tenggara, East Nusa Tenggara, East Timor, South Sulawesi, Central Sulawesi, Southeast Sulawesi, North Sulawesi, Mollucas and Irian Jaya. The eastern Indonesia is a vast region of over 3 million km² making up about 52% of the 5.8 million km² of Indonesian seas (including Indonesian Exclusive Economic Zone - IEEZ). This area is belong to WPYF-3 code area.

The eastern Indonesia region can be broken down into four major fishing areas or fishing bases : the northern part of the Lesser Sunda Islands (Bali, West Nusa Tenggara, East Nusa Tenggara, East Timor); Sulawesi ; Mollucas; and Irian Jaya. Four types of fishing gears exploit tuna resources in the eastern Indonesia : longline, purse seine, pole-and-line, and handline. Some other fishing gear categorized as unclassified that also catch tuna incidentally are troll line, payang (danish seine), and gillnet.

Traditionally, the centre of the Indonesian tuna industry is the eastern of Indonesian waters. The region accounts for about 80% of the Indonesia tuna catch, and about 80 - 95% of the tuna exported from Indonesia comes from this area. This dominant

position has changed since 1986, at least as far as fresh tuna for sashimi export fishery is concerned, with the Indian Ocean, particularly south of Java and west of Sumatera, accounting for most of the catch.

There are four species of tuna caught in the eastern Indonesia : yellowfin (*Thunnus albacares*), bigeye (*T. obesus*), albacore (*T. alalunga*), and southern bluefin tuna (*T. maccoyii*). Among these species, yellowfin dominates the catch. The percentage of yellowfin caught by the above-mentioned fishing gears ranges from 50 to 95%, 5 to 15%, and 25 to 75%, for the longline, pole-and-line and purse seine fisheries, respectively.

This paper reviews data from Indonesian fisheries in the eastern Indonesia - western Pacific (WPYF-3 code area) in 1991 - 1993. Data are presented for previous years for comparison purposes. Only landings and average sizes data are reviewed for eastern Indonesian - based commercial fisheries and artisanal fisheries.

THE YELLOWFIN TUNA FISHERY IN EASTERN INDONESIA

Indonesian fisheries for tunas in eastern Indonesia - Western Pacific side continued in 1991 - 1994, through operations of its distant water large purse seine fishery, its pole-and-line eastern Indonesia-based commercial fisheries (State Fishing Enterprises and Private Fishing Companies as well as other artisanal fisheries).

The Indonesian distant - water purse seine fishery has operated since 1980 in a large area of the western Pacific - WPYF-3 code area. Purse seiners greater than 600 GT targeting both skipjack and yellowfin tunas. An Indonesian - Japan joint-venture fishing company based in Ternate operated from 1980 to 1982 using a 600 GT purse seiner. A joint-venture company formed by Indonesia and French interests was established in 1983 with

Biak as its fishing base. It operated two purse seiners of 600 GT and one of 750 GT with the fishing grounds northern of Irian Jaya and in the western Pacific Ocean. In 1990 this joint-venture company was sold to an Indonesian private fishing company, PT Nelayan Bhakti. Due to the management and financial problems the company was bankrupt in 1992 that cause the fishing activities in Biak was slow down. The condition was changed in 1993, where PT. Bali Raya took over the fishing company in Biak and the production of tuna has been increasing since.

Eastern Indonesia - based commercial fisheries operate (by State Fishing Interprise and private fishing companies as well as joint-venture fishing companies) mainly in Indonesia waters and Indonesian Exclusive Economic Zone. Most of the fishing companies use pole-and-line fishing gear targeting for skipjack and yellowfin. Besides that ring net and long line were also used. Ring net targeting for skipjack and yellowfin, and long line targeting for tunas.

Artisanal fisheries using handline, troll line, payang (danish seine) and gillnet, operate only in Indonesian territorial waters. These fisheries consist of mainly small vessels with the target of skipjack and a variety of tuna and tuna-like fishes.

LANDING AND NUMBER OF VESSELS

Preliminary estimate of the Indonesian long line catch of yellowfin tuna in WPYF-3 code area for 1993 is 6,554 mt, compared to 6,242 mt in 1992 and 6,059 mt in 1991 (Table 1.). The number of Indonesian vessels participating in the fishery has increased from 141 in 1992 to 309 in 1993 (Table 2.). Since the end of 1992, many longliners (mostly small longliners of 50 GRT (gros registered tons) or less have been moved from Benoa - Bali-based operate in Indian Ocean to Bitung-North Sulawesi-based operate in

Banda Sea and Sulawesi Sea (WPYF-3 code area). Some of these longliners target was yellowfin tuna for the sashimi market of Japan.

Purse seine catches of yellowfin tuna were 4,599 mt in 1992 and a slightly increased to 4,829 mt in 1993. The increase was caused by reentering of three large purse seiners Biak-based to the fishery at the beginning of 1993 which was slow down their activities in 1992. The number of large purse based in Biak was still remain 3 purse seiners, while the number of ringnet (purse seine) operate in Sulawesi Sea was 15~~8~~ vessels in 1993.

Skipjack tuna is the major species caught by pole-and-line fishery, accounting for 85 to 95% of the landings. Skipjack tuna landings increased from 73,660 mt in 1992 to 77,346 mt in 1993. Yellowfin tuna landings caught by pole-and-line have slightly increased from 5,319 mt in 1992 to 5,585 mt in 1993. The activities of 26 of a 15 GT fibre glass pole-and-liners based in Maumere ceased in December 1992 due to land facilities (coldstorage, ice plan, jett~~y~~^{ies}, office) and several of boats sank by earthquake and tsunami disaster. The number of pole-and-liners of eastern Indonesia based (Bitung, Gorontalo, Kendari, Ternate, Labuha, Ambon, Sorong, Biak and Fak-Fak) was ~~919~~
923 vessels in 1993.

Yellowfin tuna landings by artisanal fisheries (hand-line and unclassified fishing gear such as gill net, danish seine and troll line) have increased from 4,794 mt in 1992 to 5,034 mt in 1993 (caught by handline), and from 36,770 mt in 1992 to 38,608 mt in 1993 (caught by unclassified fishing gear). Number of hand-liners have increased from 286 boats in 1992 to 307 boats in 1993.

YELLOWFIN TUNA AVERAGE WEIGHTS

Average sizes (weight) of yellowfin tuna caught by longline fishery have fluctuated between 40 kg/fish and 35 kg/fish (from 40 kg/fish in 1991 decreased to 35 kg/fish in 1992 and increased again to 40 kg/fish in 1993) see Table 3. Size of yellowfin caught by handline also fluctuated between 20.0 kg/fish to 25.0 kg/fish. Average size of yellowfin caught by handlining in 1991 was 20.0 kg/fish, increased to 25 kg/fish in 1992 and decreased again to 23 kg/fish in 1992.

Sizes of yellowfin tuna caught by purse seine and pole-and-line for 1991 to 1993 were quite similar and relatively small sizes of fish, ranging from 1.5 to 2.5 kg/fish. The average sizes of purse seine catches decreased from 2.5 kg/fish in 1991 to 2.0 kg/fish in 1992 and to 1.5 kg/fish in 1993. While the average sizes of yellowfin caught by pole-and-line decreased from 2.5 kg/fish in 1991 to 2.0 kg/fish in 1992 and 1993.

Table 1. Catch of yellowfin tuna by type of fishing gear in the WPYF-3 code area.

Year	Unclas- sified	Pole and line	Purse seine	Longline	Handline	Total
1974	10,165	-	-	-	-	10,165
1975	11,062	-	-	-	-	11,062
1976	7,530	507	-	-	-	8,037
1977	10,268	591	-	-	-	10,859
1978	8,225	1,160	-	1,216	-	10,601
1979	11,482	1,907	-	1,274	-	14,663
1980	11,626	2,269	2,177	1,478	-	17,550
1981	15,793	2,015	2,275	1,806	-	21,889
1982	17,393	1,887	1,428	3,605	-	24,313
1983	15,239	1,900	2,013	1,048	-	20,200
1984	18,140	2,282	2,108	1,670	2,250	26,450
1985	20,130	2,344	2,107	2,466	2,540	29,587
1986	25,226	2,278	1,650	2,347	2,737	34,238
1987	24,732	2,323	1,683	905	2,793	32,436
1988	26,377	2,439	1,767	576	2,899	34,058
1989	31,345	3,553	2,520	5,124	2,726	45,268
1990	32,285	4,433	2,665	5,508	3,196	48,087
1991	34,459	5,472	2,500	6,059	3,835	52,325
1992	36,770	5,319	2,200	6,242	4,794	55,325
1993*	36,707	5,319	4,599	6,241	4,794	57,660

* Preliminary data

Table 2. Number of vessels participation in yellowfin tuna fishery by type of fishing gear, 1985 - 1993.

Year	Pole and line	Purse seine	Longline	Handline	Gillnet
1985	1,115	3	27	-	-
1986	1,287	3	63	-	-
1987	1,170	3	79	-	-
1988	1,577	3	70	-	-
1989	921	3	139	-	-
1990	900	3	152	-	-
1991	872	3	145	-	-
1992	849	3	141	286	-
1993	823	156	309	307	113

Table 3. Yellowfin tuna average weights (Kg/Fish), 1991 - 1993.

Year	Pole and line	Purse seine	Longline	Handline
1991	2.5	2.5	40.0	20.0
1992	2.0	2.0	35.0	25.0
1993	2.0	1.5	40.0	23.0