



**THE SECOND REGIONAL WORKSHOP ON SHARED STOCK
IN THE SOUTH CHINA SEA AREA**

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**COUNTRY STATUS REPORT
INDONESIA**

**THE DEVELOPMENT OF MARINE FISHERY
IN THE SOUTH CHINA SEA AREA OF INDONESIA**

By

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2.2. Production

Generally, the species are recorded as species groups in the Fisheries Statistics of Indonesia. There are 15 species groups of small pelagic, 4 large pelagic and 20 demersal fishes were coming from this area. Skipjack, hardtail scad, rainbow runner were recorded individually, not mixed with other species. The production by species of pelagic fishes from 1988 to 1992 is presented in **Appendix Table 3**. The average dominant species for five years period (1988 – 1992) were *Sardinella* spp., followed by sardines, *Scomberomorus* spp., *Rastrelliger* spp. In **Appendix Table 4** is presented the total production of marine fisheries by species groups in South China Sea Area (Jambi, South Sumatra and West Kalimantan Provinces) for 11 years periods (1982 – 1992). The production of total small pelagic fish in this area was increasing about 4.7% annually. This due to the increasing number of purse seiners, payang and other gear operating in this area. The production by dominant gears are presented in **Appendix Table 5**. It can be seen that the production of purse seine gears were increasing remarkably by about 42.1% in the period of 1984 to 1992. Almost all gear's production were increasing, but shrimp gill nets.

2.3. Level of Exploitation

The marine fisheries potentials in South China Sea Area was assessed in 1991. During the INDONESIA/FAO/DANIDA Workshop on the Assessment of the Potential of Marine Resources of Indonesia held in Jakarta on 13 – 24 March 1995, the marine fisheries potentials in this area were re-assessed. The results of the reassessment of marine fisheries potential in South China Sea Area is presented in **Table 2** (Venema, 1995).

Table 2: The Marine Fisheries Potentials in South China Sea Area

<i>Resources</i> (0)	<i>1991</i> <i>Estimates</i> (1,000 ton) (1)	<i>1995</i> <i>Estimates</i> (1,000 ton) (2)	<i>Landings</i> <i>in 1993</i> (1,000 ton) (3)	<i>Level of Exploitation</i> (4)
Small pelagics	330	357	75	Under-exploited
Demersal fish	131.2	715	58	Under-exploited
Shrimps:				
– All species	11.7	21.7	21.9	Fully-exploited

Source:– Venema (1995).

The level of exploitation for small pelagic and demersal fisheries are still underfishing. There are still enough rooms for expansion. Shrimp fisheries have already been over-exploited. No estimates for large pelagics could be established.

3. RESEARCH ACTIVITIES

The FAO/SEAFDEC Workshop on Shared Stocks in Southeast Asia held in Bangkok on 18 – 22 February 1985, reviewed the possible shared stocks in this area, for pelagic fish, demersal fish, shrimps and prawns and cephalopods (FAO/SEAFDEC, 1985). There is no any research activities carried out yet in South China Sea Area of Indonesia to support the identification of shared stocks. Due to limitation of budget, men power and facilities, the research activities carried out according to priorities. A proposal has been submitted to the government to carry out research in this area starting in 1996/1997 fiscal year.

The Java Sea Pelagic Fishery Assessment Project (the collaboration of ORSTOM, France and Research Institute for Marine Fisheries, Jakarta) which was established in 1991, has been monitored the catch landings of seiners which were operating in the South China Sea Area. The data collection are carried out in some landing sites in Central Java. The catch and effort data collected at Pekalongan by the project for large and medium purse seiners are presented in **Appendix Table 6**. Length frequency distributions were also recorded from large and medium seiners for some important small pelagic species. Length frequency data for 1994

have been published (Sadhotomo and Potier, 1995). In **Appendix Figure 2, 3 and 4** are presented length frequency distributions for *D. ruselli*, *D. macrosoma* and *R. kanagurta* caught by large seiners in fishing ground A.

Large seiners from Central Java have length between 20 - 35 metres, with an inboard engine at least 160 HP, and a crew of 30 to 40 men and the length of a trip is about 40 days. Medium seiners, 15 – 20 m long and with an inboard engine of about 35 to 100 HP operating between 6 to 15 days per trip (Potier and Sadhotomo, 1994). The species caught by these seiners mainly are *Decapterus ruselli* and *D. macrosoma*, *Rastrelliger kanagurta*, *Selar crumenophthalmus*, *Sardinella gibbosa*, *Sardinella lemuru*, *Selaroides leptolepis* and small tunas.

4. CONCLUSIONS

1. The production of small pelagic fisheries is increasing due to the increasing of the gear operating in this area, mainly purse seine gears (chartered as well as national boats).
2. The number of non-powered boat were decreasing about 1.1% annually, but number of powered boats were increasing about 7.8 and 3.4% per year for outboard and inboard motors respectively.
3. Up to present, data collection are carried out by The Java Sea Pelagic Fishery Assessment Project from Central Java seiners operating in South China Sea Area.
4. Small pelagic and demersal fisheries are still under-exploited, but shrimp has been fully-exploited.
5. Research activities are urgently needed to support shared stock identification, utilization and management in the area.

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Appendix Table 1: The Development of Some Main Gears Used in South China Sea Area

<i>Year</i>	<i>Payang</i>	<i>Beach Seine</i>	<i>Purse Seine</i>	<i>Drift G.N.</i>	<i>Enc. G.N.</i>	<i>Shrimp G.N.</i>	<i>Set G.N.</i>	<i>Trammel Net</i>	<i>Troll Line</i>
1982	341	269	—	3,678	389	2,648	1,582	—	—
1983	392	435	—	4,206	379	2,560	1,498	—	—
1984	450	443	2	3,708	329	2,456	1,762	703	42
1985	431	753	2	3,076	321	2,300	1,864	747	45
1986	599	656	2	3,754	471	2,199	1,864	1,137	96
1987	649	649	4	3,711	465	2,358	1,452	1,004	90
1988	661	429	4	3,108	411	2,268	1,766	1,023	132
1989	1,064	332	4	3,331	330	2,532	1,839	984	130
1990	824	437	6	3,749	533	2,462	1,566	909	106
1991	1,094	407	12	3,363	432	2,423	1,663	936	177
1992	817	383	6	3,525	465	2,521	1,721	808	161
Increased (%)	9.1	3.6	11.6	- 0.4	1.8	- 0.5	0.9	1.8	14.4

Source: — Directorate General of Fisheries, (1984 – 1994).

Appendix Table 2: The Development of Non-Powered and Powered Boats

<i>Year</i>	<i>Non-Powered Boats</i>	<i>Powered Boats</i>	
		<i>Outboard Motor</i>	<i>Inboard Motor</i>
1982	8,056	1,400	4,433
1983	7,706	1,935	5,054
1984	5,761	2,382	5,645
1985	7,086	2,346	5,419
1986	5,775	2,349	5,052
1987	7,301	2,650	6,595
1988	7,314	2,887	7,173
1989	6,918	2,744	7,274
1990	7,405	2,813	7,036
1991	7,043	2,884	5,286
1992	7,198	2,957	6,170
Increased (%)	- 1.1	7.8	3.4

Source: – Directorate General of Fisheries (1982 – 1992).

Appendix Table 3: The Production by Species of Small Pelagic Fishes, 1988 – 1992

Unit: Ton

<i>Species</i>	1988	1989	1990	1991	1992	<i>Average</i>
– Barracudas <i>Sphyraena</i> spp.	550	598	603	656	570	595.4 (0.8)
– Roundscards <i>Decapterus</i> spp.	—	—	—	256	—	51.2 (0.1)
– Trevalies <i>Selar</i> spp.	5380	6969	7161	7586	7462	6911.6 (9.5)
– Hardtail scads <i>M. cordyla</i>	140	129	153	168	156	149.2 (0.2)
– Queen fishes <i>Chorinemus</i> spp.	1004	1291	1682	1576	1638	1438.2 (2.0)
– Rainbow runner <i>E. bipinnulatus</i>	107	97	119	120	122	113.0 (0.2)
– Mulletts <i>Mugil</i> spp.	1688	1995	1999	2133	2129	1988.8 (2.7)
– Needle fishes <i>Trichiurus</i> spp.	52	57	70	70	84	66.6 (0.1)
– Anchovies Engraulidae	7589	5805	5677	5835	5557	6092.6 (8.3)
– Rainbow sardines <i>Dussumieria</i> spp.	1467	1947	2196	2288	2336	2046.8 (2.8)
– Fringscale sardinellas <i>Sardinella</i> spp.	18975	16634	16273	15070	15259	16442.2 (22.4)
– Indian oil sardines <i>S. lemuru</i> <i>A. sirm</i>	10431	7920	8082	8126	8250	8561.8 (11.7)
– Wolf herrings <i>Chirocentrus</i> spp.	3162	5327	5265	4685	4779	4643.6 (6.4)
– Tolishads/Chinese herrings <i>I. toli</i>	32	125	132	—	—	57.8 (0.1)
– Indian mackerels <i>Rastrelliger</i> spp.	5953	8932	9064	8653	9157	8351.8 (11.4)
– Seerfishes <i>Scomberomorus</i> spp.	7641	8508	9050	8537	9003	8547.8 (11.6)
– Tunas <i>Thunnus</i> spp.	—	18	—	91	93	40.4
– Skipjacks <i>K. pelamys</i>	106	41	—	6	473	125.2 (0.2)
– Small tunas <i>Euthynnus</i> sp., <i>Auxis</i> spp., etc.	5456	6520	7192	7065	7998	6846.2 (9.4)
Total	69733	72913	74718	72921	75066	73070.2

Source: – Directorate General of Fisheries (1990 – 1994).

– Figure in brackets are per cent.

Appendix Table 4: Production of Marine Fishery in Southern Part of South China Sea Area by Group of Species

Unit = ton

Year	Pelagic		Sharks/ Rays	Demersal	Shrimps	Total
	Small	Large				
1982	46,724	17,513	9,025	41,363	6650	121,275
1983	48,850	17,299	7,139	42,930	6184	122,402
1984	54,408	13,722	7,263	42,790	8791	126,974
1985	66,989	12,221	9,451	31,669	8743	129,073
1986	60,552	12,732	8,050	49,507	12012	142,853
1987	65,101	12,850	7,790	45,202	11266	142,235
1988	73,453	13,203	9,306	41,891	11568	149,511
1989	70,670	15,087	11,106	47,633	10088	154,584
1990	71,670	16,242	11,036	51,920	9493	160,391
1991	71,729	15,701	10,431	49,019	8950	155,830
1992	73,894	17,567	11,326	52,247	8874	163,908
Increase (%)	4.7	0.0	2.3	2.4	2.9	3.1

Source: – Directorate General of Fisheries (1984 – 1994).

Appendix Table 5: The Development of Catch by Gear for Some Important Gears

Year	Payang	Beach Seine	Purse Seine	Drift G.N.	Encir G.N.	Shrimp G.N.	Set G.N.	Trammel Net	Troll Line
1982	11,947	1,344	—	38,349	3,996	10,161	8,607	—	—
1983	11,195	2,150	—	38,752	3,845	8,197	10,142	—	—
1984	13,282	1,832	116	32,353	4,781	9,156	6,813	2,774	334
1985	10,281	2,824	204	29,059	4,193	8,206	8,512	3,484	1,128
1986	12,784	2,852	981	33,272	3,148	8,402	9,047	9,863	1,083
1987	14,306	4,292	742	30,359	2,579	9,459	11,021	3,243	586
1988	15,363	2,923	805	35,047	2,573	8,913	18,555	4,198	549
1989	23,356	3,083	1,780	36,072	4,047	9,381	17,574	3,866	590
1990	16,823	3,227	1,978	37,582	4,005	9,754	17,775	3,440	869
1991	19,066	3,596	1,277	39,649	3,824	8,663	13,458	3,490	574
1992	19,828	3,792	1,930	41,948	4,194	9,042	13,409	3,120	604
Increased (%)	5.2	10.9	42.1	0.9	0.5	1.2	4.5	1.4	7.7

Source: – Directorate General of Fisheries (1984 – 1994).

Appendix Table 6: Number of Boats, Days at Sea, Catch of Pelagic Fish by Seiners from Central Java Recorded from Pekalongan Landing Place

<i>Year</i>	<i>Number of Boats</i>	<i>Days at Sea</i>	<i>Catch (kgs)</i>	<i>Fising Ground</i>	<i>CPUE (Kg/Day)</i>
<i>Large Seiner</i>					
1992	106	2,974	3,074,177	A	1,033.7
	2	69	49,596	C	718.8
1993	123	3,896	5,350,179	A	1,373.2
	132	4,367	5,801,881	B	1,328.6
	1	37	40,235	C	1,087.4
1994	96	3,327	4,637,703	A	1,394.0
	2	46	70,545	C	1,533.6
Average				A	1,267.0
				B	1,328.6
				C	1,113.3
<i>Year</i>	<i>Number of Boats</i>	<i>Day at Sea</i>	<i>Catch (kgs)</i>	<i>Fising Ground</i>	<i>CPUE (Kg/Day)</i>
<i>Medium Seiner</i>					
1991	6	112	84,593	A	755.3
	29	296	143,710	C	485.5
1992	6	86	71,193	A	827.8
1993	4	56	84,861	A	1,517.4
	7	149	224,148	B	1,504.3
1994	17	670	722,313	A	1,078.1
	1	180	189,717	B	1,054.0
Average				A	1,044.6
				B	1,279.2
				C	485.5

Remarks: — Source: — The Java Sea Pelagic Fishery Assessment Project.
 — For fishing grounds, see **Appendix Figure 1.**