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LAPORAN PENELITIAN PERIKANAN LAUT  
( MARINE FISHERIES RESEARCH REPORT )

## **SPECIAL REPORT**

**FIRST REPORT OF THE INDONESIAN-GERMAN DEMERSAL  
FISHERIES PROJECT  
( RESULT OF A TRAWL SURVEY IN THE SUNDA SHELF AREA )**

AND

**A CHECK-LIST OF FISHES COLLECTED BY MUTIARA - 4  
FROM NOVEMBER 1974 TO NOVEMBER 1975**

CONTRIBUTIONS OF THE DEMERSAL FISHERIES PROJECT  
NO. 1, MARCH 1976

MARINE FISHERIES RESEARCH INSTITUTE (L.P.P.L.) AND  
GERMAN AGENCY FOR TECHNICAL COOPERATION (G.T.Z.)

E R R A T A

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13	11	Mr. Mangundjoyo	Mr. S. Mangundjojo
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29		<u>Expected catch/day (ton)</u>	<u>Expected catch/day (ton)</u>
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		Size of stock within reach	Potential yield within reach
30	2	a possible	as possible
	20	farther rough	rather rough
	22	mesh sized	mesh size
31		<u>Heterosomata</u>	Heterosomata
33		<u>Chirocentrus</u>	<u>Chirocentrus</u>
35	10	Sechi disk	<u>Sechi disc</u>
	27	match closely previous	match closely with previous
38		Biomass (9/m2)	Biomass (g/m2)
39	10	equator wouth	equator south
59	23	none	<u>Parastromateus niger</u> (Bloch, 1795)
			<u>Apolectus niger</u> (Bloch, 1795)
	24	kakap merah	bawal hitam
71	19	United Nasion	United Nation
51	19	Schuster & Rustami	Schuster & Djajadiredja

**FIRST REPORT OF THE INDONESIAN-GERMAN DEMERSAL  
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BY

J. SAEGER, P. MARTOSUBROTO, AND D. PAULY

AND

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JOHANNES WIDODO

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I. First Report of the Indonesian - German Demersal Fisheries Project  
(Result of a trawl survey in the Sunda Shelf Area)

by

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Abstract: A trawl survey was conducted in the Indonesian Part of the Sunda Shelf, using a 316 HP, 24 m. trawler, the Mutiara IV and a "Thailand Type" trawl. The survey lasted from November 1974 to November 1975 and yielded more than 400 successful hauls. From these a potential yield of 720.000 tons/year was calculated for the survey area (772,493 km<sup>2</sup>). Data on water temperature, salinity, O<sub>2</sub>-content, benthos and zooplankton biomass, and fish length frequencies are presented. The potential commercial value of the fishery was estimated, as based on catch rates and selling price of the various fish groups. Recommendations concerning the project itself and the development of Indonesia's fisheries are given.

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\*) Note: Owing to the timing of the visit of a review mission to the Project, the typing and printing of the appendices could not proceed as planned. Therefore, all the appendices listed here will have to be published in No. 2 of the "Contributions of the Demersal Fisheries Project", together with the data for Leg III (South Kalimantan) which, by then, will be completed. Also included will be a reassessment of our total stock and potential yield estimates, as based on the additional data of Leg III and new information for Leg VI (Malacca Strait) from: Sujastani T., P. Martosubroto and D. Pauly, 1976: a review of the demersal fishery in the Indonesian waters of the Malacca Strait, as based on recent demersal surveys and catch and effort statistics. Paper presented at the Workshop on the Fisheries Resources of the Strait of Malacca, Jakarta, 29th March to 2nd of April 1976.

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### 1.1. Ringkasan (Indonesian summary)

Dalam rangka kegiatan Proyek Perikanan Demersal yang merupakan kerja sama bilateral Indonesia-Jerman, survey penangkapan diperairan Dataran Sunda telah dilaksanakan dalam bulan November 1974 hingga Desember 1975 dengan memakai kapal Mutiara-4 yang berukuran 110 ton dan bermesin induk 316 PK.

Daerah survey meliputi 6 sub-daerah (leg) yaitu perairan Jawa-Timur, perairan Jawa-Tengah & Jawa-Barat, perairan Kalimantan Selatan (sedang disurvey), perairan Selat Karimata, perairan L. Cina Selatan, serta perairan Selat Malaka. Luas daerah survey seluruhnya k.l. 772.493 km<sup>2</sup> atau ~~417.564~~ <sup>238.424</sup> mil<sup>2</sup> dengan rata-rata kedalaman 38 m.

Data lebih dari 400 hauls hasil tangkapan telah diperoleh dari kedalaman 10m. sampai 90 m. atau lebih, dimana hasil tangkapan tiap jamnya bervariasi dari beberapa kg sampai 1.200 kg. Dari data tsb. dapat diperoleh estimasi stock sebesar 1,8 juta ton atau potensi perikanan (potential yield) sebesar 0,72<sup>juta.</sup> ton/thn. Nilai ini kurang lebih separoh dari nilai estimasi yang terdahulu (Gulland, 1971; Aoyama, 1973) yang mana nilai tersebut berasal dari ekstrapolasi nilai estimasi di Teluk Thailand. Selanjutnya hasil dari estimasi standing crop dari plankton dan benthos menunjukkan angka yang lebih rendah dari daerah Teluk Thailand.

Nilai komersial dari potensi perikanan mencapai 42.000 juta rupiah, yang akan diperoleh jika kapal<sup>2</sup> yang digunakan mampu beroperasi sampai kedalaman 100m. Diperkirakan raman kotor dari kapal<sup>2</sup> semacam ini dapat mencapai 23 juta rupiah/kapal/thn., dan hanya k.l. 1.800 kapal semacam ini diperlukan untuk mengeksploitasi daerah survey. Bila digunakan kapal<sup>2</sup> yang lebih kecil yang hanya mampu beroperasi sampai kedalaman 39 m., kurang lebih 340.000 ton/tahun dapat diperoleh, dimana sebanyak 3.400 kapal akan diperlukan untuk mengeksploitasi daerah ini, sedang tiap kapal akan dapat menghasilkan 6 juta rupiah/tahun..

Semua perhitungan diatas berdasarkan suatu asumsi bahwa pada perairan pantai sampai sedalam 9 m. tidak diadakan penangkapan dengan alat<sup>2</sup> modern mengingat daerah ini merupakan tempat "berbiaknya perikanan" (tempat hidup anak<sup>2</sup> ikan, tempat makan ikan<sup>2</sup> muda), selainnya daerah ini sudah padat dengan alat<sup>2</sup> tangkap tradisional.

Walaupun nilai potensi perikanan demersal diperairan Indonesia ini merupakan hasil estimasi yang paling baru, namun diharapkan pada phase<sup>2</sup> mendatang proyek ini akan mengadakan penelitian yang bersifat pengecekan agar data yang diperoleh akan selalu menjadi lebih lengkap.

## 1.2. Summary

A trawl fishing survey in the Indonesian waters in the part of the Sunda Shelf area, was conducted from November 1974 to December 1975. With the 110 ton, 316 HP stern trawler Mutiara-4 in the frame of a bilateral Indonesian-German Demersal Fisheries Project.

The survey area was divided into 6 "legs": East Java, Central & West Java, South Kalimantan (not yet completed), Karimata Strait, South China Sea, and Malacca Strait. The total survey area covers 772,493 km<sup>2</sup> or ~~417,564~~ <sup>238,424</sup> n.mile<sup>2</sup>, and has an average depth of 38 m.

More than 400 successful trawl hauls of one hour duration each were made, from depths ranging between 10 m. and over 90 m., and with catches between a few kg. and 1,200 kg. From these, a total stock estimate was derived which amounts to 1,801,316 tons for the whole survey area. The potential yield derivable from this amounts to 720,000 tons/year. This figure is about half of the previous estimates (Gulland, 1971; Aoyama, 1973), which, however, were mainly based on extrapolations from the Gulf of Thailand. The few benthos and plankton standing crop data collected also tend to be somewhat lower than in the areas used for extrapolations.

The total value of the potential yield amounts to 42,000 mio Rp./year if boats are used which can trawl down to depth of 100 m. The total yearly revenue for such a boat type would amount up to 23 mio Rp./boat/year, and only 1,800 of them would be needed to exploit the stock fully. Another calculation, based on smaller boats, able to trawl down to only 39 m. shows that only 340,000 tons/year would be accessible to these, of which 3,400 would be needed to exploit the stock fully, each boat having a yearly revenue of 6 mio Rp.

All calculations mentioned above are based on the assumption that the inshore waters down to a depth of 9 m. be left totally untouched by modern gears, as these inshore waters are important regeneration areas of the fishery (nursery grounds, juvenile feeding grounds), and because these waters are already heavily exploited by traditional gears.

While the present data certainly represent the best estimate available of the potential of Indonesia's demersal fishery, it is hoped that the next phases of the project will help to confirm these results and to make them more comprehensive.