

## ESTIMATED UNRECORDED CATCH RELATED TO THE NUMBER OF LICENSED FISHING VESSEL IN THE ARAFURA SEA

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### ABSTRACT

The fish resources in the Arafura Sea have been intensively exploited by the industrial scale of fish trawl (*fish net*), shrimp net and bottom long line. From experience worldwide it has been shown that excessive number of licensed fishing vessel engaged in fisheries will suffer from over-capitalization and falling productivity and will lead to the brink of biological collapse. Excessive number of licensed fishing vessel has resulted to the occurrence of unrecorded catch, that can be interpreted as one of the illegal, unreported, and unregulated fishing activities. Based on the estimated total catch of 1043,500 tonnes in 2000 and is regarded as an anchor point and by applying a constant raising factor, the annual catch in the period of 1997 until 2004 has been estimated. The average annual loss in the form of unrecorded catches during 1997 until 2004 was about 711,137 tonnes. If the average fish price during this periode was US \$ 1 per kg, the total annual losses to Indonesia was about US \$ 711,137,000 per year (US \$ 711,1 million). These catch estimation was originated only from the industrial scale of fish trawl, shrimp trawl and bottom-long line. The catch from oceanic gill net, coastal gill net, squid jigs, bouke ami, and traps was not included. By applying the surplus production model the position of maximum yield and optimum number of fishing vessel can be determined. From these figure, it was likely that the status of fish resources exploitation in the Arafura Sea has been fully exploited.

**KEYWORDS:** unrecorded catch, number of licensed fishing vessel, exploitation status, Arafura Sea

### INTRODUCTION

From experience worldwide it has been shown that excessive number of licensed fishing vessel engaged in fisheries generally suffer from over-capitalization and falling productivity and, with increasing frequency, this fishery will face the threat of biological collapse. These problems arise because of the lack of exclusive individual rights over the fish resources. The essence of the problem is that the actions of individual fisher create cost for other fishers. The result of behaviour which is economically rational at the individual level provides unnecessary cost, excessive fishing effort and possible resources over exploitation. At the industry level, the result is a loss of potential profit. The objective to be pursued in the future management of the Arafura Sea fisheries should cover to ensure biological sustainability of the resource, to maximise the economic efficiency of resources use, and to ensure that private users of a community resource provide an appropriate return to the community for the right to exploit that resource for private gain. If the objectives are met, a stable economic and biological environment will be established in which fishers can pursue their commercial activities with greater confidence of a secure and viable future. In the context of the Government Role in fisheries management, the three objective are not alternatives but are mutually reinforcing. This is an important point when understanding and determining what policies are appropriate for fisheries management.

Unrecorded catch can be interpreted as one of the illegal, unreported, and unregulated fishing activities and has become an international environmental problem during the last decade (Anonymous, 2001). The fish resources in the Arafura Sea have been intensively exploited by the industrial scale of fish trawl (*fish net*), shrimp net, and bottom long line. Bottom long line provides a relatively selective fishing gear usually targetted effectively on large demersal fishes. Intensive fishing activities in the Arafura Sea that has been happening during the last two three decades will lead to over exploitation as already happened in the Australian sector of the Arafura Sea. With the closing of foreign fishing licence for groundfish resources in the Australian sector of the Arafura Sea and the Timor Sea for Taiwan, Thailand, and Japan in 1990 due to the decreasing catch per unit of effort (Ramm, 1995) provides one of the evidences that growth rate of fish could not afford to balance the occurring high fishing pressures.

This paper is based on catch data of trawl *fish net* (catcher boat) that transshipped their catches to the fish carrier from one fishing company based in Tual, shrimp trawlers of HPPI member, and the Tanjung Balai Karimun-Riau bottom long line with the sub bases in Probolinggo and Kupang. The result is expected to represent basic informations that can be used for the estimation of the actual total fish catches, the unrecorded catch, the optimum number of licenced

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