

**THE EFFECT OF MACKEREL ENCIRCLING GILL NET FISHERY TO
INDO-PACIFIC MACKEREL PARENT STOCK IN PROTECTED AREA,
PRACHUAP KHIRI KHAN, CHUMPHON AND SURAT THANI PROVINCES**

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ABSTRACT

Indo-Pacific mackerel samples were collected from mackerel encircling gill net fishing boats landing their catch at fishing ports in Prachuap Khiri Khan, Chumphon and Surat Thani provinces. The data collection was carried out between February to June 1999. The total 1,264 individual fish comprised 599 male and 655 female fishes, representing a sex ratio of 1:1.11. The percentages of mature males were found to be 77.63% of the whole, and mature females were 69.92% of the whole female number. February to April shows 95 up to 100 % of mature female, the equation of relationship between total length and mature female proportion was $P(L) = 1 / (1 - e^{(21.944 - 1.282 L)})$. The mature females 100% were fish larger than 20.25 cm TL.

In 1999, the total production of Indo-Pacific mackerel caught by encircling gill net is extrapolated to be 6,315.94 metric tonnes or 86.365 million individual fish at total lengths of 15.00 to 22.00 centimeters. The most catch was fish's size 17.00-18.00 cm TL. The highest CPUEs being evident in June at 2,660.50 kg/day. In the analysis of the numbers of Indo-Pacific mackerel of 15.00 centimeter length recruited into the fishing grounds, it was calculated that there would be 176.432 million individual fish, 93.509 million females were caught of which 51.499 million were mature fish representing 3,869.80 billion eggs. If there was no mackerel encircling gill net fishing and only natural mortality (3.53 per year) prevailed in terms of reproduction of the 93.509 million female fish 61.586 million fish would be mature 6,360.10 billion eggs representing and increase of 64.35%. Thus, 287.965 million Indo-Pacific mackerel would be recruited into the area. These Indo-Pacific mackerel fish will grow until the first mature stage to be 130.027 million fish, or 13,661 metric tonnes. However, if the mackerel encircling gill nets are allowed to operate the drop in value of the fisheries would be 310.92 million Baht.

Key words : Indo-Pacific mackerel, mackerel encircling gill net, protected area