CATCH PER UNIT EFFORT (CPUE) AND SIZE DISTRIBUTION OF KAWAKAWA (*Euthynnus affinis*) FROM INDONESIA FISHERIES MANAGEMENT AREA (FMA) 573

Prawira A.R.P. Tampubolon, Ririk K. Sulistyaningsih, Irwan Jatmiko, Zulkarnaen Fahmi
Research Institute for Tuna Fisheries

ABSTRACT

Tunas are very important fish species for marine fisheries in Indonesia. Besides large tunas, another important catch for fishermen in Indonesia is neritic tuna include kawakawa (*Euthynnus affinis*). In Indonesia, Kawakawa is grouped as "tongkol" together with *Thunnus tonggol*, *Auxis rochei*, and *Auxis thazard*. The objectives of this study were to investigate the catch per unit effort (CPUE) and size distribution of kawakawa caught from Indonesia Fisheries Management Area (FMA) 573. Data were collected from two fishing ports (Prigi and Labuhan Lombok) using enumeration method in 2017. The gear which was used to catch kawakawa in Prigi were troll line and drift gillnet in Labuhan Lombok. The CPUE was varied monthly in both ports. It was 16,4 – 92,6 kg/day from Labuhan Lombok and 12,4 – 50,6 from Prigi. The kawakawa size was distributed from 21-52 cmFL.

Keywords: Kawakawa, CPUE, Size, Prigi, Labuhan Lombok, FMA 573

INTRODUCTION

Tunas are very important fish species for marine fisheries in Indonesia, as sources of income and protein for the people. Reduced oceanic tuna resources caused by the high fishing pressure resulted several numbers of fishermen to switch their target species to neritic tuna which also has economic value which is relatively high prices offered by the fish processing company. Some of neritic tuna in Southeast Asia are longtail tuna (*Thunnus tonggol*), frigate tuna (*Auxis thazard*), bullet tuna (*Auxis rochei*) and kawakawa/eastern little tuna (*Euthynnus affinis*) (SEAFDEC, 2013).

Besides large tunas, another important catch for fishermen in Indonesia is neritic tuna include kawakawa (*Euthynnus affinis*). In Indonesia, kawakawa is grouped as "tongkol" together with *Thunnus tonggol*, *Auxis rochei*, and *Auxis thazard*. It is because the form and the price of the fishes are similar.

According to IOTC (2016), the stock condition of kawakawa in Indian Ocean is not overfished and not subject to overfishing with F_{2013}/ $F_{MSY\ 2013}$ 0.98 or 98% from the total of Maximum Sustainable Yield. Eventhough, in a long term, this condition will be worse if the resources isn't managed well. The objectives of this study were to investigate the catch per unit effort (CPUE) and size distribution of kawakawa caught from Indonesia Fisheries Management Area (FMA) 573.

METHODS

The data were collected by enumerators on fish landing site in Prigi, East Java, and Labuhan Lombok, West Nusa Tenggara. Both are located in Fisheries Management Area (FMA573) of Indonesia (Figure 1). The data were collected monthly from January to December 2017, include the fishing gear, days at sea, production, length (fork length), and weight of kawakawa.

The CPUE was counted by comparing the production with the days at sea monthly. The Length measurements were pooled into groups of 1 cmFL length intervals and the relationship between the length and the weight was analyzed using $W = aL^b$ formula.

RESULTS

The gear which was used to catch kawakawa in Prigi were troll line and drift gillnet in Labuhan Lombok. The CPUE was varied monthly in both ports. It was 16,4 – 92,6 kg/day from Labuhan Lombok and 12,4 – 50,6 from Prigi. There is no kawakawa reported first semester in Prigi, while in Labuhan Lombok only reported on March and April only. The peak of CPUE September in Prigi and October in Labuhan Lombok.

The kawakawa size was distributed from 21-52 cmFL. This is within the range in some locations (Table 1). After being analyzed. It is know that the length-weight relationship of kawakawa is positive allometric.

Table 1. Various sources about length distribution of kawakawa

Source	Location	Length
Nurhayati *et al*. (2001)	Palabuhanratu, Indonesia	20 – 60
Motlang *et al*. (2010)	Coastal Waters of Persian Gulf and Oman Sea	41 – 85
Rohid *et al*. (2012)	Indian Waters	14 – 80
Fayerti *et al*. (2013)	Natuna Waters	30,5 – 49,5
Susilawati *et al*. (2013)	Anambas	30,8 – 54,5
Johnson & Tamatamah (2013)	Water of Tanzania	32 – 63

ACKNOWLEDGEMENT

This study was funded by Research Institute for Tuna Fisheries (RITF). The authors wish to thank the enumerators, Mr. Yogi from Prigi and Mr Galih Rakasiwi from Tanjung Luar who collected the data.

REFERENCES

Fayerti W R, Efrizal T, Zulfikar. 2013. Kajian analitik stok ikan tongkol (*Euthynnus affinis*) berbasis data panjang berat yang didaratkan di Tempat Pendaratan Ikan Pasar Sedanau Kabupaten Natuna http://jurnal.umrah.ac.id/wp-content/uploads/2013/08/WAN-RITA-FAYETRI-090254242071.pdf.

Indian Ocean Tuna Commission. 2016. Report *of the 6th Session of the IOTC Working Party on Neritic Tunas*. Mahé, Seychelles, 21–24 June 2016. 89 pp.

Nurhayati M. 2001. Analisis beberapa aspek potensi ikan tongkol (*Euthynnus affinis*) di Perairan Pelabuhan Ratu [skripsi]. Bogor: Institut Pertanian Bogor.

Motlagh TSA, Hashemi SA, Kochanian P. 2010. Population biology and assessment of Kawakawa (*Euthynnus affinis*) in Coastal Waters of the Persian Gulf and Sea of Oman (Hormozgan Province). *Iranian Journal of Fisheries Sciences*. 9 (2):315-326.

Rohid P, Chellappan A, Abdussamad EM, Joshi KK, Koya KPS, Sivadas M, Ghosh S, Rathinam AMM, Kemparaju S, *et al*. 2012. Fishery and bionomics of the little tuna, *Euthynnus affinis* (Cantor, 1849) exploited from Indian waters. *Indian J. Fish*. 59 (3):33-42.

SEAFDEC. 2013. Report of the Consultative Meeting on Regional Cooperation for Sustainable Neritic Tuna Fisheries in Southeast Asian Waters. Songkhla Province, Thailand.

Susilawati, Efrizal T, Zulfikar. 2013. Kajian stok ikan tongkol (*Euthynnus affinis*) berbasis panjang berat yang didaratkan di Pasar Ikan Tarempa Kecamatan Siantan Kabupaten Kepulauan Anambas http://jurnal.umrah.ac.id/wp-content/uploads/2013/08/SUSILAWATI-090254242066.pdf

Johnson MG, Tamatamah AR. 2013. Lengh frequency distribution, mortality rate, and reproductive biology of Kawakawa (*Euthynnus affinis*-Cantor, 1849) in the Coastal Water of Tanzania. *Pakistan Journal of Biological Science*. 16 (21):1270-1278.

FIGURES

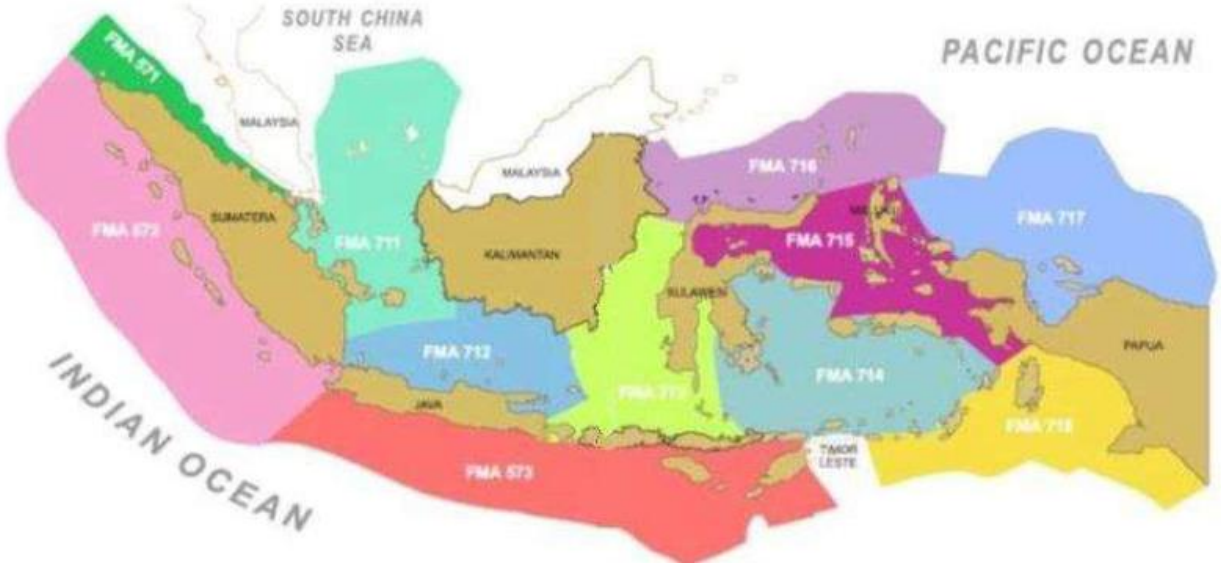

Figure 1. Fisheries Management Area (FMA) in Indonesia

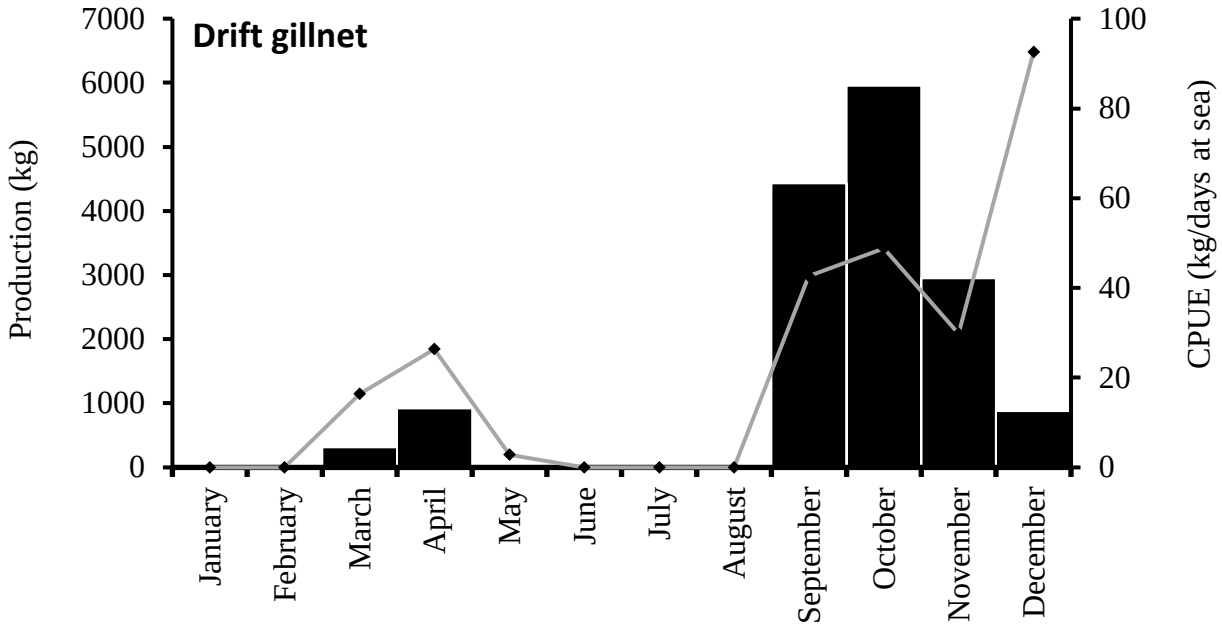

Figure 2. CPUE (Kg/days at sea) for Kawakawa caught by drift gillnet in Labuhan Lombok, West Nusa Tenggara

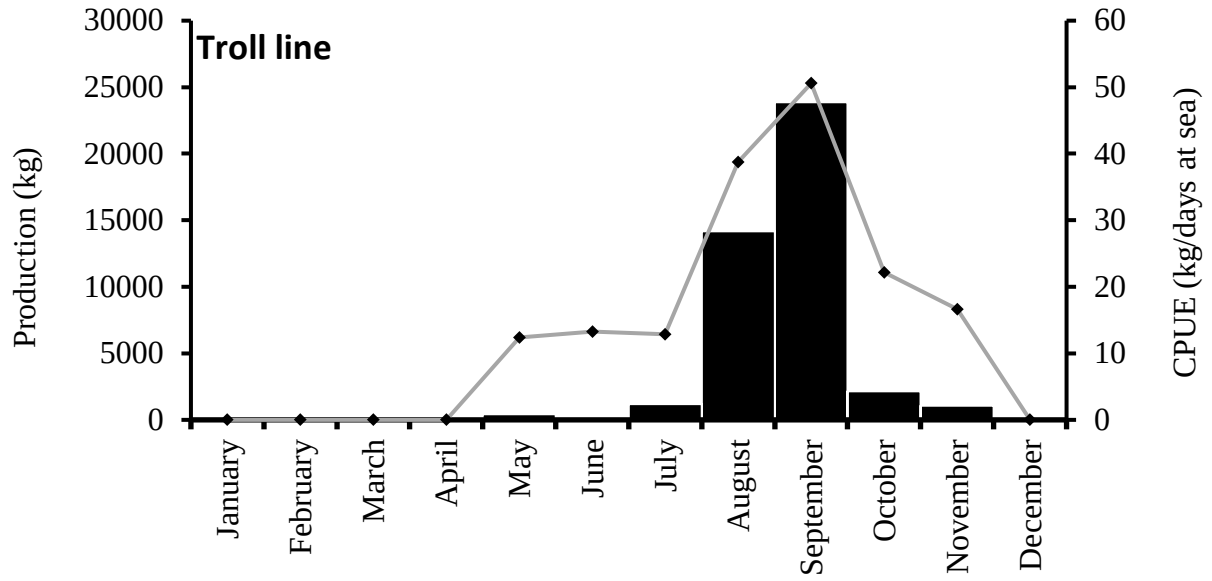

Figure 3. CPUE (Kg/days at sea) for Kawakawa caught by troll line in Prigi, East Java

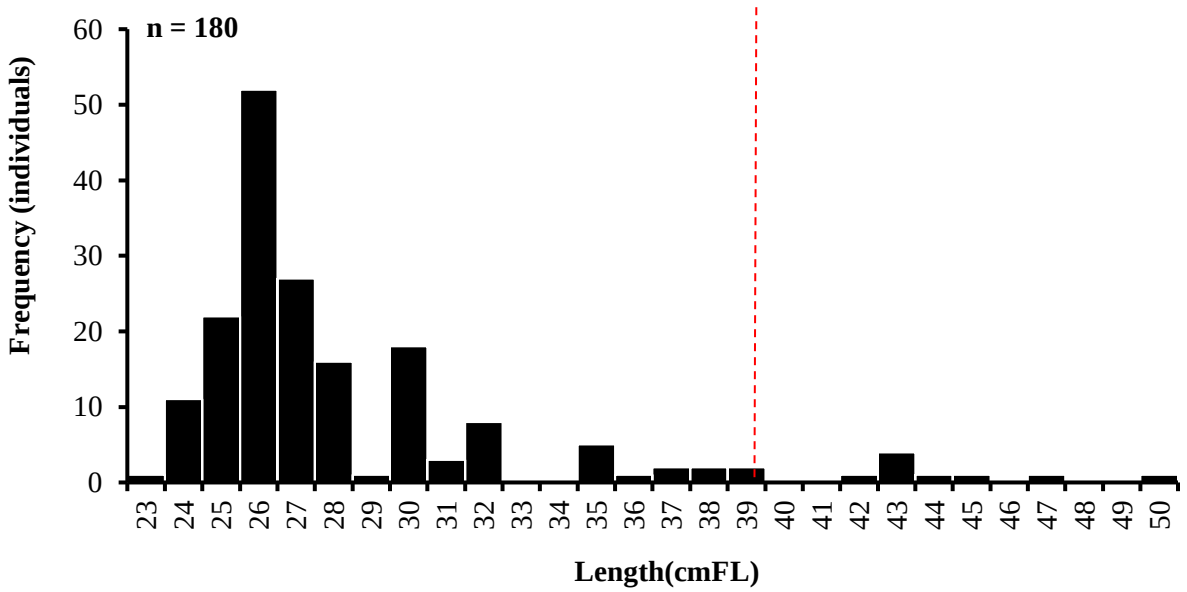

Figure 4. Length distribution of kawakawa from Indonesia FMA 573 by drift longline and troll line

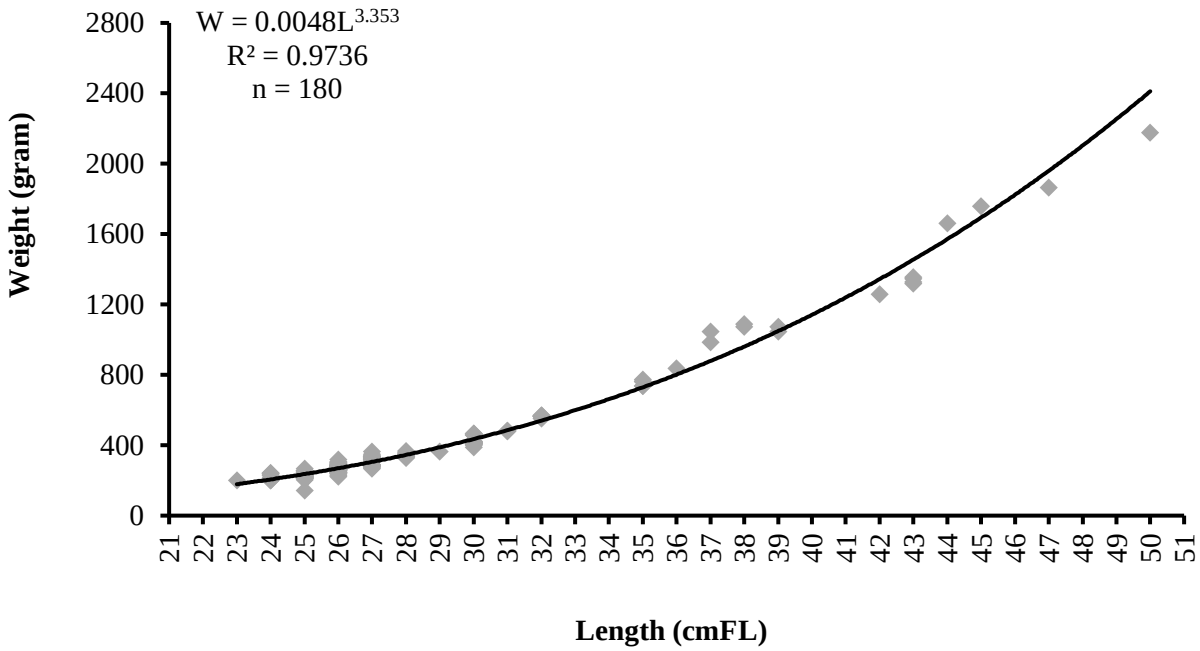

Figure 5. Length weight relationship of kawakawa from Prigi and Labuhan Lombok