The Current Speed, Depth and Catch Per Unit Effort of Bottom Gill Net in Southern Bulukumba Coast, South Sulawesi

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ABSTRACT

The objective of this study was to analyses catch per unit effort of bottom gill net related to current speed and water depth in southern Bulukumba coast, South Sulawesi. The study was conducted from April 2010 to November 2011. Fish catches were monitored to describe the predominant species caught. The length of gill net was 500 m and depth 5 m. Mesh size was 6 cm and shortening 45 %. Total catch was decrease with increase current speed. The highest catch was occurred in current speed 0.08 msec^{-1}. In contras, the lowest catch was occurred in current speed 0.31 msec^{-1}. Altogether 13 species were identified from 4 fishing efforts of bottom gill net. The average catch per unit effort per day in fishing ground with less than 20 m in depth was 21.2 kg. On the other hand, in more than 40 m in depth was 30.2 kg. Total catch was strongly related to water depth.

Keywords: current speed, water depth, bottom gillnet, cpue

INTRODUCTION

Recently, the costal region has played role in the development of economic activities such as fishing, tourism, industry, and agriculture (McMacnus, 1988 and McManus *et al*.,1997). Survival of many coastal societies is dependent on the productivity of the coastal fisheries. Many of the fishes population were exploited in southern Bulukumba coast. The number of artisanal fishing gear in southern Bulukumba coast tends to intensive to exploit the commercial fishes. The lack limitation number of artisanal fishing gear will cause fishing pressure then tend to make overfishing. Overfishing is a major problem throughout the world's oceans. The FAO estimates that 85% of the assessed marine fish stocks are either at capacity or overexploited, which is the highest recorded percentage since data were first collected in the mid-1970s (FAO, 2010).

There are many a fishing gears that capture large volumes of commercial fishes. One of the principal fishing gears in Bulukumba coast is bottom gill net. On the other hand, information on catch per unit effort of bottom gill net for important commercial fishes in southern Bulukumba coast is poorlyy documented due to the limited information. The objective of the present study was to analyses catch per unit effort of bottom gill net related to current speed and water depth in southern Bulukumba coast, South Sulawesi.

MATERIALS AND METHODS

Fish landings at Bulukumba coast were monitored and sampled daily from April to November 2010. As each boat returned from fishing, the catch was weighed and the species composition recorded. Genera and species nomenclature followed the classification proposed by Nelson (1994). The current speed and depths of fishing grounds was measured in each fishing operation. The catch per unit effort (CPUE) was calculated as kilogram per fisher per day to compare the interval depth of yields.

RESULT AND DISCUSSION

Bottom gill net was operated in marine bottom. The length of gill net was 500 m and depth 5 m. Mesh size was 6 cm and shortening 45 %. Total floating was 500 pieces. Its form was cilinder with lenght 5 cm and diameter 3 cm. Total sinker was 5000 pieces with 5 gram in weight. The mesh size is very important for fisheries management. The big mesh size catch only old fish (Demster & Kingsford, 2003).

Current speed play role in fish's abundance and affect catch operation. It is necessary to pay attention to current speed during fishing operation. The study show that current affect on fishing ith increase current speed. The highest catch tras, the lowest catch was occurred in current operate their bottom gill net in current speed

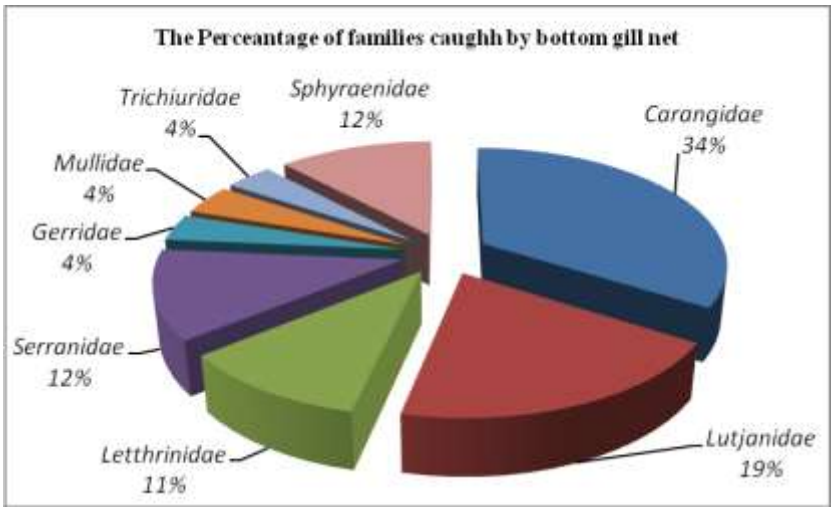
ranged 0.08 – 0.28 msec^{-1}. During current speed more than 0.3 msec^{-1} make a fail of bottom gill net.

The fish abundance of *Aluterus monoceros* around fish aggregating device in Sydney Coast water Australia was affected by current speed in which the strongest current speed the lowest fish assemblage (Demster, 2005). More over, Bergman *et al*., (2001) reported that total fish assemblage around culture area decrease with increase current speed. It was also reported that the abundance of fish *Serriola lalandi* in continental shelf of Australia increase with decrease current speed.

Table 1. CPUE each species of bottom gill net by depth interval during study between April to November 2010 in Bulukumba coast.

Species		CPUE (kg/day) by depth interval		
Local Name	International Name	<20 m	20-40 m	>40 m
Kwee ramping (*Carangidae*)	Longfin cavalla (*Carangoides cilliarius)*	0.8	1.9	2.2
Cipa-cipa (*Carangidae*)	Kuweh tripalli (*Atropus stropus*)	2.3	5.3	3.4
Kwee (*Carangidae*)	Longfin cavalla (*Carangoides ciliarius)*	1.5	2.3	3.3
Selar bentong *(Carangidae)*	Bigeye scad (*Selar crumenopthalmus*)	2.3	0.9	0.3
Ikan merah *(Lutjanidae)*	Red Snapper (*Lutjanus malabaricus*)	2.2	3.2	3.6
Ikan kakap merah (*Lutjanidae)*	Blood Snapper (*Lutjanus sanguineus*)	1.9	2.1	2.3
Katamba (*Lethrinidae)*	Lencam matahari red spotted emperor (*Letrinus lentjan*)	1.5	3.2	3.7
Kerapu balong *(Serranidae)*	wire netting grouper (*Epinephelus merra*)	1.2	1.4	1.5
Kerapu lumpur (*Serranidae*)	Greany grouper *(Epinephelus tauvina*	0.4	0.4	0.6
Kapas-kapas (*Gerridae)*	long finne majora (*Gerres filamentosus*)	2.3	0.3	0.3
Biji nangka (*Mullidae)*	Darkband goatfish (*Upeneus tragula*)	2.4	0.5	0.3
Layur (*Trichiuridae*)	small head hairtail (*Trichiurus savala*)	0.3	0.9	1.7
Alu-alu (*Sphyraenidae)*	Barracuda (*Sphyraena obtusata*)	0.9	3.2	5.4
Total		21.2	26.8	30.2

Altogether 13 species were identified from 4 fishing efforts of bottom gill net landings at Bulukumba coast during study between April to November 2010 (Table 1). Althouh total catch corresponded to thirteen species, the best represented eight families that consist of *Carangidae, Lutjanidae, Serranidae, Sphyrianidae, Letrhrinidae, Mullidae, Gerridae and Trichiuridae* (Fig. 1).



ɔottom gill net in southern Bulukumba coast.

caught was snappers (*Lutjanus malabaricus*, rs (*Epinephelus merra, Epinephelus tauvina*)

which made up 51 % of the total catch. The pelagic fishes which made up 49 % of the total catch was also caught including barracuda and hair tail.

The water depth of fishing ground ranged from less than 20 m to more than 40 m. The average catch per unit effort per day in fishing ground with less than 20 m in depth was 21.2 kg. On the other hand, the average catch per unit effort per day in fishing ground with more than 40 m in depth was 30.2 kg. Total catch was strongly related to water depth.

CONCLUSION

The length of gill net was 500 m and depth 5 m. Mesh size was 6 cm and shortening 45 %. Total catch was decrease with increase current speed. The highest catch was occurred in current speed 0.09 $msec^{-1}$. In contras, the lowest catch was occurred in current speed 0.28 $msec^{-1}$. Altogether 13 species were identified from 4 fishing efforts of bottom gill net. The average catch per unit effort per day in fishing ground with less than 20 m in depth was 21.2 kg. On the other hand, in more than 40 m in depth was 30.2 kg. Total catch was strongly related to water depth.

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