

Analysis of the catches in lift net reviewed from operational technique in Krueng Raya Waters, Aceh Besar and Lhok Kruet Waters, Aceh Jaya

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Abstract. Krueng Raya waters in Aceh Besar and Lhok Kruet waters in Aceh Jaya are quiet potential for lift net fishing. Lift net fishermen in both areas have different operational technique and characteristic. This research aimed to describe how lift net operates and to analyze fishing catch of lift net in Krueng Raya and Lhok Kruet waters. This research had been done from October until November 2017 in Lhok Kruet and January 2018 in Krueng Raya. The fishing process was analyzed through onboard observation during fishing operation and interviewing to the lift net's fishermen. Operational technique and fishing catch composition are the data that would be analyzed in this research. The research result showed differences both of operational technique specifically in the setting process and fishing catch composition of lift nets in Krueng Raya and Lhok Kruet. Lift net setting in Krueng Raya started with lowering the net from abaft while in Lhok Kruet the net will be lowering from the bottom of the chart. The total number of catch in Krueng Raya is 22.890 kg, and Lhok Kruet is 2.400 kg. However, lift net in Krueng Raya only caught squid meanwhile in Lhok Kruet had grouper seed and snapper as their fishing catch.

1. Introduction

Krueng Raya waters in Aceh Besar and Lhok Kruet waters in Aceh Jaya are quiet potential for lift net fishing, it can be looked from most of local community in these two areas are fisherman and the number of lifnet that operated by local fisherman. The number of lifnet in Aceh Jaya District in 2012 is 48 units and has been increasing in 2013 and 2014 to 67 units [1], while in Aceh Jaya in 2014 is 18 units [2].

Lift net is a fishing gear which operated using lamp for attracting pelagic fish. The gear can be classified into two types, i.e an original type of fixed bagan and floated bagan. The fixed lift net is set on the sea by fixed in one place and can not be moved, while the floated lift net is not fixed in one place but it can be moved according to the preferable fishing ground [3].

Light will attract fish to gather around liftnet, so it will ease catching process. Lamp utilisation as a tool has developed very quick since lamp electric found. One of successful factor in lifnet fishing is the light. Light installation above net will cause fototaksis fishes attracted to the light and will gather in the net so that simplify and quicken catch.

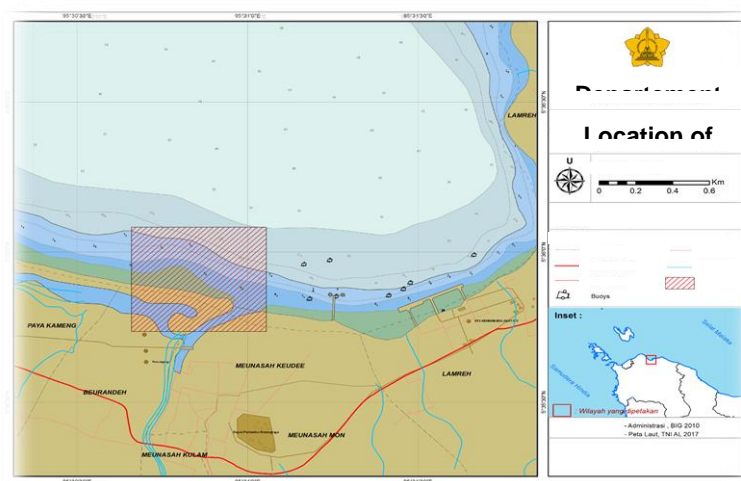
The fast growth of liftnet fishing in Indonesia's water is an indicator of fisherman interest toward liftnet fishing. However, lifnet fishing has its own characteristic which depend on its area. Lift net fishermen in both areas have different operational technique and characteristic. Lift nets are widely well known by the fishermen in Krueng Raya and Lhok Kruet. A study on the effect of different operational



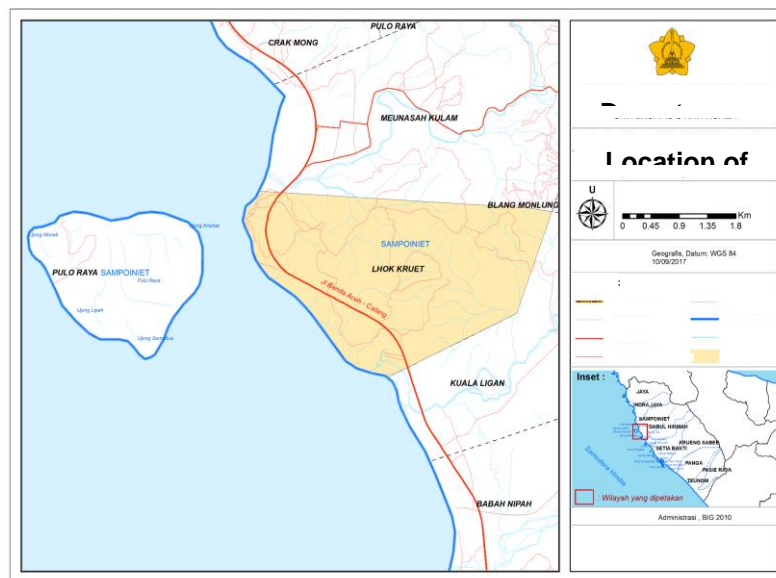
technique and characteristic of lift net ini Krueng Raya, Aceh Besar and Lhok Kruet waters, Aceh Jaya on fishing catches was carried out.

2. Materials and Methods

This research had been done from October until November 2017 in Lhok Kruet and January 2018 in Krueng Raya. The fishing process was analyzed through onboard observation during fishing operation and interviewing to the lift net's fishermen. Operational technique and fishing catch composition are the data that would be analyzed in this research.



(a)



(b)

Figure 1. (a) Research location in Krueng Raya, Aceh Besar (b) Research location in Lhok Kruet, Aceh Jaya.

3. Results and Discussion

Operational and composition of fishing catch in liftnet in Krueng Raya. Liftnet operational preparation started at 17.00 WIB and operates at 18.00-06.00 WIB. There are some process that need to be done, they are:

Preparation

Logistic preparation (petrol, generator, ice cube, lamp, food and drink), fish basket and equipment to fix generator if it broken or black out during catch operation.

Define fishing ground

Fishing ground is specified by pawing. Fishing ground can be specified based on previous catch or information from other fisherman.

Setting

After assigning fishing ground, the next step is setting. liftnet catch operation started with turn on generator as energy for lamp which used to attract fish to gather under lamp. Liftnet will be lowering slowly from the dock using roller, usually waited until 30 minutes or fish already gathered under lamp.

Hauling

When fish gathered under lamp, some lamps will be dimmed slowly to avoid fish spread out. After fish gathered perfectly, the net will be lifted slowly using roller. When the net or waring close to the surface, the catch process speed up until the surface. Setting and hauling process were done in 2-6 times.

Table 1. Fishing catch composition of lift nets in Krueng Raya, Aceh Besar

No.	Latin name	Amount (kg)	Percentage (%)
1	<i>Stolephorus</i> sp.	12.915	56,4
2	<i>Thryssa baelama</i>	5.745	25,0
3	<i>Stolephorus commrsouli</i>	1.985	8,67
4	<i>Teuthida</i> sp.	1.890	8,25
5	<i>Pterocaesio digramma</i>	175	0,76
6	<i>Secutor interruptus</i>	115	0,50
7	<i>Rastrelliger</i> sp.	47	0,20
8	<i>Scomberoides tala</i>	18	0,07
Total		22.890	100
Average		2861,25	

Operational and composition of fishing catch in liftnet in Lhok Kruet. Liftnet operational preparation started at 17.00 WIB and operates at 19.00-07.00 WIB. There are some process that need to be done, they are:

Preparation

Logistic preparation (petrol, generator, ice cube, lamp, food and drink), fish basket and equipment to fix generator if it broken or black out during catch operation.

Define fishing ground

Fishing ground is specified by fishing boat captain. Fishing ground can be specified based on previous catch or information from other fisherman.

Setting

After assigning fishing ground, the next step is setting. liftnet catch operation started with turn on generator as energy for lamp which used to attract fish to gather under lamp. Liftnet will be lowering slowly from the dock using roller, usually waited until 30 minutes or fish already gathered under lamp.

Hauling

When fish gathered under lamp, some lamps will be dimmed slowly to avoid fish spread out. After fish gathered perfectly, the net will be lifted slowly using roller. When the net or waring close to the surface, the catch process speed up until the surface. Setting and hauling process were done in 4-6 times.

Table 2. Fishing catch composition of lift nets in Lhok Kruet, Aceh Jaya.

No.	Latin name	Amount (kg)	Percentage (%)
1	<i>Stolephorus baganensis</i>	784	32,3
2	<i>Epinephelus fuscoguttatus</i>	603	24,9
3	<i>Encrasicholina heteroloba</i>	415	17,1
4	<i>Stolephorus commersouli</i>	315	13,0
5	<i>Secutor interruptus</i>	179	7,39
6	<i>Lutjanus bouton</i>	29	1,19
7	<i>Megalops cyprinoides</i>	15	0,61
8	<i>Lutjanidae</i> sp.	12	0,49
9	<i>Plectropomus leopardus</i>	11	0,45
10	<i>Xiphias gladius</i>	2	0,08
Total		2400	
Average		240	

Fisherman in Krueng Raya started their activity at 17.00-06.00 West Indonesian Time. Before doing the activity, the fisherman is doing preparation set up such as logistic, ice cube, petrol, lamp, generator and etc. After all preparation is set up, the fisherman is ready for departing to liftnet area using boat tep-tep. There are 6-7 people in one bagan unit, then the fisherman decide fishing ground based on direction from fishing boat captain, traditionally without using technology.

Setting proses started with lowering net from abaft using roller. There are 4 sinker in each net corner which aimed to restrain the net from current and wave. The net that used in liftnet in Krueng Raya made from Polyethylene (PE) that has 19 meter length, 19 meter wide, and 10 meter depth. The size of the mesh on the body is 1 inch and the bottom is 0.4 inch. That measurement indicates that liftnet in Krueng Raya is a selective catch towards main target, anchovy. Yet, for other species, this catch is less selective so that caused catching non target fish (*by-catch*).

According to discussion of catch in both areas above, there are differences on liftnet catch in Krueng Raya and Lhok Kruet. There are some spesies being caught such as squid that only exist in Krueng Raya. Prasetyo *et al.* [4] squid catch is higher in season transition of east-west. Meanwhile it lower in season transition of west-east till east season. The Wave in season transition of East-West is not too high, as well as supported with relatively good temperature and weather. These factors are affecting squid catch higher in that season.

Other distinction of catch factor in Lhok Kruet and Krueng Raya is grouper and snapper seed being caught in Lhok Kruet while in Krueng Raya is not. It assumed the water ecosystem in Lhok Kruet dominated by coral reef. This statement is match with Idasari [3] in her research, She said that coral reef condition in Lhok Kreut water is still in very good shape due tothere is no coral reef pollution

4. Conclusion

The research result showed differences both of operational technique specifically in the setting process and fishing catch composition of lift nets in Krueng Raya and Lhok Kruet. Lift net setting in Krueng Raya started with lowering the net from abaft while in Lhok Kruet the net will be lowering from the bottom of the chart. The total number of fishing catch in Krueng Raya is 22.890 kg, there were 8 species dominated by *Stolephorus* sp as much as 12,915 kg or 56,4% and Lhok Kruet is 2.400 kg, there were 10 species dominated by *Stolephorus baganensis* as much as 784 kg or 32,3%. However, lift net in

Krueng Raya only caught squid meanwhile in Lhok Kruet had grouper seed and snapper as their fishing catch

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