Fishing equipment identification of lift net in Leupung, Aceh Besar

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Abstract. Lift net is one of the important fisheries sectors that become the source of coastal community livelihood in Leupung, Aceh Besar. As a fishing gear, lift net needs some fishing equipments such as lamps, generator and roller to supporting the activities of fishing operations. The lack of data and informations on the characteristics of fishing equipment become an obstacle to improve the development of lift net. This study aims to identify fishing equipment used in lift nets in Leupung. The data were collected by interviewed and directed field observation, and then would be analized by using descriptive analisis. The results showed that the lift-nets used neon and mercury lamps, the generator capacity is 15000 watts and roller have length about 3.90 m, diameter 10.19 cm and made of bayur wood (*Pterospermum javanicum*). The results also showed that the development of fishing equipment in lift nets at Leupung have to improve, so the operation could be more affective.

1. Introduction

Aceh Besar Regency is one of the coastal area in Aceh Province where most of the people work as fishermen who use the lift net as fishing gear in Aceh Besar Regency are found in Leupung [1]. Lift net is a fishing gear with light as a fishing equipment and generally classified into two types, lift net (fixed) and floating net (moveable) [2, 3]. The fishing gears need some fishing equipment to help during setting and hauling process [4]. The main fishing equipment in lift net are lamps, generator set and roller. The function of the lamps as lighting is gather the fish in the middle of lift net [5]. The type of lamps as a sources of light in lift net are incandescent lamp, neon, and petromax [5]. The generator set on lift net is used as a power source to turn on the lamp and other requirements, while the roller is needed to pullout the net during hauling.

The lift net fishing equipment have their own characteristics in each region. The presence of local wisdom in the management of fisheries caused there are differences characteristics of the fishing equipment in lift net. Some studies on lift net have been widely conducted in particular to see the lift net construction, operating techniques and the composition of fishing caugth in lift net [6]. But the study about fishing tolls in lift net is quite difficult to find. Based on that This study aims to identify fishing equipment used in lift nets in Leupung to provide an overview of the characteristics of fishing equipment in lift nets at Leupung.
2. Materials and Methods
Research has been conducted from January to February 2017 in Krueng Raya. Data was carried out directly through field surveys and analyzed by using descriptive analysis to examine the characteristics and functions of the fishing tools on lift net at Leupung. The research location showed in Figure 1:

![Figure 1. Research location](image)

3. Results and Discussion
Fishing tools used in lift net are lamps, generator and rollers. Based on the results of the research, there are several characteristics of fishing tools. Some of these characteristics was presented in Table 1:

| No | Fishing tools | Characteristics |
|----|--------------|-----------------|
| 1  | Lamps        | 1. Neon lamps (20 watt and 40 watt) and mercury lamps (500 watt and 1000 watt).  
2. The number of neon lamps 101 pieces and Mercury lamps are 7 pieces.  
3. The dominant lamp color is white, and (yellow, green, blue, white) on the wing pole  
4. Do not have under water lamp |
| 2  | Generator set| 1. YANMAR with 15 KW power capacity  
2. Have it's own machine house  
3. Oil change every 10 day.  
4. Penggantian oli tiap 10 hari sekali. |
| 3  | Roller       | 1. Bayur wood (*Pterospermum javanicum*), 3,90 m lenght and 10,19 cm diameter  
2. Roller maintenance by using diesel oil  
3. Wood replacement every 5 year. |
Types of lamps used by fishermen in lift net are neon and mercury with different capacities, that are 40 watts and 20 watts, while the mercury lamp has a capacity of 500 watts and 1000 Watt. The utilization of neon and mercury lamps can provide better catches than incandescent lamps [2]. The type of lamp in lift net was presented in Figure 2:

![Figure 2](image)

Figure 2. (a) mercury lamp; (b) neon lamp

Neon lamps in lift net are generally white and green, while the color of the lamps used in the wing of lift net are relatively varied, white, green, blue and yellow. Anchovies and squid as the main target of lift net will be more effectively captured by wearing the help of white and yellow lamps [7]. The researches about the lamps in the lift net have been conducted but the fisherman have not used it yet, even though the LED lamps is relatively more efficient, safe and environmental friendly [8]. The using of fluorescent lamps by fishermen is considered not optimal because there are enough lamps that have been damaged and not replaced, so lighting from the lamps is reduced. The lamps layout in lift net was presented Figure 3:

![Figure 3](image)

Figure 3. lamps layout in lift net

The lamps on the lift net in Leupung start to turn on night until morning and that lamps only turn off when hauling. The lamps outages on the lift net start from the front (bow), followed by the left and
right fence parts and the lights in the center, while the back lamp is only partially outages. The stage of lamp outages on the lift net was presented in Figure 4:

![Figure 4. The stage of lamp outages on lift net](image)

The type of generator set used in lift net is Yanmar 1500 watt with fuel need for one night more than 35 liters. Genset maintenance is done by replacing the oil every 10 day at sea. Roller is used to grind a net rope so that the nets that are in the water are lifted up on the surface. The Roller is usually a cylindrical wooden rod. Type of wood roller in lift net is a Bayur wood (*Pterospermum javanicum*). With an average length are 3.90 m and diameter 10.19 cm. Roller Diameter in lift net affects the pull speed of the net rope, the larger diameter of the roller, the less number of laps and cause the rope pullout time is also getting shorter [9]. The roller maintenance is done by coating the wood with diesel. The Bayur wood is a type of wood derived from Maluku that have 34 years of age and 44 cm of maximum diameter [10].

![Figure 5. Roller in lift net](image)
4. Conclusion
Lift net in Leupung uses 108 lamps, consisting of three 1000 watts of Mercury lamp, 4 pieces of 500 watt mercury lamp, 16 pieces of 20 watts neon lamp and 85 pieces of 40 watts neon lamp. The generator set capacity used on lift net in Leupung is 15000 watts and the type of wood used is Bayur wood (*Pterospermum javanicum*). The utilization of fishing tools on lift net in Leupung can be renewed, especially on the lamp will be more effective and efficient by using LED light Emitting Diode and underwater lamp.

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