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The Effect of Bait and Operating Time on the Catch of Basic Longline in Bantar Village, Rangsang Barat District, Kepulauan Meranti Regency

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ABSTRACT

This research was conducted in Bantar village, Rangsang Barat subdistrict, Kepulauan Meranti regency, Riau Regency for 10 days on January 2021. This study aims to find out and analyze the effect of bait type and operating time (night and day) on the catch and the hook rate of the catch of fishing gear (*bottom long line*). The method used in this study is an experimental fishing method a method that can be done if the data to be obtained is not yet available so that the variables to be measured must be generated data through experiments, observation of the data can only be carried out after the experiment. With a complete random block design of a factorial pattern of 2 x 3 with a replay of 10 to be carried out on different days, which is then made into a block (group). The use of different types of bait (Bombay duck, sea worms, and flatfish) statistically has a noticeable effect on the number of fish catches on bottom fishing gear. The number of catches of longline fishing gear using Bombay duck bait got 74 catches with an average hook rate of 0.37% during the day and night operations, sea worm baits got 65 catches with an average hook value rate of 0.325% during the operating time during the day and at night, fish next door get 81 catches with an average hook rate of 0.405%.

Keywords: Longline, Catch Result, Hookrate

1. INTRODUCTION

Rangsang Island is located in the Kepulauan Meranti Regency, Riau Province, which is one of the outermost islands belonging to the Unitary State of the Republic of Indonesia (NKRI). The position of shoreline of Rangsang Island has a strategic political role. Rangsang Island whose territory covers the mainland of the East Coast of Sumatra Island and the archipelago, with an area of 909.8 km^2. The Rangsang Island area is lowland, with altitudes varying between 0 - 61 meters above sea level (Hakim *et al.*, 2014).

According to several sources, the types of fishing gear used by fishermen in the territorial waters of Bantar Village include gill nets (Sumardi *et al.*, 2014), gumbang (Rupawan, 2010) and longlines. Setyorini *et al.* (2009) explained that the bottom long line is a fishing gear that is suitable for use in Indonesian waters, because the water area is wide and rich in various bottom fish.

Longline is a series of very long line units (reaching thousands, even tens of thousands of meters). It consists of the main line (main line), branch lines (branch lines), and hooks with a certain size (number) attached to each lower end of the branch lines (each branch consists of one hook.

In fishing rods, the nature of the fish used is a stimulus that arises either from within or from outside. Internal factors such as stimulation of food, while external factors such as being attracted to the color, smell, shape, and movement of the bait used. Gunarso (1985) suggested that bait that is moved continuously could affect the vision of fish in water. This is supported by Protosov (1970) that every fish has a desire and is aroused by the color, smell, and form of food in the waters.

2. RESEARCH METHODS

Time and Place

This research was conducted in January 2021, in Bantar Village, Rangsang Barat District, Kepulauan Meranti Regency, and Riau Province.

Methods

The method used in this study is the

experimental fishing method, by applying a completely randomized block design. The 2 x 3 factorial pattern with 10 repetitions will be carried out on different days, which will then be used as blocks (groups). The first factor is Time (W), which consists of 2 levels, namely day (w1) and night (w2), the second factor is the type of bait (U), which consists of 3 levels, namely lomek (u1), seaworms (u2), and fish next to (u3). The response to be measured is the catch in terms of weight, type, and number of fish per species.

Data Analysis

Hook rate or fishing rate is the number of fish caught per 100 hooks. The hook rate is used to evaluate long line catches.

$$HR = \frac{I}{H} X100\%$$

Information:
HR : Hook rate
I : Number of fish caught
H : Number of hooks used during operation.

3. RESULT AND DISCUSSION

Basic Longline Gear and Bait Type

The bottom long-line fishing gear used in this study has the main construction consisting of the main line, branch line, and size seven hooks. Long line fishing gear operates for approximately 2 hours. The length of the basic longline main rope is 1.5 m with a diameter of 8 mm, which is made of synthetic material (multifilament). The main rope serves as a place to put branch ropes. The branch rope used has a length of 50 cm with a diameter of 2 mm made of synthetic material (monofilament) with a distance between branch lines of 4 m.

The bait used in the fishing operation in this study used fresh bait, namely, Bombay duck (*Harpadon nehereus*), sea worms, and other fish.

Catch

Composition the catches of longline gear consisted of 6 types of fish, namely Batoidea, Giant catfish (*Arius Thalassius*), dark fin pike eel (*Muraenesox cinerus*), sagor catfish (*Hexanematichthys sagor*), and blobfish. The total number of fish caught by longline fishing gear is 220 individuals. The highest type of catch was found in the Batoidea species, which totaled 58 individuals with a percentage of 0.29%, while the thorn fish species had the lowest number of catches, amounting to 23 individuals with a percentage of 0.115%. The following composition of longline catches can be seen in Table 1.

Table 1. Composition of Total Longline Catch

No	Catch Type	Fish	Hook rate (%)
1	Ray (Batoidea)	58	0.29
2	Striped eel catfish (*Eel-tailed Catfish*)	37	0.185
3	Giant catfish (*Arius Thalassius*)	35	0.175
4	Dark fin pike eel (*Muraenesox Cinerus*)	40	0.2
5	Sagor catfish (*Hexanematichthys Sagor*)	23	0.115
6	Blobfish	27	0.1
	Total	**220**	

Table 2. Catches Based on Bait Type and Fishing Time

Date and time	Basic Longline Catch Based on Bait Type (fish)					
	Bombay duck	Worm	Sole	Bombay duck	Worm	Sole
Monday, 12-01-21	7	4	3	5	3	5
Tuesday, 13-01-21	4	5	4	5	2	2
Wednesday, 14-01-21	3	4	3	4	3	4
Thursday, 15-01-21	2	5	5	3	1	6
Friday,16-01-21	1	4	3	3	2	5
Saturday, 17-01-21	5	4	2	4	3	5
Sunday, 18-01-21	5	3	2	3	4	4
Monday, 19-01-21	2	2	7	3	4	3
Tuesday, 20-01-21	6	2	4	4	3	5

Wednesday, 21-01-21	2	5	3	3	2	6
Total	37	38	36	37	27	45

Catches of Longline with Bombay duck Bait during the Day

The total number of catches was 37 with an average value of 3.7. The highest number of catches occurred in repetition 1, namely 7 fish. While the fewest catches occurred in the 5th repetition, namely with a catch of 1 tail. From the data, it was found that the hook rate for the first catch was 0.035% because that catch got the most catches. Whereas for the 5th catch the hook rate is 0.005% because the catch is the least (Figure 1).

Catches of Longline with Bombay duck Bait at Night

The total number of catches was 37 with an average value of 3.7. The highest number of catches occurred in repetitions 1 and 2, namely 5 fish. Deuteronomy 3, 6, and 9 get 4 catches. While the fewest catches occurred in repetitions 4, 5, 7, 8 and 10, with 3 catches. From the data, it was found that the hook rate for the 1st and 2nd arrest was 0.025%, because these arrests got the most catches. Whereas for the 4th, 5th, 7th, 8th and 10th arrests the hook rate was 0.015% because the catches were the least (Figure 2).

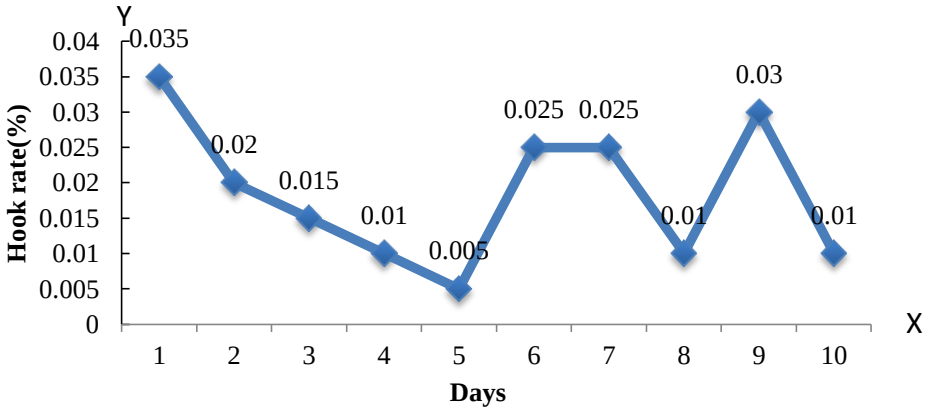

Figure 1. The catch of longline with Bombay duck bait during the day

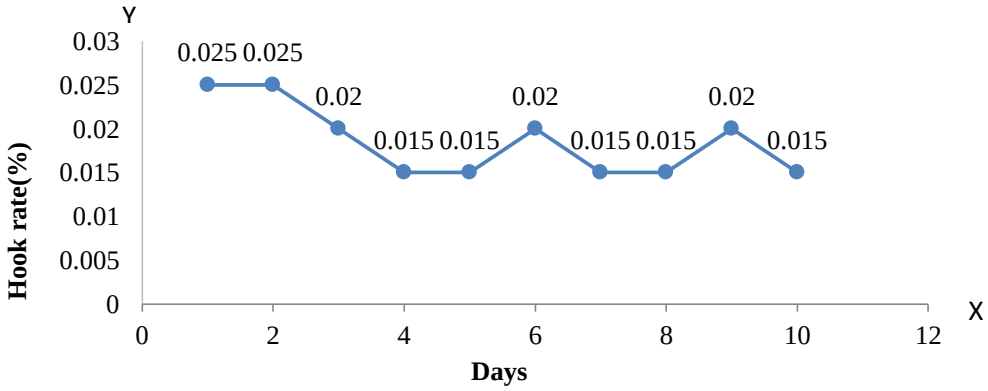

Figure 2. Longline catches with Bombay duck bait at night

Catches of Longlines with Seaworm Baits during the Day

The total number of catches was 38 individuals with an average value of 3.8. The highest number of catches occurred in the 2nd, 4th and 10th repetitions, namely 5 fish. While the fewest catches occurred in the 8th and 9th repetitions, namely with 2 catches. The hook rate for the 2nd and 4th arrests was 0.025%, because those arrests got the most catches. Whereas for the 8th and 9th arrests the hook rate was 0.01% because the catches were the least (Figure 3).

Catches of Longline with Seaworm Bait at Night

The total number of catches was 27 individuals with an average value of 2,7. The

highest number of catches occurred in the 7th and 8th repetitions, namely 4 fish. While the fewest catches occurred in the 4th repetition, with 1 catch. From the data, it was found that the hook rate for the 7th and 8th arrests was 0.02%, because these arrests got the most catches. Whereas for the 4th catch the hook rate is 0.005% because the catch is the least (Figure 4)

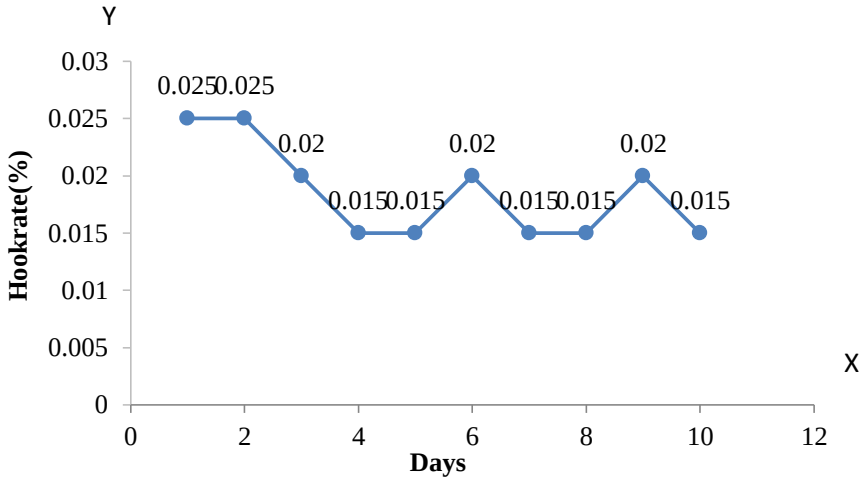

Figure 3. Longline catches with seaworm bait during the day

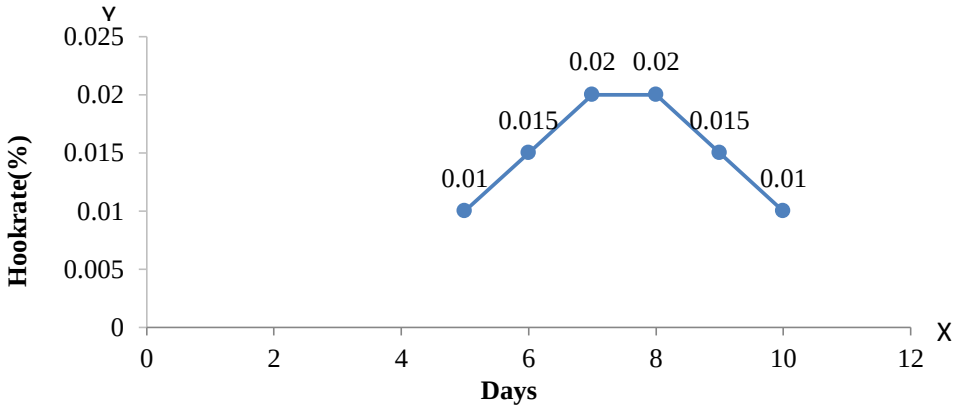

Figure 4. Longline catches with seaworm bait at night

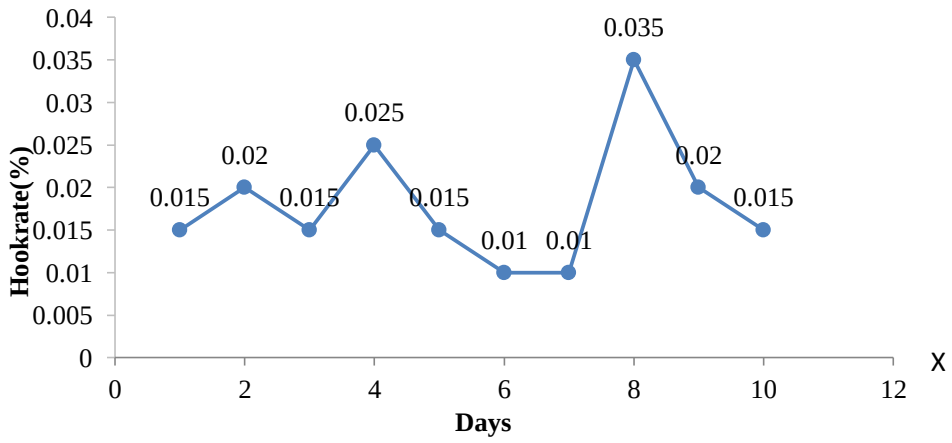

Figure 5. Longline catches with sole bait during the day

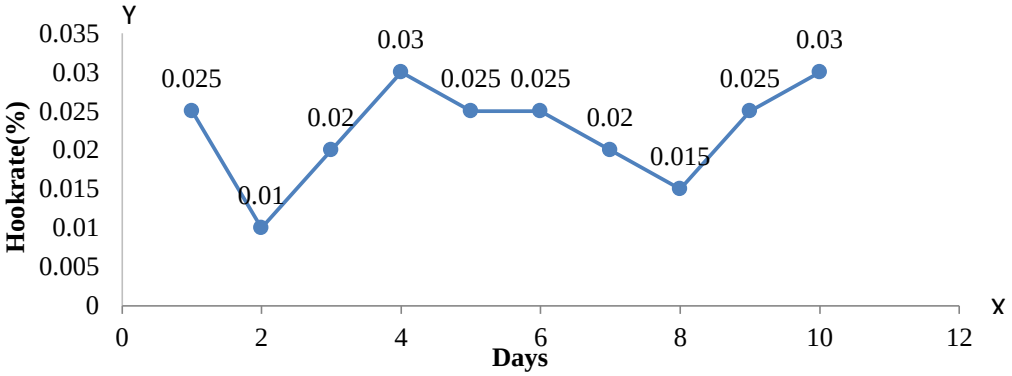

Figure. 6 Longline catches with Sole bait at night

Catches of Longline with Sole Bait during the Day

The total number of catches is 36 with an average value of 3.6. The highest number of catches occurred in the 8th repetition, namely 7 fish. While the fewest catches occurred in the 6th and 7th repetition, with 2 catches. From the data, it was found that the hook rate for the 8th arrest was 0.035%, because that arrest got the most catches. Whereas for the 6th and 7th arrests the hookrate value was 0.01% because the catches were the least (Figure 5).

Catches of Longline with Sole Bait at Night

The total number of catches is 45 with an average value of 4.5. The highest number of catches occurred in the 4th and 10th repetitions, namely 6 fish. While the fewest catches occurred in the 2nd repetition, with 2 catches. From the data above, the hook rate for the 4th and 10th arrests is 0.03%, because these arrests get the most catches. Whereas for the second catch the hook rate is 0.01%, because the catch is the least (Figure 6).

4. CONCLUSION

The number of catches of longline fishing gear using Bombay duck bait got 74 catches with an average hook rate of 0.37% during the day and night operations, sea worm baits got 65 catches with an average hook value rate of 0.325% during the operating time during the day and at night, fish next door get 81 catches with an average hook rate of 0.405%.

The use of this type of fish bait is recommended for fishing using bottom longline fishing gear because this bait affects the catch and there is many fish in the fishing area.

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