JMAI Jurnal Media Akuakultur INDONESIA
https://journal.unram.ac.id/index.php/jmai/index. E-ISSN : 2798-0553
Volume 5, Number 2, June 2025

DIFFERENCES IN BAIT TYPES ON MANGROVE CRAB (SCYLLA SERRATA) CATCHES USING FOLDING TRAP IN PANGKAL BABU VILLAGE

Perbedaan Jenis Umpan Pada Penangkapan Kepiting Bakau (Scylla Serrata) Dengan Menggunakan Jebakan Lipat Di Desa Pangkal Babu

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ABSTRAK

Alat tangkap bubu lipat merupakan salah satu alat tangkap yang dioperasikan untuk menangkap kepiting bakau di Desa Pangkal Babu, Penangkapan kepiting bakau (*Scylla serrata*) menggunakan alat tangkap bubu lipat diperlukan umpan dalam upaya untuk meningkatkan hasil tangkapan secara efektif. Penelitian ini bertujuan untuk mengetahui Perbedaan hasil tangkapan kepiting bakau menggunakan umpan ikan pari dan ikan tembakul Menggunakan bubu lipat. Penelitian ini dilakukan di Desa Pangkal Babu, Tanjung Jabung Barat pada tanggal 7 Maret -7 April 2024. Metode yang digunakan adalah experimental fishing. Data yang dihimpun meliputi jumlah, berat dan lebar hasil tangkapan kepiting bakau, Jumlah, berat, dan lebar karapas hasil tangkapan ditabulasikan dalam bentuk tabel dan grafik. Data yang diperoleh kemudian dilakukan analisis uji T. Hasil penelitian yang didapatkan bahwa jumlah hasil tangkapan kepiting bakau umpan ikan pari sebanyak 27 ekor dengan rata-rata berat total 407,8gr dan rata-rata lebar karapas yaitu sebanyak 198,4 mm. Sedangkan hasil tangkapan kepiting bakau dengan perlakuan ikan tembakul mendapatkan 34 ekor dengan rata-rata berat 602,4gr, dan rata-rata lebar 267,6 mm. Dari hasil analisis uji T menunjukkan bahwa perlakuan jenis umpan berpengaruh tidak nyata ($P > 0,05$) terhadap jumlah hasil tangkapan kepiting bakau, namun berpengaruh nyata ($P < 0,05$) terhadap berat dan lebar karapas kepiting bakau, Dari penelitian ini, dapat disimpulkan bahwa penggunaan umpan ikan tembakul pada alat tangkap bubu lipat di Desa Pangkal Babu menghasilkan berat dan lebar karapas yang lebih tinggi dibandingkan dengan penggunaan umpan ikan pari.

ABSTRACT

Folding bubu fishing gear is one of the fishing gear operated to catch mangrove crabs in Pangkal Babu Village, catching mangrove crabs (Scylla serrata) using folding bubu fishing gear requires bait in an effort to increase catches effectively. This study aims to determine the difference in mangrove crab catches using stingray and Mudskippers fish bait using folding traps. This research was conducted in Pangkal Babu Village, West Tanjung Jabung on March 7 - April 7, 2024. The method used was experimental fishing.

Data collected include the number, weight and width of mangrove crab catches, the number, weight, and width of the carapace of the catches are tabulated in the form of tables and graphs. The results showed that the number of mangrove crab catches stringray bait was 27 with an average total weight of 407.8 g and an average carapace width of 198.4 mm. While the catch of mangrove crabs with Mudskippers fish treatment got 34 fish with an average weight of 602.4 g, and an average width of 267.6 mm. The results of the T test analysis showed that the bait type treatment had no significant effect (P> 0.05) on the number of mangrove crab catches, but had a significant effect (P < 0.05) on the weight and width of the mangrove crab carapace. From this study, it can be concluded that the use of Mudskippers fish bait in folding trap fishing gear in Pangkal Babu Village in higher carapace weight and width compared to the use of stingray bait.

Kata Kunci	*Ikan Pari, Ikan Tembakul, Kepiting Bakau, Desa Pangkal Babu, Bubu Lipat*
Keywords	*Stingray, Tembakul Fish, Mangrove Crab, Pangkal Babu Village, Folding Bubu*
Tracebility	Submission: 4/6/2025. Published : 27/6/2025
Panduan Kutipan (APPA 7th)	Sa'adah, S., Magwa, R. J., & Filawati. (2025). Differences in Bait Types on Mangrove Crab (*Scylla Serrata*) Catches Using Folding Trap in Pangkal Babu Village. *Indonesian Journal of Aquaculture Medium*, 5(2), 58-66. http://doi.org/10.29303/mediaakuakultur.v5i2.7266

INTRODUCTION

Tanjung Jabung Barat Regency is a tidal area consisting of public waters/oceans that can be optimally utilized. Tanjung Jabung Barat is known for its potential in the capture fisheries sector, due to its geographical location close to sea waters and functioning as a trade center. Management of fishery resources must be carried out optimally so that their utilization and sustainability can be maintained properly. One of the efforts made is to explore the potential of existing natural resources, especially fishery resources. Fishing equipment commonly used in the Kuala Tungkal area includes six types: gill nets, trawl nets, traps, trawl nets, long nets, and crab traps. (Lisna *et al*., 2018). Special folding traps are used to catch crabs both in the wild and in ponds. This type of trap comes in a shape that resembles a small cross net and also in the form of a small circle with a frame. Folding bubu traps are operated at the bottom of the water and can be used individually or in pairs, connected by a long rope at a certain distance.

This folding trap fishing gear is a type of traditional fishing gear used to catch crabs (Rosalina & Utami 2021). Mangrove crabs are one of the potential coastal biota that have high economic value. This species lives in river estuaries and tidal swamps which are usually overgrown with mangrove vegetation with muddy or sandy mud substrates. The waters in Kuala Tungkal, precisely in Pangkal Babu Village, have a coastline covered with mangrove forests and a mud substrate that is good enough for mangrove crabs to use as a place to shelter, find food, and grow.

Dwianna Putri *et al*., (2021) stated that mangrove crab fishing efforts have been carried out by fishermen living in the Kuala Tungkal area, Pangkal Babu Village because of the availability of mangrove forest areas. Crabs have eating habits, in addition to being carnivorous, mangrove crabs are also omnivores, scavengers and eaters of all kinds. In mangrove crab fishing activities, fishermen only use 1 type of bait, namely stingray bait. The bait used must be able to stimulate the crab's olfactory organs, and last a long time when soaked. Stingrays are used because of their strong odor so that they can lure mangrove crabs into the folding trap fishing gear. Astuti and Ariestyani (2013) stated that

stingray meat has a strong odor. Local fishermen usually use stingray bait, but stingrays still have a selling price, so they have to spend additional costs to buy bait from other fishermen. So other alternatives are needed that can be used as food, one of which is the tembakul fish.

The large number of tunas fish that are not utilized by the community in Pangkal Babu Village, so researchers use tunas fish as bait to catch mangrove crabs, in addition, tunas fish is a fish that has a pungent and fishy smell so that it can stimulate the sense of smell of mangrove crabs. According to Bija & Rozi, (2023) stated that tunas fish has a high water content of 70%. This is in accordance with Perdana's opinion *et al*., (2022) which states that the higher the water and fat content in the bait, the faster the odor spreads in the water, so that the crab can respond quickly. High water content can help disperse chemicals so that mangrove crabs quickly respond to the smell of bait that is spread through the river current and is smelled by the crab's sense of smell. Based on the above, it is necessary to conduct research on "differences in types of bait on the results of mangrove crab catches (scylla serrata) using folding traps in Pangkal Babu Village"

METHODS

Time and Place

The research was conducted from March 7 to April 7, 2024, in the waters of the Berebak River, Pangkal Babu Village, Tungkal Ilir District.

Tools and materials

The equipment used in the capture is a folding trap, scales, stationery, documentation tools (camera). The materials used in the study were bait consisting of 2 types, namely stingray and Mudskippers fish.

Research Design

The research method in this study is experimental fishing, which is a method used to find the effect of certain treatments on others under controlled conditions. The number of folding traps used in this study was 16 folding trap fishing gears. This study consisted of 2 treatments, namely using stingray bait and Mudskippers fish bait, where 8 folding traps used stingray bait and 8 folding traps used Mudskippers fish. This study was conducted 16 times.

Research Procedures

1.Preparation of bait

The bait used in this study was using stingray bait in a semi-wet form or still containing water and ±30 gr of wet scad (according to fishermen's habits), before installing the fishing gear, the bait was weighed first, weighing ±30 gr for each treatment, this was done so that the bait could be installed on the folding trap fishing gear. The prepared bait was then installed inside the trap pole by tying the bait with a rope.

2.Preparation of fishing equipment

There were 16 units of traps with 2 types of treatment, namely the stingray bait treatment and the Mudskippers fish bait treatment with 16 repetitions, where 8 traps used stingray bait and 8 traps used Mudskippers bait.

3. Selection of fishing ground

In carrying out fishing activities, the determination of the location of the fishing ground is assisted by experienced local fishermen.

4.Installation of the folding trap (Setting)

After all preparations are complete, go straight to the fishing location which is 200 m away. After arriving at the location, stingray bait and Mudskippers fish are placed in a folding trap with a blue marker for stingrays and a red marker for Mudskippers fish. After the bait preparation is complete, the folding trap fishing equipment is lowered into the water at a distance of 15 m, with alternating placement of stingray bait and Mudskippers fish bait.

5. Immersing the folding trap

The folding trap is soaked for ± 3 hours and then the crab catching process (hauling) is carried out.

6. Lifting the folding trap (Hauling)

Hauling is carried out after ±3 hours of soaking the folding trap, then calculations are made in the form of the number, weight and width of the crabs and then the results are recorded.

Data analysis

The data obtained in this study were then analyzed for the total number of catches (tail, weight, and carapace width). To determine the differences in the overall catch of the folding trap in terms of number (tail), weight (gr), and carapace width (mm). Therefore, statistical analysis of variance was carried out with the t-test (Sudjana, 2005). The t-test is one of the statistical tests used to test the truth or falsity of the null hypothesis which shows that between two mean samples taken randomly from the same population, there is a significant difference. To find the t-test, the following formula is used:

$$T\ hit = \frac{\overline{X}_1 - \overline{X}_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S_1{}^2 = \frac{n\sum x_1{}^2 - (x_1)^2}{n(n-1)}$$

$$S_2{}^2 = \frac{n\sum x_2{}^2 - (x_2)^2}{n(n-1)}$$

$$S^2 = \frac{(n_1 - 1)S_1{}^2 + (n_2 - 1)S_2{}^2}{n_1 + n_2 - 2}$$

RESULTS AND DISCUSSION

Total Mud Crab Catch

The bubu fishing gear is a fishing gear used by local fishermen for mangrove crab catches. The number of mangrove crab catches in Pangkal Babu Village can be seen in table 1.

Table 1. Total Mangrove Crab Catch

Types of bait	Total response results (tail)	Average catch (tail)
Stingray	27	1.7±07
Mudskippers Fish	34	2.1± 07

Based on table 1, using t-test analysis, different bait treatments had no significant effect (P <0.05) on the catch of mangrove crabs. The number of mangrove crabs caught

using a folding trap with a bait of 34 Mudskippers fish with an average of 2.1 fish while the bait of 27 stingrays with an average of 1.7 fish. Based on the analysis of the T-test data, it is known that the mackerel fish bait and the mackerel fish bait showed no difference in the type of bait on the number of catches. This is because the mackerel fish bait and the stingray bait have the same characteristics, namely having a pungent and fishy odor, thus stimulating the crab to enter the trap.

This is in accordance with the statement of Jaksen *et al*., (2018) that if the fish are stimulated by the presence of bait, the fish will try to find the source of stimulation, and when detecting the bait, the fish will enter the trap to approach the aroma so that the fish will be caught and cannot get out of the folding trap. According to Sormin *et al*., (2024) that in using bait, the bait should provide a pungent aroma so that it can stimulate the catch to enter the trap. In addition, bait is also a determining factor in the success of fishing. In its natural habitat, mangrove crabs have omnivorous eating habits (eat everything) such as rotting leaves, plant roots, shrimp, fish and even animal carcasses.

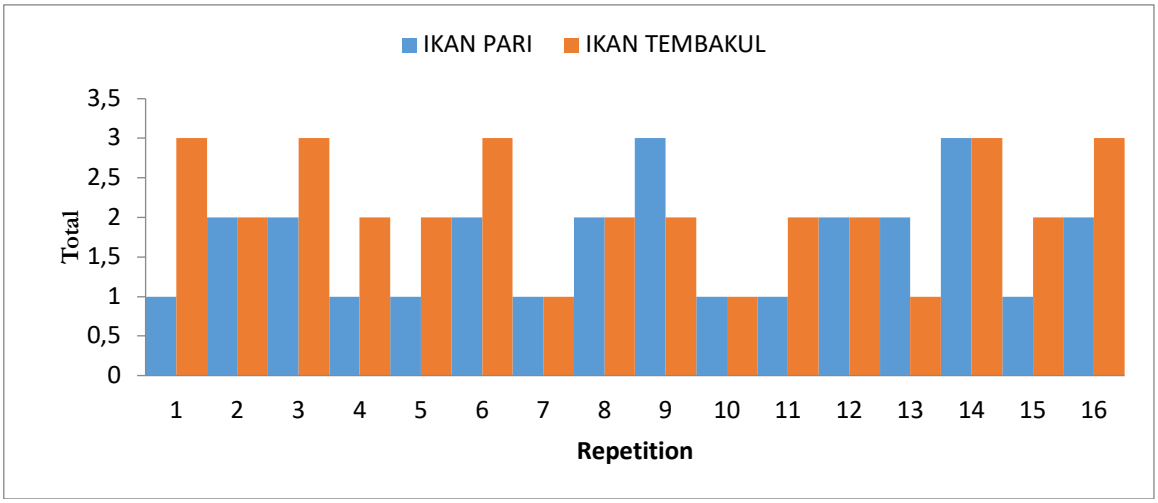

Figure 1. Mangrove crab catch results

Based on Figure 1, the largest number of mangrove crab catches was obtained from the treatment of the Mudskippers fish bait in repetitions 1, 3, 6, 14, and 16 with a total of 3 tails, while the largest number of mangrove crab catches was obtained from the stingray bait, namely in repetitions 9 and 14 with a total of 3 tails.

Weight of Mud Crab Catch

The results of the statistical analysis of the T-test showed that the average weight of the mangrove crab catch using different baits was different, as can be seen in Table 2.

Table 2. Mangrove Crab Catch Results

Types of bait	Total response results (tail)	Average Catch (tail)
Stingray	6.826	426.6 ± 176.98a
Mudskippers Fish	9.639	602.4 ± 229.43b

Based on table 2, using the T-test analysis, it was found that different bait treatments had a significant effect ($P < 0.05$) on the weight of the mangrove crab catch.

The highest weight of the mangrove crab catch was found in the bait of the Mudskippers with a total weight of 9.639 gr and an average weight of 602.4 gr, while the lowest weight of the mangrove crab catch was found in the bait of the stingray with a total weight of 6.826 gr and an average weight of 602.4 gr.426.6gr. Based on the results of the T-test analysis, it is known that the bait of the Mudskippers and the bait of the stingray show a difference in the average weight of the mangrove crab. The catch of mangrove crabs using the mackerel bait is heavier than the catch of mangrove crabs using the stingray bait. This is influenced by the mackerel bait having a greater catch than the stingray bait. Rahmad (2019) stated that the weight of the catch is influenced by the number of catches, where the greater the number of catches, the weight of the catch will also be higher. The use of mackerel fish gets the most results, this causes a difference in the total weight of the mangrove crab catch.

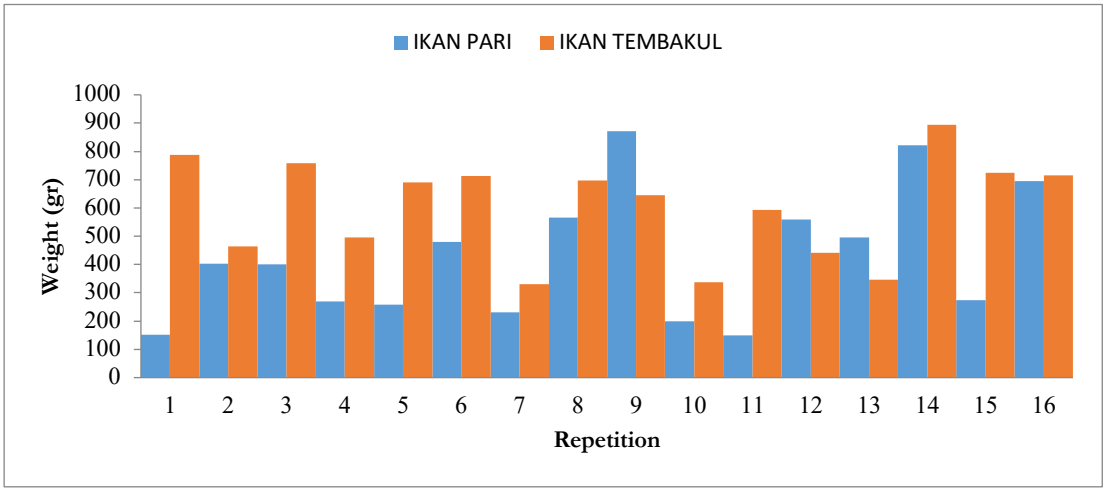

Figure 2. Average weight of mangrove crab catch

Based on Figure 2, the highest weight of mud crab caught was obtained in the Mudskippers treatment in replication 14 with a weight of895gr, while the catch of mangrove crabs using stingray bait got the highest weight in repetition 9 with a weight of872 gr.It was found that the catch of mangrove crabs using the bait of the scad fish had a higher weight compared to the catch of mangrove crabs using the bait of the stingray. This is because the bait of the scad fish has a greater catch than the bait of the stingray, this is in accordance with the opinion of Diana *et al*., (2018) the more frequency of mangrove crabs entering the trap, the higher the weight. The use of bait in the operation of fishing gear functions to invite or stimulate fish so that the operating system carried out will be more effective (Ramdhani *et al*., 2022).

Mud Crab Carapace Width

The results of the statistical analysis of the T-test showed that the average carapace width of the catch using different baits was different, as can be seen in Table 3.

Table 3. Carapace Width of Mangrove Crab Catches

Types of bait	Total response results (tail)	Average catch(tail)

Stingray	3.174	198.4 ± 99.12a
Mudskippers Fish	4.282	267.6 ± 87.07b

Based on table 3, using t-test analysis, it was found that different bait treatments had a significant effect ($P < 0.05$) on the carapace width of the mangrove crab catch. The highest width of the mangrove crab catch was found in the bait of the Mudskippers fish with a total width of 4.282gr and average width267.6gr, while the width of the mangrove crab catch on stingray bait with a total weight of 3.174gr and average weight 198.4gr. Based on the T-test analysis data, it is known that the bait of the Mudskippers fish and the bait of the stingray show a difference in the average weight of the mangrove crab. The width of the carapace of the mangrove crab is highest in the bait of the mackerel fish. In mangrove crab fishing activities, the wider the size of the mangrove crab, the heavier the number of mangrove crabs, this is in accordance with the opinion of Munana *et al*., (2017) that the increase in body weight and growth in carapace width have an effect on the growth of the crab's body weight.

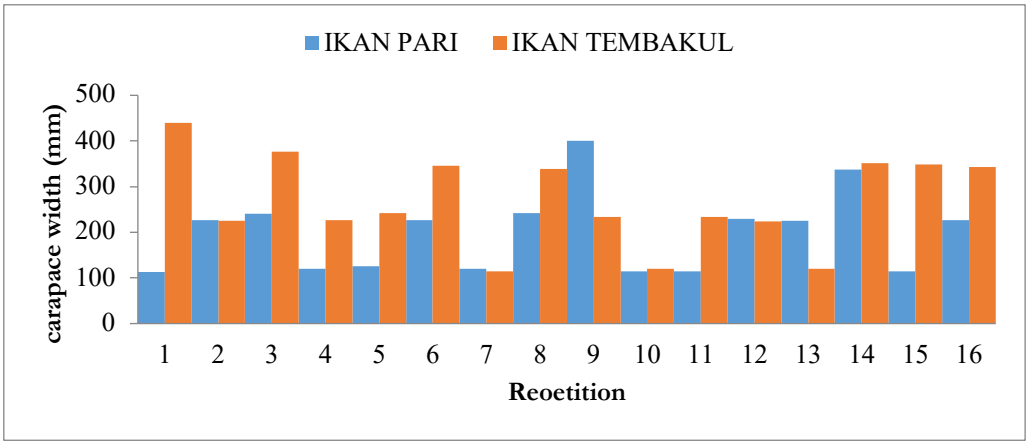

Figure 3. Average carapace width of mangrove crab catches

Based on figure 3,carapace width results obtained using a folding trap with an entrance measuring 15 cm wider were obtained in the treatment of the Mudskippers fish found in replication 1 with a carapace width of 439 mm, while the results of the folding trap catch on the stingray bait in replication 9 with a carapace width of 400 mm. It can be seen that the carapace width in the treatment of the scad fish bait has a higher width compared to the stingray bait treatment. According to Wijaya *et al*. (2010) Mangrove crabs are said to be sexually mature if they have a carapace width of more than 100 mm. And according to Larosa *et al*. (2013) the carapace length of mangrove crabs that is reasonable to be caught is between 54-123 mm. Based on this opinion, it can be interpreted that the average carapace width of mangrove crabs during the study in 16 repetitions was worthy of being caught because it had an average carapace width per tail of more than 123 mm.

CONCLUSION AND SUGGESTION

Conclusion

From this research, it can be concluded that the use of stingray fish bait on folding trap fishing equipment in Pangkal Babu Village produces a higher catch weight and width compared to the use of stingray fish bait.

Suggestion

Apart from using stingray bait to catch mangrove crabs, fishermen in the village of Pangkal Babu can also use Mudskippers fish bait as an alternative bait.

ACKNOWLEDGEMENT

The author would like to thank the thesis supervisor and the community of Pangkal Babu Village, who have helped the author in conducting the research.

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