



# THE EFFECT OF DIFFERENT BAITS OF FOLDING TRAP ON THE CAPTURE OF MANGROVE CRABS (*SCYLLA SPP.*) AT PANGANDARAN REGENCY.

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## ABSTRACT

The fishing gear used to catch mangrove crabs is folding traps. One of them is the operation of folding traps which is relied on by the type of bait. This study aims to determine the best bait in the operation of folding Bubu on the catch of mangrove crabs and analyze the proportion of catches that includes the number and weight of mangrove crabs caught in Pangandaran Regency. This research was conducted in December 2019 - February 2020. The method used in this study was an experimental fishing method with a Randomized Block Design (RBD). This research consists of three treatments based on the type of bait, namely the type of salted peter bait, fresh type of bait, and Mujaer type bait and repeated 6 times. The indicator used in this study is the number and weight of mangrove crabs caught using folding traps with 3 different types of bait. The data obtained were analyzed using variance/variance analysis (ANOVA) with the F Test with a 95% confidence level. The best bait for mangrove crabs is to use Mujaer fish bait with a catch of 24 catches or 50%. The results of mangrove crabs using other types of baits are: 6 catches salted petek and 14 catches fresh petek.

**Keyword :** Experimental fishing, capture fisheries, mujaer, fresh petek, salted petek

## 1. INTRODUCTION

Pangandaran Regency is one of the areas included in the WPP 573 zone of the Indian Ocean which covers the waters of the West End of Sumatra Island and the South Coast of Java. This area is a mainstay area for the marine tourism sector and capture fisheries. These two sectors are noted to have contributed greatly to the regional economy and society in Pangandaran Regency (Nurhayati 2013).

The main sector of the Pangandaran Regency society in choosing a job other than in the tourism sector is conducting capture fisheries business. Capture fisheries are an effort/activity that involves the use of a marine resource or public waters through fishing methods both commercial and non-commercial (Jungjunan 2016). One fishery commodity that has important economic value and is the target of catching in Pangandaran is mangrove crab.

Meeting the needs of mangrove crabs are still being caught in nature using various types of fishing gear, both traps, nets, and fishing rods (Irnawati et al. 2014). Traps that are widely used to catch mangrove crabs are traps made of bamboo, netting, or wire. The type of bubu that is commonly used is the collapsible trap (Susanto and Irnawati 2012). The traps are usually placed on the bottom of the water with or without bait, one by one or in series, and connected by rope to the buoy to indicate their position (Zarochman et al. 1996).

Bait is one of the factors that influence the success of catching traps (Neilirrohmah et al. 2019). Bait acts as a form of lure that provides physical and chemical stimuli. Odors dissolved in water can stimulate receptors in organs. The bait commonly used by Pangandaran fishermen is mujaer fish. The fishermen with folded traps consider that the use of petek fish bait is still not getting maximum results when compared to mujaer fish bait. The use of mujaer bait is an obstacle for fishermen because the price is more expensive than petek fish.

## 2. MATERIALS AND METHODS

The method used in this research is the experimental method of fishing with a randomized block design (RBD). According to Natsir (2003), the experimental method is observation under artificial conditions, where these conditions are created by the researcher. The study consisted of 3 treatments based on the type of bait (salted petek fish, fresh petek fish, mujaer fish) and repeated 6 times.

The research stages are as follows :

### a. Preparation phase

The preparation stage is carried out before the start of the fishing operation to the fishing location. Some of the activities carried out are the inspection of fishing gear, boats, preparation of supplies (food and clean water), and preparation of bait. The type of bait used is three types of bait. Mujaer fish bait purchased from fish traders, fresh petek fish bait purchased at the Fish Auction Place (TPI), and salted petek fish bait purchased from the market. The fishing gear used is folded bu-bu and is operationally carried out using a fishermen's motorless boat.

### b. Implementation Stage

The operation of the traps in one catch (trip) includes a trip to the fishing ground, setting the trap, hauling the bubu, and returning to land. The fishing ground during the research was located in the mangrove ecosystem to the estuary area. The characteristics of the fishing ground for mangrove crabs are a salt content of 0 to 35 ppt (estuary waters) and waters that are based on mangrove and a water layer that is not too deep, such as in the mangrove forest area. Operational activities were carried out 6 times. Observation and calculation of the number and weight of mangrove crabs are carried out after the traps removal process. The location is chosen based on the experience of the folding trap fishermen by conducting field observations and determining the coordinates using the Global Positioning System (GPS). The experience of fishermen in determining the location is based on the habit of obtaining the amount of catch which is based on the characteristics of the mangrove crab fishing ground. The order of setting the bubu begins with the lowering of the bubu, bubu rope, float rope and ends with a weight in the form of a stone.

### c. Data Collection Stage

The data collected was the catch of mangrove crabs using folded traps which were carried out 3 treatments and 6 replications. Every 1 time the intended repetition is 1-time setting and 1-time hauling. During the research, the coordinates of the fishing area were determined using the Global Positioning System (GPS). The results obtained are separated by type of bait and recorded based on the number and weight of the catch.

Data analysis used ANOVA with Randomized Block Design (RBD), if there is an influence, then a further test is carried out using the Duncan advanced test.

## 3. RESULT AND DISCUSSION

### 3.1 WHOLE CATCH RESULTS DURING THE RESEARCH

There are 3 types of traps caught during the research in Bojongsalawe Waters (Figure 1). The research that resulted in catches of 3 types was carried out using mujaer fish, fresh petek fish, and salted petek fish bait. Mangrove crabs (*Scylla sp.*) As the main catch,

which is as much as 48 heads or 19% of the total catch. The type of catch that is the next most common is swimming crab (*Portunus pelagicus*) by 35% (92 catches), and stone crab (*Charybdis japonica*) by 46% (120 catches)

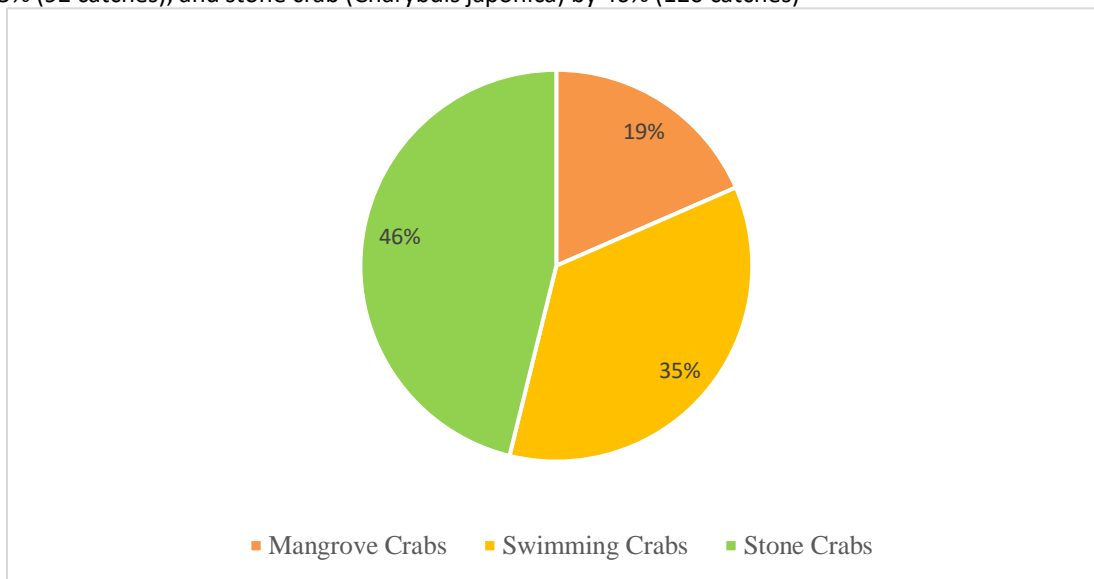


Figure 1. Composition of the catch of the traps

A total of 3 types of catches that were caught in folding traps still have other catches, but when they are lifted they are immediately thrown back into the water because the catch is too small, contains poison, and has no sale value. The main catch of the traps is mangrove crabs. Mangrove crabs have the lowest number of catches than others, but mangrove crabs are heavier and have a higher selling value than other catches. The higher price of crab is influenced by the erratic number of mangrove crabs and mangrove crabs have more meat than other types of crab (Hazemi 2013).

### 3.2 COMPARISON OF THE AMOUNT OF CAPTURE OF RAW CRABS OF THE OVERALL TREATMENT

The number of catch which is a comparison of the 3 treatments in detail is presented in Table 1.

Table 1. Comparison of the number of catches of mangrove crab in the whole treatment

Treatment	Repetition						Total of catches	Average
	1	2	3	4	5	6		
Mujaer	3	2	5	2	6	6	24	4
Fresh petek	4	1	3	0	7	3	18	3
Salted petek	1	0	1	0	4	0	6	1
<b>Total</b>	<b>8</b>	<b>3</b>	<b>9</b>	<b>2</b>	<b>17</b>	<b>9</b>	<b>48</b>	<b>3</b>

### 3.3 COMPARISON OF RAW CRAB CATCH WEIGHT ON OVERALL TREATMENT

The catchweight, which is the comparison of the 3 treatments, is detailed in Table 2.

Table 2. Comparison of catch weight of mangrove crab in the whole treatment

Treatment	Repetition						Total of weight (gr)	Average
	1	2	3	4	5	6		
Mujaer	1764	1062	2651	1941	3561	2564	13543	2257.17
Fresh petek	2463	1373	1928	0	4137	2114	12015	2002.50
Salted petek	767	0	631	0	2243		3641	728.20
<b>Total</b>	<b>4994</b>	<b>2435</b>	<b>5210</b>	<b>1941</b>	<b>9941</b>	<b>4678</b>	<b>29199</b>	

### 3.3 TESTING NUMBER OF CAPTURE OF RAW CRAB

#### ANOVA TEST

According to the data analysis using the ANOVA test with the basic design of the RBD for different types of bait, the Fcount value is 0.965368 and the Ftable value is 3.01 where the Fcount value > Ftable (11.6 < 4.1) which concludes that the type of bait is influence on the number of the catch of mangrove crabs (Fcount > Ftable)

#### DUNCAN TEST

Based on further tests using the Duncan test, it can be concluded that the use of fresh and mujaer bait has the same effect. The results of further tests using the Duncan test on the bait factor, mujaer bait has the greatest average value among fresh plaster bait.

### 3.4 DISCUSSION

According to Neilirrohmah et al. (2019) Catches of crab in folded traps with more fresh fish bait. This happens because the smell of fresh fish is more pungent so that the crabs are more attracted to fresh fish bait. Fresh fish has a higher protein content than salted fish, and salted fish has less water content than fresh fish.

The catch uses mujaer bait more than other types of bait. According to crab fishermen, the most catches are mujaer bait because fresh fish bait has a rancid smell that comes from the blood which causes the bait to smell and be detected by mangrove crabs. According to Ramdhani (2007), the type of fresh fish bait has the advantage of having a high water content compared to salted petek fish so that the bait tends to be more durable, this is what makes mujaer fish bait more catch and weight than other bait. According to Lee and Meyers (1996) crustacean behavior is classified based on its response to chemical stimuli into five phases, namely:

1. Detection (detection), the behavior of animals that are aware of the presence of chemical stimuli. Perception of chemical signals by chemoreceptors in the antennule, mouth and pereipod;
2. Orientation (orientation), the behavior of animals that prepare to make movements because they are attracted or refused. Crustacean position changes to the position before stimulation, but does not move and continues to respond as in phase 1.
3. Movement (locomotion), behavior that makes movement because of interest or resistance. Crustaceans begin to move, either toward or away from the chemical signal source, and occasionally continue to respond as in phase 1 and phase 2.
4. Initiation of feeding (initiation of feeding), the behavior of animals that start handling and consuming food (incitant or suppressing). Crustaceans arrive at the source of the chemical signal, stop moving and handle food cheliped and the mouth parts so that the chemoreceptors are exposed to chemical signals. Crustaceans continue to respond as in phase 1 and phase 2.
5. Continuation or cessation of feeding (continuation or termination of feeding), the behavior of animals eating bait until they are full or deterred. Crustaceans engage in the activity of swallowing or refusing food, ending eating and continuing to respond as in phase 1, phase 2 and phase 4.

### 4. Conclusion

Based on the research results, it can be concluded that the different types of bait affect the amount of catch. The best bait for mangrove crabs is mujaer bait with the catch of mangrove crabs as much as 24 catches or about 50%. The catch of mangrove crabs uses other bait, namely salted petek bait (6 catches) and fresh petek bait (18 S).

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