The effect of different bait on the catch of traps in the waters of the tip of Pangkah Gresik Regency, East Java

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Abstract. Pangkah Wetan Village is a coastal area with a distance of 2 Km from the district. It consists of 80,807 hectares of rain-fed rice fields, 203,465 hectares of dry land, 38,455 hectares of settlements, 2,406,416 hectares of tides, 2 hectares of fields, 47 hectares of public facilities and 451,278 hectares of others. The purpose of this study, among others, is to determine the difference between the catch of small crab (\textit{P. pelagicus}) with traps using swanggi fish bait, pepetak fish and keting to determine the most effective bait used for traps fishing gear. The method used in this research is the experimental method. The average catch of the bait fish is 10 fish with a standard deviation of 1.36. The average yield on Swanggi Bait was 8 tails with a standard deviation of 0.78. Meanwhile, the average catch of the pepetak spreads is 9 heads with a standard deviation of 1.00. In keting bait, the highest catch is 12 fish and the lowest catch is 8 fish. In swanggi bait, the highest catch was 9 fish and the lowest was 7 fish. Whereas the highest bait pepetak was 10 fish and the lowest was 7 heads.

1. Introduction
Indonesia's marine area which is located in the tropics makes Indonesia's marine biodiversity the highest in the world. Marine fishery resources, especially in coastal waters, where the diversity of ecosystems and variability of marine organisms is very important for the lives of some Indonesian people. Coral fish, small crab (\textit{P. pelagicus}), mangrove crabs, other pelagic fish often immigrate to coastal waters so that marine biodiversity is very important for socio-economic life.

The fishing gear used to catch fish is quite diverse, one of which is the bubu. Bubu is a fishing tool in the form of a trap and is passive. The traps are shaped like a cage with a closed space. Fish that enter or are trapped in this fishing gear cannot escape.

Bubu made of wood, bamboo, plastic, netting or wire. Bubu is classified as environmentally friendly fishing gear because it is a passive fishing gear by waiting for the fish to enter the trap. The advantages of traps are that the catch is always fresh.

The crab (\textit{P. pelagicus}) has a high economic value. The export demand for crab (\textit{P. pelagicus}) has increased every year. Until now, the export of crab (\textit{P. pelagicus}) is still dependent on catches from the sea to meet needs, it is feared that the population of crab (\textit{P. pelagicus}) in nature has an effect (Yoni, 2010) The choice of bait in the operation of traps is very influential in increasing the effectiveness of fishing and preventing damage to the ecosystem. The bait used consists of natural and artificial pumice. Natural bait that is often used includes trash fish and shellfish. From the description above, it is...
necessary to research different bait so that effective bait is known. In this study using three natural bait. so that in this study will be obtained bait that has an effect on catching small crabs.

2. Material and methods
2.1. Place and time of research
This research was conducted in Ujung Pangkah waters, Pangkah Kulon village, Gresik Regency, East Java. Meanwhile, the research was carried out in October - December 2019.

2.2. Research methods
The method used in this research is the experimental method. The experimental method is a research method by conducting an experiment to see a result aimed at finding the cause and effect between the variables under study.

2.3. Procedure of research preparation
2.3.1. Determination of the Type of Bait
There are various types of bait used in fishing activities, including natural and artificial bait. As for the traps that are operated to catch small crabs, they usually use natural bait in the form of trash fish. Trash fish is widely used because it is cheap, easy to obtain, and still has good freshness. So that the trash fish that will be used as bait are pepetek fish, keting fish and swanggi fish.

The bait commonly used to catch some gastropods such as tiger snails is salted petek fish as well as trash fish. Another species caught is the type of crab, namely the mangrove crab (Scylla serrata). Mangrove crabs have a habitat that is almost the same as tiger snails, namely beaches with sand, mud sand and open seas [4].

2.3.2. Method of collecting data
The traps used in this study were two doors, 49 cm long, 35 cm wide and 18 cm high. the frame of the bubu is made of galvanized wire which has a diameter of 3 mm and the material of the bubu is made of green multifilament polyethylene (PE) with a mesh size of 30 mm. On the upper body of the bubu is divided into two and in the middle there is a hinge made of iron which can then join the two upper trusses. The hinge has a function to support the bubu so that it can stand up while it is being operated as well as the lathe body to fold again when the traps are not in operation.

The operation of the bubu begins with an arrangement in which the first sign buoy is lowered by prioritizing the existence of a flag then the bubu is lowered one by one until it runs out. Setting is done for about 10-15 minutes, as long as setting the boat engine is still alive, not turned off. Furthermore, the soaking process, which is usually carried out for around 5-9 hours, is carried out in the morning and the visit is carried out in the afternoon for 5-12 hours. The stage is the last process of lifting (hauling). Lifting traps usually do not use machine power but instead use human power. The transportation process takes about 1 hour and requires that the catch is directly put into the container that has been provided [5].

![Figure 1. Bubu Catching Equipment Specifications](image-url)
3. Result and Discussion
3.1. Crab catch
Catching small crabs (P. pelagicus) using traps in Pangkah Wetan is done all year round. The peak season for fishing is influenced by the west monsoons and the east monsoons. When the east monsoon occurs, the fishermen in Pangkah Wetan village will carry out fishing activities far from the coast and the catch is greater than when the west monsoon occurs.

The catch of small crab (P. pelagicus) obtained from fish traps in Pangkah Wetan Village from 3 keting fish, 3 swanggi fish bait and 3 pepetek fish traps can be seen in Table 1 below:

| No. | Deuteronomy 01 | Deuteronomy 02 | Deuteronomy 03 | Deuteronomy 04 | Deuteronomy 05 | Deuteronomy 06 | Deuteronomy 07 | Deuteronomy 08 | Deuteronomy 09 |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1   | 10             | 9              | 9              | 10             | 12             | 8              | 7              | 9              | 9              |
| 2   | 11             | 8              | 7              | 9              | 9              | 9              | 7              | 8              | 9              |
| 3   | 9              | 8              | 8              | 9              | 8              | 10             | 10             | 10             | 9              |
| 4   | 10             | 8              | 7              | 9              | 8              | 9              | 10             | 10             | 10             |
| 5   | 12             | 7              | 8              | 9              | 9              | 7              | 8              | 8              | 8              |
| 6   | 10             | 8              | 7              | 9              | 8              | 7              | 8              | 8              | 8              |
| 7   | 8              | 7              | 8              | 7              | 7              | 7              | 9              | 9              | 9              |
| 8   | 9              | 9              | 9              | 8              | 9              | 9              | 9              | 9              | 9              |

Table 1. Crab catch

| 9 Bubu's treatment | Keting Bait | Swanggi Bait | Pepetek Bait |
|--------------------|-------------|--------------|--------------|
| Total (tails)      | 10.11       | 8.11         | 8.67         |
| Maximum Value      | 12          | 9            | 10           |
| Minimum Value      | 8           | 7            | 7            |
| Standard Deviation | 1.36        | 0.78         | 1            |

Based on Table 5 above, the average catch of the bait fish is 10 fish with a standard deviation of 1.36. The average yield on Swanggi Bait was 8 tails with a standard deviation of 0.78. Meanwhile, the average catch of the pepetek spreads is 9 fish with a standard deviation of 1.00. In keting bait, the highest catch is 12 fish and the lowest catch is 8 fish. In swanggi bait, the highest catch was 9 fish and the lowest was 7 fish. Whereas in the bait pepetek the highest catch was 10 heads and the lowest was 7 heads. Catching small crabs using keting, swanggi and pepetek bait has a different yield for each bait. On average, many crabs are caught using keting bait. While the least results are obtained with swanggi bait[6].

4. Conclusion
The average catch of the bait fish is 10 fish with a standard deviation of 1.36. The average yield on Swanggi Bait was 8 tails with a standard deviation of 0.78. Meanwhile, the average catch of pepetek was 9 fish with a standard deviation of 1.00. On average, many crabs are caught using keting bait, while the least yield is with swanggi bait.

5. References
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