Jellyfish in Makassar coastal waters, new challenges?

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Abstract. Jellyfish are generally regarded as disturbing animals in the waters by most fishermen because they can hinder the speed of the ship when blooming. This study aims to obtain information on the types of jellyfish and their use in Makassar. This research was conducted in July-December 2018, which carried out a sampling of types of jellyfish in the coastal waters of Makassar, identification of types in the Laboratory of Water Productivity and Quality of the Department of Fisheries, Faculty of Marine and Fisheries, Hasanuddin University. The economic potential of the identified jellyfish was calculated by a business feasibility analysis. The results of the study show that there are four genera jellyfish found, namely Aurelia, Porpita, Aequorea, and Salpa. Aurelia, with the largest amount, was found during sampling in coastal waters of Makassar. For sampling a day, there were 215 individuals. This number is relatively small because it is not a period of blooming. But this has become a benchmark for the existence of viable resources for entrepreneurship. The economic potential of jellyfish is estimated from a daily catch of 2.15 million. This is very challenging as a new economic source where jellyfish culinary is a healthy snack in the future and currently has been glimpsed by millennial businessmen.

1. Introduction
Jellyfish are organisms that are able to swim but are unable to fight the current. Its existence is greatly influenced by oceanographic conditions. The abundance of jellyfish is caused by several factors, such as rising sea surface temperature, pollution, and overfishing [1]. Abundant jellyfish conditions, on the one hand, have the effect of disrupting the activities of fishermen because it inhibits the rate of ships in sea transportation. On the other hand, it provides economic benefits for traded species.

Jellyfish have not been used optimally in Indonesia. It is estimated that jellyfish production ranges from 100 to 500 tons/month [2]. The lack of knowledge about the benefits and processing of jellyfish so that more are exported abroad. The potential of the jellyfish business in Indonesia is more developed as the eutrophication potential of waters in the coastal and bay regions is high [3].

2. Data Collection
Jellyfish samples were taken in the morning, afternoon, and evening using a drain, then put into a jar with 4% preservative formalin. The collected jellyfish were counted census and identified in the laboratory using the Occhio Alla Medusa identification book. The economic potential of the identified jellyfish was calculated by a business feasibility analysis.
3. Economic Approach

Researchers use business feasibility analysis using formula [4]:

\[ TR = Q \times P \]

Information:

- **TR** = Total Revenue (Rp)
- **Q** = Quantity (Unit)
- **P** = Price (Rp)

4. Result and Discussion

During the study, found as many as four types of jellyfish: *Aurelia*, *Porpita*, *Aequorea*, and *Salpa* at three research sites at the Port Soekarno Hatta, the Port of Paotere, and the Port of Untia, where *Aurelia* the dominant jellyfish was found with 215 individuals (Figure 1).

![Figure 1. The number of individual jellyfish during the study (A). *Aurelia*, The dominant jellyfish, was found (B).](image)

The jellyfish is generally available in the dry season toward and during the wet season. This is as, at that time, the condition of the water is undergoing eutrophication during the monsoon except in areas where upwelling occurs in the dry season [3] *Aurelia* is a jellyfish that is often found in coastal waters. Live solitary or colonized. *Aurelia* also has a high ability of environmental adaptation [5]. This is in line with the dominant *Aurelia* found during the study.

The economic potential of the found jellyfish is around Rp. 2.15 million / day. This value can be greater, considering the jellyfish collection only lasts in the morning until the afternoon. Jellyfish fishing in various countries is millions of dollars in business. Its annual trade value of 25.5 US million dollars is accounted for from the Philippines, Vietnam, Thailand, Malaysia, Indonesia, Singapore, and Myanmar. This effort really helps the fishermen and businessmen as well as the state in increasing their fisheries industry income. The biggest importers are China and Japan, but in 2001 Japan is more dominant by 50% of the world jellyfish [6].

This number is relatively small because it is not a period of blooming. But this has become a benchmark for the existence of viable resources for entrepreneurship. The economic potential of jellyfish is estimated from a daily catch of 2.15 million. This is very challenging as a new economic source where jellyfish culinary is a healthy snack in the future and currently has been glimpsed by millennial businessmen.
5. Conclusions
There are four genera jellyfish found, namely Aurelia, Porpita, Aequorea, and Salpa. Aurelia, with the largest amount, was found during sampling in coastal waters of Makassar. For sampling a day, there were 215 individuals. This number is relatively small because it is not a period of blooming. But this has become a benchmark for the existence of viable resources for entrepreneurship. The economic potential of jellyfish is estimated from a daily catch of 2.15 million.

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