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Research Article

Budidaya Seabass Asia (*Lates calcarifer*) di Keramba Jaring Apung di Pusat Pengembangan Budidaya Perairan Air Payau

The Culture of Asian Seabass (*Lates calcarifer*) in Floating Net Cages at the Brackishwater Aquaculture Development Center

Fadhliyatud Diniyyah[1]*

[1]School of Fisheries and Aquaculture Sciences, Universiti Malaysia Terengganu, Malaysia, Kuala Terengganu 21030

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*) Corresponding author:
E-mail: diniyyah95@gmail.com

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Abstrak

Studi ini bertujuan untuk mengetahui pengaruh budidaya kakap putih Asia (*Lates calcarifer*) di keramba jarring apung di pusat pengembangan budidaya air payau, Situbondo. Kakap putih Asia diberi pelet ikan komersial (KPA) dengan ikan segar (limbah ikan) selama 21 hari. Kakap putih makan dengan limbah ikan dan pelet ikan komersial menunjukkan respon pertumbuhan rata-rata dari berat dan panjang. Pertumbuhan ikan dari berat awal 230g, 238g dan 244g pada hari ke-21 dan terjadi perubahan panjang rata-rata kakap putih masing-masing menjadi 23 cm, 25 cm dan 28 cm. Ikan diberi makan dengan 3-7% dari berat badan ikan dan pertumbuhan diamati dalam 21 hari. Hasil penelitian menunjukkan bahwa limbah ikan dapat meningkatkan respon pertumbuhan yang signifikan di kakap putih Asia.

Abstract

This study aim was carried out to investigate the effect of Asian seabass (*Lates calcarifer*) culture in floating net cages at the Brackishwater Aquaculture Development Center, Situbondo. Asian seabass were fed with commercial fish pellet (KPA) and fresh fish (trash fish) for 21 days. Seabass fed with trash fish and commercial fish pellet displayed the growth response to the average weight and length. The fish grew from an initial weight of 230g, 238g, and 244g in 21 days and the average length of seabass changed from 23 cm, 25 cm and 28 cm respectively. The fish were fed with 3-7% body weight of fish and the growth was monitored in 21 days. The results showed that trash fish can increase the significant growth response in Asian seabass.

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1. Introduction

Lates calcarifer or Asian seabass is commonly known as 'Kakap Putih' in Indonesia. Asian seabass belongs to the Centropomidae family like other seabass and this seabass is one of the economically important food fish in tropical and sub-tropical regions of the Indo-Pacific (Wilson, 1991). It also serves as a sports fishing commodity, especially in Australia followed by the Indian Ocean countries, including India, Burma, Sri Lanka, Malaysia, Indonesia, and Taiwan. Seabass is classified as a bottom-living fish that live in seawater and this species is catadromous that can grow in freshwater and breed in the marine environment.

The advantages of Asian seabass culture is that they have considerable toleration to salinity or euryhaline and faster growth rate (Rao *et al*., 2013). Seabass can be identified by its body shape type with anelongated and compressed body as well as a pointed head. The scale is ctenoid and large and the color is greenish silver similar to the body of the fish. The species has a very interesting ecological distribution at its various stages of life. The fish spend most of its life in a lagoon which connects to sea water. it spent two to three more years in estuary areas to mature and then migrate to the sea around the river mouth or lagoon for spawning. Larvae and juveniles of Asian seabass live in coastal areas for six months and grow to a size of 2 to 5 inches

2. Materials and Methods

The industrial training activities were carried out starting on August 13th to September 12th 2018. Asian seabass *Lates calcarifer* was cultured in floating net cages at the Brackish water Aquaculture Development Center, Pecaron Hamlet, Klatakan Village, Kendit District, Situbondo Regency, East Java or Jl. Raya Pecaron PO. Box 5 Panarukan, Situbondo, East Java.

The growth of Asian seabass was monitored in culture net for 21 days. The fish was fed with commercial fish pellet and trash fish for their feed growth response. The average length and weight of seabass were measured and recorded for the growth data of fish and the average of fish samples taken was 10 fishes. Materials used in the culture of *Lates calcarifer* are shown in Table 1.

Table 1. Materials used in *Lates calcarifer* culture

No.	Name	Function
1	Net	To culture Asian seabass
2	Scoop net	To take seabass
3	Basket	Place for freshwater and fish
4	Scissor	To cut trash fish
5	Weight balance	To weigh fish
6	Pumping machine	To clean the net
7	Thermometer	To measure the water temperature
8	Ruler	To measure the length of the fish
9	Bottle	To take water samples
10	Life jacket	For safety
11	Motorboat	As transportation to KJA
12	Sinker	As sinker to net
13	pH meter	To measure pH value
14	DO meter	To measure dissolved oxygen
15	Refractometer	To measure water salinity
16	Plastic drum	For soaking the fish
17	Pipe	For spraying water to clean net cages
18	Camera	Take photos for documentation

3. Results and Discussion

In this study, the Asian seabass was fed with commercial fish pellet and trash fish for 21 days. The feed was given at 3-7% of the fish body weight. Asian seabass showed the increase in total length and total weight for each week. The average weight and length were shown in Table 2. The graph chart of average length and weight of Asian seabass was shown in Figures 1 and 2.

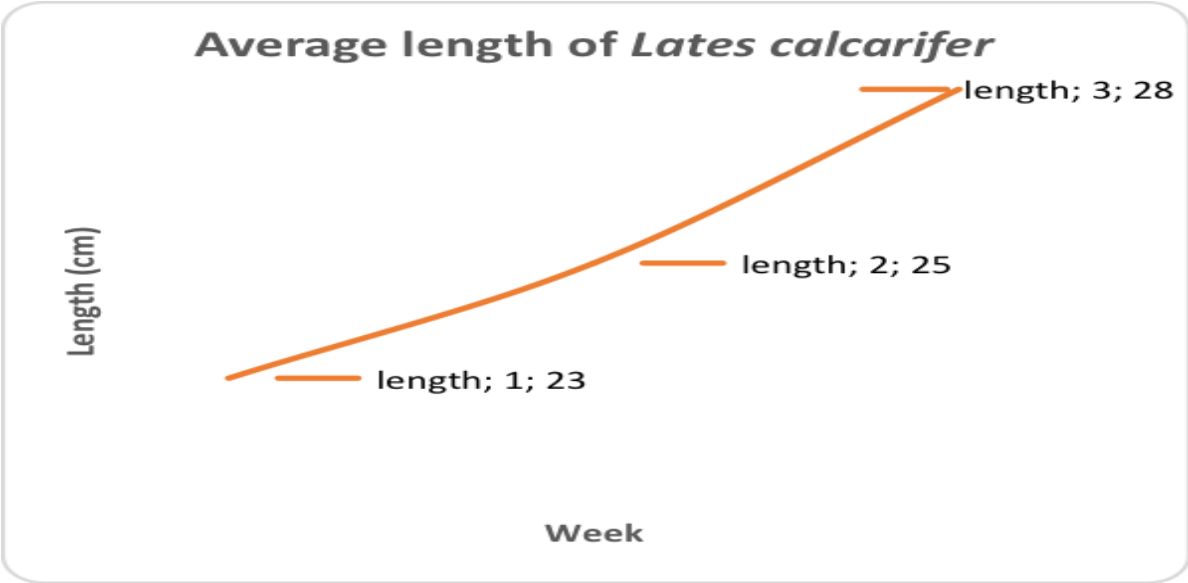

Figure 1. The average length of 10 *Lates calcarifer* observed for 21 days

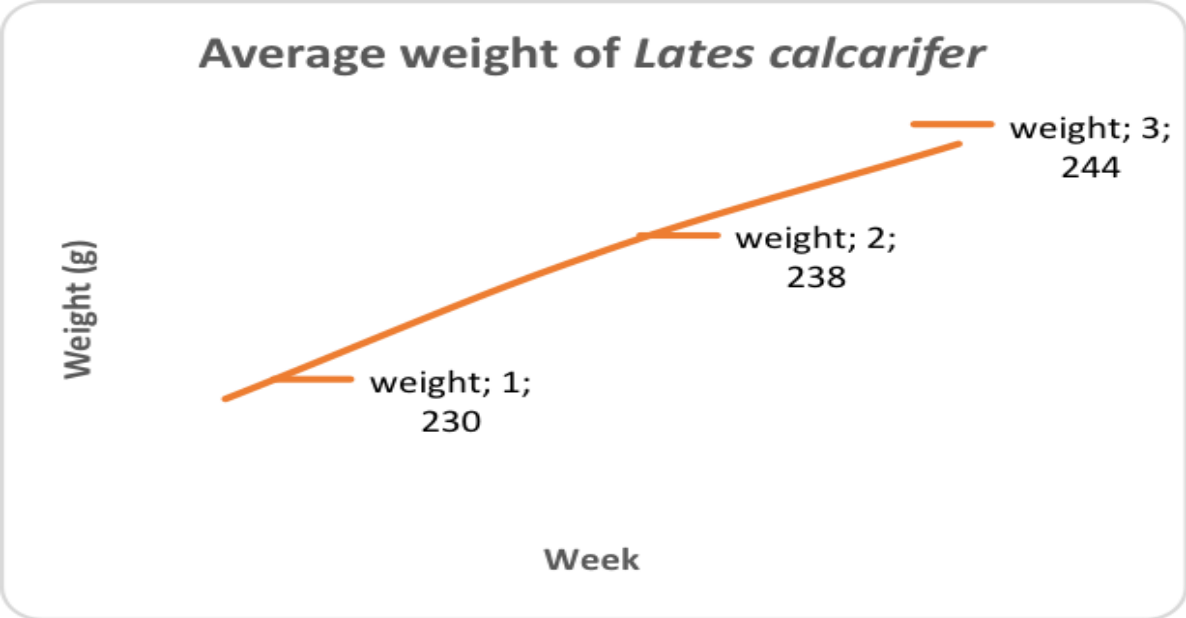

Figure 2. The average weight of *Lates calcarifer* observed for 21 days

There are two terms that are closely linked which are the growth and the stocking density of fish (Coulibaly *et al*., 2007). The growth rate of fish can be calculated using the final average weight of fish deducted with the initial average weight of fish and it also applies to the calculation of the average length of fish. The weight of seabass increased by 0.67 gram/day and the length of seabass grew by 0.24cm/day. Hence, the result showed that the growth condition of Asian seabass in floating net cages in BADC Situbondo is slowly increasing in the growth culture. The fish feed was the main important for the growth performance of fish. It was supported by Nour *et al.* (1993) who stated that by increasing the fish feeding rates the growth performance in mullet fingerlings will also increase. According to Chua and Teng (1982), the best average weight, relatively good survival rates and better feeding efficiency is dependent on the feed given to fish

Table 2: The average weight and length of seabass growth parameter for 21 days

Growth Parameter	Time		
	Week 1	Week 2	Week 3
Average Weight (g)	230	238	244
Average Length (cm)	23	25	28

Table 3: The average results of water quality parameter for 21 days

Water Parameter	Test result Average
Temperature (°C)	26.5 - 28.0
Dissolved oxygen (DO)	6.0
pH	7.5 - 8.38
Water transparency (m)	15.5
Salinity (ppt)	33.0
Ammonia (mg/L)	<0.001
Nitrite (mg/L)	<0.001

Water quality parameters were checked twice weekly. The average water temperature was around 26.0 to 28.0 °C and the average pH value was around 7.5 to 8.4. Nitrite (NO_2), and ammonia were lowest at <0.001 mg/L and the dissolved oxygen was 6.0 mg/L. The water quality parameter is shown in Table 3.

4. Conclusion

In conclusion, this study showed that there are increased weight and length of Asian seabass in floating net cages when fed with trash fish and commercial fish pellet. The average fish weight is 230g, 238g and 244g and the average fish length is 23 cm, 25 cm, and 28 cm for 21 days respectively.

Acknowledgment

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