BAWAL FISH GROWTH PATTERN CAUGHT BY FISHERMEN IN TPI KUALA LANGSA (LANGSA CITY)

[1]Dini Fitria, [2]Abdul L.Mawardi , [3]Indah, [4]Elfrida
[1,2,3,4]Department of Biology Education, Faculty of Teacher Training,
Samudra University.

Email: mawardibio@unsam.ac.id

ABSTRACT

The waters of the East Coast sea of Aceh have promising fishery potential with an abundance of fish species. a fish with a high selling value is the bawal fish species. Sea bawal fish in TPI Kuala Langsa is an important fishery commodity that has a high protein content and its marketing includes domestic and exports, especially in Asia, thus encouraging fishermen to make over fihing. The study was conducted from December to January 2022. The methods in this study are descriptive methods and observation techniques. The results showed that the bawal species caught by fishermen at TPI Kuala Langsa Kota langsa as many as 2 species, namely white bawal (Pampus argentus) and black bawal (Parastromateus niger). The long frequency distribution on white carries ranges from 156-307 mm class and black bawal in class 154-378 mm. The growth pattern of white bawal in December with a value of b is 1.143 while in January with a value of b is 1.4569 and black bawal in December with a value of b of 1.5484 while in January with a value of b of 1.8233.
Keywords: Bawal, Growth Pattern, TPI

INTRODUCTION

Langsa City is a coastal area in Aceh which has 16 km2 of coastline directly opposite the Malacca Strait. The sea waters of the East Coast of Aceh make Langsa City an area that has the potential for fishery and marine catches which are one of the large fisheries sectors in Langsa City, which is marked by the existence of the Kuala Langsa Fish Landing Base (PPI). land the catch. PPI has a facility, namely TPI in fish marketing so as to create fish price compatibility between fishermen [1][2][3].

Pomfret is a species of fish with high economic value which landed at TPI Kuala Langsa, Langsa City. Sea pomfret is part of an important fishery commodity that has a high protein content and its marketing

includes domestic and export, especially in Asia, where market demand continues to increase compared to other fish, thus encouraging fishermen to catch fish without paying attention to the sustainability of fish resources. 4][5].

If there is uncontrolled over fishing, it will threaten its sustainability and the target fish abundance will decrease. The high level of exploitation demands government efforts in good and appropriate fish management, such as

RESEARCH METHODOLOGY

The method in this study used descriptive methods and observation techniques. Descriptive research contains a detailed description of conditions or phenomena. The observation technique is useful as a general description of the pomfret species found and the biological aspects of pomfret The catch of fishermen at TPI Kuala Langsa. The study was conducted from December to February 2022 which was carried out at the TPI (Fish Auction Place) Kuala Langsa, Langsa City [10][11]

biological aspects such as fish growth patterns [6][7][8].

In fisheries biology, growth patterns are important derivatives in comparing the conditions or relative health conditions of certain fish populations and important information as an effort to manage fish resources in a sustainable manner. Based on the description above, researchers are interested in examining the Growth Pattern of Pomfret Fish Catches by Fishermen at TPI Kuala Langsa, Langsa City based on the relationship between length and weight [9].

Pomfret was taken for 2 months and samples were taken 2 times a month. Pomfret samples were taken as many as the number of fish caught by fishermen per capture. Then the total length and total wet weight of the fish were measured to determine the relationship between length and weight [12].

Data analysis through the relationship between length and body weight of fish. The relationship between length and weight of fish was analyzed using a regression test using Microsoft Excel software. Linear regression test is useful in knowing the

values of a and b from the measurement results. The equation formula is as follows [13].

$$W = a L^b$$

Information :

W   = Fish Body Weight (gr)

L   = total length of fish (mm)

a and b = Constant

The hypothesis is useful in predicting the growth pattern of the value of b. If found:

b = 3, Fish growth is balanced between weight and length (isometric).

b < 3, Length gain is faster than weight gain (negative allometric)

b > 3, The increase in weight is faster than the increase in length (positive allometric).

RESULT AND DISCUSSION

Research results from the growth pattern of pomfret caught by fishermen at TPI Kuala Langsa, Langsa City. Two species of pomfret were found, namely 126 white pomfret (Pampus argentus) and 139 black pomfret (Parastromateus niger).(Figure 1).
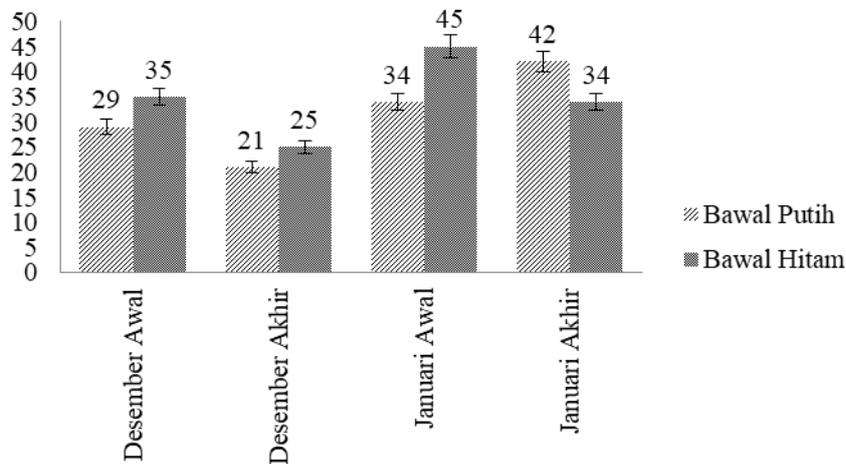

Figure 1. The catch of pomfret

Fishermen's Catch at TPI Kuala Langsa, Langsa City. Two species of pomfret were found, namely white pomfret (*Pampus argentus*) and black pomfret (*Parastromateus niger*).The number of pomfret fish obtained was 126 white pomfret (*Pampus argentus*) and 139 black pomfret (*Parastromateus niger*).White and black pomfret in December obtained

very low catches in the 4th week because it was the peak of high waves at sea. The number of fish increased little by little in January but the catch was different in number, because the fish distribution was difficult to predict [14].

Data on the frequency distribution of the white pomfret (*Pampus argentus*) and black (*Parastromateus niger*) during observations (Figure 2).
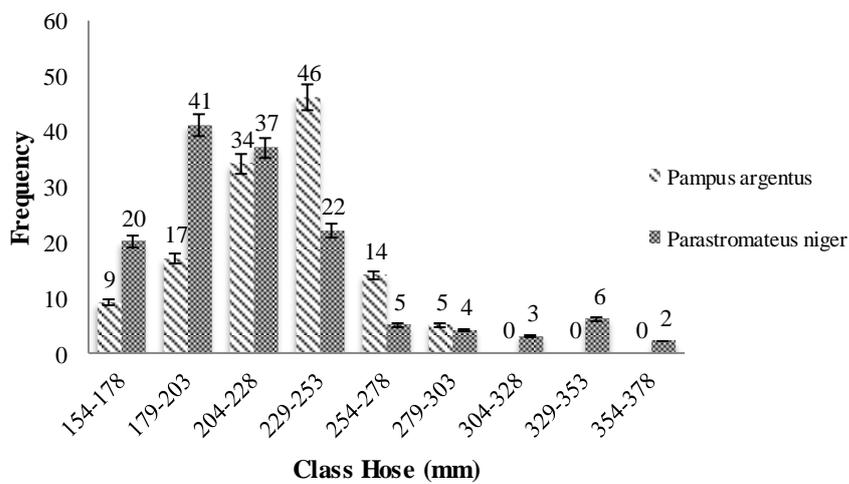
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Figure 2. Pomfret Class Hose During Observation

Growth has been one of the most intensively studied aspects of fish biology because it is an indicator of both individual and population health. Comparison of the frequency distribution of the length of white pomfret and black pomfret, it is known that the overall length frequency of white pomfret is most commonly found in the 229-253 mm class range, while the black pomfret is mostly found in

the 179-203 mm class range. Thus, the class interval of black pomfret which is often found to be lower than that of white pomfret indicates that the growth of black pomfret (*Parastromateus niger*) is slower [15] [16]. Simple regression analysis for the relationship between length and weight of white pomfret (*Pampus argentus*) (Figures 3 and 4)
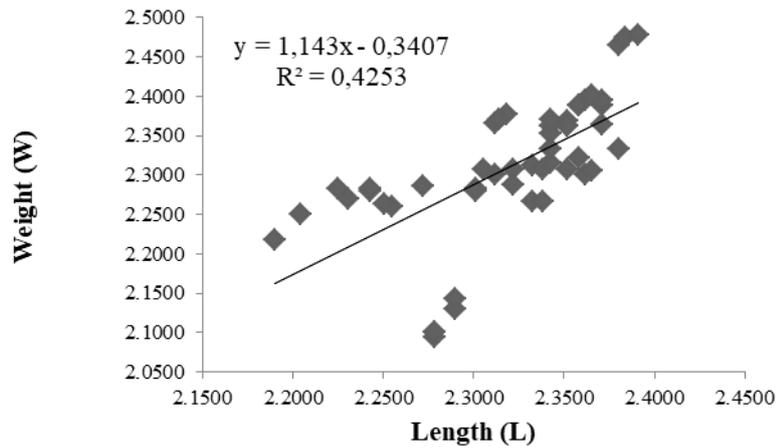
Figure 3. Length and Weight Relationship of White Pomfret (*Pampus argentus*) in December
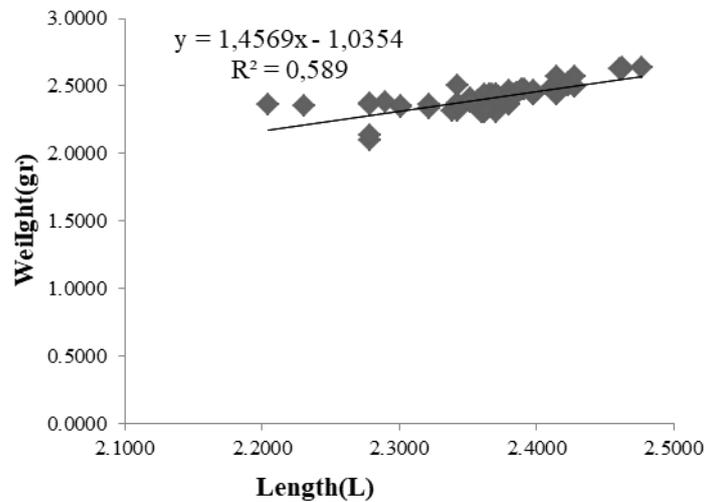

Figure 4. Length and Weight Relationship of White Pomfret (*Pampus argentus*) in January

Simple regression analysis for the relationship between length and weight of black pomfret (*Parastromateus niger*) (Figures 5 and 6).
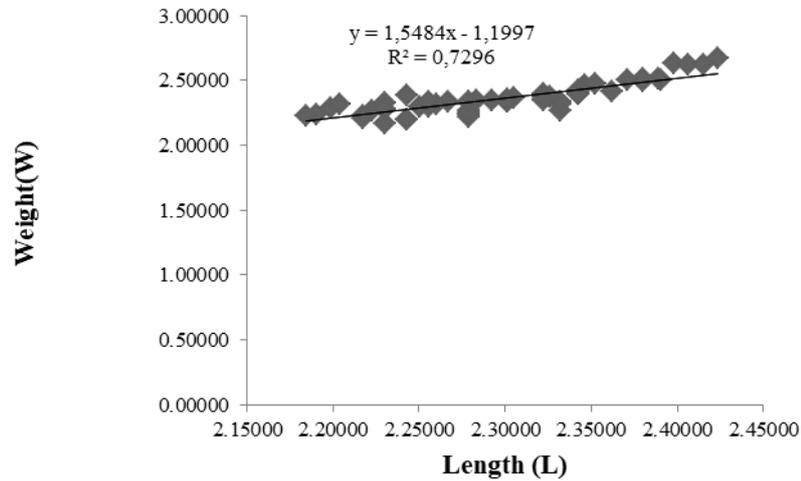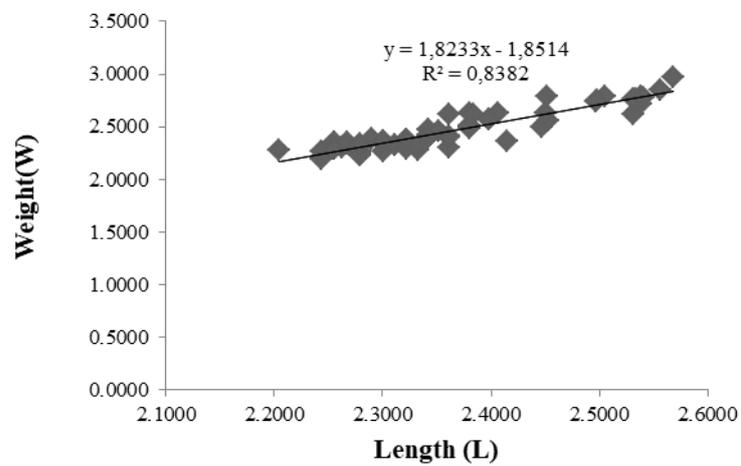
Figure 5. Length Weight Relationship of Black Pomfret (*Parastromateus niger*)

in December

Gambar 6. Relationship Long Weight Black Pomfret (*Parastromateus niger*) in
January

Measurement of the quality of the coastal waters of the northeastern coast of Aceh has been carried out in fishing waters (Table 1)

Table 1. Water Quality of the Northeast Coast of Aceh

Temperatur	pH	Salinitas
28,3 – 30,9	7,9- 8,2	31-37

The results of the analysis of the relationship between the length and weight of white pomfret on white have an a value of -0.3407 and a b value of 1.143 (b<3) while the relationship between the length and weight of white pomfret in Januarythe value of a is -1.0354 and the value of b is 1.4569 (b<3). The b value obtained from each regression equation model shows the growth pattern of white pomfret (Pampus argentus) in December and January is allometric negative,and. growth in length is faster than weight [17]. Declare fish in the thin category [13]. This could be due to overexploitation of fish because pomfret has a high selling price so that fishermen do over fishing which affects the length and weight of the fish [18]. Penelitian juga dilakukan oleh Prasetyo et. al. 2020 diperairan Paloh, Kalimantan Barat menunjukan nilai b Research also conducted by Prasetyo et al 2020 in the waters of Paloh, West Kalimantan showed the b value of white pomfret of 2.4401 and the research of Duta et al. 2012 in the Bay of North Bengal, India showed a b value of 2.84118 which is negative allometric. According to Effendi that the effect of length and body weight of fish, namely the value of b obtained affects the pattern of variations inthe value of b [17][18][19]

The results of the relationship between the length and weight of black pomfret in December the value of a was -1.1997 and the value of b was 1.548 (b<3) and the length and weight of black pomfret in Januarythe value of a is -1.8514 and b is 1.8233 (b<3). The b value obtained from each model of the regression equation shows the growth pattern of black pomfret (Parastromateus niger) in December and January, which is negative allometric, where length gain is faster than weight gain [20]. Research also conducted by Yadollahvand et al, 2014 in the Iranian Coast of the Sea of Oman showed the b value of black

pomfret of 2.3869 and research by Rachma et al. 2015 in the waters of Kendal district showed a b value of 2.923 which was negative allometric. Different b values are influenced by

Temperature as an important parameter in stimulating concentration and grouping of fish. The temperature obtained from pomfret fishing waters ranged from 28.3 to 30.9. The optimal temperature for fish life ranged from 7.9 to 8.2 [24]. According to Kordi and Tancung 2007 the optimal pH range for fish life is 6.5 -9.0. The results of

biological, environmental factors as well as differences in the length of observation of fish caught and external factors such as food availability, water temperature and others [21][22][23] salinity measurements in pomfret fishing waters ranged from 31-32%. Each fish can survive with different salinity. Variable salinity affects the growth rate, the higher the salinity, the higher the osmotic pressure which affects the waters [24][25].

CONCLUTION

There were 2 species of pomfret caught by fishermen at TPI Kuala Langsa, Langsa City, namely 126 white pomfret (*Pampus argentus*) and 139 black pomfret (*Parastromateus niger*). The growth pattern of white pomfret (*Pampus argentus*) in December with a b value

of 1.143 and in January with a b value of 1.4569. The growth pattern of black pomfret (*Parastromateus niger*) in December the value of b was 1.548 while in January the value of b was 1.8233. The growth pattern is negative allometric where the length growth is faster than the weight [17].

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