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PRODUCTIVITY OF SELAMBAU (FILTERING DEVICE) OPERATED IN THE WATERS OF SAPALA VILLAGE, SOUTH KALIMANTAN PROVINCE, INDONESIA

Iriansyah*, Researcher

Riyandi Ad'ha, Student

Faculty of Fisheries and Marine Affairs, University of Lambung Mangkurat, Indonesia

*E-mail: iriansyah01@ulm.ac.id

ABSTRACT

The objectives of this research are: 1) Describe the Selambau used in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency, South Kalimantan Province; 2) Analyze the composition and proportion and frequency of appearance of fish species caught in Selambau in the waters of Sapala Village, Paminggir District, North Hulu Sungai Regency, South Kalimantan Province, and; 3) Analyzing the productivity of Selambau fishing operated in the waters of Sapala Village, Paminggir District, North Hulu Sungai Regency, South Kalimantan Province. The research took place in Sapala Village, Paminggir District, North Hulu Sungai Regency, Central Kalimantan Province. This research was carried out from March - October 2023. The research methods used were census, observation and interview methods. The fishing gear used in this research is Selambau (Filtering Device). Selambau is a passive fishing tool, the principle of catching is in the form of a trap, which makes it easier for fish to enter and makes it difficult for fish to get out of Selambau. The composition and proportion of Selambau catches were 10,833 Nilem fish (28.87%); 10,504 Siam Sepat fish (28%); 7,855 Lais fish (20.94%); 4,802 Betok fish (12,8%); 1,686 Hampala fish (4.49%); 727 Baung fish (1.94%); 596 Snakehead fish (1.59%) and 514 Tilapia fish (1.37%). Selambau productivity based on fishing gear location is dominated by Selambau C productivity of 12.093 kg/m³min, followed by the productivity value of Selambau A, namely 7.066 kg/m³min, the productivity value of Selambau B, namely 6.412 kg/m³min, the productivity value of Selambau D, namely 5.845 kg/m³min, the productivity of Selambau E, namely 5.831 kg/m³min, and Selambau F, namely 5.52 kg/m³min.

KEY WORDS

Selambau, productivity, composition, proportion, Kalimantan.

Capture fisheries activities are one of the leading potentials for local communities. This is also what makes Hulu Sungai Utara Regency have a Vision of developing swamp land for community welfare (Central Statistics Agency of Hulu Sungai Utara Regency, 2022).

Traps are not selective for certain species, they are said to be friendly if the mesh size is large enough. According to Rais, et al. (2019), changes in the use of fishing gear are only based on the interests of using fishing gear that can catch fish in larger and more diverse quantities in certain seasons. Selambau does not appear to be the dominant tool used because the number is relatively small. The high catch rate and catch results from Selambau are because this fishing gear is a barrier that blocks part of the river flow and also the migration of fish from the flood area to the main river.

Based on the explanation above, the researcher is interested in conducting research by analyzing the productivity of Selambau which is operated in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency.

The objectives of this research are as follows: 1) Describe the Selambau used in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency, South Kalimantan Province; 2) Analyze the composition, proportion and frequency of occurrence of fish species caught in Selambau in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency, South Kalimantan Province; 3) Analyze the productivity of Selambau fishing operated in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency, South Kalimantan Province.



METHODS OF RESEARCH

The research was conducted for approximately 7 months in the waters of Sapala Village, Hulu Sungai Utara Regency, South Kalimantan Province. The acquisition of fishing gear description data was carried out by identifying Selambau through the observation method. Identification of fish types by observing and measuring and weighing fish weight using a 0.1 gr scale for each species and matching it with reference to the fish identification book (Saanin, 1984). Data analysis of the composition of the catch is by looking at the type of fish then arranging it according to the available columns to see the composition of the catch. The composition of the Selambau catch in each type of data is then identified using the identification book by Saanin (1984).

The catch data per type is then entered into the proportion formula. The proportion of the Selambau catch (Filtering Device) can be calculated using the Jeunjanan formula (2008). To analyze the frequency of appearance of each type of fish caught in Selambau, the frequency of occurrence is calculated using the equation according to Susianati et al (2013). Selambau productivity calculated using the Dahle formula (1989) in Susianati et al. (2013). The volume of the Selambau net and the t value as actual fishing determined by the equations according to Susianati et al (2013).

RESULTS AND DISCUSSION

Selambau is a passive fishing tool, the principle of Selambau fishing is in the form of a trap, namely making it easier for fish to enter and making it difficult for fish to exit the Selambau.

Table 1 – Composition of Selambau Catch

Indonesian Name	Scientific name	Individual	
		Number (Ind)	Percentage (%)
Lais	<i>Kryptopterus bicirrhis</i>	7,855	20.94
Baung	<i>Hemibargus nemurus</i>	727	1.94
Nilem	<i>Osteochillus vittatus</i>	10,833	28.87
Gabus/Haruan	<i>Channa striata</i>	596	1.59
Betok/Pepuyu	<i>Anabas testudineus</i>	4,802	12.8
Sepat Siam	<i>Trichogaster pectoralis</i>	10,504	28
Adungan	<i>Hampala macrolepidota</i>	1,686	4.49
Nila	<i>Oreochromis niloticus</i>	514	1.37
Total		37.517	100

Source: Processed Primary Data, 2023.

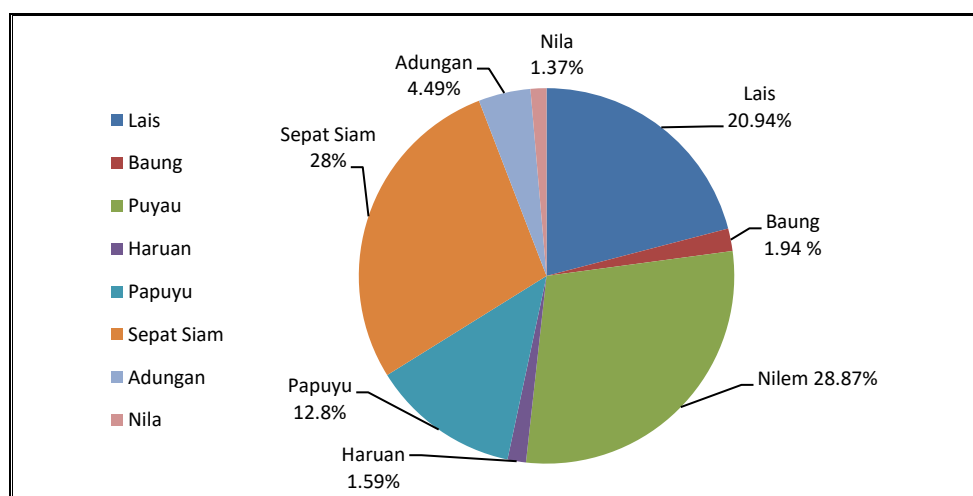


Figure 1 – Composition and Proportion of Selambau Catch (Source: Processed Primary Data, 2023)

It was found that the composition of the Selambau catch at the research location was dominated by 10,833 puyau fish (28.87%), followed by 10,504 Siamese sepat fish (28%),



7,855 lais fish. (20.94%), 4,802 papuyu fish (12.8%), 1,686 adungan fish (4.49%), 727 baung fish (1.94%), 596 haruan fish (1, 59%). The fewest fish caught in Selambau at the research location were tilapia, amounting to 514 fish (1.37%).

Table 2 – Operating Current Volume

No	Selambau	Volume (m ³)	Information
1	Selambau A	267.75	LS -2°27'86237" BT 114°56'42487"
2	Selambau B	180.4	LS -2°28'08859" BT 114°55'78812"
3	Selambau C	165.3	LS -2°28'47754" BT 114°57'63062"
4	Selambau D	202.4	LS -228'29098" BT 114°57'50473"
5	Selambau E	230	LS -2°27'78221" BT 114°58'69995"
6	Selambau F	158.4	LS -2°27'47854" BT 114°57'63162"

Source: Primary Data, 2023.

Selambau (Filtering device) is a passive fishing gear with the principle of trapping, namely making it easier for fish to enter and difficult for fish to exit *Selambau*. *Selambau* which is included in the type of fishing gear in the trap group (barrier trap) obtains the most diverse results, due to its nature which prevents fish migration from the direction of land covered by water during floods then recedes and returns to the main river (Muthmainnah and Gaffar, 2017).

The *Selambau* with the largest volume is *Selambau B* with a volume of 84 m³, then *Selambau B* with a volume of 81 m³, *Selambau D* with a volume of 80 m³ *Selambau E* with a volume of 79.38 m³, *Selambau A* with a volume of 79.38 m³, *Selambau E* with a volume of 68 m³. The *Selambau* with the smallest volume is *Selambau C* with a volume of 48.95 m³. Based on the measurement of fishing gear dimensions, the average dimensions of the *Selambau* operated in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency have an average mouth edge size of 10.45 m, an average mouth size of the *Selambau* of 5.38 m, an average body length of the *Selambau* of 5.8 m, an average height of the *Selambau* of 2.02 m, and an average width of the *Selambau* of 1.33 m. Meanwhile, the average volume of the *Selambau* operated in the waters of Sapala Village, Paminggir District, Hulu Sungai Utara Regency is 73.56 m³.

The mouth of the *Selambau* is made in the shape of the letter V. This is designed so that fish that enter the *Selambau* cannot get out easily. The mouth of the *Selambau* is installed across a tributary or canal. According to Djoko and Dadik (2005), this part of the mouth acts as an obstacle for fish to direct them into *Selambau*. After the fish enter the *Selambau*, it is shaped like a V so that it is difficult for fish that enter to get out again.

The middle part of *Selambau* has a box shape and is equipped with a cover at the top. In the middle of *Selambau* there are 6 wooden poles which are used as supports and ties for *Selambau*. The main function of this part is to maintain the stability of the *Selambau* in the water and ensure that the trap remains at the appropriate depth.

The *Selambau* bag section is rectangular in shape with a length of 2 meters and a width of 1 meter. This bag section has 4 wooden stakes that are used to maintain the shape and structure of the bag.

The net body is made of gauze with a mesh size of 1 cm. The main function of this net body is to hold fish during the catching process. When fish enter the *Selambau* through the mouth, they are trapped in this net. In line with Ikhsan's research (2021) that the bag section functions as a place to take fish caught using a scoop, fish catching is carried out one day fishing in the afternoon.

The connecting cavity is a part that connects the body of the *selambau* and the estuary of the *selambau*. The connecting cavity is shaped like a pipe with a length of about 0.5 meters and a diameter of 20 cm. Syafei (2017) showed that fish have different swimming behaviors upstream or downstream, depending on the habitat and river conditions.

The composition of the proportion of the *Selambau* catch found at the research location, namely Lais fish (*Kryptopterus bicirrhis*), Baung fish (*Hemibargus nemurus*), Nilem fish (*Osteochillus vittatus*), Snakehead fish (*Channa striata*), Betok fish (*Anabas testudineus*), Siamese gourami fish (*Trichogaster pectoralis*), Hampala fish (*Hampala*



macrolepidota), and Tilapia fish (*Oreochromis niloticus*). Judging from previous research by Ikhsan (2021) which states the proportion and composition of the Selambau catch with the fish catch obtained as many as 6 types of fish, namely Sepat Rawa (*Trichogaster trichopterus*), Saluang Fish (*Rasbora* sp) Menangin Fish (*Parachela Hypophthalmus*), Kelatau Fish (*Betta picta*), Kulipisan Fish (*Microrasbora nana*) and Luncup Fish (*Luciocephalus aura*), where the dominance of Kelatau Fish (*Betta picta*) has the highest number with a catch of 173 kg with a percentage of 97.4% and the lowest fish is Saluang Fish as much as 0.08 kg with a percentage of 0.04%. This is due to the difference in the time of the data collection season, so that there is a difference in the dominance of the types of fish caught. This study was conducted during the fishing season so that there was a migration of fish from river waters into flooded swamp areas. According to Silvano and Jhon (2008) that the migration of fish from river waters into flooded swamp areas can be indicated by the large number of white fish caught. This type of fish is a river fish that enters when the river floods and inundates the flood plains for various purposes including spawning and also looking for food.

Nilem fish (*Osteochillus vittatus*) is the type of fish that dominates the Selambau catch at the research location, with a total of 10,833 fish. The percentage of 28.87% shows that Nilem fish is the most abundant fish species in the catch because of the migration of Nilem fish to the main river.

According to Chan et al (2017), Baung fish and Siamese gourami are fish that are often caught throughout the year, because flooded swamp waters, lakes and parts of rivers are the most ideal habitats, especially as spawning habitats. Siamese gourami is a native fish of flooded swamp waters, its movement pattern which is in groups and also moves vertically to take oxygen makes various fishing gear able to catch this fish.

Based on the calculation of Selambau productivity using the Dahle formula (1989) in Susianati, et al. (2013), it was found that the third Selambau operated at the coordinate point LS -2028'47754" BT 114057'63062" had the highest productivity with a value of 12.093 kg/m³min. This shows that the third Selambau is able to catch and produce fish with the highest level of productivity compared to other Selambau at the research location. The first Selambau has the second highest productivity with a value of 7.066 kg/m³min. Although not as good as the third Selambau, this Selambau still has a significant level of productivity. The second Selambau has a slightly lower productivity than the first Selambau, with a value of 6.412 kg/m³min. However, this Selambau is still quite productive. The fourth Selambau has an even lower level of productivity, with a value of 5.845 kg/m³min. Although lower than the first and second Selambau, this Selambau is still able to produce good fish. The fifth Selambau has a productivity that is almost on par with the fourth Selambau, with a value of 5.831 kg/m³min. The sixth Selambau has the lowest productivity with a value of 5.52 kg/m³min. This shows that this Selambau produces fish with the lowest productivity level compared to other Selambau at the location. The average productivity of Selambau in all research locations is around 7.128 kg/m³min.

Based on the calculation of Selambau productivity with the calculation of fishing days, the largest was on the second day (May 18, 2023), which was 11.615 kg/m³min. Followed by the fourth day (May 20, 2023) which is 11.306 kg/m³min, the first day (May 17, 2023) which is 11.141 kg/m³min, the fifth day (May 21, 2023) which is 10.345 kg/m³min, the third day (May 19, 2023) which is 10.027 kg/m³min, the sixth day (June 4, 2023) which is 3.725 kg/m³min, the tenth day (June 9, 2023) which is 3.709 kg/m³min, the eighth day (June 6, 2023) which is 3.334 kg/m³min, the ninth day (June 8, 2023) which is 3.31 kg/m³min. Selambau productivity based on operating days has the lowest value on the seventh day (June 5, 2023) which is 2.768 kg/m³min.

Based on the research results, there are only six Selambau units operating, with a certain volume that has caused the Selambau fishing productivity to be relatively low, which is an indication of an imbalance between the availability of fish for fisheries and fishing efforts using fishing gear (Widodo and Suadi 2006). Low fishing productivity can also be caused by habitat conditions, related to the tolerance of fish species to the environment, which is because each type of fish has a tolerance threshold for its environment, both oceanography and food availability in the waters (Nuitja, 2010).



CONCLUSION

Selambau is a passive fishing tool, the principle of catching is in the form of a trap, which makes it easier for fish to enter and makes it difficult for fish to get out of Selambau.

The composition and proportion of Selambau catches were 10,833 Nilem fish (28.87%), followed by 10,504 Sepat Siam fish (28%), 7,855 Lais fish (20.94%), 4,802 Betok fish. (12.8%), 1,686 Hampala fish (4.49%), 727 Baung fish (1.94%), 596 snakehead fish (1.59%), and 514 Tilapia fish (1.37%).

Selambau productivity based on the location of fishing gear is dominated by Selambau C productivity of 12.093 kg/m³min, followed by Selambau A productivity value of 7.066 kg/m³min, Selambau B productivity value of 6.412 kg/m³min, Selambau D productivity value of 5.845 kg/m³min, Selambau E productivity is 5.831 kg/m³min. The least Selambau productivity is in Selambau F, which are 5.52 kg/m³min.

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