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THE EFFECT OF DIFFERENT FISHING TIMES ON THE CATCH OF GILL NETS IN THE RIVER BATANGHARI RIVER THAT CROSSES THE SUB-DISTRICT OF MUARA TEMBESI DISTRICT BATANGHARI

Pengaruh Perbedaan Waktu Penangkapan Terhadap Hasil Tangkapan Jaring Insang di Sungai Batanghari Yang Melintasi Kecamatan Muara Tembesi Kabupaten Batanghari

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ABSTRACT

Batanghari Regency, Jambi Province, has fisheries potential supported by Batanghari River, the longest river in Sumatera Island. In Muara Tembesi District, especially Tanjung Pasir Village, some people use gill nets to catch fish in the morning and evening, although the optimal fishing time is not yet known. This study aims to determine the effect of different fishing times on the catch of gill nets in the Batanghari River which crosses Muara Tembesi District, Batanghari Regency. The research was conducted in Tanjung Pasir Village, Muara Tembesi District on December 26, 2024 to April 12, 2025. The method used was *experimental fishing, the* fishing gear used was two units of ¾ inch gill nets. The observed variables include the type, number, weight, length and height of fish, as well as environmental parameters such as temperature, pH, and depth. Data were analyzed using t-test. The results showed that the morning time produced a catch of 1,161 fish weighing 6,461 grams, an average of 77.40 fish weighing 430.73 grams per repetition. While the afternoon produced 454 fish weighing 2,571 grams, an average of 30.20 fish weighing 171.40 grams per repetition. The results of the t-test analysis showed that fishing time had a significant effect on the number and weight of catches ($P<0.05$). It can be concluded that the operation of gill nets in the morning produces higher catches, both in terms of number (tails) and total weight of the catch, compared to the afternoon time.

Keywords: Catch, Gill Net, Batanghari River, Catch Time

ABSTRAK

Kabupaten Batanghari, Provinsi Jambi, memiliki potensi perikanan yang didukung oleh Sungai Batanghari, sungai terpanjang di Pulau Sumatra. Di Kecamatan Muara Tembesi, khususnya Desa Tanjung Pasir, sebagian masyarakat menggunakan jaring insang untuk menangkap ikan

pada pagi dan sore hari, meskipun waktu penangkapan yang optimal belum diketahui. Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan waktu penangkapan terhadap hasil tangkapan jaring insang di Sungai Batanghari yang melintasi Kecamatan Muara Tembesi, Kabupaten Batanghari. Penelitian dilaksanakan di Desa Tanjung Pasir, Kecamatan Muara Tembesi pada tanggal 26 Desember 2024 sampai dengan 12 April 2025. Metode yang digunakan adalah experimental fishing, alat tangkap yang digunakan adalah dua unit jaring insang ¾ inci. Variabel yang diamati meliputi jenis, jumlah, berat, panjang dan tinggi ikan, serta parameter lingkungan seperti suhu, pH, dan kedalaman. Data dianalisis menggunakan uji-t. Hasil penelitian menunjukkan bahwa pada pagi hari menghasilkan tangkapan sebanyak 1.161 ekor ikan dengan berat 6.461 gram, dengan rata-rata 77,40 ekor ikan dengan berat 430,73 gram per kali tangkapan. Sementara itu, pada sore hari menghasilkan 454 ekor ikan dengan berat 2.571 gram, dengan rata-rata 30,20 ekor ikan dengan berat 171,40 gram per kali tangkapan. Hasil analisis uji-t menunjukkan bahwa waktu penangkapan berpengaruh nyata terhadap jumlah dan berat tangkapan ($P<0,05$). Dapat disimpulkan bahwa pengoperasian jaring insang pada pagi hari menghasilkan hasil tangkapan yang lebih tinggi, baik dari segi jumlah (ekor) maupun berat total tangkapan, dibandingkan dengan sore hari.

Kata Kunci: Hasil Tangkapan, Jaring Insang, Sungai Batanghari, Waktu Tangkap

INTRODUCTION

Batanghari Regency in Jambi Province has an area of 5,840.83 km^2 (Batanghari Regency Statistics Center Agency, 2022). One of the main potentials of this region lies in the fisheries sector, which is supported by the presence of the Batanghari River. This river is the longest river on the island of Sumatra with a length of 870 km, a width of 300-500 meters and a depth of up to 6-7 meters (Jambi Provincial Environment Office, 2022). The upper reaches of the Batanghari River are located at Mount Rasan, Bukit Barisan, South Solok Regency, West Sumatra, then flows across several districts, including Batanghari, before finally emptying into the Berhala Strait (Putri, 2024).

One of the areas crossed by the Batanghari River is Muara Tembesi Sub-district, especially Tanjung Pasir Village. In this village, some people still utilize aquatic resources to catch fish as an additional livelihood, although most have shifted to non-fishing sectors such as plantations and day laborers. Gill nets are the main fishing gear used, with mesh sizes varying from ¾ inch to 2 inch. It is commonly used due to its ease of operation and effectiveness in catching various local fish species, such as lambak (*Thynnichthys polylepis*), seluang (*Rasbora torneiri*) and kapiat (*Barbonymus schwanenfeldii*) (Tumion *et al.,* 2023).

Fishing activities are usually carried out at two times, namely in the morning (07.00-10.00 WIB) and in the afternoon (15.00-18.00 WIB). However, the optimal fishing time in producing the most catch is not yet known for certain. Similar research by Ahmad (2023) in Danau Kecil, Jangkat District, showed that catches tended to be higher in the afternoon. However, these findings are not necessarily relevant in the Batanghari River, which has different water characteristics such as turbulent waters, rocky substrate with a mixture of fine sand and mud, and different fish composition (Hertati *et al.,* 2023).

Until now, no research has specifically examined the effect of fishing time on gill net catches in the Batanghari River, especially in Muara Tembesi Sub-district. Therefore, this study aims to determine the effect of different fishing times on the catch of gill nets in the Batanghari River that crosses the Muara Tembesi sub-district of Batanghari district, which is expected to provide more specific and useful information for the sustainability of local community fisheries activities, especially related to the use of gill net fishing gear.

MATERIALS AND METHODS

Place and Time

This research has been carried out in the Batanghari River which crosses Muara Tembesi Subdistrict in Tanjung Pasir Village, Batanghari Regency. The research started on December 26, 2024 until April 12, 2025

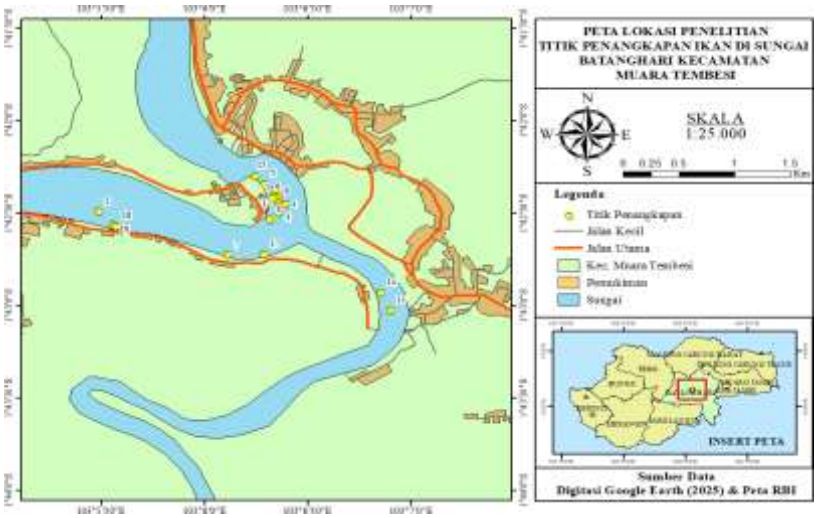

Figure 1. Map of the research location

Tools and Materials

The material used was fish caught from gill net fishing gear in the morning (07.30-10.00 WIB) and afternoon (14.30-17.00 WIB). The equipment used included 2 units of surface gill nets measuring 20 meters long, 1 meter wide, with a mesh size of ¾ inch, measuring board, digital scales, cellphone camera, pH meter, thermometer, wood and meter, GPS, boat, fish basket, and stationery.

Research Methods

The method used is *experimental fishing*, which is a direct experimental method to determine the catch using gill nets in the morning and evening (Pakpahan *et al.,* 2021). Data were collected from two sources, namely primary data and secondary data. Primary data were obtained through direct observation in the field, by following fishing activities in the morning and evening. Secondary data were obtained from literature such as books, scientific journals and relevant research reports.

Research Design

The study was conducted with two treatments of fishing time, namely morning (07.30-10.00 WIB) and afternoon (14.30-17.00 WIB). Each treatment was repeated 15 times. The fishing location was determined based on the area commonly used by local fishermen. Fishing was carried out using 2 units of surface gill nets measuring 20 meters long, 1 meter wide, ¾ inch mesh size, with a long immersion time of 2.5 hours.

DATA ANALYSIS

To determine the species composition of gill net catches using the following formula (Latuconsina, 2011):

$$Kj = \frac{ni}{N} \times 100\%$$

Description:
Kj = Composition of fish species (%)
ni = Number of individuals of each fish species
N = Total number of individuals of all fish species

To determine the difference in gill net catches based on the number of fish (tails) and fish weight (grams) between morning and evening, the data obtained were then analyzed using the t-test formula by Junitas *et al.* (2024) as follows:

$$S_1{}^2 = \frac{n\sum x_1{}^2 - (x_1)^2}{n(n-1)}$$

$$S_2{}^2 = \frac{n\sum x_2{}^2 - (x_2)^2}{n(n-1)}$$

$$S^2 = \frac{n(n_1-1)S_1{}^2 + n(n_2-1)S_2{}^2}{n_1+n_2-2}$$

$$T\ hit = \frac{\overline{X}_1 - \overline{X}_2}{s\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$$

Description:
X_1= Average morning catch (grams)
X_2= Average afternoon catch (grams)
n_1 = Number of morning replicates
n_2= Number of afternoon replicates
n = Sum of n1 + n2
S = Standard deviation
$S1^2$= Variation of group 1 values
$S2^2$= Variation of group 2 values

RESULTS

A 15-repetition study using gill nets in the Batanghari River yielded 1,615 fish from 20 different species. Fishing was conducted twice a day, in the morning and in the afternoon, with results showing variation in the number and composition of species between times.

Table 1. Composition of Gill Net Catches (Tails)

Catch Yield			Operation Time			
			Morning		Afternoon	
No	Fish Type	Scientific Name	Quantity (tail)	Compo side(%)	Quantity (tail)	Compo side(%)
1	Lambak	*Thynnichthys polylepis*	699	60,21	141	31,13
2	Seluang	*Rasbora argyrotaenia*	164	14,13	117	25,83
3	Mentulu	*Barbichthys laevis*	79	6,8	41	9,05
4	Nilem	*Osteochilus vittatus*	52	4,48	37	8,17
5	Flatfish	*Parachela oxygastroides*	48	4,13	42	9,27
6	Kapiat	*Barbonymus schwanenfeldii*	35	3,01	7	1,55
7	Juaro	*Laides hexanema*	22	1,89	28	6,18
8	Seluang Kuring	*Desmopuntius gemellus*	14	1,21	11	2,43
9	Baung	*Hemibagrus nemurus*	14	1,21	1	0,22

10	Lais	*Belodontichthys dinema*	13	1,12	17	3,75
11	Sihitam	*Labeo chrysophekadion*	7	0,6	0	0
12	Senggiring	*Mystus singaringan*	4	0,34	0	0
13	Catfish	*Pseudolais micronemus*	3	0,26	2	0,44
14	Juar	*Luciosoma trinema*	3	0,26	1	0,22
15	Keperas	*Cyclocheilichthys apogon*	3	0,26	0	0
16	Sebarau	*Hampala macrolepidota*	1	0,09	2	0,44
17	Flathead	*Pristolepis grootii*	0	0	2	0,44
18	Sumatra	*Puntius tetrazona*	0	0	3	0,66
19	Crawfish	*Trichopodus trichopterus*	0	0	1	0,22
20	Betok	*Anabas testudineus*	0	0	1	0,22
		Total	1.161	100	454	100

Table 2. Composition of Gill Net Catch (Weight)

Catch Yield			Operation Time			
			Morning		Afternoon	
No.	Type of Fish	Scientific Name	Weight (gram)	Compo side(%)	Weight (gram)	Compo side(%)
1	Lambak	*Thynnichthys polylepis*	3.656	56,59	721	28,04
2	Seluang	*Rasbora argyrotaenia*	1.038	16,07	720	28
3	Mentulu	*Barbichthys laevis*	560	8,67	293	11,4
4	Nilem	*Osteochilus vittatus*	249	3,85	193	7,51
5	Flatfish	*Parachela oxygastroides*	286	4,43	255	9,92
6	Kapiat	*Barbonymus schwanenfeldii*	132	2,04	22	0,86
7	Juaro	*Laides hexanema*	123	1,9	144	5,6
8	Kuring Mackerel	*Desmopuntius gemellus*	69	1,07	44	1,71
9	Baung	*Hemibagrus nemurus*	90	1,39	4	0,16
10	Lais	*Belodontichthys dinema*	106	1,64	111	4,32
11	Sihitam	*Labeo chrysophekadion*	50	0,77	0	0
12	Senggiring	*Mystus singaringan*	28	0,43	0	0
13	Catfish	*Pseudolais micronemus*	24	0,37	13	0,51
14	Juar	*Luciosoma trinema*	28	0,43	7	0,27
15	Keperas	*Cyclocheilichthys apogon*	15	0,23	0	0
16	Sebarau	*Hampala macrolepidota*	7	0,11	23	0,89
17	Flathead	*Pristolepis grootii*	0	0	7	0,27
18	Sumatra	*Puntius tetrazona*	0	0	7	0,27
19	Crawfish	*Trichopodus trichopterus*	0	0	3	0,12
20	Betok	*Anabas testudineus*	0	0	4	0,16
		Total	6.461	100	2.571	100

Table 3. Length and Height Measurements of Fish Caught in the Morning and Afternoon

Catch Results			Average Fish Length and Height			
			Morning		Afternoon	
No	Fish Type	Scientific Name	Length (cm)	Height (cm)	Length (cm)	Height (cm)
1	Lambak	*Thynnichthys polylepis*	8,25	1,92	8	1,9
2	Mackerel	*Rasbora argyrotaenia*	9,13	1,89	9,03	1,85
3	Mentulu	*Barbichthys laevis*	9,32	1,96	8,89	1,88
4	Nilem	*Osteochilus vittatus*	7,76	2,19	7,5	2
5	Flatfish	*Parachela oxygastroides*	9,55	2,13	9,6	2,2
6	Kapiat	*Barbonymus schwanenfeldii*	6,64	2,15	6,5	2,04
7	Juaro	*Laides hexanema*	9,11	1,68	8,84	1,73

8	Kuring Strait	*Desmopuntius gemellus*	7,36	1,8	7	1,76
9	Baung	*Hemibagrus nemurus*	9,04	1,59	8	1
10	Lais	*Belodontichthys dinema*	11	2,22	10,38	2,06
11	Sihitam	*Labeo chrysophekadion*	9	2,8	0	0
12	Senggiring	*Mystus singaringan*	9,25	2,05	0	0
13	Catfish	*Pseudolais micronemus*	9	1,93	9	1,75
14	Juar	*Luciosoma trinema*	11,17	2,07	9,5	2
15	Keperas	*Cyclocheilichthys apogon*	7,83	2,17	0	0
16	Sebarau	*Hampala macrolepidota*	0	0	10	2,75
17	Flathead	*Pristolepis grootii*	0	0	6	2,05
18	Sumatra	*Puntius tetrazona*	0	0	5,33	1,93
19	Crawfish	*Trichopodus trichopterus*	0	0	5,5	2,3
20	Betok	*Anabas testudineus*	0	0	6	1,9

Table 4. Results of the t-test of the Number (tail) of Morning and Afternoon Catches in the River Batanghari River

Total Number of Catches	Operation Time	
	Morning	Afternoon
Total (tail)	1.161	454
Average	77.40± 49.73[a]	30.20± 10.03[b]
T hitung	3,60	
T Table	2,05	

Notes: Different superscripts in the same row indicate significant differences (P<0,05).

Table 5. Results of t-test of Weight (gram) of Morning and Afternoon Catches in Batanghari River

Total Number of Catches	Operation Time	
	Morning	Afternoon
Weight (gram)	6.461	2.571
Average	430.73± 269.50[a]	171.4± 78.33[b]
T hitung	3,58	
T Table	2,05	

Notes: Different superscripts on the same line indicate significant differences (P<0,05).

Table 6. Environmental Parameters of Batanghari River

Parameter	Range	Average	Range	Average
	Morning		Afternoon	
Temperature (°C)	27,9 - 29	28,4	27,9 - 30	28,7
pH	6,8 - 7,9	7,8	6,8 - 7,9	7,8
Depth (m)	1 - 1,7	1,1	1 - 2,2	1,5

DISCUSSION

Catch Composition (Tails)

Based on table 1 the catch in the morning the number of fish caught reached 1,161 fish (72%), while in the afternoon 454 fish (28%). The species that dominated the catch in the morning was lambak (*Thynnichthys polylepis*) with 699 fish (60.21%) followed by seluang (*Rasbora argyrotaenia*) with 164 fish (14.13%). While in the afternoon, the dominance of the

catch switched with the proportion of lambak 141 fish (31.13%), and seluang 117 fish (25.83%).

The dominance of lambak (*Thynnichthys polylepis*) in the morning is also related to the daily activities of this species, which tends to forage when water temperatures are still low and water conditions are calmer. In addition, lambak is one of the species found in the Batanghari River and is able to adapt to calm-flow water habitats with mud or sand substrates (Nurdawati, 2010; Kaban, 2018).

Seluang (*Rasbora argyotaenia*) was also the dominant species at both fishing times. This is because seluang is a species that is active during the day (diurnal), the increase in the proportion of seluang catches in the afternoon is also due to the pattern of daily *feeding* activity (*feeding periodicity*) which actively seeks food during the day until sunset (Rosadi *et al.* 2015). The presence of aquatic vegetation and moderate currents in the Batanghari River also support the presence of seluang fish, in accordance with the statement of Sulastri *et al.* (2023) that seluang is an omnivorous fish that utilizes aquatic plants and algae as food.

Interestingly, there are several fish species that are only caught at certain times, such as black fish (*Labeo chrysophekadion*), senggiring (*Mystus singaringan*), and keperas (*Cyclocheilichthys apogon*) only caught in the morning. Meanwhile, sepatung (*Pristolepis grootii*), sumatran (*Puntius tetrazona*), sepat (*Trichopodus trichopterus*), and betok (*Anabas testudineus*) were only caught in the afternoon. This difference indicates that each fish species has a different activity time, thus affecting the types of fish caught in the morning and afternoon. In line with the research of Notanubun *et al.* (2022) who also obtained different types of catches at different fishing times, due to differences in the daily behavior of fish, which are more active in moving to find food at certain times.

Overall, the catch was dominated by the Cyprinidae family, especially species of lambak, seluang, mentulu (*Barbichthys laevis*) and nilem (*Osteochilus vittatus*). This dominance is consistent with the findings of Hertati *et al.* (2023) and Muhammad *et al.* (2020) which state that Cyprinidae is a family that dominates various public waters in Sumatra and tends to live in current waters with rocky or sandy substrates (Mahrudin *et al.,* 2021).

Composition of Catch (Weight)

Based on Table 2, the total weight of the catch in the morning reached 6,461 grams (72%), while in the afternoon only 2,571 grams (28%), with a total of 9,032 grams. This data shows that fishing time in the morning produces a greater catch weight than in the afternoon.

In terms of weight composition per species, lambak (*Thynnichthys polylepis*) dominated the morning catch with 3,656 grams (56.59%), followed by seluang (*Rasbora argyrotaenia*) with 1,038 grams (16.07%), and mentulu (*Barbichthys laevis*) with 560 grams (8.67%). Meanwhile, in the afternoon, the dominance of lambak decreased to 721 grams (28.04%), while seluang was almost equal to lambak at 720 grams (28%), and mentulu at 293 grams (11.4%).

This difference indicates a change in the pattern of species dominance as well as the active time of fish caught based on the time of gear operation. Factors that influence this include fish feeding behavior, temperature and water environment conditions. Mornings are generally characterized by cooler water temperatures and calmer conditions, which support fish feeding activities and increase the effectiveness of gill nets. This finding is in line with the research of Nurkalam *et al.* (2025) which states that the time of operation of fishing gear affects the weight

of the catch, which is caused by several factors such as fish migration patterns, water temperature, and water depth that play a role in the effectiveness of fishing.

In addition, Notanubun *et al.* (2022) reported that fishing time affects community structure and catch biomass, where certain species are more dominant at certain times. However, the results of this study contradict Ahmad (2023) who stated that the afternoon time is actually more productive in producing fish catches.

Length and Height of Catch

Based on Table 3, measurements of fish length and height were made on all types of fish caught in the morning and afternoon. The measurement results show that fish caught in the morning have a larger size than in the afternoon. The average length of fish in the morning ranged from 6.64 cm to 11.17 cm, while in the afternoon it was 5.14 cm to 10.38 cm. For body height, fish in the morning ranged from 1.59 cm to 2.80 cm, and in the afternoon from 1 cm to 2.57 cm.

Of the 12 fish species caught at both times, 9 species had greater average length in the morning, and 8 species had greater average height in the morning. For example, baung (*Hemibagrus nemurus*) had an average length of 9.04 cm and a height of 1.59 cm in the morning, but decreased to 8 cm in length and 1 cm in height. Lais (*Kryptopterus bicirrhis*) also showed a decrease in length from 11 cm and 2.22 cm in the morning, to 10.38 cm and 2.06 cm in the afternoon. Likewise, juar (*Luciosoma trinenema*) decreased in length from 11.17 cm to 9.5 cm and height from 2.07 cm to 2 cm.

This size difference indicates that fishing time can affect the size of the fish caught. This can be caused by different fish activities based on time, as well as the effectiveness of fishing gear against fish of a certain size. According to Syamsuddin *et al.* (2021) fishing gear operated in the afternoon tends to catch smaller fish because large fish have been active in the morning or have moved to deeper areas, so they are no longer caught.

In addition, migration patterns also affect the fish caught Chemagin & Schletterer (2023) state that large fish tend to migrate from upstream to downstream in the morning, while small fish tend to migrate from downstream to upstream. The population structure of fish that migrate downstream is generally dominated by large fish, while small fish are more on the riverbank, which could cause the size of fish caught in the afternoon to tend to be smaller.

Quantitative Analysis of Catch (Total Number of Catches by Tail)

Based on the t test on the number of fish caught using gill net fishing gear at morning and evening operating times in the Batanghari River for 15 repetitions can be seen in Table 4.

The total number of fish caught in the morning reached 1,161 fish with an average of 77.40± 49.73 fish per repetition, while in the afternoon only 454 fish with an average of 30.20± 10.03 fish per repetition. The calculated T value of 3.60 was greater than the T table of 2.05 at the 0.05 significance level, indicating a significant difference between the number of catches in the morning and afternoon ($P<0.05$).

This difference could be due to the daily activity pattern of the fish. In the morning, light intensity begins to increase, water temperature is relatively stable, and biological activities such as feeding and migration become more active. These conditions increase the chances of fish being caught by gill nets. Chemagin & Schletterer (2023) stated that fish migration activity reaches its peak between 5:00 am and 9:00 am, which is influenced by light intensity and

favorable water temperature. In addition, this migration is also related to the need for fish to find food, protection from predators, and responses to environmental changes.

The results of this study are in line with the findings of Fernanda *et al.* (2021) in Semarang Waters, which reported that the morning catch reached 62% of the total catch, much higher than the afternoon 38%. This suggests that morning is the optimal time for gill net operations in the Batanghari River.

Quantitative Analysis of Catch Results (Weight of Fish Caught in Grams)

Based on the t test that has been conducted on the weight of fish caught using gill net fishing gear at morning and evening operating times in the Batanghari River for 15 repetitions, it can be seen in Table 5. The total weight of the catch in the morning amounted to 6,461 grams with an average weight of 430.73± 269.50 grams per repetition, while in the afternon only 2,571 grams with an average of 171.4± 78.33 per repetition. The calculated T value of 3.58 is greater than the T table of 2.05 at the 0.05 significance level, which means that there is a significant difference between the weight of the morning and afternoon catches ($P < 0.05$).

This difference indicates that the time of operation of fishing gear has a significant effect on the total weight of the catch. This result is in line with the findings of Nanda (2023) in Lake Sipin, Jambi, who reported that the catch in the morning had a higher weight than in the afternoon. In addition, Chemagin & Schletterer (2023) stated that fishing activities in river waters tend to be more productive in the morning because it coincides with the migration time of fish after resting, thus increasing the chance of being caught.

Furthermore, the higher weight of fish in the morning is thought to be related to the daily behavior of fish that are more active in foraging at that time. Volkoff & Ronnestad (2020) stated that relatively stable water temperatures in the morning can increase foraging activity and fish movement. These conditions allow larger fish to actively move and be more easily caught.

Environmental Paremeters

Table 6 Observations of environmental parameters were made to determine the physical condition of waters that can affect the activity and abundance of fish in the Batanghari River. Parameters observed include temperature, water, pH, and depth.

Water temperature in the morning ranged from 27.9-29° C with an average of 28.4° C, slightly increasing in the afternoon to 28.7° C. This temperature range is still within the optimal limit for freshwater fish, which is around 28-32° C (Fadillah *et al.,* 2023). More stable morning temperatures support fish activity, thus increasing the chances of catching fish (Koniyo, 2020). The increase in temperature in the afternoon occurs due to the radiant heat of the sun during the day, which can cause fish to descend to deeper waters in search of more comfortable conditions, thus reducing the effectiveness of surface fishing gear.

The pH value in the Batanghari River ranged from 6.8-7.9 with an average of 7.8 in both the morning and afternoon. This range is classified as neutral to slightly alkaline, these conditions are ideal for supporting the life of aquatic organisms (Pahrela *et al.,* 2022). A stable pH also plays an important role in supporting the availability of oxygen and nutrients.

Water depth showed variations between morning and afternoon, with an average of 1.1 meters in the morning and increased to 1.5 meters in the afternoon. This increase is thought to be caused by fluctuations in river discharge and tidal influences. According to Jamalludin *et al.* (2023) water level changes are common in large rivers and can affect fish distribution.

Shallower depths in the morning allow gill nets to be more effective in catching fish, especially fish species that tend to reside in the upper and middle layers of the water column (Nasution *et al.,* 2025). Conversely, an increase in depth in the afternoon may cause fish to move to deeper areas that are difficult to reach by fishing gear.

Research by Pahrela *et al.* (2022) in Lake Tahai also showed that temperature, pH, and depth are important factors affecting fish diversity and abundance. Stable and optimal environmental conditions increase feeding activity and fish movement, thus affecting catches.

CONCLUSIONS

The results of the study can be concluded that the operation of gill nets in the morning produces higher catches, both in terms of number (tails) and total weight of the catch, compared to the operation in the afternoon.

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