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Multidisciplinary Journal of Social Sciences and Humanities | Vol. 1 No. 2 (2025)

Research Article

Diversity of Fish Types and Water Quality in the Waters of Curug Gumawang, Curuggoong Village, Padarincang District, Serang-Banten District

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Received:	Revised:	Accepted:	Online:
February 20, 2025	March 30, 2025	May 02, 2025	May 08, 2025

Abstract
This research was carried out in the Gumawang Waterfall Area in Padarincang Village, Padarincang District, Serang-Banten Regency. The research was carried out to determine the diversity of fish species found in the Gumawang Waterfall. The results of this research were that 7 types of fish were obtained, including tilapia, goldfish, wader, catfish, eel, chana and sili fish. The most abundant fish in the Gumawang waterfall area is the wader fish with a total of 35 fish. Fishing is carried out at 3 points. The fish species diversity index value at Curug Gumawang was 1.523840153, this result shows that it is in the "Medium" category. Meanwhile, measuring the water quality at Gumawang Waterfall shows that the water temperature is around 230C with a water clarity level of 30, and the water diameter is around 1-1.5 meters or as big as an adult's chest.

Keywords: Fish Diversity, Water Quality, Gumawang Waterfall

1. Introduction

Curug is a water area which has a very high waterfall, this water is often also used as ecotourism by local residents or residents outside the area, such as at Curug Gumawang, Padarincang Village, Padarincang District, Serang-Banten Regency. Gumawang waterfall is a tourist destination in Padarincang sub-district, many tourists also visit there, apart from that, this waterfall is not the only waterfall in Padarincang, there are still other waterfalls, such as Curuggoong waterfall in Curuggoong village, there is also Mangrud waterfall, Kroos waterfall and other waterfalls in Padarincang district (Faozan, 2020).

The waterfall has deep waters, usually the waters at the Gumawang waterfall are estimated to be 1.5 meters or one adult's chest, many tourists bathe in the waterfall. The waters of Gumawang waterfall certainly have very strong currents, apart from that, they also have a wide variety of fish found in these waters.

The waterfall is included in the aquatic system which has the function of producing quite a lot of fish, especially since the waterfall has quite a large water area, so the fish that live there will also be more numerous and the types of fish are varied (Hakim et al., 2019; Nurudin et al., 2013). This waterfall in Padarincang village also has a very long river and flows continuously.

The habitats of freshwater fish in rivers and other water sources are numerous and diverse, containing many different species (Adjie & Utomo, 2017). The fish that live in the waters of the waterfall are usually dominated by paray wader fish, catfish, chana fish, or other fish that live in the water

ecosystem of the Gumawang waterfall. This type of fish usually lives and the breeding process is fast if it is not disturbed by local residents who catch the fish for their side dish consumption .

2. Methods

It is essential to include adequate details to enable the reproduction of the work. When a reagent is utilized in the study, it is important to specify the supplier's information when applicable. Any methods that have been previously published should be cited with a reference, and only pertinent modifications should be outlined. In the context of epidemiology, it is necessary to provide information regarding the setting, timing, and location of the study.

The research was conducted at Gumawang Waterfall, Padarincang Village, Padarincang District, Serang-Banten Regency. The method used in the research is using the Survey and Identification method. The places for taking samples were in several places around the Gumawang waterfall, the method used was the purposive sampling method.

The process of taking fish samples is carried out using fishing rods, rakes and fish nets. Fish sampling was carried out randomly in predetermined places. The measurements of the ecological factors are:

1) Measure the water temperature using a thermometer
2) Measure the speed of the water flow by washing away a plastic bottle that has been filled with a little water and throwing the bottle on the surface of the water flow and then counting using a stopwatch.
3) Measure the pH of the water using a pH meter.
4) Measure water clarity using a metal plate or a plate that has been painted black.

2.1. Fish Identification

The types of fish from the research results were identified using various aids and guidebooks regarding fish types such as the Rainboth and Kottleat and other guidebooks to strengthen what types of fish are found in the Cirahab water sources. Rainboth (1996) and Kottelat and Whitten (1996).

2.2. Data Analysis

Data analysis regarding the diversity of fish species in the Cirahab water source uses the Shannon-Winner diversity index with the formula as follows:

$$H' = - \sum ni/N \log ni/N$$

Information:
H' = Shannon-Winner Diversity Index
H1 = Number of Individuals of one type of Fish
N = Total number of all individuals

The magnitude of the Shannon-Winner diversity index is as follows:
H' value > 3 = High species diversity
H' value 1 < H' < 3 = Medium diversity
H' value < 1 = Low diversity

3. Results and Discussion

From the results of the research, it was found that several types of fish from the order *Perchomorphi* and the genus *Oreochormis* (tilapia fish) were still netted and hooked, apart from that from the order *Ostariophysi* and the species *Cyprinus carpio Linn* (goldfish), the order *Perciformis* and the species chana striata (chana fish), the order Ostariopshi and the species *Clarias sp* (catfish), the order *Cypriniformes* and the species Rasbora (fish wader), the order *Synbranchiformes* and its species *Monopetrus albus* (eel), and the next one obtained from the order Synbranchiformes and its species is *Mastacembelus erytrotanea* (sili-sili fish) which is still widely found in the gumawang waterfall (Hermansyah, 2018; Murni et al., 2014; Rainboth, 1996).

The most abundant fish or the type of fish that dominates is the wader fish (paray fish) Barbodes binonatus from the order *Cypriniformes* which is the most abundant in the water flow of Gumawang waterfall. This fish is also widely used as food fish by local people who collect it, either with nets, nets, or by fishing. Its size also varies greatly from small to the size of five fingers put together, because its size can become a large fish (Hakim et al., 2019; Murni et al., 2014; Nurudin et al., 2013).

Table 1. Results of Fish Types at Gumawang Waterfall

No	Name Fish	Latin Name	Ordo	Family
1	Parrot fish	*Oreochormis niloticus*	*Perciformes*	*Ciclidae*
2	Goldfish	*C. Auratus*	*Cypriniformes*	*Cyprinidae*
3	Catfish	*Clarias batracus*	*Siluriformes*	*Clariidae*
4	Wader fish	*Barbodes binotatus*	*Cypriniformes*	*Cyprinidae*
5	Eel fish	*Monopetrus albus*	*Synbranchiformes*	*Synbranchidae*
6	Chana fish	*Chana micropeltes*	*Anabantiformes*	*Channidae*
7	Sili fish	*Mastacembelus erytrotanea*	*Synbranchiformes*	*Mastacembelidae*

Table 2. Results of the number of fish obtained

No	Name Fish	Latin Name	Research place			Total fish
			1	2	3	
1	Parrot fish	*Oreochormis niloticus*	10	5	5	20
2	Goldfish	*C. Auratus*	3	5	6	14
3	Catfish	*Clarias batracus*	3	2	1	6
4	Wader fish	*Barbodes binotatus*	20	10	5	35
5	Eel	*Monopetrus albus*	1	0	0	1
6	Chana fish	*Chana micropeltes*	3	2	1	6
7	Sili-sili fish	*Mastacembelus erytrotanea*	0	1	1	2
	Total fish		40	25	19	84

Table 2 above shows that the most common fish found at the Gumawang Padarincang waterfall are fish from the order Cypriniformes and the species is Barbodes binotatus. There are many wader type

fish in the waters of the Gumawang waterfall with a total of 35 wader fish. The second most abundant is in the order Perciformes or the type of tilapia fish *(Oreochormis niloticus)* which is still abundant in the waters of the Gumawang waterfall, and the third most abundant is from the order *Cypriniformes* and the species is goldfish *(C. Auratus*). There are still many wader fish, tilapia and goldfish in Gumawang waterfall, although they are still small and agile and quite difficult to catch.

Table 3. Diversity Index Values

No	Name Fish	Latin Name	Total fish	H'
1	Parrot Fish	*Oreochormis niloticus*	20	-0.341686792
2	Goldfish	*C. Auratus*	14	-0.298626578
3	Catfish	*Clarias batracus*	6	-0.188504095
4	Wader fish	*Barbodes binotatus*	35	-0.364778641
5	Eel	*Monopetrus albus*	1	-0.052747819
6	Chana fish	*Chana micropeltes*	6	-0.188504095
7	Sili fish	*Mastacembelus erytrotanea*	2	-0.088992134
	Total fish		84	1.523840153

Table 3 above shows the results that the diversity index for fish species found in Gumawang waterfall, Padarincang village, Padarincang sub-district, Serang-Banten district shows a value of 1.523840153, this value also when linked to the diversity index formula shows "Medium" diversity. Individuals know the types of fish in Curug Gumawang, showing that the population level is still stable.

It is still said that there are a lot of fish in the Gumawang waterfall, because it is possible that this place is still far from being overfished by the local community, besides that, the Gumawang waterfall can also be said to be far from the Padarincang settlement/community.

Table 4. Water Parameter Measurement Results

No	**Water Parameters**	**Place of fish sampling**		
		1	**2**	**3**
1	Water temperature (°C)	23	23	23
2	Water flow depth	1	1.5	1.5
3	Clarity Level	30	35	30
4	Water pH	7	6.7	7
5	Water flow speed (m/s)	0.20	0.30	0.25

There are several factors that support why the number of wader fish, tilapia and goldfish dominate the waters at the Cirahab water source because the water temperature corresponds to the temperature of the three types of fish, namely 230C, so these waters are ideal. This temperature is ideal for the metabolic and growth processes of the fish that dominate the Cirahab source waters.

Apart from that, the pH of the water is at 7, which indicates a normal water pH with a clarity level of 90. So, these water parameters show that the level of wader (*paray*) fish is much more dominant than other types of fish.

4. Conclusion

From the results of research that has been carried out, several types of fish were found, namely tilapia, goldfish, catfish, eel, chana, sili and wader. The fish that breeds the most there is the wader (*paray*) type fish from the order Cypriniformes with the Latin name *Barbodes binotatus*, this fish is very dominant compared to other types of fish whose presence is very few. It is possible that many people catch these fish for side dishes in their homes. The category contained in the fish diversity index there is in the "Medium" category with an index value of 1.523840153.

5. References

Adjie, S., & Utomo, A. D. (2017). Karakteristik Habitat Dan Sebaran Jenis Ikan Di Sungai Kapuas Bagian Tengah Dan Hilir. *BAWAL Widya Riset Perikanan Tangkap*, *3*(5). https://doi.org/10.15578/bawal.3.5.2011.277-286

Faozan, A. (2020). *Penggunaan Alat Tangkap Setrum Ikan Di Sungai Ngrowo Kecamatan Tulungagung Kabupaten Tulungagung*. IAIN Tulungagung.

Hakim, A. A., Kamal, M. M., Butet, N. A., & ... (2019). River Order Analysis and Fish Stadia Distribution as a Basis for Protected Areas Determination of Freshwater Eel (Anguilla spp.) in Cimandiri Watershed, West Java. *Journal of Tropical ...*.

Hermansyah, P. (2018). Keanekaragaman Jenis Ikan Yang Terdapat Di Sungai Air Jernih Kecamatan Padang Guci Hulu Kabupaten Kaur Provinsi Bengkulu. *Skripsi FKIP Pendidikan Biologi Universitas Muhammadiyah Bengkulu (Tidak Dipublikasikan)*.

Kottelat, M., & Whitten, T. (1996). *Freshwater fishes of Western Indonesia and Sulawesi: additions and corrections*. Periplus editions Hong Kong.

Murni, M. Y., Dahelmi, & Roesma, D. I. (2014). Inventarisasi jenis-jenis ikan cyprinidae di sungai batang nareh, kabupaten padang pariaman. *Jurnal Biologi Universitas Andalas (J. Bio. UA.)*, *3*(4).

Nurudin, F. A., Kariada, N., & Irsadi, A. (2013). Keanekaragaman Jenis Ikan di Sungai Sekonyer Taman Nasional Tanjung Puting Kalimantan Tengah. *Unnes Journal of Life Science*, *2*(2).

Rainboth, W. J. (1996). *Fishes of the cambodian mekong*. Food & Agriculture Org.