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ANALYSIS OF RIVER WATER POLLUTION ON THE POPULATION OF TIN HEAD FISH (*Aplocheilus panchax*) FROM AN ISLAMIC PERSPECTIVE

Nur Istiqomah, Ahmad Fauzan Hidayatullah, Anif Rizqianti Hariz
Walisongo State Islamic University Semarang
Jl. Prof. Dr. Hamka Km, 1 Semarang Biology Education Department
E-mail: istiqomah_1908086087@student.walisongo.ac.id

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ABSTRACT

Analysis of River Water Pollution on the Population of Tin Head Fish (*Aplocheilus panchax*) in an Islamic Perspective. The community's disposal of various types of waste leads to a high level of water pollution, which in turn causes a decline in both water quality and quantity. Pollution is the entry or containment of living things through human activities, resulting in a decrease in quality to a certain level, which leads to the environment not operating as specified. Various types of waste contribute to pollution, creating chemical and organic compounds that pose a threat to living organisms. This study aims to record and provide information on the effect of river water pollution on the population of tinhead fish (Aplocheilus panchax) in the river Jl. Purworejo, Central Java. The research methodology was carried out on the river Jl. Purworejo, Central Java, with the tools and materials used in the form of GPS smartphones, cameras, stationery (field books, pens), fish, and garbage in the research location. We conducted descriptive exploratory research, literature reviews, and library studies. We once collected data from a garbage-covered river. Observations confirmed that there were as many as seven species of tinhead fish in river waters. The findings indicate that the presence of organic and inorganic waste in polluted waters has an impact on the quantity of tinhead fish inhabiting clean waters with lush vegetation. This report is the first piece of information regarding the influence of river water quality on Jl. Purworejo, Central Java. Other parts of the river require research and cleanup efforts.

INTRODUCTION

Relatively high changes in public consumption will increase pressure on the environment. Waste produced by human activities in fulfilling life's needs will affect environmental cleanliness, thereby reducing the quality of river water [(1)]. The decline in water quality is also caused by humans who do not care about the environment and do not respect the law of sustainable development, thus causing pollution of the environment [(2)].

Environmental pollution will cause a decline in natural functions and resources. One of the river pollutants on Jl. Purworejo, Central Java is caused by the dumping of rubbish by the local community, so that from a macro perspective we can clearly see various types of rubbish floating and flowing in the river. It is difficult to determine whether elements, matter or energy are the cause of contamination or not. Sometimes a substance or energy becomes toxic or causes such that it kills certain species of creatures but is beneficial for other creatures. For

example, materials organic and residual plants can be used as certain animal feed. However, the process of decomposition and decomposition of organic waste will deplete oxygen, thereby killing fish and other animals in the waters concerned [3].

One of the fish that lives in this river area is the *Aplocheilus panchax* species with the local name tin head. This fish is a species of fish that lives in fresh water and is distributed on the Asian continent such as Nepal, India, Indonesia, Malaysia, Bangladesh, Myanmar and Cambodia, has a wide habitat because of its good adaptation to the environment, and is often found in rivers, ditches and rice fields that are directly connected to rivers with clean water and abundant vegetation, even in brackish water between the roots of plants [4].

People intentionally or unintentionally, without realizing it, ignore the dangers caused by their activities, waste in the form of food packaging, detergents, used children's diapers and leftover organic materials plant. This has an impact on water quality which is unable to meet domestic needs. Apart from that, water pollution has an impact on living creatures that inhabit the river habitat as their place of residence. People's habits that affect environmental balance are things that are difficult to eliminate. With efforts that can be used as an alternative in the form of providing a minimum impact on the damage [5]. The decline in water quality can be seen from the level of water clarity and the odor emitted by the water. Water that has a foul odor can be caused by a mixture of nitrogen, sulfur and phosphorus originating from waste or rubbish thrown away by the community [6].

Environmental balance can be disturbed based on internal and external factors. Internal factors are in the form of natural disasters which cause damage to nature, while external factors originate from human activities under the pretext of improving the quality and comfort of life. Like environmental pollution both on land and water, waste disposal causes disasters and threatens other living creatures. It is clear in the Qur'an that environmental damage is caused by human intervention caused by greed by exploiting nature on a large scale to the point of indifference to other living creatures, as stated in the Word of Allah in the QS. Ar-Rum verse 41;

٤١ظَهَرَ الْفَسَادُ فِى الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ اَيْدِى النَّاسِ لِيُذِيْقَهُمْ بَعْضَ الَّذِيْ عَمِلُوْا لَعَلَّهُمْ يَرْجِعُوْنَ

41. "There has been visible damage on land and at sea caused by the actions of human hands. (Through that) Allah makes them feel some of the (consequences of) their actions so that they return (to the right path)."

Explaining, the word al-fasad denotes things identified with danger or damage. According to al-Asfahani, quoted from Zulfikar, it is something that is out of balance a little or a lot. According to Quraish Shihab, quoted from Zulfikar, it means something that leads to murder, robbery and even security disturbances. According to the Ministry of Religion's interpretation, al-fasad (damage) has occurred on land and sea. In Arabic, al-fasad is defined as a form of violation/denial of the law or system that has been established by Allah SWT. Where the word al-fasad is translated as "destruction". This form of damage can take the form of environmental pollution to the point that it is no longer suitable for habitation, or even damage to nature to the point that it cannot be used again. Destruction on land such as damage to flora and fauna; and damage to the sea, for example damage to marine biota. Apart from that, what al-fasad includes can include rebellion, robbery, murder and others. The damage that has occurred is a consequence of human behavior, such as excessive exploitation of nature, weapons testing, war and others. This kind of attitude or behavior is impossible and/or never carried out by a believer with true faith, because he knows that all the behavior, he carries out will be explained and must be accounted for before Allah [7].

Exploration done forget information which is relevant regarding population and diversity Biology is one of the important steps in managing the conservation of resources that exist in nature. Due to the lack of research data regarding the population of tinhead fish (Aplocheilus panchax) in rivers in the area, it has not been completed until now, so the applicable information and data is still very limited. Therefore, regular and intensive research is needed. Information regarding the population of tinhead fish (Aplocheilus panchax) in polluted rivers on Jl. Purworejo, Central Java has still not been carried out. In fact, the river on this road still has a lot of pollution by the community which is thought to have an impact on the population of tinhead fish (Aplocheilus panchax) in the river. This research aims to collect

data and provide information on the influence of river water pollution on the population of tinhead fish (Aplocheilus panchax) in the river Jl. Purworejo, Central Java. This research aims to collect data and provide information on the influence of river water pollution on the population of tinhead fish (Aplocheilus panchax) in the river Jl. Purworejo, Central Java.

MATERIALS AND RESEARCH METHODS

Research was conducted in the river Jl. Purworejo, Central Java in December 2021. Determining the research location using the location determination method is based on considering the research objectives (Figure 1). The tools used in this research were smartphone GPS, camera, stationery (field book, pen). Meanwhile, the materials used were fish and trash from the research location.

Figure 1. Observation Locations for the Effect of Water Pollution on the Population of Tinfish (Aplocheilus panchax)

Research methods are scientific methods for obtaining information with specific purposes and uses which contain verification procedures to complete and answer research. This research method is exploratory and adopts a descriptive type of library research with the main object being written works and other forms of documents by examining relevant articles and written materials, as a guide for writers to use theories and methods related to research principles. Gathering information through exploratory research at observation locations. Data was collected once by observing the population of tin head fish (Aplocheilus panchax) in rivers polluted by rubbish.

RESULTS OF RESEARCH AND DISCUSSION

Based on observation activities that have been carried out, the population of tinhead fish (Aplocheilus panchax) in the polluted river on Jl. Purworejo, Central Java, there are fewer sharks than sharks on the surface of the water. The small population of tinhead fish (Aplocheilus panchax) is likely influenced by the quality of river water which has been polluted by various kinds of waste, both organic and*inorganic. It is also speculated that at the observation location there were not many aquatic plants growing in the river. The description of the tinhead fish (Aplocheilus panchax) is presented in Table 1.

Table 1. Results of exploration of tinhead fish populations in pollutedrivers Jl. Purworejo, Central Java

Species	Genus	Family	Orders	Phylum	Local Name	Indicated Amount
Aplocheilus panchax	*Aplocheilus*	Aplocheilidae	Cyprinodontiformes	Chordates	Tin Head	7

Declining population of tinhead fish (Aplocheilus panchax) in the river Jl. Purworejo, Central Java, this could be due to the influence of river water being polluted by community rubbish which is deliberately dumped in the river (Figure 2), causing the water in the river to become dirty and affecting the habitat of the tinhead fish population. Based on research conducted by Syofyan et al [8], the value of the degree of acidity/pH in water is not_polluted approaching_neutral. In addition, the concentration of dissolved oxygen depends on chemical, physical and biochemical activities in the water. The condition of oxygen in the water is an indicator of water quality. This is also related to the average air temperature according to the season. Water areas that have been contaminated with waste generally have high sulfate concentrations, so this has a big impact on the sustainability of life and fish populations.

Figure 2. River on Jl. Purworejo, Central Java

The Aplocheilus panchax species has a habitat in water with not strong currents or calm water. As a fish that preys on various insects and the like, this fish also inhabits waters that are vegetated with aquatic plants for shade, lives in groups and tends to be on the surface of the water. According to research by Syahbudin & Maulana [9], Aplocheilus panchax uses water insects and grubs as a food source.

River water pollution at the research site has had a very negative impact on the number of Aplocheilus panchax fish. This is because this species inhabits habitats with clean water that is vegetated with plants. Apart from that, water pollution with rubbish or wastewater from factory or household activities can affect the health of fish, where morphological changes occur, including the presence of fungus, red spots on the skin and gills, which are early symptoms of infections or viruses in the fish's body due to pollution. water. According to research by Trijoko et al [10], the extinction of the Aplocheilus panchax fish species was due to competition between fish which started with limited distribution in an area in each river due to the population explosion of other fish species.

According to Lastuti et al in Deriyanti [11], water quality is a determining component in the reproductive process of fish, and is also influenced by temperature which is related to the oxygen content in the water. Water temperature is closely related to the speed of fish consuming oxygen and chemical reactions in the water. With good oxygen content, fish reproduction will be optimal. Meanwhile, a weakened (poor) oxygen content will have an impact on reducing the health of fish so that they can easily become infected by diseases

caused by bacteria or viruses [12]. According to Sutriati [13], the indicator used to determine the level of freshness of water is the oxygen dissolved in the water. This is because oxygen dissolved in water plays an important role in the oxidation and reduction processes of inorganic and organic materials. This process causes the function of dissolved oxygen in water to be important for reducing natural pollution in waters. Salmin [14] stated that water pollution is said to be low if it has a dissolved oxygen content of > 5 mg/l. Things that can affect the concentration of dissolved oxygen include waste disposal activities into rivers and agricultural activities ([15].

The degree of acidity (pH) of the water also affects the health of the Aplocheilus panchax fish. This fish species lives in surface water with a temperature of 20°C-35°C with a water pH ranging from 6-8. Fish life can be disrupted when the pH is too acidic (very low) or too alkaline (very high). Apart from that, the concentration of ammonia in the water also has the potential to be disturbing and can even damage the gills of fish and even cause death to the fish. Kristanto in Asrini et al [16] stated that the degree of acidity is closely related to the heavy metal content in rivers> The more abundant pollutants with metal content heavy in the river then value The pH becomes lower so it becomes acidic. Water classified as an acid_due to bicarbonate_in the_water. Water pH is influenced by natural and man-made factors. The increase in the acidity of river water is caused by domestic waste processing activities and organic waste produced by agricultural activities around the river which enter the river. Fluctuations in the degree of acidity are influenced by the discharge of inorganic and organic waste into rivers [17].

In accordance with research by Prasetia et al [18], the height is known_phosphate content_in the water can have an impact on the destruction of natural resources in it, ranging from genetic damage to deaths that occur in fish populations that live in that area. Walukow in Prasetia et al stated that there is an increase in pollution originating from livestock, domestic waste, human feces and KJA due to the increase in population so that it has a big impact on water pollution, so a strategy is needed to overcome the problem of water pollution not only in small rivers but also in small rivers. also a big river. One way that can be taken is by reprocessing or utilizing used goods or waste using the 3R (reduce-reuse-recycle) concept.

CONCLUSIONS AND RECOMMENDATIONS

Based on observations made on the river Jl. Purworejo, Central Java, it was found that there was a decrease in the number of tinhead fish species (Aplocheilus panchax), so that only 7 species were found. It was indicated that the decline was due to waters polluted by organic and inorganic waste affecting the number of tinhead fish that live in clean water with plant vegetation.

This research is preliminary data on the influence of river water pollution on the population of tin head fish (Aplocheilus panchax) in the river Jl. Purworejo, Central Java. Therefore, the author suggests that research be carried out on the impact of river water pollution and the relationship between aquatic plants on fish reproduction in the river Jl. Purworejo, Central Java.

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