

## ***Parachromis managuensis* : The Danger of Foreign Fish Species in Penjalin Reservoirs**

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### **Abstract**

*Foreign predatory fish species in Indonesia have the potential to threaten the local ecosystem by becoming the main predators that disrupt the balance of the food chain in local waters. Through this research, we want to report the invasion of the species *Parachromis managuensis*, which originates from Central American waters. This fish species has been found in significant numbers and sizes in the waters of the Penjalin reservoir. In this study, a morphological approach was used to identify the *Parachromis managuensis* species. The capture of this species was recorded as the first step in efforts to monitor the reservoir water ecosystem in Brebes so that it remains balanced. Results and discussion, including a description of the morphology of the *Parachromis managuensis* species that have been caught, can be found in this research report.*

**Keywords:** Foreign Predatory Fish, *Parachromis managuensis*, Penjalin Reservoir

### **Introduction**

*Parachromis managuensis* is a wild freshwater predatory fish native to Central America which is often found in Nicaragua, Costa Rica, Honduras (Bussing, 1998; Hasan and Widodo, 2021). *Parachromis managuensis* has long been found in several regions such as North America, South America and Southeast Asia as an invasive introduced fish (Magalhães and Vitule, 2013; Hasan and Widodo, 2021). In Southeast Asia, *Parachromis managuensis* has reproduced very quickly, such as in Taal Lake in the Philippines and several areas in Java (Dahrudin et al., 2017; Hasan, 2020). *Parachromis managuensis* is listed as a very voracious predatory fish and is found to often eat small fish, molluscs and types of crustaceans such as shrimp and crabs. This fish species is very easy to adapt to new environments such as changes in temperature, DO and pH (Yamamoto and Annette, 2000), therefore this species has the potential to become an invasive alien fish in Indonesian fresh waters. *Parachromis managuensis* in Indonesian waters is often known as a freshwater ornamental fish which is often bought and sold in fish markets as pets

(Hasan, 2020). The existence of *Parachromis managuensis* in the waters of the Brebes Reservoir is a note that needs to be taken into account for the survival of local fish species considering that the spread of this species in the waters of the Penjalin Reservoir, such as the Penjalin Reservoir, is very massive and uncontrolled.

### **Methods**

There were 9 *Parachromis managuensis* caught in the waters of the Penjalin Reservoir with a total length (TL) of between 20 cm – 25 cm. These catches were fish samples. The species *Parachromis managuensis* was accidentally caught by a local angler in November 2022 using a fishing rod with hook no. 6 in the reservoir water area, Winduaji Village, Paguyangan District, Brebes Regency, Central Java. The reservoir waters are one of the artificial reservoirs in Brebes Regency with a capacity of 9.5 million m<sup>3</sup>. The waters of this reservoir are often used by local communities as a source of water for irrigation, tourism and fishing activities. The method for identifying *Parachromis managuensis* species caught in reservoir waters uses a morphological

observation approach based on Kullander and Hartel (1997).

### Results and Discussions

*Parachromis managuensis* (Figure 1) which was found in the reservoir water area of Brebes Regency has the following morphological characteristics: Large mouth size with rows of sharp teeth on the upper and lower jaws, large head with a blunt tip of the snout, flat body shape characteristic of the Cichlidae family. It has a black striped motif on the tip of the head to the tail, has a purplish black base color with a white to yellowish belly. On the dorsal, anal, abdominal and tail fins there are round black spotted motifs. The observed morphological characteristics are in accordance with the morphological characteristics of *Parachromis managuensis* described by Kullander and Hartel (1997). The closest relative of *Parachromis managuensis* which is still in the same genus as *Parachromis*, until now no data has been received in Indonesia apart from this species, so the closest species to compare is from the Cichlidae family. When compared with the Cichlidae family, the *Parachromis managuensis* species has a different character with a striped body color pattern filled with black spots. If you look at the proportions of its body, *Parachromis managuensis* has a larger jaw and mouth than the Cichlidae family which has entered the waters. Indonesia.

The discovery of *Parachromis managuensis* in reservoir waters in large numbers and relatively large sizes is a concern for the Penjalin reservoir ecosystem because the *Parachromis managuensis* species has the ability to adapt to new environments very well, this species is tolerant to changes in DO, pH and temperature. This species has the ability to reproduce rapidly throughout the year so it is very possible for a population spike to occur which could cause extinction of local fish in reservoir waters due to competition. According to Agasen et al. (2006), *Parachromis managuensis* parents are very protective of their offspring so that this strengthens the potential of new offspring to survive and shifts the dominance of local fish juveniles in reservoir waters.

Based on the analysis, the entry of the alien species *Parachromis managuensis* into the waters of the Penjalin reservoir is the result of uncontrolled and irresponsible ornamental fish trade activities resulting in the release of this species in Indonesian waters. Cases of the entry of invasive fish species into Indonesian waters have often occurred before, such as cases of the spread of tilapia and tilapia fish in Indonesian waters (Arghifari et al., 2019; Dadiono, 2023; Dadiono and Murti, 2023). Therefore, there needs to be supervision from relevant government agencies, especially the maritime and fisheries service, animal quarantine agencies as well as strict regulations and commitment from the community not to release fish species that have the potential to become invasive fish in all Indonesian waters.



Figure 1. *Parachromis managuensis* (Documentation: Khairil Anwar)

### Conclusion

The *Parachromis managuensis* species is a foreign predatory fish inhabiting the fresh waters of Central America which came to Indonesian waters initially as an ornamental fish commodity that was traded freely. The discovery of this species invading reservoir waters, Brebes Regency is an important note and case, where this species is very dangerous for the local aquatic ecosystem so that the presence of this species in Indonesian waters, especially reservoir waters, is regulated and efforts are made to reduce the population of this species in order

to balance the aquatic ecosystem. in Indonesia is still maintained.

There needs to be supervision from the marine and fisheries service, the animal quarantine agency as well as strict regulations and a commitment from the community not to release fish species that have the potential to become invasive fish in all fresh waters in Indonesia.

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