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Cichlasoma urophthalmus (Günther 1862): discovery of alien predator fish in Kedung Ombo Reservoir, Central Java, Indonesia

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Abstract

The entry of alien predatory fish in Indonesian waters has a negative impact on local ecosystems in Indonesia, foreign predatory fish can spread disease, become main predators and can cause imbalance in the food chain. From this study, we report the presence of alien predatory fish of the type *Cichlasoma urophthalmus* (Günther 1862) or Mayan Cichlid from tropical waters of North America caught in Kedung Ombo Reservoir, Grobokan Regency, Central Java. The species identification method uses a morphological observation approach based on Miller et al. (2005) and Nico et al. (2007). This finding is the first for the type of *Cichlasoma urophthalmus* recorded in the Kedung Ombo Reservoir. A description of the morphology of the caught species *Cichlasoma urophthalmus* is included in the discussion.

Keywords: Alien Predatory Fish; Kedung Ombo Reservoir; Mayan Cichlid; Cichlasoma urophthalmus

1. Introduction

Cichlasoma urophthalmus (Günther 1862) is a freshwater fish native to the tropical waters of North America. This fish is spread from southern Mexico to Nicaragua (Kullander, 2003; Matamoros et al, 2005). In Asia this fish has spread throughout Asia, including Singapore, Thailand, and Indonesia (BKIPM, 2011). Various references on this species was discovered. This fish is a type of predatory fish that is very voracious and eats various types of biota including detritus, gastropods, insects, crustaceans and small fish (Caso-Chavez et al, 1986); eat various types of aquatic plants and mollusks (Chavez-Lopez et al., 2005); classified as carnivorous fish because they prey on smaller animals (Martinez-Palcios and Ross, 1988). This species can adapt to new environments and tolerate changes in salinity (Arthington and Mitchel, 1986) and become an invasive fish in Florida waters (Faunce et al., 2002).

Cichlasoma urophthalmus, also known as the Mayan Cichlid, is widely traded as a pet ornamental fish in Indonesia but is not officially registered as an ornamental fish cultivation commodity. In Southeast Asian countries this fish grows rapidly in Southeast Asian countries, especially in Bangkok's Chao Phraya River (Nico et al., 2007) and it can be found in several reservoirs on the Indonesian island of Java. Kedung ombo reservoir is one of the reservoirs located in Grobokan Regency, Central Java Province and has never been recorded as a location for ornamental fish cultivation, with the discovery of *Cichlasoma urophthalmus* fish in the Kedung ombo reservoir, making this a new finding.

2. Materials and Methods

The individual fish *Cichlasoma urophthalmus* (Günther 1862) was found to have a total length (TL) of 8 cm (Figure 1). *Cichlasoma urophthalmus* was accidentally caught by a local angler on March 30, 2022 using a medium hook size fishing rod in the Kedung Ombo reservoir, Grobogan Regency, Central Java (7°15'13.93"S; 110°50'7.32"E) (Figure 2). Kedung Ombo Reservoir is one of the artificial reservoirs used by the local community as a source of irrigation water, fishing activities and tourism. The species identification method uses a morphological observation approach based on Miller *et al*. (2005) and Nico *et al*. (2007).

3. Result and Discussion

Individual fish *Cichlasoma urophthalmus* (Günther 1862) found in Kedung Ombo Reservoir, Grobogan Regency has the following morphological characteristics: a blunt fish snout with a large mouth, sharp teeth on the lower jaw and upper jaw typical of predatory fish, flat body shape like morphological characteristics of Ciclidae fish in general. It has large dark spots

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on its body, the tips of the caudal and dorsal fins are red. The above morphological characteristics are similar to those proposed by Miller et al (2005). According to BKIPM (2011), *Cichlasoma urophthalmus* fish has a standard length of 8 cm to 22 cm and a maximum weight of 600 grams, there is a black line across the body. The above characteristics are slightly different from the *Cichlasoma urophthalmus* fish found by Nico et al. (2007), where the specimen found in Thailand has 7 lateral lines and 2 black dots on the body, namely the midlateral spot in the middle and the caudal ocellus in the tail.

Figure 1. Fish Cichlasoma urophthalmus (Documentation: Rav Rafi)

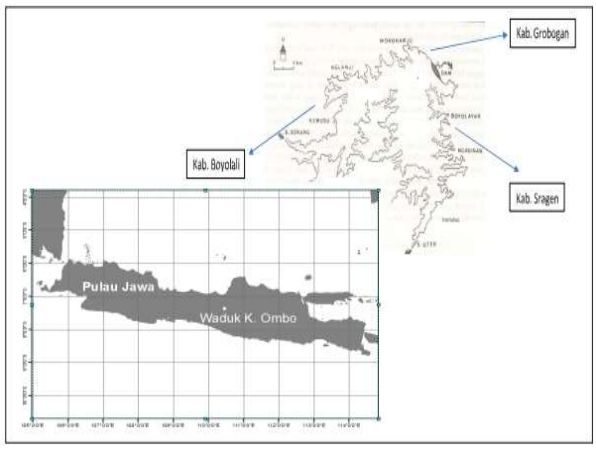

Figure 2. Map of Kedung Ombo Reservoir (Aisyah and Widihastuti, 2016)

So far, the closest relative of *Cichlasoma urophthalmus* that has entered Indonesia is the jaguar cichlid which has a morphology similar to *Cichlasoma urophthalmus* but has a striking difference where the jaguar cichlid has black spots on the anal and tail fins (Kullander and Hartel, 1997).

The entry of *Cichlasoma urophthalmus* into Indonesian waters poses a threat to local ecosystems, where *Cichlasoma urophthalmus* fish have a high tolerance for changes in salinity and environmental changes (Arthington and Mitchel, 1986). This fish is able to survive in an environment with low oxygen content and can breed throughout the year so that it is possible to dominate in Indonesian waters. With this potential, it is threatened that the expansion of this type of fish will lead to the extinction of local fish in Indonesian waters, particularly in the Kedung Ombo reservoir.

The existence of *Cichlasoma urophthalmus* fish in the waters of the Kedung Ombo reservoir, in my opinion, is the result of the massive ornamental fish trade and the irresponsibility of ornamental fish hobbyists who release these fish in open waters. Cases of invasive fish entering Indonesian waters have occurred frequently in the past, such as the expansion of tilapia and tilapia in Indonesian waters (Dadiono, 2022). As a consequence, there is a need for governmental control as well as strict guidelines regarding authorizations to maintain and community commitment to not releasing invasive predatory fish in Indonesian waters.

4. Conclusion

Cichlasoma urophthalmus, also known as the Mayan Cichlid, is an immigrant predatory fish from the tropical waters of North America that entered in Indonesia as an ornamental fish commodity that is freely traded. The discovery of this fish in the Kedung Ombo Reservoir, Grobokan Regency, Central Java, is a significant achievement. Since this fish is very dangerous to local aquatic ecosystems, its presence in Indonesian waters should be controlled and avoided in order to maintain the balance of Indonesia's aquatic ecosystems.

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