



Domestication of yellow-finned medaka fish (*Oryzias profundicola*)

^{1,2}Nursyahran, ³Jayadi, ³Andi Tamsil, ³Harlina

¹ Doctoral Program in Fisheries Science, Indonesian Muslim University, Indonesia;

² Department of Marine Science, Maritime Institute of Technology and Business, Balikpapan, Makassar; ³ Faculty of Fishery and Marine Science, Indonesian Muslim University, Indonesia. Corresponding author: Nursyahran, nursyahran00@gmail.com

Abstract. Lake Towuti located in Malili Complex, South Sulawesi has several endemic species including the yellow-finned medaka fish (*Oryzias profundicola*). This fish was registered in 2019 at the IUCN as a near threatened category. The decline in the population of *O. profundicola* can be increased by domestication. The purpose of this study on domestication was to determine the effect of different natural foods on the survival, growth, and proximate body content of *O. profundicola* during 120 days of maintenance. This study was used a completely randomized design with 3 treatments and 3 replications. The treatments were fed of natural foods i.e. *Chironomus* sp., *Culex* sp., and *Daphnia* sp. The research variables were observed as follows: survival, growth in length and body weight, and the proximate body of fish. The results of this study regarding the survival rate of *Chironomus* sp. was 98.33%±1.67, then *Daphnia* sp. was 96.66%±2.88 and *Culex* sp. was 95.00%±0.00. Furthermore, the highest absolute weight growth was fed of *Chironomus* sp., *Culex* sp., and *Daphnia* sp., respectively 3.16 g±0.05, 2.80 g±0.10 and 2.36 g±0.11. The highest absolute length growth was fed of *Chironomus* sp., *Culex* sp., and *Daphnia* sp., respectively 3.66 cm±0.02, 3.14 cm±0.01 and 2.29 cm±0.28. The highest protein content was given *Chironomus* sp., *Culex* sp., and *Daphnia* sp., respectively 69.34%±1.22, 59.74%±0.08, 61.26%±0.06. The *Chironomus* sp., *Culex* sp., and *Daphnia* sp. was supported the survival, growth rate, and proximate body. The fish successfully spawned during domestication of 120 days was given *Chironomus* sp.

Key Words: survival, growth, proximate body, *Chironomus* sp.

Introduction. Lake Towuti is located in Malili Complex, South Sulawesi. Lake Towuti has an area of 561.1 km⁵ and is an ancient and oligotrophic lake (Haffner et al 2001). Lake Towuti is one of the lakes in the Wallacea region which has a variety of endemic fish species (Kottelat et al 1993; Parenti 2011; Parenti & Ebach 2013). Endemic fish in Lake Towuti have distinctive and unique characteristics (Wijaya et al 2009; Nasution et al 2015), also the endemic fish in Lake Towuti have a diversity of species that are ecologically and climatologically different so this species of fish is not found anywhere else in the world (Hutama et al 2016). Endemic fish species in Lake Towuti were reported by Hadiaty (2018), as follows: *Telmatherina bonti*, *Telmatherina celebensis*, *Telmatherina opudi*, *Paratherina striata*, *Paratherina wolterecki*, *Paratherina cyanea*, *Tominaga sanguicauda*, *Tominanga aurea*, *Oryzias profundicola*, *Oryzias matanensis*, *Oryzias marmoratus*, *Mugilogobius hitam*, *Glossogobius flavipinnis*, *Glossogobius matanensis*, *Glossogobius intermedius* and *Dermogenys megarhamphus*.

Lake Towuti is known as a biodiversity hotspot rich in endemic fish, but its sustainability is critical (Kottelat et al 1993; Tweedley et al 2013). The endemic fish in Lake Towuti were decreased in population, so their sustainability has been disrupted (Parenti 2011; Nasution et al 2014; Prianto et al 2016; Jayadi et al 2019). This is due to over fishing and intensive fishing, the condition of habitat quality has changed due to the presence of domestic pollution and mining waste, also the introduction of invasive fish species as competitors for endemic fish in fighting for space and food, and become prey for the introduced fish.