

# Fishery activities and environmental condition of Maninjau Lake, West Sumatra

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**Abstract.** Maninjau Lake is located in Tanjung Raya Subdistrict, Agam Regency, West Sumatra Province, with the surface area 9,737.50 ha. Maninjau Lake has one major outlet through the Batang Antokan river flows to the west coast of Sumatra Island. The excessive number of floating net cages, those are upper of carrying capacity, is the biggest problem in Maninjau Lake. Mass fish kills happened frequently due to deterioration of water quality in this lake. This study is aimed to observe the current fishery activities and environmental conditions in Maninjau Lake. The data were collected by survey using interview methods and record statistic data from the government. The results showed that Maninjau Lake has three functions as ecologies, social and economic. The capture fisheries are still using the traditional fishing gears, while the fish culture is using the floating net cages. There were 18 species inhabited in Maninjau Lake, consists of native and introduced species. Moreover, invasive species have been found, namely *Pteryglichtys pardalis* (Amazon sailfin catfish) and *Amphilophus trimaculatus* (flowerhorn). Nowadays, it is difficult to catch the native fish, *Tor* sp (gariang), and the endemic fish, *Psilopsis* sp (rinuak). Maninjau Lake is in the eutrophic state with quite good waters conditions, but it could become worse since the lake is steadily changing naturally and also anthropogenic activity. The fisheries management in Maninjau Lake should involve the stakeholder groups that have a different degree of interest, the role of management, and related institutions.

## 1. Introduction

West Sumatra Province has five big lakes, i.e., Singkarak Lake (10,908 ha), Maninjau Lake (9,737.5 ha), Diatah Lake (3,500 ha), Dibawah Lake (1,400 ha), and Talang Lake (500 ha) [1]. Those lakes are the primary producer of freshwater fish in West Sumatra, besides being a tourist destination. Maninjau Lake is located in Tanjung Raya Subdistrict, Agam Regency, about 140 kilometers north of Padang City.

Maninjau Lake is a techno volcanic lake formed by volcanic activity around 52,000 years ago. This lake is located on geographical position E: 00012'26.63 " - S: 0025'02.80" and E: 100007'43.74" - E: 100016'22.48 " , at altitude of 461.50 m above sea level. The surface area of the lake is 99.5 km<sup>2</sup> with an average depth of around 105 m and can reach 495 m as a maximum depth [2][3]. Maninjau Lake has one major outlet through the Batang Antokan river flows to the west coast of Sumatra Island.

