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To cite this article: Z Anna and P Hindayani 2018 *IOP Conf. Ser.: Earth Environ. Sci.* **137** 012096

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# A welfare study into capture fisheries in cirata reservoir: a bio-economic model

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**Abstract.** Capture fishery in inland such as reservoirs can be a source of food security and even the economy and public welfare of the surrounding community. This research was conducted on Cirata reservoir fishery in West Java, to see how far reservoir capture fishery can contribute economically in the form of resource rents. The method used is the bioeconomic model Copes, which can analyze the demand and supply functions to calculate the optimization of stakeholders' welfare in various management regimes. The results showed that the management of capture fishery using Maximum Economic Yield regime (MEY) gave the most efficient result, where fewer inputs would produce maximum profit. In the MEY management, the producer surplus obtained is IDR 2,610.203.099, - per quarter and IDR 273.885.400,- of consumer surplus per quarter. Furthermore, researches showed that sustainable management regime policy MEY result in the government rent/surplus of IDR 217.891,345, - per quarter with the average price of fish per kg being IDR 13.929. In open access fishery, it was shown that the producer surplus becomes IDR 0. Thus the implementation of the MEY-based instrument policy becomes a necessity for Cirata reservoir capture fishery.

## 1. Introduction

Public waters such as reservoirs have potential for the development of fish resources that can contribute to food security and even the economy and public welfare of local community [1,2,3,4,5,6,7,8]. Fishery activities in reservoirs become increasingly important in the secondary use of reservoirs, particularly in developing countries, as reservoir fisheries tend to provide a relatively affordable source of animal protein for rural populations [1]. Inland capture fisheries, including reservoir fisheries, generally provide ecosystem services (i.e., fish for food, livelihoods and recreation) for the people; therefore, they have an economic value [9]. Hence, reservoir fisheries play an important role in the economy of a country and the livelihoods of the people living around the reservoirs [8]. Included in the potential of fishery business in reservoirs is capture fishery [10]. Unfortunately, the potential of capture fisheries is pretty much neglected because it is considered as less potentially economic than the fishery businesses having been widely developed in reservoirs, especially floating cage culture fishery.

