Ocean and Coastal Management 243 (2023) 106756

Contents lists available at ScienceDirect

Ocean and Coastal Management

journal homepage: www.elsevier.com/locate/ocecoaman

Willingness to pay for mangrove conservation in Sembilang National Park, South Sumatra, Indonesia

Fauziyah [a,*], Fitri Agustriani [a], Reni Enggila Oktavianis [a], T Zia Ulqodry [a], Nabila Aprianti [b], Ardani [c]

[a] Department of Marine Science, Faculty of Mathematics and Natural Sciences, Universitas Sriwijaya, Jl. Raya Palembang-Prabumulih Km. 32, Indralaya, Ogan Ilir, 30862, South Sumatra, Indonesia
[b] Chemical Engineering Department, Faculty of Engineering, Universitas PGRI Palembang, Jl. Jendral A. Yani Lr. Gotong Royong 9/10 Ulu, Palembang, South Sumatra, Indonesia
[c] Graduate of Fishery Resources Utilization Department, Faculty of Fisheries and Marine Science, IPB University, Jl. Rasamala, Kampus IPB Darmaga, Bogor, Indonesia

ARTICLE INFO

Keywords:
Contingent valuation
Double-bounded dichotomous choice
Mangrove conservation
Non-parametric estimation
Sembilang National Park
Parametric estimation

ABSTRACT

Mangrove ecosystems in the Sembilang National Park (SNP), South Sumatra, Indonesia have been degraded due to various anthropogenic pressures. Therefore, mangrove conservation actions were required. One of these actions was estimating the conservation value of mangrove forests using the willingness to pay (WTP) approach. This approach played an important role in providing alternative finance sources through public engagement when conservation funds were limited. This study aimed to estimate the mean WTP and examine the factors influencing WTP for mangrove conservation in the SNP, South Sumatra, Indonesia. The data were collected using a contingent valuation method (CVM), especially double-bounded dichotomous choice (DBDC). Furthermore, the survey was conducted on 170 household respondents in three villages representing the zones of the Sembilang National Park and its surroundings. The mean WTP was estimated using non-parametric (the Kaplan-Meier-Turnbul (KMT) and Spearman-Karber (SK) models) and parametric statistics (binary logistic and bivariate probit model). The estimated mean WTP from the SK and KMT models were IDR 80,417 (5.42 USD) and IDR 65,417 (4.41 USD) per household per year, respectively. Meanwhile, the results of the binary logistic and bivariate probit model were IDR 60,596 (4.08 USD) and IDR 60,274 (4.06 USD) per household per year, respectively. The results of parametric estimation revealed that gender, household size, bid, and the local ecological knowledge (LEK) of respondents had a negative and statistically significant influence on their WTP responses. On the other hand, income significantly and positively affected WTP. In contrast, age, education, occupation, and awareness had no significant impact on WTP. These findings would help the policymakers regarding mangrove conservation and advise the importance of mangrove conservation in supporting the livelihoods of local people.

1. Introduction

Indonesia has the largest mangrove forest in the world, reaching 22.6% of the total mangrove forest area in the year 2000 (Giri et al., 2011). According to the 2021 National Mangrove Map, Indonesia's existing mangrove area has reached 3,364,080 Ha, and South Sumatra Province contributed 5% (171,629 Ha) which ranks 6th in the largest mangrove area among 34 provinces in Indonesia (MoEF, 2021). Additionally, the Sembilang National Park (SNP) in the province of South Sumatra (Indonesia) has the largest mangrove forest (Basuki and Putri, 2019), and it covered 88,555.56 ha based on a study in 2019 (BSNP, 2020). Agustriani et al. (2023) revealed that these mangroves provided various ecosystem services such as supporting, provisioning, regulating, and cultural services. Several studies have also reported that the mangrove ecosystem in this Park provides potential habitat for protected marine biotas such as the Asian Horseshoe Crabs (Fauziyah et al., 2019a, 2019b, 2021, 2023; Sari et al., 2020) and Irrawaddy Dolphin (Fauziyah et al., 2022). In this context, ecosystem services were urgently needed for human well-being, especially in coastal areas in developing countries (Martínez-Espinosa et al., 2020; Sannigrahi et al., 2020).

* Corresponding author.
E-mail address: siti_fauziyah@yahoo.com (Fauziyah).

https://doi.org/10.1016/j.ocecoaman.2023.106756
Received 1 June 2023; Received in revised form 11 July 2023; Accepted 11 July 2023