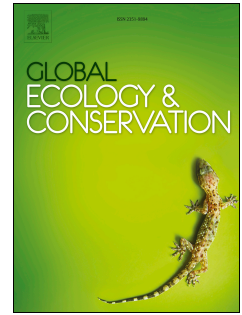


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Valuation of environmental improvements in coastal wetland restoration: A choice experiment approach

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1 Valuation of environmental improvements in coastal wetland restoration:
2 A choice experiment approach

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6 Declarations of interest: none

7

8 **Abstracts**

9 This study was conducted to value the environmental improvements in coastal wetland restoration
10 in Ximen Island Special Marine Protected Area, China. A choice experiment was employed to estimate
11 the welfare changes of providing different coastal wetland restoration scenarios. Respondents were
12 randomly selected for data collection through face to face interviews. Both conditional logit model and
13 random parameters logit model were employed in this study to estimate the individual utility associated
14 with the wetland attributes. The results suggested that people valued positive benefits of coastal
15 wetland restoration, as it could improve the levels of mangrove area, water quality and biodiversity.
16 The mangrove area was the most important attribute which need to be considered in the restoration
17 strategy design, as it had the highest marginal willingness to pay value. The compensating surplus of
18 specified wetland restoration scenarios were calculated and the values increased from modest coastal
19 wetland restoration scenario to ambitious coastal wetland restoration scenario. The information derived
20 from the study could be helpful for policy makers to determine coastal wetland restoration strategy for
21 the Ximen Island Special Marine Protected Area.

22

23 Keywords: Coastal wetland; Valuation; Choice experiment; Willingness to pay

24

25 **1. Introduction**

26 Coastal wetlands which formed between the land and ocean are among the Earth's most
27 productive ecosystems (Zhao et al., 2016). Coastal wetlands can provide a diverse array of important
28 ecological functions and services, such as biodiversity maintenance, fishery production, water
29 purification, storm buffering and other life support functions (Barbier, 2013; Lavoie et al., 2016).
30 However, coastal wetlands are severely threatened, suffering from serious degradation, alteration or
31 loss due to intensive anthropogenic activities, such as marine reclamation and pollution (Jiang et al.,
32 2015). It is estimated that about 50%-60% of wetlands have been lost or degraded in the past century in
33 Europe, while the United States has witnessed a 54% loss of its original wetlands (Birol et al., 2006).
34 The lack of awareness of the value of wetlands conservation resulted in the destruction or heavy
35 alteration of the wetlands areas, generating substantial social and environmental costs (Hassan, 2017;
36 Meng et al., 2017). Many countries have therefore developed strategies, programs and regulations to

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