

[Home](#) > [Environmental Management](#) > Article

Valuing Recreational Benefits of Coral Reefs: The Case of Mombasa Marine National Park and Reserve, Kenya



Published: 24 November 2009

Volume 45, pages 145–154, (2010) [Cite this article](#)**Environmental Management**[Aims and scope](#) →[Submit manuscript](#) →[Kevin P. Ransom](#)¹ & [Stephen C. Mangi](#) ² **1857** Accesses  **34** Citations [Explore all metrics](#) →

Abstract

A contingent valuation study was conducted with adult Kenyan citizens and foreign tourists to estimate the value of recreational benefits arising from coral reefs at Mombasa Marine National Park and Reserve (MMNPR), and to assess the implications for local reef management. Citizen and foreign visitors to MMNPR were willing to pay an extra \$2.2 (median = \$1.6) and \$8 (median = \$6.7) per visit respectively, in addition to current park entrance fees, to support reef quality improvements. By aggregating visitors' willingness to pay bids over the number of visitors to MMNPR in 2006–2007 the value of benefits was estimated at \$346,733, which was more than twice the total annual operational expenditure of \$152,383 for MMNPR. The findings indicate that annual revenues from citizen and foreign visitors may be increased by 60% to \$261,932 through the implementation of

proposed higher park fees of \$3.10 for citizens and \$15 for foreign visitors. However, any fee increase would serve to intensify concerns among citizens that only relatively affluent Kenyans can afford to visit MMNPR. Park managers need to demonstrate that the extra revenue would be used to fund the proposed conservation activities. This valuation study demonstrates that visitors are prepared to pay higher user fees for access to the marine protected area revealing considerable untapped resource to finance reef quality improvements.

 This is a preview of subscription content, [log in via an institution](#)  to check access.

Access this article

Log in via an institution →

Buy article PDF 39,95 €

Price includes VAT (Poland)

Instant access to the full article PDF.

Rent this article via [DeepDyve](#) 

[Institutional subscriptions](#) →

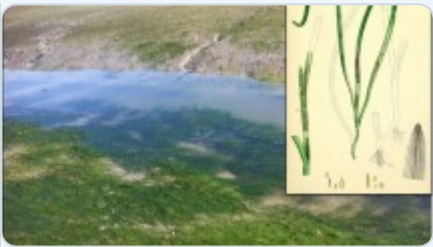
Similar content being viewed by others



Safeguarding marine life: conservation of biodiversity and ecosystems

Article | Open access

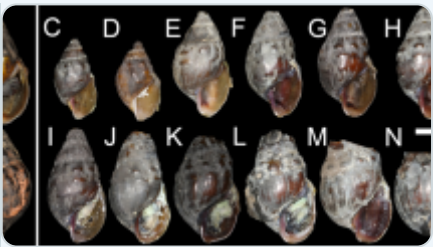
07 March 2022



A review of seagrass ecosystem services: providing nature-based solutions for a changing world

Article | Open access

06 June 2023



Surveys that prioritize site number over time per site will result in better gastropod

Article | Open access

25 March 2024

References

Ahmed M, Umali GM, Chong CK, Rull MF, Garcia MC (2007) Valuing recreational and conservation benefits of coral reefs: the case of Bolinao, Philippines. *Ocean & Coastal Management* 50:103–118

[Article](#) [Google Scholar](#)

Andersson JEC (1997) The value of coral reef for the current and potential tourism industry on Unguja Island, Zanzibar. In: Johnstone RW, Francis J, Mohando C (eds) *Coral reefs: values, threats and solutions*. Proceedings of the national conference on coral reefs, Zanzibar, Tanzania, pp 82–90

Andersson JEC (2007) The recreational cost of coral bleaching: a stated and revealed preference study of international tourists. *Ecological Economics* 62:704–715

[Article](#) [Google Scholar](#)

Arin T (1997) Survey on diver valuation of coral reefs using the contingent valuation method. Coastal Resource Management Project, Document No. 7-CRM/1997

Arin T, Kramer RA (2002) Divers' willingness to pay to visit marine sanctuaries: an exploratory study. *Ocean & Coastal Management* 45:171–183

[Article](#) [Google Scholar](#)

Arrow K, Solow R, Portney PR, Leamer EE, Radner R, Schuman EH (1993) Report of the NOAA panel on contingent valuation. *Federal Register* 58:4602–4614

[Google Scholar](#)

Balistreri E, McClelland G, Poe G, Schulze W (2001) Can hypothetical questions reveal true values? A laboratory comparison of dichotomous choice and open-ended contingent values with auction values. *Environmental and Resource Economics* 18:275-292

[Article](#) [Google Scholar](#)

Bateman IJ, Langford IH, Rasbash J (1999) Willingness-to-pay question format effects in contingent valuation studies. In: Bateman IJ, Willis KG (eds) *Valuing environmental preferences: theory and practice of the contingent valuation method in the US, EC and developing countries*. Oxford University Press, Oxford, UK

[Google Scholar](#)

Emerton L, Tessema Y (2001) Economic constraints to the management of marine protected areas: the case of Kisite Marine National Park and Mpunguti Marine National Reserve, Kenya. IUCN Eastern African Regional Programme, Nairobi, Kenya

Garrod GD, Willis KG (1997) The non-use benefits of enhancing forest biodiversity: a contingent ranking study. *Ecological Economics* 21:45-61

[Article](#) [Google Scholar](#)

Goreau T, McClanahan T, Hayes R, Strong A (2000) Conservation of coral reefs after the 1998 global bleaching event. *Conservation Biology* 14:5-15

[Article](#) [Google Scholar](#)

Gurluk S (2006) The estimation of ecosystem services' value in the region of Misi Rural Development Project: results from a contingent valuation survey. *Forest Policy and Economics* 9:209-218

[Article](#) [Google Scholar](#)

Hanemann WM (1994) Valuing the environment through contingent valuation. Journal of Economic Perspectives 8:19-43

[Google Scholar](#)

Hanley N, Spash CL (1995) Cost benefit analysis and the environment. Edward Elgar, Aldershot

[Google Scholar](#)

Hanley N, Shogren JA, White B (2001) Introduction to environmental economics. Oxford University Press, Oxford

[Google Scholar](#)

Hawkins JP, Roberts CM (1992) Effects of recreational scuba diving on fore-reef slope communities of coral reefs. Biological Conservation 62:171-178

[Article](#) [Google Scholar](#)

Hawkins JP, Roberts CM (1993) Effects of recreational scuba diving on coral reefs: trampling on reef-flat communities. Journal of Applied Ecology 30:25-39

[Article](#) [Google Scholar](#)

International Union for the Conservation of Nature (IUCN) (2004) Managing marine protected areas: a toolkit for the Western Indian Ocean. IUCN Eastern African Regional Programme, Nairobi, Kenya

Mangi SC, Roberts CM (2006) Quantifying the environmental impacts of artisanal fishing gear on Kenya's coral reef ecosystems. Marine Pollution Bulletin 52:1646-1660

[Article](#) [CAS](#) [Google Scholar](#)

Mangi SC, Roberts CM, Rodwell LD (2007) Reef fisheries management in Kenya: preliminary approach using the driver-pressure-state-impacts-response (DPSIR) scheme of indicators. *Ocean & Coastal Management* 50:463–480

[Article](#) [Google Scholar](#)

Mathieu LF, Langford IH, Kenyon W (2003) Valuing marine parks in a developing country: a case study of the Seychelles. *Environment and Development Economics* 8:373–390

[Article](#) [Google Scholar](#)

McClanahan TR, Mwaguni S, Muthiga N (2005) Management of the Kenyan coast. *Ocean & Coastal Management* 48:901–931

[Article](#) [Google Scholar](#)

Mercer E, Kramer R, Sharma N (1995) Rain forest tourism: estimating the benefits of tourism development in a new national park in Madagascar. *Journal of Forest Economics* 1:239–269

[Google Scholar](#)

Mitchell RC, Carson RT (1989) Using surveys to value public goods: the contingent valuation method. *Resources for the Future*, Washington, DC

[Google Scholar](#)

Mora C, Andrefouet S, Costello MJ, Kranenburg C, Rollo A, Veron J et al (2006) Coral reefs and the global network of marine protected areas. *Science* 312:1750–1751

[Article](#) [CAS](#) [Google Scholar](#)

Ngazy Z, Jiddawi N, Cesar HSJ (2004) Coral bleaching and the demand for coral reefs: a marine recreation case in Zanzibar. World Fish Centre, Penyang, Malaysia

[Google Scholar](#)

Obura DO (2001) Kenya. Marine Pollution Bulletin 42:1264–1278

[Article](#) [CAS](#) [Google Scholar](#)

Peters H, Hawkins JP (2009) Access to marine parks: a comparative study in willingness to pay. Ocean & Coastal Management 52:219–228

[Article](#) [Google Scholar](#)

Roberts CM, Hawkins JP (2000) Fully protected marine reserves: a guide. WWF Endangered Seas Campaign, Washington, DC

[Google Scholar](#)

Salm R, Tessema Y (1998) Partnership for conservation: report from regional workshop on marine protected areas, tourism and communities. IUCN Eastern Africa Regional Office, Nairobi

[Google Scholar](#)

Seenprachawong U (2003) Economic valuation of coral reefs at Phi Phi Islands, Thailand. International Journal of Global Environmental Issues 3:104–114

[Article](#) [Google Scholar](#)

Slee B (2007) Social indicators of multifunctional rural land use: the case of forestry in the UK. Agriculture Ecosystems and Environment 120:31–40

[Article](#) [Google Scholar](#)

Westmacott S, Cesar HSJ, Pet-Soede L, Linden O (2000) Coral bleaching in the Indian Ocean: socio-economic assessment of effects. In: Cesar HSJ (ed) Collected essays on the economics of coral reefs. Kalmar, Sweden

Yeo BH (2005) The recreational benefits of coral reefs: a case study of Palau Payar Marine Park, Kedah, Malaysia. In: Ahmed M, Chong CK, Cesar H (eds) Economic valuation and policy priorities for sustainable management of coral reefs, World Fish Centre Proceedings, vol 70, pp 108–117

Acknowledgments

This research was conducted as part of the European Masters in Water and Coastal Management and supported by the Marine Biodiversity and Ecosystem Functioning (MarBEF) Network of Excellence which is funded by the European Community. We would like to express our gratitude to Arthur Tuda, Warden, Kenya Wildlife Service, Mombasa for permission to conduct this study in Mombasa Marine National Park and Reserve. We thank Dr David Obura and Innocent Wanyonyi at CORDIO East Africa, Mombasa for logistical support; Buccaneer Diving and the Boat Owners Association, Mombasa for their assistance with field data collection; and all respondents for their participation in this study.

Author information

Authors and Affiliations

**School of Earth, Ocean and Environmental Sciences, University of
Plymouth, Drake Circus, Plymouth, PL4 8AA, UK**

Kevin P. Ransom

**Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth, PL1
3DH, UK**

Stephen C. Mangi

Corresponding author

Correspondence to [Stephen C. Mangi](#).

Rights and permissions

[Reprints and permissions](#)

About this article

Cite this article

Ransom, K.P., Mangi, S.C. Valuing Recreational Benefits of Coral Reefs: The Case of Mombasa Marine National Park and Reserve, Kenya. *Environmental Management* **45**, 145–154 (2010).

<https://doi.org/10.1007/s00267-009-9402-9>

Received

25 October 2008

Accepted

01 November 2009

Published

24 November 2009

Issue Date

January 2010

DOI

<https://doi.org/10.1007/s00267-009-9402-9>

Keywords

[Contingent valuation](#)

[Marine protected areas](#)

[Reef management](#)

[Tourism](#)

[User fees](#)

[Willingness to pay](#)

Search

Search by keyword or author



Navigation

Find a journal

Publish with us

Track your research