Sustainable Marine Recreational Tourism in Andaman and Nicobar Islands

M.P. Goutham Bharathi*
and
C. Raghunathan

Zoological Survey of India,
Andaman and Nicobar Regional Centre,
Port Blair – 744102,
Andaman and Nicobar Islands, India
Email: gouthamrussia@gmail.com

Introduction

Marine recreational tourism has become increasingly popular among the coastal countries in recent years. It is primarily associated with beaches and the sea and there have been adverse impacts from tourism on the marine and coastal environment (van't Hof, 2001). While marine recreational tourism enjoys a continued growth worldwide, concern exists that it is contributing to the degradation of the marine biodiversity as well, both biologically and aesthetically. Marine recreational tourism has both direct and indirect impacts on the coral reefs and reef associated biota. Activities with direct impacts are snorkelling, SCUBA and boating, which can cause direct physical damage to the reefs. Damage inflicted by snorkelers and SCUBA divers are one of a number of factors coral reef decline (*Wielgus et al.*, 2004). SCUBA diving and snorkeling may result in the deterioration of benthic communities, because divers can easily damage marine organisms through physical contact with their hands, body, equipment, and fins (Fig. 1). Fishing and collecting can contribute to overexploitation of reef species and threat to the survival of endangered species and regional endemics. Indirect impacts relate to the development, construction and operation of tourism infrastructure as a whole. In this era of rapid multi-scale economic, environmental and social change, the continuation of any given tourism phenomenon into the long-term future should not be taken for granted (*Hillmer-Pegram, 2013*). Further, it is a well established fact that excessive, unregulated marine recreational tourism can have negative impacts on coral reefs including pollution, direct contact of tourists, anchor damage and sedimentation from coastal erosion and over-development. Despite all these adverse impacts, marine recreational tourism

Fig. 1. Physical contact with marine organisms (1)

represents both a motivation and source of resources for its conservation (Diedrich, 2006).

Marine Recreational Tourism in Andaman and Nicobar Islands

Andaman and Nicobar Islands holds a significant position in marine recreational tourism among the coastal states of India, attracting a huge influx of tourists from all over the world. The major attractions for the tourists include serene beaches with a vast expanse of coral reefs and splendid marine biota. According to the recent estimates of the **Directorate of Economics and Statistics (2016)**, a total of 3,25,818 tourists including 12,553 foreigners visited these Islands during 2015-16. The marine tourism industry in Andaman and Nicobar Islands comprise of water sports, glass bottom boat cruises, mangrove kayaking, SCUBA diving and snorkeling. The growth of marine recreational tourism in Andaman and Nicobar Islands has resulted in a paradigm shift of dependence on fishing to tourism. It offers numerous socio-economic benefits *viz.*, increased revenue and employment. Therefore, sustaining tourism is inevitable in sustaining the economy of the state.

According to the Directorate of Economics and Statistics (2016), the number of tourists visited the Islands has been increased from 1,95,396 during 2010-11 to about 3,25,818 during 2015-16. This marked increase in the influx of visitors necessitates the need to design regionally feasible strategies in regularizing the marine tourism and in mitigating the adverse impacts in the future. It is pertinent to note that natural threats have been given focused attention and perhaps, the impacts of tourism have been seemingly overlooked over the years. Working on sustainable marine recreational tourism in these Islands, both at the policy and practice levels is imperative as continued unregulated marine recreational tourism may lead to the reef degradation (*Woodland and Hooper, 1977*; *Kay and Liddle, 1986*; *Tilmant, 1987*; *Hawkins and Roberts, 1992, 1993*).

Research Gaps

Reports dealing with sustainable marine recreational tourism are scant except for a detailed study from Goa (*Sanjeev et al.*, 2016), and n[illegible] was found that explicitly addresses threats of unregulated marine recreational tourism in the Islands. Insightful examinations of the impacts of the marine recreational tourism are essential to manage the dive tourism sustainably. Further there is a very little enforcement of existing regulations. The Andaman and Nicobar Administration is focusing on the following issues *viz.*, (i) promotion of high value low volume eco-friendly and environmentally sustainable tourism, (ii) undertaking tourism activities, which are not harmful to the ecosystem, (iii) to implement the master plan proposed by UNDP/WTO report for sustainable development of tourism in Andaman (iv) playing the role of facilitator and encouraging private sector investment in development of tourism infrastructure (v) gradual privatization of management of exiting tourism infrastructure (vi) development of new tourism activities/products (vii) marketing A & N Islands as tourist destination at national and international level. The specific research gaps in the Andaman and Nicobar Islands are as follows:

Though there are 36 beaches in the islands, marine recreational tourism is restricted to few beaches (for example, North Bay, Havelock and Neil). This leads to overcrowding of the tourism activities at few sites resulting in increased anthropogenic pressure.

Knowledge of the rare species and regional endemics among the stakeholders/tourism agents is very little. The marine fauna in the Islands has mainly been recognized for their direct use values by the rural population. This erroneous understanding has made it easier to exploit the marine fauna, undervaluing the ecological services they provide. This is strongly supplemented by the fact that many scheduled species viz., dugongs and turtles continued to be slaughtered in the islands where there is no surveillance, which could be attributed to lack of awareness amongst stakeholders and absence of strong policies to regulate marine tourism. The significance of people's participation and the

role of citizen scientists are not realized in assessing the marine biodiversity. Another important issue to be addressed is the lack of a formal management system ensuring equitable use of the marine resources. Moreover, human being tends to remain unconcerned with an environment even if it degrades around them.

Recommendations

A comprehensive study needs to be conducted for developing a baseline data in respect of the exact species composition and the impacts of tourism on them. This shall aid in developing species-specific conservation strategies. Further, knowledge on the ecological status of the reef ecosystems at the popular dive sites is sparse and scattered, which could be damaging.

Implementation of an environment-friendly marine recreational tourism needs to be done based on regionally-feasible guidelines. Development and implementation of an effective capacity building program for all stakeholders involved in marine recreational tourism to sensitize them on good practices for sustainable marine tourism. The local communities should be sensitized through technical training and initial financial support and encouraged in establishing ecotourism ventures. This will help them in deriving economic benefits from tourism while at the same time serve as responsible stewards of local biodiversity.

Mooring buoys should be installed in coral reefs and other sensitive zones which shall reduce the anchor breakage of the coral reefs. Further, as mentioned earlier, overcrowding shall be avoided by identifying more number of dive sites and classifying the tourists to two categories *viz.*, swimmers and non-swimmers. Non-swimmers shall be taken to the sites where there is comparatively lesser biodiversity of branching corals to reduce the direct damage to the fragile coral reefs. Further, potential recreational and scuba divers should be identified and key species/endemics monitoring should be initiated. The methodology detailed by *Lorenzo et al.* (2011) in conserving the emblematic Mediterranean red coral in Italy shall be adopted for effective conservation of rare and keystone species. The use of threatened endemic species as flagship species to instill public awareness of their economic and ecological values as well as to harness support for conservation from tourists has been effective in promoting both in-situ and *ex-situ* conservation measures (Catibog-Sinha, 2010).

Conclusion

To reduce the rate of biodiversity is not impossible to achieve, provided pragmatic strategies built on community needs and on a much broader interpretation of biodiversity conservation (Catibog-Sinha, 2010). Alternative sustainable tourism livelihoods are being introduced to generate support for conservation and minimize dependence on natural resources. It is evident that local communities who benefit from tourism will protect the same resources for their sustenance. Tourism and the environment are closely interconnected and planning an environment-friendly perspective tourism is highly imperative (Inskeep, 1987, Sanjeev et al., 2016) and this has been recognized throughout the world (Cohen, 1978). Sustainable tourism is not only important for scientific purposes and conservation, but also for the long-term protection of investments that go into tourism infrastructure, attractions and facilities (Inskeep, 1987). Over recent years, considerable knowledge has been acquired about the implications tourism and development may have on the environment, and some studies have included analyses of consequences that have occurred from mismanagement and lack of effective planning (Dasman et al., 1973; Wall & Wright, 1977). The best of tourism is one, which encourages environmental conservation and awareness; this is because, natural environmental features are often, if not always, the reasons for tourists to visit an area, and these natural features must be conserved in order to develop and maintain a successful tourism industry (Sanjeev et al. 2016). This includes solid support and participation from the local community and other stake holders,

strict implementation and enforcement of relevant legal measures, community education about the marine biodiversity and its utility, community participation in mangrove regeneration and dissemination of knowledge amongst stakeholders. The success lies in basic understanding that an environment-friendly tourism is the source of significant and tangible socio-economic benefits to the Islands.

References

Catibog-Sinha, C. (2010). Biodiversity conservation and sustainable tourism: Philippine initiatives, Journal of Heritage Tourism, 5:4, 297-309, doi: 10.1080/1743873X. 2010.517841.

Cohen, E. (1978). The impact of tourism on the physical environment. Annals of Tourism Research. 5: 215 – 237.

Dasman, R.F., Milton, J.P., Freeman, P.H. (1973). Ecological principals for economic development. New York: John Wiley & Sons.

Directorate of Economics and Statistics (2016). Andaman and Nicobar Administration. Andaman and Nicobar Islands.

Hawkins, J.P. and Roberts, C.M. (1992). Effects of recreational SCUBA diving on fore-reef

Hawkins, J.P. and Roberts, C.M. (1993). Effects of recreational SCUBA diving on fore-reef slope communities of coral reefs. Biological Conservation, 62(3):171-178.

Hillmer-Pegrama, K.C. (2013). Understanding the resilience of dive tourism to complex change. Tourism Geographies, http://dx.doi.org/10.1080/14616688.2013.851268.

Inskeep, E. (1987). Environmental planning for tourism. Annals of Tourism Research.14: 118-135.

Kay, A.M. and Liddle, M.J. (1986). The impact of reef walking at Hardy Reef. GBRMPA report status.

Lorenzoa B., Ilaria, V., Sergio, R., Stefano, S. and Giovannia, S. (2011). Involvement of recreational scuba divers in emblematic species monitoring: The case of Mediterranean red coral (Corallium rubrum). Journal for Nature Conservation 19: 312– 318

Sanjeev, S., Jamalabad, A., Mitra, P., D'cruz, G., Rao, M., Sutaria, D. (2016). Promoting Sustainable Marine Tourism in Goa. World Wide Fund for Nature, New Delhi, p53.

Tiimant, J.T. (1987). Impact of recreational activities on coral reefs. In Salvat B (ed) Human impacts on coral reefs: Facts and recommendations. Antenne Museum E.P.H.E., French Polynesia, pp.195-214.

van't Hof, T. (2001). Tourism impacts on coral reefs: increasing awareness in the tourism sector, UNEP.

Wall, G., Wright, C. (1977). The environmental impact of outdoor recreation.Publication No. 11. Waterloo: University of Waterloo: Department of Geography.

Wielgus, J., Nanette, E., Chadwick-Furman, Z.v.y. and Dubinsky. (2004). Coral cover and partial mortality on anthropogenically impacted coral reefs at Eilat, northern Red Sea. Marine Pollution Bulletin, 48:248-253.

Woodland, D.J. and Hooper, J.N.A. (1977). The effect of human trampling on coral reefs. Biological Conservation, 11:1–4.

Aichi Targets