



Scuba diving tourism systems and sustainability: Perceptions by the scuba diving industry in two Marine Protected Areas



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HIGHLIGHTS

- The scuba diving tourism industry's sustainability is affected by various problems.
- These problems were investigated by engaging scuba diving operators in two MPAs.
- Relations with other elements in the Scuba Diving Tourism System were assessed.
- Operators felt the potential of the scuba diving industry, yet limited support.
- General and *ad hoc* measures to enhance the industry's sustainability were advanced.

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ABSTRACT

Scuba diving tourism encourages conservation, generates revenue, and supports local communities. Understanding its interactions with environmental, social, and economic factors is important in the context of Marine Protected Areas (MPAs), where dynamics between role players are complex. This study provides insights into the problems affecting the sustainability of the scuba diving tourism industry in two MPAs in Italy and Mozambique. The interactions between the industry and environment, economy, non-monetary aspects, society, governance, and scientific community were investigated via questionnaire surveys and interviews with 20 scuba diving operators. Operators felt the importance of scuba diving to themselves, MPAs, and resident communities, although they lamented limited support to the industry by other stakeholders. Recommendations to enhance sustainability include actions ranging from engagement in planning and management to education and social responsibility. However, the heterogeneity of issues perceived by the industry, reflected in differences between the case studies, calls for *ad hoc* measures.

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1. Introduction

Scuba diving tourism has grown to become a multi-billion dollar industry, drawing millions of people to explore the underwater world (De Groot & Bush, 2010; Wongthong & Harvey, 2014). The boom in scuba diving has led to significant investments in various products, from retail to education and dives, encouraging the

emergence and growth in the number of scuba diving schools, scuba diving equipment shops, and scuba diving charter businesses (Dimmock, Cummins, & Musa, 2013). Like all tourism industries, scuba diving calls for scrutiny in whether and how it rests on the three pillars of sustainability, environmental, social, and economic (Haddock-Fraser & Hampton, 2012; Townsend, 2008; Wongthong & Harvey, 2014). This is in the light of the enormous potential held by the scuba diving tourism industry to carry out and encourage conservation, attract tourism, generate revenue, improve peoples' quality of life, and promote community pride (De Groot & Bush, 2010; Mota & Frausto, 2014; Wongthong & Harvey,

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2014).

Most of the research focusing on scuba diving tourism has given attention primarily to two aspects. One is environmental, including the interaction of scuba divers and the underwater environment, and potential ecological impacts (Dimmock & Musa, 2015; Haddock-Fraser & Hampton, 2012; Hillmer-Pegram, 2014). The other, a spinoff of the first, is the sustainable management of diving tourism, with attention to the environmental perceptions of divers, and their willingness to contribute to marine conservation (Hillmer-Pegram, 2014). However, these aspects alone fail to portray scuba diving tourism holistically and assess its sustainability (Hillmer-Pegram, 2014), so that mixed methods of research investigating scuba diving tourism from various angles, engaging multiple stakeholders, and assessing a large number of case studies are required.

The central elements of the scuba diving tourism system (SDTS), as first conceptualised by Hillmer-Pegram (2014) and later refined and re-proposed by Dimmock and Musa (2015), include the marine environment where the activity takes place and a variety of stakeholders, grouped into the broad categories of scuba divers, the scuba diving industry, and host communities. In the conceptual model provided by Dimmock and Musa (2015), the scuba divers group is characterised by those divers creating demand, such as tourists. The host communities include the residents of the area where scuba diving takes place, but also local governments and authorities, managers and policy makers. The scuba diving industry encompasses scuba diving businesses, from diving charter businesses to schools, but also all other peripheral suppliers to scuba diving tourism, such as the hospitality sector, transport, and retail. All these stakeholders interact; any emerging clashes and juxtaposing functions need to be addressed through communication, collaboration, and adjustments. A sustainable SDTS would be expected to maximise the experience of scuba divers, while allowing the industry to make these experiences possible and being economically viable, preserving the marine environment and respecting the needs of the host communities (Wongthong & Harvey, 2014). Given the interdependence of these elements, systems approaches or approaches drawing on the perspectives of all stakeholder groups are favoured over linear and narrow approaches as a means to propose sustainable goals (Dimmock & Musa, 2015). The sustainability of scuba diving tourism following the concept of Integrated Coastal Management (ICM) can be achieved by integrating the various elements related to the use of coastal resources. Therefore, it requires proper communication amongst all relevant stakeholders and their participation in management and decision-making (Fabinyi, 2008; Wongthong & Harvey, 2014).

According to Dimmock and Musa (2015), the scuba diving industry can be seriously neglected in policy and planning when systems or integrated approaches are not used to analyse the SDTS. Little research has engaged the scuba diving industry in direct communications and exchanges aimed to uncover the roots of various problems affecting it today (Hillmer-Pegram, 2014). Sustainability goals, from conservation to quality service delivery to customers, remain difficult to propose until the interactions between environmental, social, and economic systems affecting the scuba diving industry are understood. Some of these interactions have been investigated; challenges to the contemporary scuba diving industry include aspects such as increased environmental pressure from tourism, market diversification, rapidly changing technology, greater competitiveness within the industry, competition with other industries, poor legislation, governance issues, and low community-level support (Dimmock et al., 2013; Haddock-Fraser & Hampton, 2012; Jentoft, Pascual-Fernandez, De la Cruz Modino, Gonzalez-Ramallal, & Chuenpagdee, 2012). Challenges

may either increase or be exacerbated when dynamics between role players within the SDTS become more complex, and when some groups exert more authoritative roles than others, as in the case of Marine Protected Areas (MPAs).

MPAs are generally intended to establish and achieve conservation goals by either excluding or controlling consumptive uses of marine resources, such as fishing, and supporting non-consumptive uses, for example scuba diving tourism (Fabinyi, 2008). The latter uses are also generally regulated in MPAs, given their potential negative impact on marine ecosystems. Previous studies have reported on the issues arising following the establishment of MPAs where scuba diving tourism takes place (Badalamenti et al., 2000; Bottema & Bush, 2012; Brown et al., 2001; De Groot & Bush, 2010; Fabinyi, 2008; Jentoft et al., 2012; Mangi & Austen, 2008; Rees et al., 2015; Rodríguez-Rodríguez et al., 2015; Salmona & Verardi, 2001). These may involve tensions and conflicts among stakeholder groups, such as fishers and divers; the implementation of restrictions and regulations; lack of effective management by the appointed authorities; limited or different understanding of the motivations and long-term goals of MPAs; and lack of or late participation by stakeholders in the planning of MPAs. These studies have highlighted the increasing complexity of the SDTS as a result of role shifts and significant changes, and the importance of paying attention to the causes of tensions to come up with solutions that accommodate all. If appropriately managed (and supported by stakeholders), MPAs are able to bring a variety of benefits to local communities, including flourishing ecosystems that deliver services and goods, and balance between claims by different users. Yet, it is acknowledged that MPAs also result in compromises and sacrifices for all stakeholders concerned, an unavoidable trade-off that is exacerbated when communications among the parties are not effective (Fabinyi, 2008). In light of the particular benefits, from financial to educational and governance, which MPAs can gain from supporting a balanced form of scuba diving tourism, the space given to the “say” of the scuba diving industry in the SDTS revolving around MPAs may still be limited.

The aim of this study was to provide insights into possible issues affecting the sustainability of the SDTS in two MPAs, by investigating how the scuba diving industry perceives itself and its relationship with other elements in the system. The study was based on direct interactions with representatives of the scuba diving industry, namely scuba diving operators, via questionnaire surveys, focus group discussions, and semi-structured interviews, which are able to generate relevant information easily and at a low cost, compared with more expensive and impersonal methods of data collection (Fabinyi, 2008; Haddock-Fraser & Hampton, 2012; Hillmer-Pegram, 2014; Wongthong & Harvey, 2014). The information collected was used to describe the profile of the diving sector, to identify critical obstacles in the scuba diving industry's journey towards sustainability, and to propose realistic plans to overcome them. Results added to previous knowledge about the key elements that define the scuba diving industry, and may holistically inform management decisions regarding costs and benefits from conservation actions that secure win-win outcomes for local business.

The study drew from the conceptual models of SDTS described above in two ways. First, by focusing on a neglected stakeholder group in the system, namely the scuba diving industry itself. Second, by investigating the interactions between this group and various elements within the system, including the environment, economy, non-monetary aspects, and other stakeholders. The model was modified for the purpose of this assessment, in that the scuba diving industry here was exclusively represented by the local diving charter businesses/schools. Remaining stakeholders were grouped into society (local residents, local governments, clients, and the general public), governance (those in charge of the

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