Ocean & Coastal Management 51 (2008) 727–739

Contents lists available at ScienceDirect

Ocean & Coastal Management

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

ISO 14001: Towards international quality environmental management standards for marine protected areas

Myles H. Thompson [a,*], Clément P. Dumont [b,1,2], Carlos F. Gaymer [b,1]

[a] Marine Affairs Program, Dalhousie University, Kenneth C. Rowe Management Building, 6100 University Avenue, Suite 2127, Halifax, Nova Scotia, Canada B3H 3J5
[b] Departamento de Biología Marina, Universidad Católica del Norte, Centro de Estudios Avanzados en Zonas Aridas (CEAZA), Larrondo 1281, Coquimbo, Chile

ARTICLE INFO

Article history:
Available online 11 July 2008

ABSTRACT

This paper addresses the current lack of internationally recognized standards for quality management practices in Marine Protected Areas (MPAs). The application of the ISO 14001 standard for environmental management systems to MPAs can provide a flexible and adaptive management system that can be integrated with existing MPA management practices as a standardized quality management process designed for the continuous improvement of MPA management. The paper provides a framework for applying ISO 14001 to MPAs and discusses the results of a practical case study in northern Chile wherein ISO 14001 was used as a benchmark for evaluating and improving the proposed management plan for a Chilean marine reserve.

© 2008 Elsevier Ltd. All rights reserved.

1. Introduction

The world's oceans are facing ever increasing human pressures resulting in the declining health of most marine ecosystems [1–4]. In part, it is suggested that these trends can be slowed if not reversed with increased conservation of the marine environment through the development of Marine Protected Areas (MPAs) [2,4–6]. The recognition that MPAs are a key component to the recovery and sustainability and of marine ecosystems combined with increasing public pressure to preserve the marine environment has motivated many nations around the world to slowly increase the number of MPAs [7–10]. While progress is being made toward a global system of MPAs, in many regions a significant number of MPAs exist as 'paper parks' and lack adequate management [8,11]. However, without adopting some essential quality management practices required to produce and demonstrate effective environmental management, the widespread development of MPAs will not meet the intended purposes of resorting and sustaining marine habitats and biodiversity.

To address this problem a number of guidelines and best practices have been prescribed by academics, NGO's, and individual governments for the planning, development, management and evaluation of MPAs [12–16]. In addition to these guidelines there are numerous goals and strategies for the management of MPAs. For example, some MPAs are designed as marine reserves solely to protect some commercially important species and to manage these reserves through a species-based focus with the ultimate goal of enhancing fish stocks [17,18]. Other MPAs are developed and managed through an ecosystem-based approach to preserve important habitats and ecosystems, while integrating other human uses such as tourism, recreation, shipping, and fisheries [19,20]. Mechanisms such as co-management, community-based management, traditional management, or combinations thereof are also employed to plan and administer MPAs through collaborations and/or empowerment of local stakeholders [21–24]. Each of these management tools can have varying levels of effectiveness for protection, enforcement, monitoring and evaluation of MPAs [21,23]. However, while every MPA is slightly different in its surroundings, there is no one management system for MPAs that is currently recognized as an international standard. While it is important to have a suite of tools available for MPA management there should be some essential, internationally recognized and standardized quality management processes integrated into the management of all MPAs. This will help ensure that there is a system for continuously and systematically improving MPA management and the overall protection of the marine environment.

This paper attempts to address the current lack of internationally recognized standards for quality management practices for MPAs. It is proposed that because the International Organization for Standardization (ISO) is a global leader in both quality (ISO 9000) and environmental (ISO 14000) management standards, the application of the ISO 14001 standard for environmental

* Corresponding author. Tel.: +1 902 494 3555; fax: +1 902 494 1001.
E-mail address: mhthomps@dal.ca (M.H. Thompson).
[1] Tel.: +56 51 209969; fax: +56 51 209812.
[2] Present address: Hopkins Marine Station, Stanford University, Oceanview Boulevard, Pacific Grove, CA 93950-3094, USA. Tel.: +1 831 655 6251; fax: +1 831 375 0793.

0964-5691/$ – see front matter © 2008 Elsevier Ltd. All rights reserved.
doi:10.1016/j.ocecoaman.2008.07.004

management systems to MPAs can provide a flexible and adaptive management system which can be integrated with existing practices as a standardized quality management process designed for the continuous improvement of MPA management. To build a case for ISO 14001 to be used as a global standard for MPA management, the following examines the adoption of ISO as a global standard, the international collaborative effort that was undertaken to develop the ISO 14001 standard, and its wide range of applications; including an in-depth examination of the standard's application to terrestrial protected areas management. Subsequently, a theoretical framework is provided for applying ISO 14001 to MPA management by comparing it to and integrating it with existing MPA management guidelines. Finally, the results of a practical case study are presented wherein ISO 14001 was used as a benchmark for evaluating and improving the proposed management plan for a newly created Chilean marine reserve.

2. Why ISO 14001?

2.1. The global adoption of ISO standards

A non-governmental organization based in Switzerland, ISO is arguably the most representative and influential standard-setting organization in the world [25] and is considered the leading developer of international product and process standards [26]. Composed of a federation of the national standards bodies from 157 countries, ISO's global network identifies what international standards business, government, and society require and develops them through a transparent process of extensive discussion, negotiation and international consensus [26,27]. To date, ISO has developed over 16,000 product and process standards [26] and has published nearly 85% of all international standards [25]. Of the most widely known and popular standards, the ISO 9000 series has become the international reference for quality management requirements in business, while ISO 14000 and its family of standards provide guidance for environmental management systems [27].

2.2. Global collaboration and consensus-based standard

Like all ISO standards, the ISO 14000 family of environmental management standards have been developed based on discussions and consensus from the broadest possible base of stakeholder groups and are highly respected and accepted by both the public and private sectors around the world [26]. In fact, this particular suite of standards were developed by a technical committee (TC 207) which consisted of 52 participating member countries, 17 observer countries, a number of internal and external liaison organizations, and more than 100 environmental experts [28].

Within the ISO 14000 series of environmental management standards, "ISO 14001: Environmental Management Systems – Specifications and Guidance for Use" [29], is the main specifications document that outlines the standard requirements for the development of an environmental management system (EMS). An EMS is a documented process for a continual cycle of planning, implementing, reviewing and improving the procedures and actions that an organization undertakes to meet its environmental goals and objectives [28]. Built around a simple "Plan-Do-Check-Act" management cycle, an ISO 14001 EMS is designed to lead to the continual improvement of the environmental management and performance of any organization.

2.3. Flexibility and adaptability

The flexibility of ISO 14001 allows an organization to determine its own boundaries, goals and objectives for its EMS. This flexibility has allowed it to be applied to organizations of all types and sizes giving it a worldwide reputation as "generic management system". No matter the scope or activity of an organization, its product or service, whether it is a private business enterprise, a non-governmental organization, or a public administration, if an organization wants to establish a quality environmental management system, then using the ISO system has a number of essential features for which this standard can provide the requirements [26].

When it was first released in 1996, the ISO 14001 EMS standard was primarily applied to the business operations of larger enterprises such as industry and manufacturers that produce goods for commercial markets. Such organizations can have significant impacts on the environment from the emissions, effluents, and waste generated from their production processes. Many of the aspects of these businesses' operations are often governed by various legislation and regulations. Thus, the underlying purpose and one of the main reasons for adopting an environmental management system was to prevent or minimize pollution and reduce the risk of violating environmental obligations [30]. However, additional benefits have been realized by these larger manufactures who have become ISO 14001 certified including continually improving environmental performance, demonstrating to shareholders and the public their commitment to environmental protection, enhancing product quality, cutting costs and saving money by conserving energy and reducing waste, and increasing market share [30,31].

Since its development the application of ISO 14001 has expanded and has been used in a variety of contexts including large service sector organizations such as hotel chains and banks [32,33]. Even small and medium sized enterprises are realizing the benefits of implementing an EMS by reducing waste and saving energy [34]. Natural resource sectors such as forestry, mining, agriculture, and aquaculture have also begun to adopt the ISO 14001 EMS standard as a means of achieving more sustainable resource management. With mounting public scrutiny and consumer demand for more sustainably managed and harvested natural resources, an ISO 14001 EMS provides natural resource organizations with the tools for clearly demonstrating and communicating to stakeholders and the public their commitment to environmental stewardship and sustainable resource management.

For example, the forestry industry has readily adopted the standard because of its international reputation for quality environmental management. Moreover, forest certification under ISO 14001 can act as a legitimizing tool for demonstrating good environmental practices, a commitment to environmental protection, and to gain international credibility among retailers, consumers, and other public stakeholders [35]. In fact, communication of information to prove to the public and stakeholders that forests are being managed acceptably has been shown to be one of the main drivers for ISO 14001 forest certification [35].

Like forestry, aquaculture and fisheries can also be environmentally destructive and often contentious activities. Growing consumer demand for environmentally responsible fisheries products has been pushing these industries toward international certification standards for sustainably reared and harvested seafood [36–38]. Due to the generic nature of ISO 14001, it has been advocated as an effective means of managing a wide range of maritime activities, including aquaculture, fisheries management and the management of marine ecosystems [37,39]. Applying the standard to the management of such marine activities can help to avoid conflicts and achieve better stakeholder relationships [37,39].

The aquaculture industry has embraced EMSs and ISO 14001 certification as a powerful tool for producers wishing to enhance their environmental performance and demonstrate sound environmental management, while ensuring food safety and quality

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات