Special Section: *Implementation and Management of Marine Protected Areas*

Introduction

Growing awareness of threats to marine ecosystems has led to the search for new conservation and management tools (Palumbi 2002; Palumbi et al. 2003). Increasingly, attention has focused on integrated ecosystem-based approaches, including marine protected areas. These tools are used to address a suite of goals such as conserving biodiversity, supporting fisheries, protecting natural and cultural heritage values, and maintaining economic viability (Airamé et al. 2003). Much has been published about the science that underpins successful marine protection (see Lubchenco et al. 2003), but to date little emphasis has been placed on evaluating effective implementation and management strategies. The diversity of approaches employed worldwide to implement and manage marine protected areas and their relative successes can inform future conservation efforts. This special section provides background on marine protected area selection and implementation processes and synthesizes the various approaches conducted worldwide. Examples are given from developing and developed countries, spanning tropical and temperate waters and varying from community-based processes to government-led implementation and management strategies.

Successful marine conservation requires identifying practical ways to integrate ecological, social, cultural, political, and economic objectives. Although science provides the foundation for marine protection, the unifying theme of these manuscripts is that socioeconomic, cultural, and political factors are critically important to the success of marine protected areas. This process-oriented approach to implementing marine protected areas is often ignored in theoretical models for designing effective marine protected areas based solely on biological processes. Ignoring the human dimension often leads to shortcomings in support by local stakeholders and failure in the implementation stage. By educating stakeholders on the social, economic, cultural, and ecological benefits of marine protected areas and integrating stakeholder views into the process of identifying marine conservation solutions, fewer difficulties are likely in the negotiation stage. Similarly, conservation efforts benefit because scientists and managers are educated on the social, economic, and political ramifications of marine conservation and on the effects of marine protected areas on stakeholder livelihoods. The papers in this special section aim to inform future conservation efforts by defining a suite of processes to assist in the development, implementation, and monitoring of marine protected areas and other forms of marine conservation.

Lessons from existing marine protected areas are applicable across systems and nations. These marine protected areas include tropical and temperate ecosystems, varying in size from local (< 10 km) areas to national networks of marine protected areas and ranging in protection from no-take reserves to those that allow traditional fishing practices. Leslie's paper is an overview of global conservation planning approaches, comparing protected areas planning processes to discern successful approaches across diverse global marine protected areas. We then introduce case studies that demonstrate the need for community-based and stakeholder involvement in addition to ecological considerations in marine conservation strategies. Cinner et al. and Granek and Brown discuss conservation approaches in developing nations. They emphasize the importance of local stakeholder involvement and education and the necessity of assessing the impacts of protected areas on local community needs to gain support for selected sites. The importance of educating stakeholders cannot be overstated. In two case studies in industrialized nations, Davis and Fernandes et al. illustrate alternative models for incorporating human values and multiple stakeholder groups into marine protection decisions. These two papers illustrate challenges and compromises apparent in the landmark networks of marine protected areas in the Channel Islands, California, and the Great Barrier Reef, Australia. Fernández and Castilla describe the historical evolution of Chilean marine protected areas, from small no-take scientific reserves, to locally managed traditional fishery management units, to a national network of no-take areas. Langlois and Ballantine illustrate long-term ecological benefits of no-take marine reserves in New Zealand and discuss approaches to address representativeness in a marine protected area network. Lundquist and Granek synthesize planning approaches to generate a suite of best-practice guidelines to inform current and future conservation efforts and potentially improve design, implementation, and management processes in global marine conservation.

This special section was assembled to aid understanding of the decision-making processes through which marine conservation is implemented, not solely to discuss the potential benefits of marine protected areas. We hope the recommendations compiled in this group of papers can facilitate the use of tried and proven conservation approaches and stimulate new and promising approaches in novel situations. The lessons outlined here can inform

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developed and developing economies in tropical and temperate systems, where stakeholder needs, participation in the management process, and the support of management actions vary widely. Methods employed in developing countries may provide insights for developed nations, and vice versa. Although the optimal methods are case specific, augmenting the conservation tools available will increase the likelihood of finding appropriate methods for the scenario at hand.

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