



Marine Reserves: A Guide to Science, Design, and Use

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Book Review

Marine Reserves: A Guide to Science, Design, and Use

Jack Sobel and Craig Dahlgren

2004, Island Press, Washington, USA
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With the considerable pressures that are being placed on our marine resources, there is an urgent need to find alternative strategies to ensure their long-term sustainability. One measure that has been proposed, and which is rapidly gaining popularity, is the designation of Marine Protected Area (MPA). These are demarcated areas that prohibit (or at least restrict) consumptive or extractive uses, such that human interferences and impacts are minimised.

In this edited collection of papers, most of which have been written or co-written by the authors themselves, Sobel and Dahlgren have presented an excellent synopsis of the rationale behind, and the scientific basis underpinning, the use of marine reserves as a management tool. In addition, they have devoted half the book to the provision of case studies.

The authors concentrate on the 'no-take' nature of marine reserves, as opposed to those marine-protected areas that are afforded lesser degrees of protection. Other categories also falling under the MPA umbrella would include Marine Wilderness Areas and Marine Parks. Both of these offer little or no real protection because there is little or no reduction in human interference, particularly harvesting. The thrust of the book is that 'no-take' areas, in the form of marine reserves, are the most effective management solution to counteracting marine environmental degradation.

The book is divided into two parts: 'Principle and concepts' and 'Global experience and case studies'. Within the former section, there are chapters devoted to 'Our oceans in trouble', 'The state of marine ecosystems and fisheries', 'Fishing and its impacts', 'What marine reserves can accomplish', 'Design and designation of marine reserves', 'Social dimensions of marine reserves', and 'Research priorities and techniques'. The 'Global experience and case studies' section includes chapters on 'California's Channel Islands and the US West Coast', 'Bahamian marine reserves — past experience and future plans', 'Belize's evolving system of marine reserves', and lastly a 'Global review: lessons from around the world'.

The division of the book into two sections largely reflects two potential target audiences — scientists and managers/practitioners. The book also places marine reserve design and designation into two different scientific contexts — biological and social — which are not, however, mutually exclusive. Both are required if any marine reserve is to be correctly identified and designated, and are essential if one

wants to do any productive research within its borders. The book, therefore, takes both the social and the biological scientists on a journey where they travel hand-in-hand, so that each can learn from the other: they can tackle problems together and can collectively produce workable solutions to socio-environmental problems.

A textbook written for both biological and social scientists is bound to have its detractors. There will be either too much or too little emphasis and/or information in one or the other field. I feel, however, that here the authors have done a commendable job in finding a user-friendly balance. Both authors have experience in both disciplines, which allows them to outline strengths and weaknesses for both the social and biological spheres. Furthermore, they have ensured that there is little technical jargon or emotive language in their text. This allows for easy reading, which is complemented by judicious use of diagrams, illustrations and examples which effectively carry their arguments forward.

Writing a general book on marine reserves is not a trivial task. Whilst the topic is currently in vogue, there is little evidence, either in terms of synthesis or the data available, to 'prove' that marine reserves work or to show that these reserves are the long-awaited panacea for marine resource problems. The literature available is predominantly 'grey' and the data sparse, and both are hidden in unpublished technical documents and reports. To complicate matters further, there is a general lack of long-term studies in sufficiently different environments for hard conclusions to be drawn about marine reserve efficacy.

Be that as it may, one of this book's strengths is its comprehensive review of the literature. The authors reference the primary and secondary literature extensively, which provides a useful point of departure for all readers, as these information sources are generally elusive and difficult to locate.

If there is a strong case to be presented about the disastrous effects of overfishing, complete with references, then Sobel and Dahlgren have certainly done it. They have also shown that there is a clear need to act by shifting from the current single-species management paradigm to one that is more ecosystem-based. The rationale behind the proclamation of marine reserves is clear: to limit human impact and to let the environment do what it does best — to look after itself.

Prior to reading this book, I jotted down several topics which I considered to be prerequisites for any book covering

the designation, science and design of marine reserves. From a social perspective (the most important one, in my personal opinion), these were stakeholder buy-in, community participation and the accrual of benefits. I also believe that, from a biological perspective, the issues of pseudo-replication and before-after statistical designs when investigating design efficacy are pivotal. I was delighted to find that all these issues were covered.

To conclude, the chapters are arranged in a logical progression, with summaries that provide the reader with 'take home' messages, and the topics covered are carefully placed into context. Ideally, the book should be read in its entirety. But, if one is on a limited time budget, each chapter can be read as a stand-alone. It is, in my opinion, an excellent addition to the academic literature and should find a welcome home within both undergraduate and graduate curricula.

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