Purpose, policy, and practice: Intent and reality for on-ground management and outcomes of the Great Barrier Reef Marine Park

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ABSTRACT

Notwithstanding a complex array of international, national, and local policies designed to protect biodiversity and manage human activities, the condition of Australia's Great Barrier Reef has been deteriorating. This trend indicates that policy settings are inadequate or the right policies have been prescribed but not effectively implemented. This study aimed to determine which policies influenced on-ground management of the Great Barrier Reef World Heritage Area and Marine Park, how they were implemented, and the challenges encountered by practitioners in applying policies. The research required content analysis of policy instruments relevant to various jurisdictional levels, and surveys and interviews with 19 key informants across jurisdictions and agencies. This study found that policy intent is not automatically translated into practice: international agreements are interpreted and reinterpreted along the policy pathway to on-ground management and, consequently, the aspirations of these agreements can be frustrated and their effectiveness diluted. Due to limits of jurisdictional responsibility, practitioners within the Great Barrier Reef Marine Park Authority are constrained in influencing key factors that impact on their capacity to address threats and manage outcomes. The major policy gap affecting management outcomes was the absence of a mechanism with which to manage cumulative impacts responsible for deterioration of key ecosystem processes and biodiversity. These findings highlight that effective policy implementation is a challenging task, limited by gaps between intentions and outcomes, inconsistencies, and conflicting agendas. An improved understanding of the policy implementation process and the policy-practitioner relationship is essential to enhancing links between policy and on-ground management.

1. Introduction

Attempts to resolve political, social, and economic conflict in the marine environment have led to an increasing range of environmental and legal policy initiatives, such as international agreements, laws, and conventions. These initiatives also aim to conserve biodiversity by improving management of human activities that impact on marine areas [10,61,8]. The policies can span many sectors, including conservation, fisheries, agriculture in coastal catchments, transport, and oil and gas production [10,11]. Even with these commitments and a large suite of marine policies available with which to manage the marine environment, global marine biodiversity is still in decline [67,69,88]. This indicates that policy settings are ineffective or that, although the right settings have been prescribed, policies are not being effectively implemented [85]. Furthermore, it is has been argued that a major

contributor to the decline in health of the oceans is fragmented sector-based marine management, resulting in a patchwork of many policies that constrain the achievement of management goals through gaps, inconsistencies, and conflicting agendas [10,26,5,74].

Despite obligations associated with being a signatory to an international agreement, signing does not assure changes in behaviour of key actors or guarantee success in implementation [81]. The effectiveness of international agreements can be measured by their implementation at a national level [86]: the process by which their intent is translated into action by governments [81]. Countries signatory to international agreements are bound to implement commitments through existing governance frameworks and procedures [10,11,39]. This may require the development of national policy, legislation, and regulation, and coordinated national and local action (Fig. 1) [55,86]. Throughout this study, reference will be made to 'policy' but this term is used inclusive
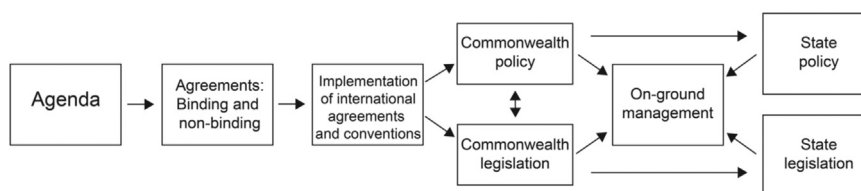

Fig. 1. Schematic view of the formation and implementation of international environmental agreements through Australian Commonwealth and state (including territory) policy and legislation, and their pathways to on-ground management (Adapted from [81]).

of legislation, agreements, treaties, and conventions.

Fulfilling international conservation commitments, such as those made under the Convention on Biological Diversity [14], may require the designation of protected areas to meet agreed targets for conservation. Marine protected areas (MPAs) are regarded as long-term policy and ecosystem-based management tools for science-based conservation [2,6,75]. MPAs provide a legal and institutional framework for managing complex socio-ecological systems [58,6] and to alleviate conflict between stakeholders [3,38].

MPAs frequently have goals supplementary to conservation such as fulfilling socio-economic objectives, and enhancing resources for a broad range of stakeholders [45,64,73]. These seemingly conflicting goals can make for complicated governance of MPAs [29,45], the management of which includes recognising the importance of anthropogenic impacts beyond the MPA boundaries [10,15,63]. As such, those involved in MPA management are required to use, consider, implement, and balance a broad range of policies. The intent and goals of all of these policies at various jurisdictional levels need to be harmonised and integrated for effective management to occur [10,41,79].

Conservation of biodiversity and management of marine systems may be inhibited if there are differences between what policy makers intend and what happens in practice [4]. A mismatch can occur between policy formed at a broad scale and actions delivered by those who are often locally-based [27,4]. The process of policy implementation is complex [16,60] and policies on paper may be disparate to their actual implementation. This phenomenon, known as the 'implementation gap', can occur when decision-makers tasked with implementing policy have a considerable degree of discretion in the way this occurs [21]. Implementation of marine policy requires, amongst many other elements, cooperation and communication amongst key institutions and actors. This necessitates establishment of a clear hierarchy, detailed objectives, and specific roles and responsibilities of those responsible for implementation [53,57,65]. There is no standard model for policy implementation, and the process can require different approaches for different contexts. Therefore, practitioner experiences of policy implementation can vary widely [62].

The complexity of policy implementation is seldom described through the relatedness of policy and practitioner. It is important to analyse implementation processes to understand the challenges practitioners face that may inhibit effective application of policy and future outcomes for biodiversity. Experiences of practitioners in implementing policy are vital to contribute to improving policy development, implementation processes, and adaptive management [68,81]. Relatively few studies have considered marine policy processes and implementation either globally or in Australia. Of those Australian studies that have done so, many discuss a specific policy from a broad, national perspective (e.g., [82,76,83,84]). This paper seeks to respond to a gap in the literature on how on-ground implementation of a range of international, national, and local policies influence effective management of MPAs, with a focus on the World Heritage listed Great Barrier Reef (hereafter "the Reef").

The condition of the Reef has deteriorated over past decades and continues to do so [31,43,44,47,54], despite global recognition of the region's Marine Park as one of the world's best managed MPAs, with international and national levels of protection. There are many threats to the Reef that must be mitigated [31], requiring effective policies and

implementation. The aim of this study is to assess the implementation, and subsequent efficacy - defined as the capacity to produce a desired effect - of marine environmental policy in the management of the Great Barrier Reef Marine Park in Australia. The present study aimed to determine: (i) what policies influenced on-ground management, (ii) how the intent of these policies was implemented in practice, and (iii) what policy limitations and challenges to practitioners impeded the successful implementation of marine policy, and thereby the conservation of marine biodiversity. Specifically, this study provides analysis of policy relevant to managing the Great Barrier Reef Marine Park, and reports on surveys and interviews undertaken with key informants responsible for implementing policy in managing the Marine Park. This paper describes the challenges identified by practitioners in implementing policy, and discusses findings in the context of the need for effective on-ground management.

2. Methods

2.1. Policy context

Along with policies at the international and national (or 'Commonwealth') level, complexity is added by state and territory policies [10,39]. Under the Australian constitution, the Commonwealth Government is responsible for international treaties and can legislate to implement the terms of these commitments. However, it is the states and territories that have primary responsibility for delivery of environmental policy (Fig. 1). Practitioners undertaking management of marine areas in Australia may have all three of these jurisdictional levels of policy – international, Commonwealth, and state or territory – to consider in their roles. Additionally, there may be interaction with local government (and their associated policies), whose powers and geographical boundaries are determined by the states.

Regarded as one of the world's greatest natural treasures, the Reef extends 2300 km along the Queensland coast. The Reef is managed through three separate protection areas, incorporating a complex mosaic of boundaries, zones, and uses. Thus, the Great Barrier Reef Marine Park (Commonwealth), the Great Barrier Reef Coast Marine Park (Queensland, tidal waters and tidal lands, and around islands), and the Great Barrier Reef World Heritage Area (International listing, managed by both the Commonwealth and Queensland Governments) provide the legislative spatial framework for managing the Reef but each have differing boundaries and inclusions Fig. 2, SI and Table S1. The primary agency managing the Great Barrier Reef Marine Park (hereafter "the Park") is the Great Barrier Reef Marine Park Authority (GBRMPA, hereafter "the Authority"), an Australian Commonwealth Government statutory agency. The Authority undertakes cross-jurisdictional partnerships and co-management activities with the Queensland and Commonwealth Governments, each with their own sets of policies [34]. The Park was selected for this study because its complex spatial, governance, and management arrangements include all levels of government and policy (international, Commonwealth, state and local), and therefore provided a good opportunity to address the study aims. With changing influences on management and policy, this paper presents a snapshot in time of a fast-moving policy area.