

An investigation into the socio-cultural dimension of determining MPA effectiveness

Encounter Marine Park, South Australia

Final Report



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Prepared for: Department of Environment, Water and Natural Resources



Government of South Australia
Adelaide and Mount Lofty Ranges
Natural Resources Management Board

Citation: Clarke B., Thurstan R., Yates K. L., (2016) An investigation into the socio-cultural dimension of determining MPA effectiveness. Report prepared for Department of Environment, Water and Natural Resources, Adelaide.

Front cover graphic: A 'word cloud' generated by NVivo based on the qualitative responses generated during interviews and focus groups for this study about the Encounter Marine Park. The relative size of the word related to the number of times the word appeared in the transcripts. Words under 2 letters were excluded and uninformative words, e.g. 'and', were removed from the figure.

Date of Publication 2016

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Acknowledgements

Particular thanks go to the Wildlife Conservation Fund and the DEWNR, Marine Parks Performance Team who provided funding support and advice for this project. Our thanks go also to all interviewees and focus group members for generously contributing their time to this study.

Glossary

| | |
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| DEWNR | Department of Environment Water and Natural Resources |
| IUCN | International Union for Conservation of Nature |
| MPA | Marine Protected Area |
| NGO | Non-Government Organisation |
| NRM | Natural Resource Management |
| PIRSA | Primary Industries, Resources of South Australia |
| SARSMPA | South Australian Representative System of Marine Protected Areas |

Executive Summary

This report presents the findings of a study designed to better understand socio-cultural dimensions of MPA effectiveness. MPAs in general are considered to be underperforming in regard to their conservation goals. This situation is often attributed to an inadequate understanding of social, cultural, and local values and how these intersect with park design, implementation and management. This study responds to calls for social science research designed to enhance ways of thinking about MPAs so as to improve performance and local acceptance.

Community stewardship is a central object within the South Australian *Marine Parks Act 2007*. The Encounter Marine Park serves as the case study in this report; it was chosen because it is the park with the longest history of all the South Australia's 19 representative marine parks.

This research project includes an examination of existing literature to identify social conditions considered essential for MPA success. Fundamental for realisation of MPA goals is broad stakeholder support including tiers of government and adjacent communities and active engagement of local communities during all phases of park designation. Where local perceptions of MPAs are positive, conservation outcomes are more likely to be successful. A range of human dimensions basic to the success of marine parks is explored including local aspirations and values in the region of study, meaningful engagement, governance arrangements, costs and benefits associated with the park and consideration of how well integrated the MPA is with broader development and coastal management matters.

It discusses the results of the empirical study which draws on perceptions of the local communities adjacent to the Encounter MPA and the key stakeholders involved in the Park's design, implementation and ongoing management. The aim was to explore how success is defined in this locale, and whether or not perceptions of success differ between different groups. Forty one stakeholders were interviewed face-to-face and four focus groups were conducted. Participants were asked about their perceptions of success of the Encounter Marine Park and how they would measure different aspects of success, including both biological and social-cultural measures.

In broad terms, the Encounter Marine Park meets fundamental conditions needed for success: it meets regulatory requirements of being legislated, it has ongoing management (a team and plan) and a dedicated management plan exists to guide its function. Based on the views of participants in this study, the Park is generally perceived to already be successful and to have a range of potential as well as already realised benefits. Many of the conditions deemed essential for success within the literature are in place for the Encounter Marine Park.

There are some aspects that warrant attention however, including overcoming some lingering antagonism within certain sectors that emerged in the establishment phase. There is a need for communication from the Marine Park management back to local communities (news and events, updates on monitoring outcomes, education programs) and a need to promote the social benefits of the Marine Park (alongside biological intentions). Interest is

shown by the community engaged in this study to want to continue to play a role in ongoing management of the Park (education, monitoring and compliance); addressing potential threats, such as uncertain funding support and external threats from development pressure and terrestrial inputs, are highlighted.

Based on the responses of participants in this study, and in conjunction with existing indicator sets, a suite of indicators is presented, designed to measure socio-cultural dimensions of success of the Encounter Marine Park. Participants in this study collectively identify 57 indicators by which to measure success of the Marine Park. Of these, 32 are considered to be 'effective' indicators, that is, conform to the criteria of being: simple to communicate to a non-expert audience, easily measureable, achievable, relevant and timely.

Effective indicators are sorted into 10 categories that align, where possible, with the specific objectives of the South Australian Marine Parks Act and the Encounter Management Plan strategies. Within this indicator set each indicator is described, has a suggested data collection method, and group/agency responsible for collecting information. We recommend that these indicators are incorporated as far as possible by DEWNR in their future monitoring programs. Some indicator data collection will be readily incorporated into existing data collection activities, however, others will require investment and purposive data collection activities, potentially involving a range of government and community partners.

1. Introduction

Recent studies into the effectiveness of marine protected areas (MPAs) suggest that social factors, not biological or physical variables, are the primary determinants of MPA success or failure, and that a lack of research into the human dimensions of MPA development and management is hindering progress (Wahle and Lyons 2003, Pomeroy, Mascia et al. 2006, Batista, Baeta et al. 2011, Abecasis, Schmidt et al. 2013). Studies concur that where *local perceptions* of MPAs are positive conservation outcomes are more likely to be successful (e.g. Bennett and Dearden 2014). According to Hamilton (2012: p.1) 'Social acceptance of MPAs must be achieved if they are to function as effective management tools'.

In 2012 the South Australian Marine Parks Council endorsed community *stewardship* as both a method and the goal for ensuring that South Australia's marine parks will be effective and successful (Marine Parks Council of South Australia 2012). Stewardship is defined as 'careful and responsible management to ensure goals and objectives are being achieved for the benefit of current and future generations' (NOAA 2013). The cultivation of stewardship is put forward as a prime mechanism to promote acceptance of Marine Protected Areas.

In November 2012 the South Australian Government finalised the establishment phase for the State's marine parks network, including the development of 19 management plans setting out multiple-use zoning and strategies for park management. The MPAs have been the subject of considerable public consultation and form part of a national network of marine protected zones. MPAs are defined as:

...any area of land and or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources, and managed through legal or other effective means (IUCN 1994).

Researchers attribute the following benefits to MPAs:

- Conservation of biodiversity and ecosystems
- Arresting and possibly reversing the global and local decline in fish populations and productivity by protecting critical breeding, nursery and feeding habitat
- Raising the profile of an area for marine tourism and broadening local economic options
- Providing opportunities for education, training, heritage and culture
- Providing broad benefits as sites for reference in the long term (Kenchington, Ward et al. 2003: p.143)

The Government of South Australia considers marine parks to be 'a critical tool to conserve examples of our marine realms in an undisturbed state, much like National Parks do on land' (Government of South Australia 2004: p.4). Australia's southern coastal waters are biologically diverse and recognised for their high degree of endemism, increasing the necessity to afford them protection. The primary purpose stated in South Australia's *Marine Parks Act 2007* is to protect biodiversity and to maintain supporting ecological processes in the marine environment. South Australia's marine parks are also intended to allow for adaptation to the impacts of climate change and to protect and conserve features

of natural or cultural heritage significance. In addition, the Marine Parks Council suggested that through the 19 marine parks South Australia may achieve ‘a paradigm shift in the appreciation, understanding and valuing of our marine resources and ecosystems above considerations of individual/sector interest protection to a mind-set and behaviours [of] sense of ownership, stewardship and custodianship’. (Marine Parks Council of South Australia 2012: p.17)

While MPAs can play a critical role in protecting marine biodiversity, ecosystem function and sustaining healthy coastal communities they face many challenges in achieving their objectives (NOAA 2013) and questions remain over the effectiveness of MPAs in preserving the marine environment. Attention has focussed on design, implementation, enforcement and evaluation of these areas, and the evidence of their ability to achieve their objectives is contradictory (Carr 2000: p.106).

This research is the first in South Australia to investigate this social dimension of stewardship creation for marine parks. It provides some understanding and reasons behind whether and how community ownership is developing for the Encounter Marine Park.

Project Aim

To investigate the socio-cultural dimension of MPA effectiveness in one region of South Australia (Encounter Marine Park)

Objectives

Using one of South Australia’s 19 Marine Protected Areas as a case study to

- Identify from the national and international literature what socio-cultural conditions are promoted as essential for the effective functioning of an MPA and assess whether these socio-cultural conditions exist in the region under study
- Investigate the extent to which the local community identifies with the Marine Park (e.g. feels a sense of obligation/ownership; contributes to its function—e.g. citizen science, educational activities; or draws economic benefit from it—e.g. tourism)
- Identify how different groups (recreational fishers, commercial fishers, tourism, and conservation groups) perceive success of marine parks
- Establish the extent to which perceptions of the marine park success differ between stakeholder groups
- Develop a suite of indicators that measure the success of marine parks tailored to different stakeholder groups.

Background

Globally, marine biodiversity continues to decline (Sala and Knowlton 2006), despite wide recognition of its essential role in maintaining the provision of marine ecosystem services (Beaumont, Austen et al. 2007, Lloret 2010). Increasingly, management efforts to conserve marine biodiversity focus on the designation of marine protected areas (MPAs). MPAs are areas of the sea in which one or more activities are prohibited or managed in order to protect or restore certain features of interest. The IUCN defines an MPA as:

Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment (Kelleher and Kenchington 1992: p.13).

There have been drastic increases in the number of MPAs designated over the last 20 years (Pita, Pierce et al. 2011). According to the IUCN the number of MPAs globally in 2013 had reached 10,280, covering 8.3 million km² or 2.8% of the world's seas and oceans (Kusumawati and Huang 2015). MPAs exist in many forms and sizes ranging from multiple-use marine parks to highly protected 'no-go' sanctuaries.

MPAs are most commonly designated for biological conservation and they have repeatedly shown to be successful at meeting a range of conservation goals. They have led to increased biodiversity both within the MPA (Alcala and Russ 1990, Francour, Harmelin et al. 2001, Halpern 2003) and in surrounding areas (Russ and Alcala 2011). They have also been shown to lead to increased numbers and sizes of previously exploited species (Alcala and Russ 1990, Bennett and Attwood 1991, Halpern 2003); increase the overall productivity of an area (Alcala and Russ 1990, Micheli, Saenz-Arroyo et al. 2012); provide protection for rare and threatened species (Roberts, Andelman et al. 2003); protect critical life stages, e.g. spawning grounds (Gell and Roberts 2003, Roberts, Hawkins et al. 2005); and increase the resilience of marine ecosystems they contain (Hughes, Bellwood et al. 2005, Micheli, Saenz-Arroyo et al. 2012, Bates, Barrett et al. 2013). Increasingly, MPAs are also used as a fisheries management tool and evidence that MPAs can support and enhance sustainable fisheries, through spill-over of both larvae and adults, is growing (Beukers-Stewart, Vause et al. 2005, Halpern, Lester et al. 2010, Russ and Alcala 2011, Harrison, Williamson et al. 2012).

To date the bulk of research and key arguments put forward to promote MPAs centre on ecological arguments. However, it is important to keep in mind that

MPAs, as management tools, are the product of social institutions. They are human creations whose purpose is to manage the behaviour of people in their use of coastal and marine resources (Pomeroy, Mascia et al. 2006: p. 149).

There are concerns that MPAs are not achieving their full potential in regard to biodiversity conservation and maintaining ecosystem function (Pollnac, Crawford et al. 2001, Beger, Harborne et al. 2005, Kareiva 2006, Dalton, Forrester et al. 2012, NOAA 2013). Lack of progress is in part explained by inadequacies in MPA design and management (Weible 2008). There is widespread acknowledgement however, that more needs to be understood about the social aspects of MPA design, implementation and management because 'It is

often more difficult to get the social components of an MPA “right” than the biological or physical components’ (Pomeroy, Mascia et al. 2006: p.157). Wahle and Lyons (2003) claim that perhaps the greatest single impediment to MPAs performing a more central role in marine conservation has been the inability to adequately address these human dimensions.

Social science research benefits and gaps

Persuasive rationales are put forward for improving social science investigations including the expansion of knowledge (e.g. the characteristics and behaviours of constituencies, what constituencies want, and what constituencies know (Christie, McCay et al. 2003), the uptake of alternate forms of knowledge (McCay and Jones 2011), the development of a heightened consciousness; and to enhance ways of thinking about MPAs so as to better understand how to avoid conflict and mistrust, thereby earning MPAs a ‘social licence’ to function (McCay and Jones 2011, Voyer, Gladstone et al. 2015). A social science approach to MPA research has the potential to reveal socially and culturally relevant matters that may not otherwise have been thought about, but are valuable to local communities and if incorporated into MPA goals, MPAs may be tolerated more widely.

Social science information can help managers identify:

- Attitudes, perceptions, beliefs and values held by different groups (government, communities and resources users) in regard to MPAs and local resources
- Socioeconomic trends or demographic characteristics including patterns of use of the marine environment
- Relationships between different user groups and impacts an MPA may have on resource users and adjacent communities
- Governance systems and social capital
(Adapted from Pomeroy, Mascia et al. 2006)

According to Christie, McCay et al. (2003) the following areas of inquiry require attention:

- Measures of MPA success,
- Social mechanisms of conflict and cooperation,
- Regulatory compliance,
- Diffusion of innovations, and
- Social justice.

They also call for use of comparative research developing general principles as a complement to the current array of case studies (Christie, McCay et al. 2003). Key social science questions include:

- The political acceptability of the marine reserve concept,
- The social/economic groups that will stand to gain and lose as a result of reserve creation, and
- The perceptions and opinions that group members possess about an MPA
(Suman, Shivlani et al. 1999)

It is suggested that community perceptions of MPAs are crucial to the overall performance of an MPA (Pomeroy, Mascia et al. 2006). The next section presents an overview of the social or human dimension of MPAs.

2. Socio-cultural conditions promoted as essential for the effective functioning of an MPA

There is broad recognition that the incorporation of social, cultural, and local values into design, implementation and management of MPAs is critical to their success (Fiske 1992, Agardy 2000, Wahle and Lyons 2003, Bernstein, Iudicello et al. 2004, Charles and Wilson 2009, Batista, Baeta et al. 2011, Abecasis, Schmidt et al. 2013, Bennett and Dearden 2014). There is also broad agreement that research on socio-cultural aspects of MPAs is lacking (Badalamenti, Ramos et al. 2000, Christie 2004), limited (Wahle and Lyons 2003, Himes 2007, Mascia, Claus et al. 2010), inadequate and at times misleading (Christie, McCay et al. 2003). Some authors suggest that when social science is undertaken it is too late in the design process to influence policy (Christie, McCay et al. 2003) and that planners have often been inattentive to social issues (McCay and Jones 2011). Social research has been criticised as having been trivialised (Christie, McCay et al. 2003) when in fact there is great complexity in the interplay between reaching both social and conservation goals assigned to MPAs. In addition, existing social science research is largely based on case studies at single sites (Pollnac, Christie et al. 2010) and mainly undertaken at the start-up/planning phase of MPA designation. According to Christie this lack of social science research into MPAs (their design, implementation and management) has had 'at least' two unfortunate outcomes:

an incomplete understanding of how to most effectively utilize this popular management tool and omissions from the scientific literature of potentially fascinating accounts of human responses to MPAs (Christie 2004: p.155)

Without carefully considered, well planned social science investigation it is argued that understanding of the role, performance and benefits of MPAs is only partially understood.

What is MPA success?

According to Himes, 'the concept of 'success' [in regard to MPAs] is inherently a social construct; different people, depending on their background and stakeholder affiliations, will construct its definition differently' (Himes 2007: p.330). Bernstein et al (2004: p.8) consider that success in the context of MPAs 'is itself a difficult term to define'. Indeed much of the literature talks about MPA success without expanding upon or explaining what it actually means.

The most logical way to consider the success or effectiveness of the implementation and management of an MPA is to evaluate its outcomes against stated goals and objectives (Pomeroy, Watson et al. 2005): 'Management effectiveness is the degree to which management actions are achieving the goals and objectives of a protected area' (Pollnac, Crawford et al. 2001: p.685). MPAs are designated in a particular context, in a particular place and time and MPAs come in many forms with as many differing aspirations and ordering of priorities (Agardy, Bridgewater et al. 2003, Pomeroy, Watson et al. 2005). Most MPAs incorporate multiple objectives covering both ecological and social objectives or aspirational targets (Christie, McCay et al. 2003, Charles and Wilson 2009, Mascia, Claus et al. 2010). Syms and Carr (2001: p.1) suggest that there is a 'climate of accountability and performance oriented conservation goals', and that because of this, along with the social

and economic costs and the conflict associated with MPAs, there is increasing pressure on institutions to demonstrate MPA effectiveness over time. This requires clear and accountable measures and targets:

This goal-setting or objective elaboration is critical to determination of expectations, effective design of the reserve, and establishment of targets and benchmarks against which progress toward the objectives can be measured. The most crucial information for protected areas is therefore inherently societal rather than scientific (Agardy 2000: p.883).

An ongoing challenge for MPAs in meeting management goals is the complexity of meeting what maybe clashing and competing objectives amongst a diverse suite of stakeholders (Carr 2000).

Biological and social goals may be contradictory or unequally appealing to different constituency groups, resulting in controversy and conflict. These dynamics contribute to the high rate of MPA failure—approaching 90% in some countries' (Christie, McCay et al. 2003: p.22).

More research has been conducted around social costs of MPAs rather than on their social benefits, and yet social benefits may be argued as indicators of success (Alder, Zeller et al. 2002). Adherence to rules and regulations (compliance), is an indication of social acceptance of an MPA. Compliance is considered to be a form of success. Successes may accrue over different time scales and may be transient, seasonal or long term and steady features of MPA designations.

The most successful MPAs will meet both ecological and social goals, however, certain conditions are required in order for their mutual attainment. A focus on the social conditions necessary to meet such ends is considered in the following sections.

Costs and Benefits of MPAs

Conflict and debate usually surrounds the implementation of MPAs and resistance is high in some sectors (Kirkman and Shepherd 2015, Voyer, Gladstone et al. 2015). According to Christie (2004) there has been an underrepresentation in the literature of the conflict surrounding MPA establishment and implementation. A key reason put forward for disharmony is the removal, exclusion or restriction of use of common property resources (Baker 2000, Wahle and Lyons 2003, Mayo-Ramsay 2014, Kirkman and Shepherd 2015) and the reallocation of resources within and between groups (Pomeroy, Mascia et al. 2006). Public debate about the value of MPAs is characteristically framed around MPA costs and benefits. MPA benefits are usually measured ecologically while costs are typically socio-economic (Wahle and Lyons 2003). Arguments often centre around diminished livelihoods of fishers (Mascia, Claus et al. 2010, Yates and Schoeman 2015). However, the social impacts of MPAs may be more broadly experienced. Studies of the social impacts of MPAs indicate that they can affect:

- Income, employment and food security
- Community empowerment
- Level of conflict within local communities
- Spatial and temporal patterns of resource use

- The distribution of resources within communities
- Human health, and
- Property rights (Dalton, Forrester et al. 2012: p.49)

It should be noted that because MPA implementation is context specific (Pomeroy, Mascia et al. 2006, Charles and Wilson 2009, Voyer, Gladstone et al. 2015) the costs and benefits will also be perceived differently between MPAs. This is true especially between developed and developing countries and regions (Badalamenti, Ramos et al. 2000), where the impacts of an MPA vary significantly due to the reliance or not on the affected resource for livelihood. The costs and benefits of a given MPA may well also change over time (Hoisington 2013).

Many MPAs are introduced adjacent to heterogeneous communities representing diverse perspectives (Himes 2007); and for this reason 'it is fundamental to successful conservation that these diverse perceptions are explored and considered' (Himes 2007: p.330). Community expectations not in keeping with goals and objectives of a given MPA can lead to misunderstanding and possibly conflict. The degree to which community perceptions reflect actual MPA outcomes is not clear (Dalton, Forrester et al. 2012).

Factors contributing to success of MPAs

The literature cites three critical social factors that contribute to the success or otherwise of MPAs [N.B without defining success]. First and foremost is the support for the MPA by all stakeholders, including by the local management authority and adjacent community (Himes 2007, Kusumawati and Huang 2015). Second, meaningful engagement or active participation of the community across all of the phases of MPA designation (from planning to implementation and ongoing management) is considered essential to effectiveness or realisation of MPA goals (Fiske 1992, Agardy 2000, Badalamenti, Ramos et al. 2000, Baker 2000, Elliott, Wiltshire et al. 2001, Bernstein, Iudicello et al. 2004, Lundquist and Granek 2005, Charles and Wilson 2009, McCay and Jones 2011). The third most commonly cited social factor leading to success is how community's perceive an MPA, because this will influence behaviour regarding the MPA (Pollnac, Crawford et al. 2001, Bernstein, Iudicello et al. 2004, Himes 2007). Studies concur that where local perceptions of MPAs are positive, conservation outcomes are more likely to be successful (e.g. Bennett and Dearden 2014). Understanding different perceptions, values and attitudes will also 'create opportunities for decision making that lead to consensus rather than conflict' (Brown, Adger et al. 2001: p. 418).

Pomeroy et al (2006) are more prescriptive and suggest that both the biological and social performance (success) of MPAs is reliant upon four principal elements of MPA design namely:

- Decision-making arrangements
- Resource use rules
- Monitoring and enforcement systems
- Conflict resolution mechanisms

These elements could also be described as components of governance; they directly and indirectly shape human resource use patterns and, have diverse components both formal (e.g. legal statutes, policy statements, judicial decisions, organisational practices) and informal (social norms, and cultural traditions). According to Pomeroy et al (2006) the informal norms and traditions may be 'the de facto rules that actually govern MPAs'. Formal rules and regulations may be quite different to social practices that emerge around MPA governance (Pomeroy, Mascia et al. 2006: p.150). In other words, the human dimension is powerful in shaping or influencing MPA governance.

The peer reviewed literature summarised in this chapter points to the need for better, more and robust social science investigation into MPAs. The consequences of failing to accommodate the social and cultural dimensions of MPA investigations into planning and management have been conflict and resistance to the implementation and lack of compliance with the MPA goals. Observations made from the review of literature suggest that the bulk of research is based on case studies, have largely been undertaken at the implementation phase of a MPA and there is very little research examining the fare of MPAs after designation. The definition of success is an assumed one.

The reminder of this report is dedicated to our study into the socio-cultural context of the Encounter Marine Park post implementation through the perception of stakeholders as to what they perceive success to be.

3. The Encounter Marine Park

The Encounter Marine Park is one of South Australia’s 19 multiple use parks designated under the South Australian *Marine Parks Act 2007*. Together these parks are the embodiment of the South Australian Representative System of Marine Protected Areas (SARSMPA) and the state’s contribution to the National Representative System of Marine Protected Areas (NRSMPA) (IMCRA Technical Group 1998). The parks have been designed to represent the biological diversity of South Australia’s marine environment, encompassing major ecosystems and habitat types.

In South Australia prior to the designation of the 19 marine parks a number of small aquatic reserves and the Great Australia Bight had been established under three sets of legislation (Commonwealth of Australia 1999). The SARSMPA was essential to address significant gaps in the formal protection of the state’s nearshore bioregions (Baker 2000). The Encounter Marine Park covers an area of 3,119 km². It

encompasses the waters off southern metropolitan Adelaide and the Fleurieu Peninsula, extending past the Murray Mouth to the Coorong coast. At its western boundary, the Marine Park includes all waters of Backstairs Passage and the north eastern shores of Kangaroo Island (DEWNR 2012: p.5)

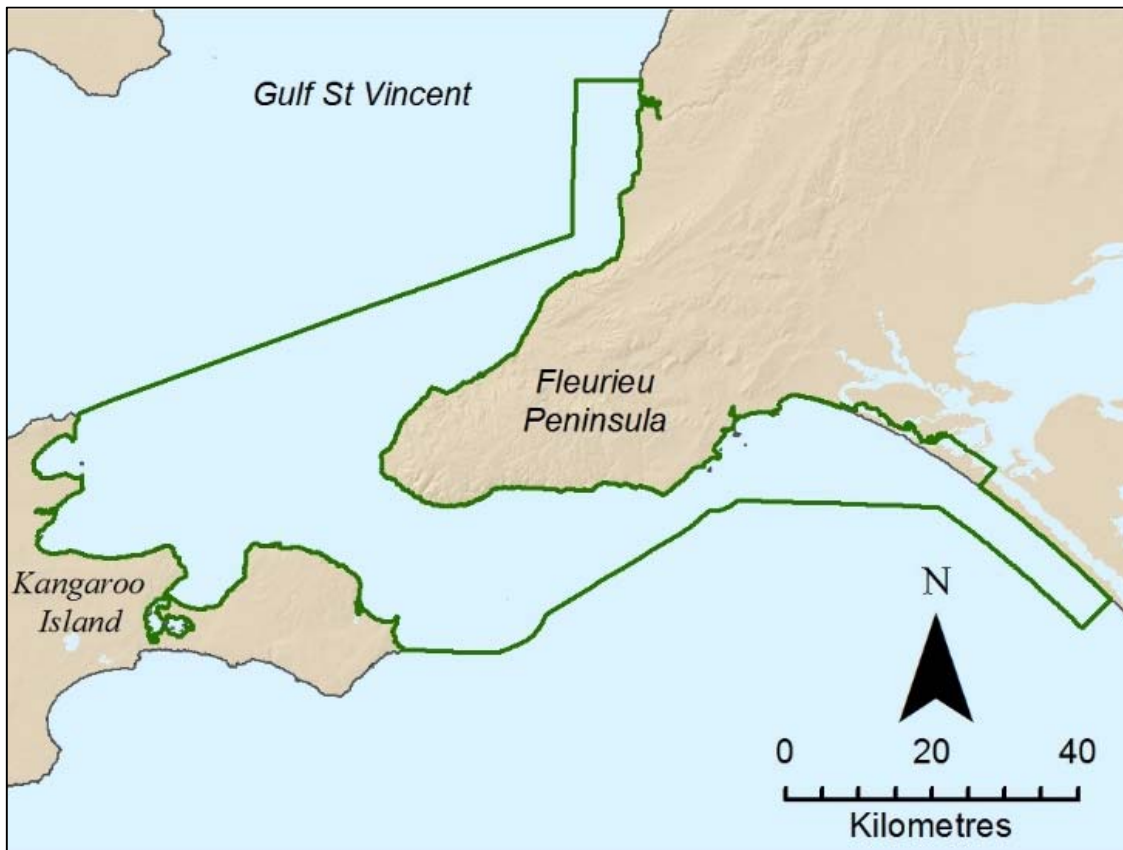


Figure 1: The Encounter Marine Park boundaries

Establishment of the SARSMPA, including the Encounter Marine Park has taken many years. In 1998, the state formally committed to having the SARSMPA in place by 2003 (South

Australian Government 1998). In 2001, this target was postponed until 2006/2007 through a revised vision statement (Government of South Australia 2001). In 2002 the Encounter Marine Park was nominated as the pilot site for the State's marine park program. In 2004, the *Blueprint for the South Australian Representative System of Marine Protected Areas* further delayed full implementation until 2010 (Government of South Australia 2004). It was the Blueprint that specified the creation of 19 MPAs across state waters and is the policy under which the MPA process was enacted. In 2004 scientific studies and outer boundary planning commenced and in 2005, the Encounter Marine Draft Zoning plan was released (Government of South Australia 2009). Regulation of the marine parks was promulgated in 2009 through the *Marine Parks Act 2007* and the internal zoning structure of parks and their management plans were implemented in 2012 (Kirkman 2013).

Each of the SARSMPA planning and design phases included public consultation. The public were invited to submit, in writing, comments and feedback on zoning plans; public meetings and stakeholder forums were held across the state at strategic points of the process (e.g. upon release of zoning strategies and draft management plans); and local advisory groups (LAGs) were established across the state to allow local stakeholder 'pre-draft' input into the management planning process (DEWNR 2012). LAG meetings were open to the public. As the Encounter Marine Park was the 'pilot' park it has had the longest history of public engagement.

While the *Marine Parks Act 2007* focuses on biodiversity conservation and sustainable use, community stewardship is also a central object within the Act:

Object 1 (b) (v) providing opportunities for public appreciation, education, understanding and enjoyment of marine environments.

Object 3 (j) the involvement of the public in providing information and contributing to processes that improve decision-making should be encouraged

The intent of the Act has been transferred to strategies and goals within individual marine park management plans. The Encounter Management Plan has distinct goals and strategies in regard to social aspects of the MPA:

4.2. Stewardship through community involvement

Providing opportunities for public appreciation, involvement, education, understanding and enjoyment of marine environments is central to the success of South Australia's marine parks network and is integral to the implementation of marine park management plans.

Strategies

- 5. Provide for public appreciation, understanding and enjoyment of the marine park.*
- 6. Create and promote opportunities for sustainable nature-based tourism in the marine park.*
- 7. Provide education to support the implementation of the marine park.*
- 8. Seek to involve local communities and stakeholders in the day-to-day management and monitoring of the marine park.*
- 9. Work cooperatively with Aboriginal communities to conserve country, plants, animals and culture (DEWNR 2012: p.10)*

It is around the objects of the Act and the goals and strategies of the Encounter Management Plan that an indicator set will be devised.

4. Method

This research project explored the perceived success of the Encounter Marine Park (according to stakeholders engaged in its management and the broader community) against its stated conservation goals. This was done with an aim of developing a locally derived indicator set—one which corresponds to the local community’s knowledge, behaviour and aspiration. This is an approach supported by Bernstein et al:

the variety of viewpoints inherent in a broad cross section of stakeholders is a fruitful source of observations and insights for analysis and evaluation. The project’s primary focus on stakeholder perceptions should therefore be seen as a basis for analysis rather than as an explicit criterion of process adequacy or success (Bernstein, Iudicello et al. 2004: p.8)

This project was approved by the Flinders University Social and Behavioural Research Ethics Committee (SBREC) on 9 April 2015.

A series of interviews and focus groups with key stakeholders were conducted to canvass opinions regarding the Encounter Marine Park. The recruitment process targeted both people who had been engaged in the development and ongoing management of the Marine Park and members of the wider community. Selection of interview participants was non-random and designed to ensure that perspectives from across park management, state and local government, industry, recreational and conservation groups were included, in addition to including perspectives from both metropolitan and regional areas. Some of the park management staff and state and local government officials were already known to the researchers. Leaders of sectoral primary industry, recreational and conservation groups were identified by internet searches and snowball sampling. Various volunteer and interest group networks were identified and forwarded an email that explained this project and invited participation of network members. In total, approximately 120 potential participants were sent a letter of invitation. The response rate to these letters was very low (<5%), hence 55 of these individuals were followed up by telephone to create an appointment. Only five people declined directly to participate in the study, one citing a conflict of interest, another citing that they didn’t want to be involved as ‘the process was too political’, and three stating that they didn’t know enough about the Marine Park. Another nine were unavailable either due to absence, or were unable/unwilling to make time in their work schedules.

Forty-one semi-structured face-to-face interviews were conducted between April and November 2015. The interview schedule consisted of a set of questions that explored respondents’ knowledge of the Marine Park (Appendix 1), and their understanding as to the its purpose, the respondent’s perceptions of success, as well as seeking ideas about indicators to measure success. See Table 1 for a summary of the different stakeholder groups represented including state and local government, NGOs, commercial fishermen and community group volunteers. Interviews took between 40 minutes to one hour and were recorded using a digital voice recorder for later transcription.

A number of strategies were attempted to attract participants to the focus groups. Approximately 50 advertisements for the focus groups were placed in shop windows

(including tackle shops, convenience stores, and tour operators) and on public notice boards at shopping centres and public libraries at Kangaroo Island, Victor Harbor, Onkaparinga and Yankalilla. An advertisement was also placed in the Victor Harbor Times newspaper. The Adelaide and Mount Lofty Ranges NRM Board agreed to send an email invitation to their community network, the Conservation Council and peak bodies including Wild Catch Fisheries SA and RecFish SA also circulated the invitation to their mailing lists, as did several Council members. These efforts resulted in a very low response. Hence to improve attendance the researchers used a snowballing system, whereby interested individuals that had contacted us after the first round of advertisements, were requested to circulate an invitation to others in their immediate networks.

Table 1: Summary of the stakeholder groups represented in the study

| Stakeholder Type | Sector/Division/Group | Number interviewed |
|--|---|--------------------|
| State Government | Department of Environment Water and Natural Resources Primary Industries & Regions South Australia SA Tourism Commission Department of State Development Department of Transport Natural Resource Management | 15 |
| Local Government (Mayors, CEOs, Councilors, Environment Officers) | City of Onkaparinga District Council of Yankalilla Alexandrina Council City of Victor Harbor Kangaroo Island Council | 9 |
| Conservation NGOs and community groups | 'Friends of' groups Citizen Science groups Volunteer groups Incorporated bodies | 9 |
| Fisheries (commercial and recreational) | Commercial Fishing Charter Boat Operators Recreational Fishing | 7 |
| Private consultant | Marine expertise | 1 |
| Total | | 41 |

Four focus group meetings were conducted between September and October 2015 attracting 32 participants (see Table 2 for a summary). Two meetings were held on Kangaroo Island (8 and 11 September 2015) and two on the Fleurieu Peninsula (16 September at Yankalilla, and 21 October at Victor Harbor). The groups were designed to attract people with contrasting interests about the Marine Park. Two groups comprised

people with fishing (commercial and recreational) and/or commercial interests (e.g. charter boat operators, shop owners); and two groups comprised people engaged in conservation efforts or had conservation interests. The questions asked of focus group participants are included in Appendix 2.

Table 2: Summary of focus group meetings

| Location | Focus Group Type | Date 2015 | No. attendees |
|-------------------|---|--------------|---------------|
| Kangaroo Island 1 | Fishing (Commercial and recreational interests) | 08 September | 7 |
| Kangaroo Island 2 | Conservation Interests | 11 September | 8 |
| Yankalilla | Fishing (Commercial and recreational interests) | 16 September | 8 |
| Victor Harbor | Conservation Interests | 21 October | 9 |
| Total | | | 32 |

Altogether, 73 people participated in the study.

The interviews and focus group discussions were transcribed to a Word document and later uploaded to NVivo for coding and thematic analysis. Qualitative responses were coded according to their content. The count of responses assigned to a code is recorded as 'n' in the analysis presented later.

Direct quotes from the survey and focus groups are identified in this report by use of square brackets []. Ethics approval required that no individuals be identifiable so broad groupings have been used to differentiate respondents as follows:

Interviews

- State Government, Department of Environment, Water and Natural Resources (DEWNR) n=10
- State Government Other—Department of Primary Industries and Regions, South Australia (PIRSA), Department of Transport, South Australian Tourism Commission, Department of State Development n=5
- Local Government n=9
- Conservation interests—NGOs and community groups n=9
- Fishing interests—commercial and recreational n=7
- Environmental Consultant n=1

Focus Groups

- Focus groups A – Fishing-commercial and recreational interests (KI 1 and Yankalilla) n=15
- Focus groups B – Conservation interests (KI 2 and Victor Harbor) n=17

5. How is South Australia's Encounter Marine Park performing?—an exploration of the human dimension

Evaluating of the performance of the designated MPA should be part of routine management. The Encounter Marine Park meets the minimum conditions required recommended by Pomeroy et al Pomeroy (2004), namely:

- It exists as a formal (legislated) MPA (South Australian Government 2007)
- There is an ongoing management planning process
- There is a written management plan including clearly stated goals and objectives (DEWNR 2012)
- It has been in operation for at least 2 years (DEWNR 2012)

Perceptions of success

This research project set out specifically to explore perceptions of success held by communities adjacent to the Encounter Marine Park and stakeholder groups engaged in the implementation and ongoing management of the park. It is also an aim of this study to investigate whether different groups have different perceptions about success and dimensions of success. When respondents were asked if the Encounter Marine Park has been a success a range of answers were given (See Table 4 for a breakdown of categories and respondent types). This range of answers is discussed in turn below.

Perceptions of success: too early to tell

Twenty four of 41 respondents (59%) and all focus groups provided comments (see Table 3) said that it was too early to tell if the Encounter Marine Park was successful. Many comments made reference specifically to ecological or biological success, and the need to await monitoring results. Eleven responses clarified that success was a long-term objective for the MPA, and that success would not be evident for many years.

It's years down the track, I think it's too early [...]. [DEWNR] are still setting up their monitoring programs [to gather] baseline data collection inside and outside sanctuary zones, with baited remote underwater video cameras [Focus Groups B (Conservation interests)—KI]

How could you tell? They've been open for such a short time, considering there was no structure for research or monitoring...Come back in 10 years. [Focus Groups A (Fishing interests—commercial and recreational)—Yankalilla]

I think it's impossible to assess in the absence of constructive feedback from the monitoring, evaluation and reporting program. You can't make a call, because I don't know of the data, what data's being collected, what were the baselines, what's changed over time, some impacts are not going to be realised for 10, 15, 20 years. So I think that's an impossible [call]. It's going to take a long time for the data to be collected [ID 17 NGOs and community group]

Table 3: Reasons given to the question 'Is the Encounter Marine Park a Success?' by respondent and Focus Group

| | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus groups A* | Focus groups B** | Total Focus group (n=4) |
|---------------------------------------|------------------------|-----------------------|-----------------|--|---|----------------|----------------------------|-----------------|------------------|-------------------------|
| Too early to tell | 6 | 5 | 5 | 5 | 2 | 1 | 24 | 2 | 2 | 4 |
| The MPA exists | 5 | 1 | 1 | 4 | 0 | 0 | 11 | 1 | 1 | 2 |
| What is success? | 3 | 2 | 3 | 2 | 1 | 0 | 11 | 0 | 0 | 0 |
| Not a success | 3 | 0 | 0 | 2 | 4 | 1 | 10 | 1 | 1 | 2 |
| Raised awareness/education | 2 | 1 | 2 | 3 | 0 | 0 | 8 | 0 | 1 | 1 |
| Proud to have it/support it/accept it | 4 | 0 | 3 | 1 | 0 | 0 | 8 | 0 | 1 | 1 |
| Voluntary compliance | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 1 |

* multiple reasons per respondent and focus group were recorded thus column values are greater than 'n' of 41 or 4.

Table 4: Success affected by an inadequate implementation process by respondent and Focus Group

| | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus groups A* | Focus groups B** | Total Focus group (n=4) |
|---|------------------------|-----------------------|-----------------|--|---|----------------|----------------------------|-----------------|------------------|-------------------------|
| Inadequate MPA implementation process has stifled success | 3 | 2 | 3 | 4 | 4 | 0 | 14 | 2 | 2 | 4 |

*Focus groups A – Fishing-commercial and recreational interests

**Focus groups B – Conservation interests

Perceptions of success: the MPA exists

Eleven of 41 respondents (27%) and two focus group discussions suggested that the act of proclaiming the Encounter Marine Park was in itself a success. Two thirds of the people providing this response were State Government DEWNR and NGO/Community groups. This result (the park's existence being used as measure of success) may possibly be explained by the primary interests of both sets of these stakeholder groups and their engagement in the lengthy process of establishing the park.

It's already successful because it's already in place [...]. It's not rocket science: if you put something in place to protect habitat, fish stocks and fantastic amazing sponges or whatever it be, that's successful. [Focus Groups B (Conservation interests)—KI]

Well, it's been a success in that it's been established, and we have an area that is under both regulation and community awareness and protection as a result [ID 21 State Government—DEWNR]

The first level of success is yes, complete total success, in that it has been established and it's there and it is protecting habitat [ID 25 State Government—DEWNR]

Reference to the highly political nature of the MPA implementation process suggested that achieving proclamation was in itself a success.

I think it needs to be recognised that for all players in this process... it was an intensely political process, and it was deliberately made highly political by some stakeholders. That was their modus operandi... So the political pressure was massive... It was an extremely difficult process to run and reach a fulfilling outcome— simply because of the political pressure that was applied. To be successful, a process like this needs a certain political climate...It's almost like all the planets have to be aligned [ID 6 State Government—DEWNR]

Yes, just in getting it through... I think was a huge success for the state [ID 5 State Government—Other]

Perceptions of success: what is success?

Eleven respondents from a range of stakeholder groups asked the question: 'how do we define success?', or 'how are you going to measure success?' The concept of success was also explained to be complex and nuanced depending on who is asked the question.

Difficult to qualify. The definition of success is an interesting one... What sort of KPI are you going to have? [ID 34 State Government—Other]

Success depends on which lens you're looking at it through, I guess [ID 6 State Government—DEWNR]

I guess it depends on how you measure success, but I guess if you did a survey of the general community a lot of people, probably 50:50, would be negative about the Marine Park. A lot of people would be very positive, but that's based on nothing more than their impression of what's good and bad about marine parks? It's not based on whether the Marine Park has been successful or not. It's just their individual bents and pursuits [ID 31 Local Government]

There's lots of different levels of success [ID 25 State Government-DEWNR]

Perceptions of success: not a success

Almost one quarter of respondents (10/41) and comments from within two focus group discussions suggested that the Marine Park was not a success. A small number of people based the lack of success on the negative impacts on local fishing:

Obviously I don't think it's been a success. I can't see that it's done anything, really. It's potentially prevented some new areas or relatively underexploited areas from being fished, but at what cost and at what benefit?... and it's a case of whether you think fishing effort should be spread across the full range of the populations or [not]. One of the things that hasn't been a success in my view is that it's actually caused fishermen to fish in a smaller area and actually cause localised overfishing. Luckily, generally the fishing pressure is not high here, other than for tuna, it hasn't really caused a lot of issues for us here. Although I think it probably has in the recreational rock lobster [ID 32 Fishing—commercial and recreational]

A couple of respondents commented on success based on inadequate sizing and/or zoning of the Park:

I'm not sure that we were completely successful in securing a zoning plan that will provide adequately for all the biodiversity conservation needs of the Encounter Marine Park, and a lot of the other marine parks, into the future. In other words I don't think we got the optimal zoning plan this time around, on this pass. [ID 6 State Government—DEWNR]

And one person suggested that the Park was not successful because there was still dissent within the community about the park

Peoples' perception [however] is more negative than what we would like it to be by now. So I would say that if success is linked to peoples' perceptions, we still have quite a bit of work to do in getting that right [ID 22 State Government—DEWNR]

Perceptions of success: raised awareness

Eight of 41 respondents (20%) and one focus group discussion suggested that an increased level of interest in marine parks within the broader community (e.g. people wanting to visit them, and/or to participate in activities) was an indication of success. This increased interest in the Encounter Marine Park was explained by the success of promotional campaigns and the engagement of the public in the process of establishing the MPA.

There's potential and realised stuff here, because I'm already seeing in the community engagement work that I do, I'm already seeing people coming up to me and talking about marine parks with some knowledge that they've gained over the last 5 to 10 years of the process of putting these things together... some people are already starting to take an interest... that'll just grow over time, and you'd hope that in 5 or 10 years' time, people have got some appreciation of the benefits that have been achieved in the preceding decade... People are more aware of marine conservation because of the marine park process. [ID 6 State Government—DEWNR]

I would think in the main, the concept of marine parks has been successful. People understand that we're now talking about something we weren't talking about before, so I think all the promotion and education around them has been very successful [ID 40 Local Government]

But if success is linked to providing public appreciation, education, understanding, enjoyment, we can already say ‘yes, we’ve already been successful’. The fact that some people go to a marine park now makes them happier. And if we do a survey asking them that question, ‘why do you come to a marine park and how do you feel about it?’, I can see there would be a lot of success stories, but they’re not out there making noise [ID 22 State Government—DEWNR]

Everyone you talk to now knows so much about the marine parks and want to get involved... we get a lot of people coming in to scuba dive now because they love the marine environment... and they’ve seen so much on TV about the marine parks and how lucky they are to be in South Australia, with such a diverse marine life in this area [Focus Groups B (Conservation interests)—KI]

Perceptions of success: the MPA is accepted/supported

Eight of 41 respondents (20%) largely from State and Local Government and one focus group discussion suggested that since the MPA has been proclaimed that the ‘noise’ of resistance has died down. There is a sense now of acceptance of the Park, and that this is a measure of success. There were more positive comments made by NGOs and community groups that success is evident by the sense of pride and strong support exhibited for the parks:

I think it has been a success since it started, but when it was proposed it wasn’t. Since it became official... I’ve definitely had almost no one coming in to complain about them, I can’t think of a single complaint coming through the council once they were in place, and at council everyone comes in to complain...! You rarely hear when something’s good [ID 8 State Government—DEWNR]

In the end the peak [recreational] fishing body actually expressed qualified support for the marine park network. That in of itself is a success, and if the parks are going to continue to be perceived as needed and successful by the community, that continued support by the recreational fishing peak body will be really important... [ID 13 Local Government]

We get people come here from all over the world to try and dive with the leafy sea dragon. We’re the home of it and we’re proud of it. The sea grasses here are wonderful, and the fish stocks are terrific [ID 9 Local Government]

[The Park] is a success already, I work at Seal Bay Conservation Park. We talk about the Marine Park and all that sort of stuff. There is nothing but positive feedback about [marine parks]. [Visitors] just go off with great big smiles, but what they do say is, ‘Why did it take so long?’ That’s the only thing I get. They are quite okay with the Marine Park [Focus Groups B (Conservation interests)—KI]

Perceptions of success: voluntary compliance

State and Local Government and NGO/community groups mentioned that voluntary compliance was an indicator and that in this respect the MPA was successful already:

But I reckon it’s been good because the people in our community do care about it and they are actually policing it. If we left this to [state government] marine and coastal people who are telling people to stop fishing, well, they’re not here enough. But I think it’s been a success because people take it on board, they know they’re not allowed to fish there, and locals tell you... If people aren’t complying, there’s a good

likelihood that someone will come up in their boat and say “Hey... you’re not allowed to fish here”... So I think that’s been a success [ID 9 Local Government].

When I saw people [fishing in the Marine Park], no kidding, I rang and Fisheries would go, ‘Oh thanks, we’re on to that, that’s the fifth call’. [The fishers] been there for about half an hour, and I’m the fifth call, they’re [the Government] already acting on it [Focus Groups B (Conservation interests)—KI]

Perceptions of Success: the implementation process

Fourteen respondents (34%) and four focus group discussions raised problems with the implementation process of the Encounter Marine Park and the impact this process has had on the Park moving forward successfully (see Table 4). Across the different groups participating in this study, a pervasive sentiment is that the implementation process could/should have been better. If the process had been better it is argued that the Park would be better accepted and more successful now. Many comments relate to the way the public was able to engage during the early stages of the park’s establishment:

*[the consultation phase]... It was a joke; the decisions were made before they even started [the process]. It wasn’t done properly
[Focus Groups A (Fishing interests—commercial and recreational)—KI]*

*They should have consulted with the people that know what needs to be protected. If [the department] had worked with the marine community they wouldn’t have half the trouble they have now
[Focus Groups A (Fishing interests—commercial and recreational)—KI]*

[With regards community acceptance] it often go back to the conversation ‘the process was flawed’, ‘the way they did it was really bad’ and ‘it was never going to be accepted’. And because they had that initial pilot, everyone thought ‘well, what’s going on now?’, and then, ‘that was just the pilot’, but even the LAG, there’s still criticism of that process, but I’m the first person to say, ‘look whatever process was going to be in place was going to be criticised anyway’, and you had to be a part of the process [Focus Groups B (Conservation interests)—KI]

*The process was wrong from the start, no one knows about it
[Focus Groups A (Fishing interests—commercial and recreational)—Yankalilla]*

*The process was... a waste of my life for eight years
[ID 11 Fisheries commercial and recreational interests]*

One of the drawbacks, not of the Marine Park itself, but of the process to put them in place, was the antagonism it created in communities, and I do not have an answer to how you avoid that... Individual fishers could be amicable, but as an industry as a whole... my experience was not positive [ID 13 Local Government]

I think the process that was used has created the greatest disadvantage, because the stakeholders themselves were disenfranchised from the process... The drawbacks that have come from that are the resistance from people, the stakeholders that were burned by the process [ID 15 NGO community group]

There was a lot of confusion at first about what was going to happen with beach fishing and boats being allowed to go through areas, so that confusion wasn’t helpful

in garnering support for the program. I don't think that was addressed terribly well. One of the disadvantages right up front, very early, that there wasn't good information being put out [ID 18 Local Government]

One of the drawbacks of the Marine Park is 'is an anti-government sentiment, because people were so frustrated with the consultation process that happened, which has made it really difficult to go in and engage communities on marine resource management issues afterwards. The [marine parks] process and outcomes is very fresh in their minds, I think. I think there's [more negative] perceptions of how government is prepared to take [community views] on board [ID 41 State Government—Other]

Measuring success of the Encounter Marine Park is shown to be a complex task for a number of reasons. One challenge is that parameters by which to measure success were not obvious to all participants engaged in this study. In general, the conservation oriented participants (both interview respondents and focus group members) cited intangible measures as evidence of the Park's success such as 'feeling proud' that the Park had been successfully established and that there was a raised awareness in the community about the marine environment. It is also prudent to acknowledge the reluctance of the participant group to identify success at this stage of the Park's history. Clearly explaining the array of parameters available to measure success is an important consideration for future evaluation studies.

Human Dimensions basic to the success of MPAs

This study focusses on the human dimensions of the MPA for reasons articulated in previous sections. Charles and Wilson (2009) identified a number of human dimensions they consider fundamental to the acceptance and ultimate success of MPAs. These dimensions encapsulate topics emanating within the review of literature in Chapter previous sections and are summarised in Table 5; the dimensions serve as the frame for further analysis of the research in following sections.

Objectives and attitudes

'Understanding the full range of policy objectives is crucial to moving ahead with an MPA' (Charles and Wilson 2009: p.7).

Objectives of the Encounter Marine Park: biological conservation

In answering the question: 'What do you understand to be the purpose of the Encounter Marine Park?' all 41 respondents and four focus group discussions either directly cited or inferred biological aims (See Table 6). The majority of respondents (59%, n=24/41) and the four Focus Group discussions suggested that the primary aim of the park was to conserve or protect habitat. A few respondents/participants cited the more specific concept of representativeness:

The intention is to capture a wider array of ecosystems, not just [an] ecosystem, but to get all of it. A representation. [Focus Groups B (Conservation interests)—KI]

The Marine Park is basically to protect the habitat of the animals that are in there, so the flora and fauna... to actually protect certain areas and samples of the habitat types that actually exist in our waters. [ID 15 NGOs and community groups]

As described by government [the purpose] is supposedly to provide protection for biodiversity in particular, and also to provide a level of protection to the marine environment and ecology from perceived or real threats. And also, the line that they trot out is also to preserve pristine habitats from potential future degradation or exploitation [ID 32 Fishing—commercial and recreational]

Table 5: Human Dimensions basic to the success of MPAs (after Charles and Wilson 2009)

| | |
|---|--|
| Objectives and attitudes | MPAs are created and function in the context of societal and/or community objectives, which inherently reflect human aspirations and values |
| People-orientated “entry points” for discussion | Social, economic, legal, and institutional instruments can be simultaneously drivers, constraints, and/or supports for the creation and implementation of MPAs, and affect outcomes of MPA implementation |
| Attachment to place | Each location has its unique social and ecological context that influences the MPAs’ design, implementation, and impact |
| Make participation meaningful | Strong participation has been demonstrated empirically to be a factor in the success of MPAs in various circumstances— in all stages (consultation, design, implementation, and monitoring) |
| Knowledge has a “people side” | There is a critical need to supplement biophysical and ecological data with people-orientated information: human values and goals that relate to the area, about historical and current human uses of the area, and about social, economic, and institutional considerations within the area |
| Effective governance is critical | MPAs require effective governance and well-functioning management institutions if they are to be ecologically and socially successful |
| Get the rights right | There are basic issues concerning the nature of the rights (management rights and access rights) and who should hold them. Rights choices can have a major impact on the acceptability and effectiveness of MPA management. |
| Costs, benefits, and distribution | Implications of economic, social, and cultural aspects of MPAs have not been well studied. Who benefits? Who suffers the costs? How are benefits and costs distributed spatially and temporally? How is displacement managed? |
| See MPAs in the bigger picture | It is important to see MPAs in the overall picture of marine conservation, of coastal livelihoods, of the broader socio-economic environment, including all the ocean uses, such as fisheries. MPAs should not be isolated from a wider program of coastal resource management. |

** shaded sections correspond to respondent and focus group comments made in this study and are reported in the following sections.

Six of 41 respondents and one focus group discussions stated the purpose of the Park was to preserve fish stocks:

Table 6: Reasons given for Purpose of the Encounter Marine Park by respondent and Focus Group

| | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # responden ts (n=41) | Focus Groups A* | Focus groups B** | Total Focus Groups (n=4) |
|-----------------------------------|------------------------------|-----------------------------|--------------------|--|---|-------------------|--|--------------------|---------------------|---|
| Conservation/ Biological goals | 9 | 6 | 9 | 9 | 7 | 1 | 41 | 2 | 2 | 4 |
| -sustainability principles | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 |
| -protect habitat | 5 | 5 | 4 | 6 | 3 | 1 | 24 | 2 | 2 | 4 |
| -protect fish | 0 | 0 | 2 | 1 | 2 | 0 | 3 | 1 | 0 | 1 |
| Biological AND Social goals | 4 | 1 | 2 | 1 | 1 | 0 | 9 | 0 | 2 | 2 |

*Focus groups A – Fishing-commercial and recreational interests

**Focus groups B – Conservation interests

[Its purpose is] to prevent overfishing and restore the fish population, which has become degraded over the years because of more and more people taking fish out, either as amateurs or commercial fishing [ID 14 NGOs and community groups]

Giving fish a chance. I think that's what it's all about. It's about protecting fish stocks and giving them a chance to survive [ID 9 Local Government].

Initially, this was all about habitat, environment and biodiversity stuff, but it actually got down to, in our case, fishing [...]. It became a fisheries matter in the end. [Focus Groups A (Fishing interests—commercial and recreational)—Yankalilla]

Two comments explained the purpose of the Marine Park singularly around sustainability principles:

[Its purpose is] to protect the ecosystem for future generations. [ID 12 Fishing interests—commercial and recreational]

Its [purpose is] sustainable use of the resource, I guess. [Focus Groups A (Fishing interests—commercial and recreational)—Victor Harbor]

Nine respondents and two focus group discussions cited a range of roles for the Marine Park that incorporated biological as well as social objectives. Half of the State Government employees from DEWNR cited multiple objectives, compared to other state government employees, 100% of whom cited only biological objectives for the park. Many of these respondents thought that the biological objectives of habitat protection/conservation were the primary aim but that educational, economic and experiential aspirations were an additional or secondary purpose of the park.

Objectives of the Encounter Marine Park: education

It's really about education and trying to encourage people to do the right thing. It's about keeping what's there (wildlife) and encouraging more. Looking after wildlife, basically. It's really an educational campaign as well; I think there's two parts to it. It's the saving and the learning! [ID 37 Local Government]

To protect marine ecosystems and also to educate people about [the Park's] importance [Focus Groups B (Conservation interests)—KI]

Objectives of the Encounter Marine Park: boost to economies

Primarily that marine parks are there to conserve all parts of marine biodiversity in that part of the bioregion they're in... There's a whole range of other purposes... things like... providing opportunities to stimulate the local economies in those regional areas where we have the parks, places like Victor Harbor, if we can encourage some good, well thought through marine nature-based tourism opportunities and stimulate those economies. It's fantastic for those people in those local communities and it serves that other purpose of trying to link people with the sea and their marine environment [ID 6 State Government DEWNR]

Objectives of the Encounter Marine Park: experience/enjoyment/recreation

We hope that over time these places will be in the best condition, that these will be the places that people can go to experience for themselves what South Australia's marine environment has to offer, particularly for snorkelling and diving activity, but also for those that want to be swimming, or on the beach or walking in a natural environment [ID2 State Government DEWNR]

Attitudes toward the Encounter Marine Park

“Related to objectives are attitudes. How are the sea and its resources perceived by those with connections to the MPA? To what extent is a conservation ethic in place? How much community spirit and social cohesion are there? Supportive attitudes can be critical to meeting societal objectives” (Charles and Wilson 2009: p.7)

Comments made by respondents in this study indicated positive attitudes towards the park and that a conservation ethic existed as well as a sense of pride for the Park:

People are very proud of our National Parks, it's part of our culture and identity, and ultimately that's what I believe marine parks will become. They'll just become mainstream, just like our National Parks, people will learn to love, recognise and appreciate them, even if they don't use them [ID 3 State Government—DEWNR]

What I know about our marine environment here is that it's very fragile, it's very special, it's very diverse and it's really unique... I see the benefits as protecting that wonderful, varied, unique marine life—simple. We get people come here from all over the world to try and dive with the leafy sea dragon. We're the home of it and we're proud of it. [ID 9 Local Government]

And also, community pride, I think... you're value adding to the region that you live in by having a marine park [...]. It value-adds to the whole community in the Encounter region, I think. Because it helps them to understand the value of those specific areas [Focus Groups B (Conservation interests)—KI]

There are also however, lingering negative attitudes towards the Encounter Marine Park:

I think the process that was used has created the greatest disadvantage, because the stakeholders themselves were disenfranchised from the process... The drawbacks that have come from that are the resistance from people, the stakeholders that were burned by the process. They were asked for an opinion through the LAGs, and unfortunately they then felt betrayed when the sanctuary zones came out, that therefore leads to the biggest disadvantage; it has created a negative attitude to marine parks. [ID15 NGOs and community groups]

To this point I've seen no benefits from it. If anything, everything that's come from it so far for me, has been negative. I've already reducing my business by a third as of the end of this financial year. I'm reducing my fleet of boats by one, and have sacked one employee, because we don't have the area to operate anymore... [ID12 Fishing interests—commercial and recreational]

It's [the Marine Park] obviously controversial, so from a perception point of view the work in trying to have the community on board with this initiative obviously hasn't been that successful because there is still quite a bit of negative noise about this. But

having said that, most people that agree with marine parks don't go out there talking; they just keep quiet. So you don't hear the positive noise, you hear the negative noise. So it has nothing to do with the success of the Marine Park itself. Peoples' perception [however] is more negative than what we would like it to be by now. So I would say that if success is linked to peoples' perceptions, we still have quite a bit of work to do in getting that. [ID22 State Government—DEWNR]

There was an appreciation of the importance of education for bringing about attitudinal changes and that the wider community should be involved in education

...the realised benefits... I don't think there are any. I don't see any readily discernible change in attitude, understanding and hence behaviour towards people whose activities would depend upon or impact upon a marine park. To me, this whole business about conservation, I just don't think we make any progress until we change peoples' attitudes. Through attitudinal change we get behavioural change... By the time I had conversations with students their attitudes were already set, by 17 or 18 [years old]... There was no way I was going to change attitudes by that stage... If you're looking at sustained change in things on the ground, it ultimately comes from attitudinal change... and I think nowadays there is such a narrow window of opportunity to change attitudes... I'm talking about primary school kids; by the time you get to middle-high school it's too late... your chances of success are substantially reduced... [ID17 NGOs and community groups]

... with that awareness there's hopefully a bigger buy-in by the community: the more you know about something, the more you're willing to protect it. You need knowledge and understanding, and only then can you expect the general public to support something. [ID 26 State Government—DEWNR]

Make participation meaningful

'Strong participation has been demonstrated empirically to be a factor in the success of MPAs in various circumstances— in all stages (consultation, design, implementation, and monitoring)' (Charles and Wilson 2009: p.9)

Meaningful engagement or active participation by communities adjacent to MPAs has been demonstrated empirically to be a factor in the success of a given protected area (e.g. (Pollnac, Crawford et al. 2001)—in all stages (consultation, design, implementation, and monitoring). Strong and effective participation is therefore considered to be essential to the realisation of MPA goals. (Fiske 1992, Agardy 2000, Badalamenti, Ramos et al. 2000, Baker 2000, Elliott, Wiltshire et al. 2001, Bernstein, Iudicello et al. 2004, Lundquist and Granek 2005, Charles and Wilson 2009, McCay and Jones 2011) Imposition of MPAs without broad consensus often leads to failure (Christie and White 2007).

Engaging the public for the Encounter Marine Park occurred during both the pilot and implementation phases. In 2005, when the Encounter Marine Draft Zoning plan was released the public was invited to comment. A Local Advisory Group was established and a second, eight week, phase of consultation from 26 August and 22 October 2012 provided additional opportunity for the public to prepare written submissions on the draft zoning and management arrangements for the Encounter Marine Park (DEWNR 2012: p.2).

Almost one quarter (n=10/41) of respondents and two Focus Group discussions identified challenges associated with community consultation undertaken for the Encounter Marine Park. Comments identified negative experiences and the potential for these experiences to affect the success of the park in the long-term.

Part of it is an anti-government sentiment, because people were so frustrated with the consultation process that happened, which has made it really difficult to go in and engage communities on marine resource management issues afterwards. The [marine parks] process and outcomes is very fresh in their minds, I think. I think there's [more negative] perceptions of how government is prepared to take [community views] on board [ID 41 State Government—Other]

and that was one of our really great challenges, trying to bring some parts of the community along with us on that journey of establishing the parks, and trying to encourage them to give change a go and see whether it could, in fact, be a good thing. One of the reasons why I think a lot of people were so reluctant to embrace change was because they simply didn't trust government... government has not done enough over the years to earn trust, and I think the current government's approach in South Australia to community engagement is very much about trying to redress that lack of trust... Because we were one of the first major consultation processes to embark on this path, we were dealing with 50-100 years of community distrust... We certainly had a battle to bring communities alongside with us... [ID 6 State Government—DEWNR]

From what I gather when it was first announced... the disadvantage there was some people in the community put on the back foot. It's really difficult to consult well... and I don't think [DEWNR] consulted as well as they might to actually sell the reason for [the park]. So the disadvantage might be, some people are going to be anti the people who protect our environment, which is a real shame because they're so important... My view from afar... I think [DEWNR] could have engaged the community better. So the disadvantage of this is some dissatisfaction in the community, and the community have long memories. At the same time though I think [DEWNR] pulled back a lot... and that would have been a good move [ID 9 Local Government]

Effective governance is critical

MPAs require effective governance and well-functioning management institutions if they are to be ecologically and socially successful. According to Charles and Wilson (2009) some of the key elements for achieving this are:

- Vertical and horizontal integration between and within governing institutions
- Governance capacity
- Institutional sustainability and resilience
- Co-management arrangements; and
- Governance designed for effectiveness and acceptability.

Six governance features are discussed in turn below (compliance, resourcing, monitoring, communicating, managing, and engaging) and a summary of results is presented in Table 7.

Table 7: Effective governance requirements by respondent and Focus Group

| | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus Groups A* | Focus groups B** | Total Focus Groups (n=4) |
|----------------------|------------------------------|-----------------------------|-----------------------|--|---|-------------------|---|--------------------|------------------------|---|
| Compliance | 3 | 4 | 4 | 3 | 5 | 1 | 20 | 0 | 1 | 1 |
| Resourcing | 4 | 2 | 3 | 2 | 3 | 1 | 15 | 0 | 0 | 0 |
| Monitoring | 1 | 1 | 4 | 1 | 1 | 1 | 9 | 1 | 0 | 1 |
| Communication | 0 | 2 | 2 | 1 | 2 | 0 | 7 | 1 | 1 | 2 |
| Community Engagement | 2 | 1 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 1 |
| Management capacity | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 |

*Focus groups A – Fishing-commercial and recreational interests

**Focus groups B – Conservation interests

Governance—compliance

Almost half of respondents (n=20/41) and one focus group discussion mentioned matters of compliance in regard to governance aspects of the MPA. Concerns were raised that the MPA will not be effective if not policed; there were also concerns that there was not the capacity within government to perform this function and there were comments that the community should be engaged in compliance monitoring.

There's one thing about management of [the Marine Park]: it's about compliance, monitoring, enforcement. It's really things like fishing, tourism and other operators. How rigorous is the monitoring and enforcement of the parks in terms of those provisions for other activities? And by and large the Department of Environment really doesn't have the capacity in terms of its own boats or even its own people to go monitoring every reserve, every day, to ensure that people are not doing the wrong thing. So there is reliance upon using existing facilities such as the fishing folk, the fishing inspectors, local community, local observers, signage, education: a whole bunch of persuasive or education-type measures to do the compliance and monitoring, and I'm not sure that there's been any [strong] enforcement actions yet. [ID 34 State Government—Other]

To improve or make the Marine Park a success] Making sure there's sufficient compliance capacity... I don't know if there is sufficient compliance capacity, I suspect not [ID 13 Local Government [Future challenges for the successful management of the MPA] Policing. The number of rangers here – we've only got one ranger in Victor Harbor – so the number of people to actually police such a big area, I think that's a major thing [ID16 NGOs and community groups]

Governance—resourcing

Just over 37 percent of respondent comments (n=15/41) in regard to governance cited lack of resources as a possible compromise to the success of the MPA because it introduces a challenge to be able to manage, to monitor and to police:

There's actually no management, what I'd call management... they haven't got any money for management. [ID 11 Fishing interests—commercial and recreational]

And I think success will depend whether or not the government allocates sufficient resources for monitoring and research, and adaptive management. Because if you don't have the monitoring research to show what the impacts have been and to try and establish causal links, it's going to be hard when the review comes up in 10 years' time. [ID 13 Local Government]

There has to be a commitment of resourcing around making sure that there is serious education in place, serious monitoring programs in place, so we can show the benefits of these sanctuaries over time. And that ultimately needs to be a commitment from government to not only put the network in place but then also commit funding to allow those other things to happen. Just putting it in place is not the job done. You now have to have adequate resources set aside for management, monitoring, education. [ID 5 NGOs and community groups]

If there were more resources available you could do more from a compliance point of view, you could do more from an education point of view: you could put on more activities for kids, you could put in more interpretive signs if that's what you decided

*you needed. But everything is now limited by resources.
[ID 35 State Government - DEWNR]*

Governance—monitoring

Twenty two percent of respondents (n=9/41) and one focus group discussion about governance referred directly to the need for a monitoring program. Without monitoring it was noted that success would be difficult to assess. Some respondents commented that due to inadequate resourcing monitoring had been compromised.

And if they're not monitored properly – and part of that goes with making sure there's good compliance and enforcement in the sanctuary zones – then we don't really learn what is the difference between a really natural environment and one that is just part of the ubiquitous use that we have everywhere else [ID 39 Consultant]

*Epecially if we look at the monitoring [effectiveness], it's a little bit unfortunate that baseline data wasn't gathered 10 years ago or so. So we haven't got any baseline data to show any trends over the next couple of years.
[ID 26 State Government—DEWNR]*

*[to improve or make the Marine Park a success] the two main areas that jump to my mind are: the monitoring program, I think that's really still being developed in a lot of ways, and I think that's a big need to have that rigorous program
[ID 41 State Government—Other]*

Governance—communicating

Seventeen percent (n=7/41) of respondents and two focus group discussions complained about a lack of communication. Good governance requires effective communication strategies to reach multiple audiences about various aspects of management (compliance information, success stories, opportunities for engagement and so on). Comments below illustrate that there is a desire for more information from managers especially in regard to monitoring and progress reports since implementation.

I'd like to know what the monitoring regime [is]. I think the monitoring regime should be on a public website so that people of any level of interest can have access to the information... It may be a failure, but let's be open about that and let's have a look at that information. And I don't think there's anywhere near enough information about how it's going to be monitored... because if it's not going to be monitored... I don't even know how many fisheries officers there are who would have the capacity to go out on site. I don't know how it's being monitored. [ID 18 Local Government]

*Information flow: updates as to what is actually happening and how it is going, and the perceived benefits so far and into the future. And that is not only for the general public, but to residents and the commercial sector as well. There's resident associations and there's business associations, and they will always perceive that the big government isn't letting that information flow.
[ID 23 Fishing interests—commercial and recreational].*

I haven't heard anything. I haven't been aware of anything informing us about, is it working, is it being monitored? What's happening with it now it's been established? Prior to it being established there was heaps and heaps on information, and that's just stopped. [ID 30 NGOs and community groups]

There's no communication. If they under the Marine Parks Act have to monitor, police it and all the rest of it, surely they have to be audited, have some reporting mechanism where it can go to a central department and then, through our association we get some feedback? Being the people mostly affected, shouldn't there be some clarity about what they're doing or not doing, and if they're not doing it, why not?

[Focus Groups A (Fishing interests—commercial and recreational)—Yankalilla]

Governance—managing capacity

Just over seven percent (n=3/41) of respondents challenged governance capacity:

I can't see any benefit for the marine parks [as] they're managed at this stage and how they will be managed in the future, because they've never shown any management skills [ID 11 Fishing interests—commercial and recreational]

There is no management of the park from what I can see. It's just lines on a map, there isn't any active management of the park. It isn't like a terrestrial park where you've got rangers running around. DEWNR manage the park, we know that. They do and they don't. They have responsibility for the legislation governing the park, but I think there's a complete lack of [environmental] management within the boundaries of the park, because they're addressing all the wrong things.

[ID 32 Fishing interests—commercial and recreational].

Governance—community engagement

Almost 10 percent (n=4/41) of respondents and one focus group discussion in relation to governance matters claimed the benefits of a co-management relationship between government and the community:

The locals obviously have had an affinity with the sea, so they should be brought on board, and it could be the potential benefit for a number of groups.

[ID 23 Fishing interests—commercial and recreational]

Future challenges for the successful management of the Marine Park generally, I think, personally I'm not sure if it has happened in Encounter, that the community is engaged in the management [ID 29 State Government—Other]

The participants in this study have pointed to some aspects of governance that are worthy of closer attention, especially in terms of the government's resourcing capacity for monitoring and policing the park. Another theme emerging from this research is community interest in being involved in ongoing management (indeed some participants suggest the community has already stepped into this space in terms of compliance) and their interest in what is happening now that the Park is established. This may improve acceptance of the park by certain groups within the local community. Communication techniques should be reviewed and reports of achievements of the Park be distributed back to communities adjacent to it.

Costs, benefits, and distribution

Benefits accruing to MPAs

Charles and Wilson (2009) place benefits associated to MPAs into the following classes:

- Increased fishery and other direct resource-use benefits;
- Increased benefits from non-consumptive use (e.g. Ecotourism);

- Increased spin-off benefits to the coastal economy (e.g. Through diversification);
- Non-use value (e.g. Increased oxygen production from the sea);
- Existence value (the societal value resulting from the existence of an MPA and its contents);
- Option value (the value of maintaining a marine ecosystem for future use);
- Insurance policy (the value of having a hedge against uncertainty).

These classes have been used to analyse the data set for this study and the results follow organised by order of importance as determined by the number of responses given within class.

Benefits accruing to MPAs—non-consumptive use (ecotourism/education)

When asked about the benefits of the Encounter Marine Park, 27 of 41 respondents (66%) and one Focus Group discussion made comments aligned with the concept of ‘increased benefits from non-consumptive use’ (See Table 8).

Respondents suggested that through both the act of educating people and by encouraging visitors to come and experience the park a greater understanding of the marine environment will result. According to respondents, an understanding of the significance of the marine environment will lead to increased support or buy-in for the park by the general public. The park is a valuable place for commercial non-consumptive enterprises because it suits nature-based experiences such as scuba diving.

Benefits accruing to MPAs—Education

One more thing, education: massive. Again, it's proximity to Adelaide means there is so much potential for schools... to be able to take kids in the water, get them actually looking at what's underwater... So I think the education benefits could – hopefully – be tapped into. [ID 1 NGOs and community groups]

I see it as part of an education program as much as anything, part of preserving what we've got. It's about teaching people about looking after these things... I think it's about giving [the fish, leafy sea dragons and sea grass] a chance. [ID 9 Local Government]

A lot of people are talking about marine parks and there are a lot of programs being spoken about to educate the community, get the community involved, like citizen science-type projects. [ID 10 NGOs and community groups]

The benefits are, that it offers itself as an education facility for future research, particularly from a controlled environment versus a non-controlled. [ID 18 Local Government]

Table 8: Perceived benefits associated with the MPA by respondent and focus group

| Type of benefit | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus Groups A* | Focus groups B** | Total Focus Groups (n=4) |
|---|------------------------|-----------------------|-----------------|--|---|----------------|----------------------------|-----------------|------------------|--------------------------|
| Non-consumptive use (ecotourism/education) | 8 | 4 | 5 | 8 | 1 | 1 | 27 | 0 | 1 | 1 |
| Non-use value | 7 | 3 | 5 | 5 | 0 | 1 | 21 | 0 | 2 | 2 |
| Spin-off to the economy/diversification | 4 | 2 | 4 | 2 | 1 | 1 | 14 | 0 | 2 | 2 |
| Fishery (resource use) | 4 | 0 | 2 | 3 | 1 | 0 | 10 | 0 | 1 | 1 |
| Existence Value | 2 | 1 | 1 | 3 | 0 | 0 | 8 | 1 | 1 | 2 |
| Insurance policy hedge against uncertainty (sustainability) | 3 | 1 | 0 | 0 | 1 | 0 | 5 | 0 | 2 | 2 |
| Option value—maintaining ecosystem for further use | 2 | 0 | 2 | 1 | 0 | 0 | 5 | 0 | 1 | 1 |

Table 9: Perceived costs associated with the MPA by respondent and focus group

| Type of cost | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus Groups A* | Focus groups B** | Total Focus Groups (n=4) |
|------------------------------|------------------------|-----------------------|-----------------|--|---|----------------|----------------------------|-----------------|------------------|--------------------------|
| Costs local industry~fishing | 6 | 3 | 3 | 5 | 6 | 1 | 24 | 2 | 1 | 3 |
| Costs social capital | 4 | 2 | 3 | 2 | 0 | 0 | 11 | 1 | 1 | 2 |
| Costs management | 3 | 1 | 3 | 1 | 1 | 1 | 10 | 1 | 2 | 3 |

*Focus groups A – Fishing-commercial and recreational interests

**Focus groups B – Conservation interests

The benefits already, are we're educating people about what's there [...]. Now we can actually engage people and say why we're looking after it. There's actually a purpose, they can see a reason behind it. And with the information they're also getting through Experiencing Marine Sanctuaries, they're backing that up with the educational side of it in the schools, and taking kids out as well.

[ID 37 Local Government]

Benefits accruing to MPAs—Eco-tourism

Eventually, marine tourism will be a benefit. We've got a marine diving outfit here at the moment [...]. This is an established dive charter operation, he told me he fully expected to put on two extra staff once the marine park sanctuary zones are in place, because people want to go and see why you've conserved it. So the sponge gardens down towards Antechamber Bay, once people get wind of that, they'll want to dive on them because they're spectacular.

[Focus Groups B (Conservation interests)—KI]

In a town like Victor Harbor there's obviously significant tourism potential for scuba divers who want to come down here and have a diving holiday. The more natural environment, the more species of fish around, the more there is for them to see.

[ID 7 Local Government]

We use eco-tourist operators as part of our enterprise, and they are the biggest protection mechanism available to us in the Encounter Marine Park, because they are the people who are out there... They are the ones who have the most to win and lose through the proper protection of these areas. Ecotourism and research tourism is a burgeoning industry overseas, and we should be tapping into it... [The Marine Park] gives greater attraction, it gives greater focus, there is understanding that there has been an area set aside, it is really giving [these operations] validity or viability in those terms [ID 15 NGOs and community groups]

Benefits accruing to MPAs—non-use value (e.g. increased oxygen production from the sea)

Over half of respondents (n=21/41) and two Focus groups in answer to 'what are the benefits of the encounter MPA?' suggested that act of protecting part of the marine environment was in itself a benefit. Protection was considered a means to relieve pressure on fished species, to help improve ecosystem function and to assist in maintaining a healthy marine environment.

I think the idea is that [the MP] would support the natural environment to be a healthy environment, for fish and marine life.

[Focus Groups B (Conservation interests)—Victor Harbor]

I guess the main opportunity is that it offers a sanctuary area for those particular species that might be under stress or under pressure. It offers an opportunity for populations to be replenished in those areas where they're not being taken.

[ID 18 Local Government]

...but there's also protection just for its intrinsic value, just to be there in an ongoing way. [ID 21 State Government—DEWNR]

The potential benefits are huge in that it's going to be protecting habitats for the benefit of all the different marine organisms that use those habitats, whether they

live there or breed there or use those habitats at some point in their life cycle, or depend on other organisms that use them. So as far as trying to keep the whole web, the whole food chain going underwater, we need to protect all the different types of environments out there that keep all the different organisms functioning.
[ID 25 State Government—DEWNR]

...the key benefit is that ultimately I think we're going to see a much healthier marine ecosystems. [ID 5 NGOs and community groups]

Benefits accruing to MPAs—Increased spin-off benefits to the coastal economy (e.g. through diversification)

In answer to the question 'what are the benefits of the encounter MPA?', 34% percent of respondents (n=14/41) and two focus groups identified a boost to local and regional economies. The snow-balling effect of bringing people to the region for the purpose of eco-tourism for example, some respondents thought would likely generate benefits for other businesses.

Businesses come when you create a thing. [ID 1 NGOs and community groups]

You could have industries that rely on eco-labelling, so seafood that comes from 'green' places [...], people talk a lot about ecotourism, so they could benefit localised communities. If you go, for example, to Victor Harbor, some of the businesses there might have underwater cameras for people to go to observe the Marine Park, to snorkel, take pictures... the Whale Centre might organise activities that bring people there on the weekends, and people might then go and have lunch at the pub. So there could be a lot of activities in the Marine Park, where you would hope you'd see more marine life than on the outside, and there would be local benefits to the economy. [ID 22 State Government—DEWNR]

the current government is very interested in the economic benefits that these things can achieve... they've always made it very clear that we need opportunities for regional economies to become stronger, they see marine parks as a very credible and authentic means of achieving that, they're developing a nature based tourism strategy to guide the expansion of tourism in the future... That's where we see this as being quite exciting. If we can build economies through linking people with nature in a way that's sensitive to the environment and is respectful to the environment... it ticks environmental, social and economic boxes.
[ID 6 State Government—DEWNR]

An economic boom in tourism reflects in [local] business booming, and so on.
[ID 23 Fisheries (commercial and recreational)]

Benefits accruing to MPAs—Increased fishery and other direct resource-use benefits

Almost one quarter of respondents (n=10/41) and one focus group identified a knock-on effect directly to fisheries as a benefit of the Encounter MPA. As well as improved stocks of fish from spill over, marketing or branding produce as 'clean and green' were cited as benefits for resource extractive industries adjacent to the MPA.

For commercial fishers, it may exclude them from some areas, but what is something they can actually benefit from, is a beautiful place now has these marine sanctuaries, and you could actually sell your products using that. You've got to look outside the

square and go 'there's change, now I'm going to brand my product. Kangaroo Island'
[Focus Groups B (Conservation interests)—KI]

[Fishers] can also draw benefit from this, because premium food from a clean environment is a state brand. They can trade on the fact that they are fishing in and around marine parks... and seafood they catch is top quality. The benefit of marine parks is [...] they benefit everyone [ID 3 State Government—DEWNR]

There's also the benefits to other associated industries, like the fishing industry where in other places around the world, fishing industries have gotten smart and said "We're fishing in waters where marine parks are part of the management matrix, and so our waters are well managed because of that."
[ID 6 State Government—DEWNR]

Hopefully [there'll be] more recreational catch for fishermen, also commercial fishermen; if all the aims are met in the long term there'll still be catches for fishermen in the future. [ID 27 NGOs and community groups]

Benefits accruing to MPAs—Existence value (the societal value resulting from the existence of an MPA and its contents)

Seventeen percent of respondents (n=7/41, 17%) and two focus group discussions suggested the existence of the MPA was a good thing in and of itself. There were both implicit and explicit comments about the value of this for society.

I think it's probably reached the zenith of its success already. It's done, it's dusted, it's there, and that's the success. [Focus Groups B (Conservation interests)—KI]

Well, it's been a success in that it's been established, and we have an area that is under both regulation and community awareness and protection as a result. [ID 21 State Government—DEWNR]

The first level of success is yes, complete total success, in that it has been established and it's there and it is protecting habitat. [ID 25 State Government—DEWNR]

Benefits accruing to MPAs—Insurance policy (the value of having a hedge against uncertainty)

Twelve percent of responses (5/41) and two focus group discussions nominated benefits of protecting the environment against future unknown threats, such as climate change.

There are other places which raised a lot of questions, for instance, the deep one that's out there, in 200m on the west of the island. That one was put there purely for scientific reasons because there's deep-water upwelling; the scientific fraternity wanted that conserved, not against identified threats, but against potential threats for the future [Focus Groups B (Conservation interests)—KI]

The only benefit that I see is that marine parks provide areas where there will be no human impact of fishing, in particular, or mining. That will allow for ecosystem resilience, particularly against climate change. It provides an area where the ecosystem will be able to cop those changes and recover. [ID 20 Fisheries (commercial and recreational)]

The other big [challenge] is climate change... the future is going to look quite different to today. Mind you, that being said we've thought about that, and we've designed these parks with a bit of climate change in mind... we've made some of the zones bigger and north-south-facing so there's a little bit of room for movement... but who knows what might happen.
[ID 3 State Government—DEWNR]

Benefits accruing to MPAs—Option value (the value of maintaining a marine ecosystem for future use)

Twelve percent of respondents (5/41) and one focus group made comments that aligned with the concept of the sustainability principle of intergenerational equity—keeping the environment in good condition so that future generations would also benefit from being to enjoy and use it.

But to me I see the marine parks and the sanctuary zones as an investment in the future as well [Focus Groups B (Conservation interests)—KI]

Certainly intergenerational sustainability [is a potential benefit], to make sure what we leave for our future generations is not declined. [ID 31 Local Government]

It's a long-term proposition and it's designed to be a long-term proposition, about putting areas aside for future benefit [ID 35 State Government—DEWNR]

Costs associated with MPAs

The Charles and Wilson (2009) framework acknowledges costs associated with MPA designation. Costs are felt by fishers and households experiencing a loss of income and increased costs (associated with reduced catch, increased competition, and travelling further to fish). Economic downturn for fishers may have knock-on effects within communities (less demand for fishing related goods and services). Associated with the pressure placed on local fishers are social and political effects. MPAs may create divisions within communities. There are also costs associated with managing MPAs (e.g. for ongoing compliance and management).

Table 9 (see page 37) summarises the responses received in relation to the costs related to the Encounter Marine Park. Costs associated with loss of fishing effort, costs associated with management and with social capital are included below as identified by this study.

Costs associated with MPAs—decline in local and fishing industries

Almost sixty percent (n=24/41) of respondents and three focus group discussions associated with disadvantages or drawbacks (potential or realised) of the Encounter Marine Park mentioned the impact the MPA has had or is likely to have on fishers and the knock-on effect of this to communities.

And that of course is fully understandable that those people who enjoy fishing or use it as a livelihood would be distressed by the Marine Park on a short-term basis.
[ID 14 NGOs and community groups]

The near shore waters that have been protected, that's probably had a major effect on both commercial fisheries, but also the tourism fisheries, and the commercial fishers use these near shore waters as appropriate places to fish during winter months, and where you're precluded from making an income venturing further

offshore in winter months when the seas are more treacherous, I believe there is a fairly substantial impact felt by the commercial fishermen.
[ID 28 Local Government]

In the future this is going to affect people that want to get into the fishing industry, they're going to sit back and say, why would I invest and not be able to fish where I need to fish? You'll see a decline in the fishing industry over the next 10 years because it's going to be too hard. Some of these guys are 3rd and 4th generation fishermen, and there's not going to be a 5th and 6th. And that's a shame in itself, because that's a tradition, that's an inheritance or [passed down].
[Focus Groups A (Fishing interests—commercial and recreational)—KI]

Presently, the drawbacks for me have been a loss of area for my fishing operations, and an overfishing of the remaining areas now. I can already see the overfishing of the remaining areas. It's also started to cause a bit of angst among the remaining fishermen, their operations are starting to interact on each other... I haven't seen any benefits in catches at all, our catches have dropped off if anything... I believe that's because we don't have as much area to operate in now... so we're concentrating our efforts now back into an area, instead of... leaving that area and moving onto another area [ID 12 Fisheries (commercial and recreational)]

Now [customers] know that we can't take them [to a particular spot], they don't come. We're not as busy as what we were, and that'll only get worse. In these coastal towns everything revolves around fishing, as our income becomes less there's less people at the pub, the fuel bloke's not selling us as much fuel. Across the board, coastal towns that live off the ocean suffer drastically from marine parks—caravan parks, the accommodation, all the B&B's. That's happened already and it's going to get worse.
[Focus Groups A (Fishing interests—commercial and recreational)—KI]

Costs associated with MPAs—management

Thirty two percent (n=13/41) of respondents and three focus group discussions associated with disadvantages or drawbacks (potential or realised) of the Encounter Marine Park had to do with ongoing management, largely to do with compliance.

The policing of [marine parks]. The costs of running these marine parks and how they're going to police them, and how they're going to manage them? I can see that they've got these marine parks, and they're going to have to employ 4 more people to police the marine parks. I haven't seen that happen.
[Focus Groups A (Fishing interests—commercial and recreational)—KI]

It costs money. There's an expense, marine parks are notionally a luxury. Ultimately they make good business sense but in the short-term there is an expense [close to \$50m]. It costs money. Some of the other drawbacks of course, is that, like anything you create, it needs maintenance. It doesn't look after itself. It's a long-term commitment. That's something that can be seen as a drawback, but if you want to maintain your asset you have to keep maintaining it.
[ID 3 State Government—DEWNR]

I think there is a major issue there with resourcing. I think I mentioned when the marine parks were first talked about, the question was raised about who was going to manage these marine parks. And there was discussion that the local DEWNR office

here would have extra staff put on and they would have a boat, and none of that has happened. In fact they've got less resources than they had when discussions started. And I think that questions their ability to manage those sanctuary zones, in particular. At the moment it's about hoping that people will do the right thing.
[ID 31 Local Government]

Costs associated with MPAs—loss of social capital

Twenty seven percent (n=11/41) of respondents and two focus group discussions associated with disadvantages or drawbacks (potential or realised) of the Encounter Marine Park were about disruption to civic activities within communities. The park has reportedly had a negative impact on social capital.

I think [DEWNR] could have engaged the community better. So the disadvantage of this is some dissatisfaction in the community, and the community have long memories [ID 9 Local Government]

It's given the green element an opportunity to stand up and voice against what a lot of these guys do. It was their cheap shot because there was always division within the community

[Focus Groups A (Fishing interests—commercial and recreational)—KI]

The fishing industry did support a lot of community events, and it just can't now. [A reduction] in sponsorships, that sort of stuff [occurred]. We were donating stuff to the football club at one time, the sports clubs, the golf clubs [civic events]. Last year we did donations for the shed at American River for their fishing comp; just vouchers in particular, we used to donate \$25 vouchers to the hospital so people could come and buy seafood. We can't afford to do that now.

[Focus Groups A (Fishing interests—commercial and recreational)—KI]

See MPAs in the bigger picture

Charles and Wilson (2009) suggest that ideally MPAs form part of a larger integrated management system incorporating terrestrial, coastal and ocean planning and management. Such integrated systems account for ecological, social and economic aspects. If MPAs exist outside of a broader planning and management framework they are prone to underperformance, and are unable to control external threats such as pollution or development pressure. Importantly, MPAs isolated from broad scale natural resource management programs may also be vulnerable to political (and hence funding) cycles that may waver in support.

Table 10 summarises the 30 respondents and three focus group comments in relation to the Encounter Marine Park and how it is situated within a broader planning and management framework. The concerns resonate very closely to this component of the Charles and Wilson framework.

Bigger picture—Political vulnerability

Vulnerability to political cycles (that affect funding and support) was identified by 27% (n=11/41) respondents who recognised MPAs are part of a bigger picture of governance and management processes.

Table 10: Reasons MPAs need to be regarded as part of a bigger picture by respondent and focus group

| | State Govt. DEWNR n=10 | State Govt. Other n=5 | Local Govt. n=8 | Conservation NGO & community group n=9 | Fishing (Commercial & recreational) n=7 | Consultant n=1 | Total # respondents (n=41) | Focus Groups A* | Focus groups B** | Total Focus Groups (n=4) |
|---|------------------------------|-----------------------------|--------------------|--|---|-------------------|---|--------------------|---------------------|---|
| Political vulnerability | 4 | 1 | 2 | 3 | 1 | 0 | 11 | 0 | 0 | 0 |
| External threats (e.g. land-based) | 1 | 1 | 1 | 1 | 1 | 0 | 5 | 1 | 2 | 3 |
| Integrated planning | 2 | 3 | 1 | 2 | 0 | 0 | 8 | 0 | 0 | 0 |
| Commercial threats (exploration, extractive) | 2 | 0 | 1 | 2 | 1 | 0 | 6 | 0 | 0 | 0 |

*Focus groups A – Fishing-commercial and recreational interests

**Focus groups B – Conservation interests

One [challenge] is political, change of government, there's always the risk there that the incoming or opposition would have a different view. Marine parks are only secure to the extent that parliament wants them to be. So there's a political challenge there about how we make these politically resilient. And that's the big challenge because the next election is in 2018, so we've only got three years to make sure that these are things that are seen as things that can't be touched.

[ID 3 State Government—DEWNR]

...because the last thing that marine parks need to be successful is for them to remain an election issue. If they continue to be politicised there is going to continue to be a problem, and this is where they need to be mainstreamed as much as possible. You don't get a lot of people saying 'oh we should get rid of our conservation park' [...], but with marine parks it's been a different story

[ID 19 Fishing interests—commercial and recreational]

The future challenges for us are whether economic development gazumps sustainability, and conservation and preservation, especially in light of South Australia's current economic climate in terms of unemployment and mines closing, jobs; many 100s of people unemployed. What would Cabinet do in that particular instance? I don't know. [ID 29 State Government—Other]

Bigger picture—external threats

Roughly one third of respondents (n=5/41) and three focus group discussions cited protecting the Marine Park from land-based threats of pollution and storm water as a challenge for the MPA.

Most of the threats come from the land, what are the regulators going to do about it...? It's got to be looked at as a bio-spherical type of thing; address the threats on the land as well... That is how marine parks will become more successful, when you eliminate some of the threats from land as well [ID 15 NGOs and community groups]

I think that the future challenges are going to be whether they can successfully protect the environment, and it's going to require them to look at what's happening on land as well as what's happening in the sea

[ID 19 Fishing interests—commercial and recreational]

Bigger picture—Integrated planning

Twenty percent of respondents (n=8/41) commented about the importance of seeing MPAs as part of an integrated approach to management. These people mentioned that other state government departments should be working with the DEWNR team to achieve the goals of the Park and that the MPA program should be seen only as a part of a broader planning and policy framework.

I think it's a cross-government responsibility. When the marine park process was formally started about 10 years ago, the Premier at the time made it clear that it was a cross-government thing, and that they all had to work together. They all had to talk to the relevant government departments. I think the elements of success need to be led by DEWNR but there also needs to be a top down mandate from Cabinet saying that this is whole of government responsibility. Everyone else needs to work with them, whether its tourism, planning, transport, fishing, or education, or social inclusion. Marine parks is only an element of integrated marine planning, so if that integrated marine planning can work, then marine parks become a part of that

*process and that's a good way, that's the way it should be
[ID 1 NGOs and community groups]*

*I think it is really important to highlight that marine parks is a management tool, it's not the solution for everything. It has to be seen as part of a marine planning type of framework. Unfortunately for us, back in 1999 we had the marine planning program and the marine parks were a part of that, [but] the program stopped and we focused only on the marine parks. So it's a bit like saying, 'focus on your heart, but forget your liver, your stomach'. It doesn't work like that. So those large marine ecosystems, there are other management tools that we use as part of other legislation that have to be integrated with the Marine Park. So the Marine Park is a spatial tool that can work as a good tool to integrate coastal and ocean management, so I think that's important, however, that has to be done as part of a bigger framework for integrated coastal and ocean management. And that's where I talk about don't oversell: it means, just because you have marine parks you need the other. That integration is needed and we are not there, for sure. So that's another challenge, the policy challenge. What are the integrating ocean and coastal management tools out there that can assist marine parks to deliver on these aspirational goals?
[ID 22 State Government—DEWNR]*

Bigger picture—Commercial threats (exploration, extractive)

Fifteen percent of respondents (n=6/41) inferred that the Encounter MPA exists outside of a broader planning and management framework. Respondents commented on the development pressures such as extractive industries the Encounter MPA is likely to withstand external threats associated with.

*Is the Marine Park a success? It depends on how it is used. If it's there to protect the habitats, why then do we have activities sanctioned by government in those marine parks that are counterproductive, e.g., oil and gas exploration, mining, biopsy darting
[ID 15 NGOs and community groups].*

*They'll always be under pressure, there'll be a lot of proposals for developments, mining, that sort of thing. There's always going to be a lot of industrial use around the areas of the parks, possibly even pushing into the parks. It's like even our parklands in Adelaide, there's a lot of push to take up those parks in different ways.
[ID 27 NGOs and community groups]*

*There's potentially commercial pressures through mines that might be developed inland on the Fleurieu. All those large scale stressors are going to increase
[ID 35 State Government—DEWNR]*

How is South Australia's Encounter Marine Park performing?—an exploration of the human dimension—concluding comments

In very broad terms the Encounter Marine Park meets fundamental conditions needed for success—it meets regulatory requirements of being legislated, it has ongoing management (a team and plan) and a dedicated management plan exists to guide its function. Based on the views of participants in this study, the Park is generally perceived to already be successful and to have a range of potential as well as already realised benefits. According to criteria nominated in the peer reviewed literature the Park is performing well:

- Participants in this study all understood the biological purpose of the Park and many held positive attitudes towards it.

- The value of protecting the marine environment for intrinsic, non-human use were readily identified by many participants, as well as potential benefits that may accrue for extractive resource use.
- The educational opportunity afforded by the park is well understood and appreciated.
- Potential economic spin-offs for the regional economies (e.g. green-branding, eco-tourism) were readily identified.

Some aspects warranting further effort and attention include:

- Enhancing awareness within the community of the social goals of the park.
- There remains a need to overcome lingering antagonism from early planning and establishment phases of the Park.
- Evidence of positive outcomes is essential and for such information to be circulated widely.
- There are opportunities for enhanced community engagement in regard to education, monitoring and compliance.
- The reliability of financial resources for ongoing monitoring and compliance management is uncertain and this is considered a threat.
- Improving communication between the management agency and local communities
- Maintaining links with other sectors and agencies by the managing authority will assist in protecting the MPA from outside threats.

6. Stewardship-community identification with Encounter Marine Park

Stewardship is generally recognised as the acceptance or assignment of responsibility to safeguard things of value that belong to others or to the wider community. Public participation, community management and stewardship are considered vital for effective MPA management (Baker 2000, Elliot et al 2001, Pollnac et al 2001, White et al 2005) and stewardship and community involvement are implicit in the South Australian Marine Parks Act:

The responsibility to achieve ecologically sustainable development should be seen as a shared responsibility between the State government, the local government sector, the private sector, and the community more generally. (South Australian Government 2007)

... to promote community participation in the management of marine parks and the conservation of relevant marine environments. (South Australian Government 2007)

Community stewardship is explicitly stated in the Encounter Marine Park Management Plan as key to the success of the Marine Park:

Community stewardship of marine parks is one of the keys to their success and this plan contains strategies to assist with community education, involvement and enjoyment of the park.

The Encounter Marine Park Management Plan (DEWNR 2012) has four management priorities that 'directly support the achievement of the objectives of the Marine Parks Act'. One of these four priorities is 'stewardship through community involvement' with five companion strategies:

4.2. Stewardship through community involvement

Providing opportunities for public appreciation, involvement, education, understanding and enjoyment of marine environments is central to the success of South Australia's marine parks network and is integral to the implementation of marine park management plans.

Strategies

- 5. Provide for public appreciation, understanding and enjoyment of the marine park.*
- 6. Create and promote opportunities for sustainable nature-based tourism in the marine park.*
- 7. Provide education to support the implementation of the marine park.*
- 8. Seek to involve local communities and stakeholders in the day-to-day management and monitoring of the marine park.*
- 9. Work cooperatively with Aboriginal communities to conserve country, plants, animals and culture (DEWNR 2012: p.10)*

The following section considers the extent to which stewardship aspirations and the ambitions of the five management strategies are already in place according to respondents and focus group participants in this study.

Perceived importance of stewardship

Stewardship was mentioned explicitly by 9 of the 41 interview respondents. Their comments around stewardship clearly indicated the perceived importance of encouraging stewardship to ensure the success of the MPA. Most of these (n=7) were State government employees.

...overtime we're looking to increase the level of community stewardship and ownership of our marine parks, so it's a collaboration between government, industry and community. [ID2 State Government—DEWNR]

...involvement leads to appreciation, appreciation leads to stewardship, stewardship leads to conservation... [ID3 State Government—DEWNR]

To make it [the MPA] a success.... needs continued work with community engagement and stewardship... [ID 26 State Government—DEWNR]

However, stewardship was discussed implicitly by almost everyone, with a large emphasis on community involvement in the park and the importance of community support for achieving a successful marine park.

I think it's a fantastic initiative and a long overdue initiative, one that will require a commitment and resourcing. But if it's done right and in a way that embraces community and community involvement, we'll reap significant rewards in the future [ID 5 NGOs and community groups]

Ecological integrity [is the most important measure of marine park Success]... but one of the contributing factors has got to be an increase in community engagement [ID17 NGOs and community groups]

...working with the community, so they are part of the monitoring and management [is how we can improve the Marine Park's success] [ID 22 State Government - DEWNR]

Without community support you're going to have compliance issues, which can undermine ecological outcomes [ID 13 Local Government]

To me the number one challenge for the future is securing community support for marine parks in the long term [ID 6 State Government - DEWNR]

We would also measure it [success of the Marine Park] in terms of community support [ID15 NGOs and community groups]

...getting community support... that is a measure of success as well [ID 20 Fishing interests—commercial and recreational]

Public appreciation, understanding and enjoyment of the marine park

The first of the strategies for achieving the objectives of the Marine Parks Act revolves around public appreciation, and investing in ways to increase the communities' understanding and enjoyment of the park. This aspiration is shared with other MPA policy and legislation, such as the New South Wales *Marine Parks Act 1997*, and community

understanding is considered by many to be central to effective management of marine parks (Eisma-Osorio, Rochers et al. 2007, Mayo-Ramsay 2014, Gall and Rodwell 2016). Respondents highlighted the importance of the Encounter Marine Park for increasing awareness of the wider marine environment and the issues it faces.

Another one of the benefits [of the Marine Park] is helping to increase understanding in the community of the importance of the marine environment, and the importance of conserving and protecting the marine environment. I think they [marine parks] play an incredible educational role, I think they play an incredible role in connecting, and in some scenarios, reconnecting people with the space that we're part of... The role that marine parks and the Encounter park in particular, being so close to the city... in terms of that education and connection is really important, probably far more than other parks... [ID 5 NGOs and community groups]

...there are also social and economic benefits, which is about people having a greater appreciation for the marine environment, a better understanding, and enjoyment. [marine parks] help with educating future generations about marine systems. [ID 22 State Government—DEWNR]

Another benefit would be to raise community awareness, knowledge, understanding, appreciation, and thereby support marine parks. [ID 17 NGOs and community groups]

It [the Marine Park] brings to the attention of people that there's something out there... It raises the level of understanding and education [ID18 Local Government]

I think it's actually what's really important here for that longer-term role of the program to educate, inform and improve awareness. And I've worked enough with community groups [...] and I've seen peoples' understanding and perceptions change dramatically as they become aware of and understand the environment they're looking at. [ID 21 State Government—DEWNR]

...making sure that we link people with marine parks and the sea... If we have well designed marine parks the environment will look after itself, the challenge is not conserving marine biodiversity... our challenge is to encourage people to behave in the right way with respect to those places, and there's no better way of doing that than to teach them to love these places, because you're not going to trash something that you love. [ID 6 NGOs and community groups]

Multiple respondents suggested that increasing appreciation, understanding and enjoyment of the Marine Park is an important aspect of success.

There's always things we can do to improve the success of our marine parks. A lot of it's about increasing awareness and understanding, so we've been running education and awareness programs... It's something I think will improve over time as people share their experiences.... [ID 2 State Government—DEWNR]

There's an interface to communicate elements of the marine park to tourists, community etc., and it really presents it... that would improve how people access [the marine park] and what values they can see in it. [ID 4 State Government—Other]

The other success would be the community's understanding of what [marine parks] are. [ID 8 State Government—DEWNR]

[To improve the success of the Marine Park]..we have to escalate our education and awareness program [ID 21 State Government—DEWNR]

Issues of insufficient and ineffective communication were highlighted, which could hinder this strategy.

Even myself, I've had to refer to some of my records to see exactly what we're talking about, what the area is, where the sanctuary zones are in there, how it might affect me personally, all that kind of thing. Is there enough signage, enough publicity about all this? I'd probably like to see more. Even though [Encounter] is a huge marine park, a lot of my friends would still struggle to say what they think it encompasses. I've got all this historical stuff on file, but more recently we've had something like these handouts [...], but it doesn't give a single map that shows the total Encounter Marine Park, for example. It's not obvious from something like that what the whole area is, it's not very clear about [what's allowed in] the Marine Park [beyond recreational fishing]. [ID 27 NGOs and community groups]

The media and communication needs to be better. For example, in the Victor Harbor area or the Fleurieu Peninsular I haven't been aware of any particular feedback about what's happening. [The establishment] seemed to take forever and ever and ever for it to get started, then it didn't sort of happen and then there's been nothing, I haven't heard anything. I haven't been aware of anything informing us about, is it working, is it being monitored? What's happening with it now it's been established? Prior to it being established there was heaps and heaps on information, and that's just stopped. [ID 30 NGOs and community groups]

There were also suggestions that the 'messages' that are being communicated could be improved to enhance understanding, appreciation and enjoyment.

And then also building in [the message of], 'the marine environment's great, so we're protecting it'. That's something that's missing at the moment, a lot of the marine parks' information is purely about the rules, where you can and can't fish, and it's all about recreational fishing, it's not about 'these are the special things that are the reasons we've got these sanctuary zones here'. It needs to be about concentrating on what you can do, rather than what you can't. [ID 25 State Government—DEWNR]

I think the biggest thing [to improve success] is promotion of marine parks [at the local level]... there needs to be some good news stories in the media... some involvement from the state government... They've imposed this on the community... they need to now be going out to the community... to try and counter the negative aspects of fishermen saying they're not allowed to fish here or fish there... [ID 7 Local Government]

The actual [Marine Park] is a good idea. I just think the way it's been presented at times is not a good idea... People think it's just to protect the fish when it's actually to protect habitat. That should be explained more, the way it was put out could have been done better...[ID16 NGOs and community groups]

Several respondents indicated that some success under increasing 'appreciation, understanding and enjoyment' had already been obtained.

*If success is linked to providing public appreciation, education, understanding, enjoyment, we can already say yes, we've already been successful
[ID 3 State Government—DEWNR]*

in the community engagement work that I do, I'm already seeing people coming up to me and talking about marine parks with some knowledge that they've gained over the last 5 to 10 years of the process of putting these things together... some people are already starting to take an interest... [ID 6 State Government—DEWNR]

I think the fact that people have focused upon the need to put aside tracts of the ocean for conservation purposes, I think that's been a success (and that's the larger areas rather than the sanctuary zones). The fact that people are now understanding that the oceans are at risk and we do need to care for them. It's certainly enhanced understanding along those lines, it's got people thinking about the need for that. And, that's its major success, the encouragement of people to get out into the parks, to actually start to enjoy the marine environment and actually engage... That I think is the major success [ID 15 NGOs and community groups]

I would think in the main, the concept of marine parks has been successful. People understand that we're now talking about something we weren't talking about before, so I think all the promotion and education around them has been very successful. [ID 40 Local Government]

Sustainable nature based tourism

The second strategy of the Encounter Management Plan for enhancing stewardship is to 'create and promote opportunities for sustainable nature-based tourism in the marine park'. There are multiple existing examples of Australian MPAs that incorporate economically and socially valuable tourism activities, such as the Great Barrier Reef Marine Park, Ningaloo Marine Park and the Solitary Island Marine Park. Nature based tourism is often seen as a means of providing employment and stimulating the local economy in a sustainable way (White, Salamanca et al. 2002, Francis, O'Sullivan et al.). Nature based tourism associated with MPAs is also seen as a possible way of long term sustainable financing for the management of MPAs, through user fees or other taxes (Kelleher et al 1995, Francis et al 2002). It is important to note however that insufficiently controlled and regulated tourist activity can have substantial negative impacts on the ecology of MPAs, affecting their ability to meet conservation objectives (Sala, Garrabou et al. 1996, De Santo 2013), necessitating a substantial emphasis to be placed on the 'sustainable' aspect of this strategy.

Tourism was a common topic of discussion, mentioned by 28 of the 41 interviewees and in three of the four focus groups. Some respondents identified tourism and ensuring there were tourism opportunities as being one of the purposes of the Marine Park, while others considered tourism to be one of the main benefits of the parks establishment.

*So I think, first and foremost it's for conservation objectives. But there are other objectives as well, and it's to ensure that there are recreational and tourism opportunities, which are protected because the marine parks are in place. So if you've got healthy ecosystems in marine parks, you've got fish and you've got the biodiversity upon which nature-based tourism and recreation can occur.
[ID36 State Government—Other]*

Primarily that marine parks are there to conserve all parts of marine biodiversity in that part of the bioregion they're in... There's a whole range of other purposes... things like... engage people in their environment... in an intimate sort of way... providing opportunities to stimulate the local economies in those regional areas where we have the parks... places like Victor Harbor... if we can encourage some good, well thought through marine nature based tourism opportunities... and stimulate those economies, it's fantastic for those people in those local communities and it serves that other purpose of trying to link people with the sea and their marine environment... [ID6 State Government—DEWNR]

Certainly [a main benefit is] tourism attraction: there's more and more tourists these days that are wanting to come to areas that they know have been environmentally managed appropriately, so you can't disenfranchise that at all or not recognise that as a very big tourism driver across the whole world these days. [ID40 Local Government]

Long-term I think it will help with the habitat protection, which in turn will help the species in the long run hopefully, which will run onto tourism... the tourism will roll on and money and what-not. [ID16 NGOs and community groups]

Eventually, marine tourism will be a benefit. We've got a marine diving outfit here at the moment [...]. This is an established dive charter operation, he told me he fully expected to put on two extra staff once the marine park sanctuary zones are in place, because people want to go and see why you've conserved it. [Focus Groups B (Conservation interests)—KI]

Ecotourism and research tourism is a burgeoning industry overseas, and we should be tapping into it... [The Marine Park] gives greater attraction, it gives greater focus, there is understanding that there has been an area set aside, it is really giving [these operations] validity or viability in those terms... [ID15 NGOs and community groups]

In a town like Victor Harbor there's obviously significant tourism potential for scuba divers who want to come down here and have a diving holiday. The more natural environment, the more species of fish around, the more there is for them to see... [ID7 Local Government]

Once you can see that local governments and communities are viewing it as an asset, and tourism operators also, once they start to use it explicitly, it adds value, especially for inbound tourists. [ID35 State Government—DEWNR]

Some suggested that much more needed to be done to promote nature based tourism.

I think that DEWNR were very behind the ball in terms of tourism and economic development in the parks, and I think the government really needs to give the SATC a kick up the butt, and give them a bucket of money, tell them to have development grants for products in marine parks... So partly it's not all the SATC's fault, the government needs to give them a bucket of money that's special for that. And also the regional development bodies... they help a lot of businesses develop in regional areas, and the Fleurieu is a regional area... So I think there's a huge amount of work to do around the tourism element. [ID1 NGOs and community groups]

I think the whole issue is that most people don't know that [the Marine Park] exists, or what it's for. Most people don't know what a marine park is, or that it's there, or

*why one should have one. I'd have thought councils would play a bigger role in promoting [the Marine Park] in regional tourism
[Focus Groups B (Conservation interests)—Victor Harbor]*

While others questioned if the park would actually contribute to tourism at all.

*It certainly does create that certainty for operators that they can continue to operate or there will be [tourism] opportunities going forward. But notwithstanding, pretty much the tourism operations in marine parks were all already operating before marine parks came into existence. And operators who deliver experiences will deliver them if there are marine parks or if there's no marine parks, depending on what it is they want to deliver..... In terms of tourism I don't think it's necessarily made that much difference, to be honest. I think it's nice to think that South Australia has marine parks, but people don't come here for marine parks. People are looking for marine experiences, they're not really going to go, 'Oh, South Australia has marine parks, so let's go there'. They're going to go, 'Oh, in South Australia you can go whale-watching, or dive with sharks, or swim with sea-lions' – whatever it is. So it's the experience that's the drawcard, rather than the fact that the marine parks are there. And I don't see that marine parks are going to necessarily all of a sudden stimulate operators to come in and establish new businesses..... I don't see this boom in tourism happening, I think this boom in tourism will happen whether the marine parks are there or not... Tourism, I think, has been put forward as it's going to be the big beneficiary, so I personally struggle to see that we'll be able to say in 5-years' time, 'oh, we've created all these jobs because of the marine parks'.
[ID36 State Government—Other]*

*What I don't get is just the big push with tourism, I just don't get it [...]. Standing on a beach tells you nothing other than you can say 'ooh ah, it's a marine park'. I'm not being silly there, but I can't see how it's going to bring tourism to our area, to be honest. That was a big push by the government [but] I don't see that at all [...]. We don't have [glass bottom boats or much diving] in our area..... I don't think recreational and tourism has impacted or increased because of the marine parks.
[ID 33 Fishing interests—commercial and recreational]*

*I don't know of any businesses that have started up, or are going ahead because of [marine parks], here on the island. They based all of these marine parks, and said it would be good because they would boost marine tourism. How is it going to boost tourism? People come here for fresh fish. You go to any island or any seaside place, and 9 out of 10 of us look for fresh fish. Prior to marine parks nothing excluded marine tourism. If you were an entrepreneur you could have done whatever you wanted [...]. Post-marine parks you need a permit, so it's going to cost you more as a marine operator.
[Focus Groups A (Fishing interests—commercial and recreational)—KI]*

There were also concerns expressed about the impact of increasing tourism on the Marine Park's ecological success and the potential for increasing wildlife conflicts.

The tourism impact on the park is only going to make it worse; I don't see how tourism can make it better at all... I don't see how that could have a benefit on the Marine Park. If the Marine Park was becoming more successful in terms of improving what's in the ocean, then there might be even more tourism going out to see it, so it's swings and roundabouts... [Increased tourism] could hold it back from being even better. [ID14 NGOs and community groups]

*Ecotourism... I think that's what we should be basing our future on, rather than other tourism activities that simply destroy our environment... As a local councillor I've had numerous complaints... about the numbers of jet skis and all the big boys' toys... that can interfere with things like seals and other marine creatures...
[ID7 Local Government]*

The overriding impression from interviews and focus groups was that whilst many expected a benefit or perceived a benefit to tourism as a result of the Marine Park, there was little evidence of that benefit being realised yet or of this particular management strategy currently being effective.

Education

Community environmental education is a strong predictor of social and biological MPA success (Pietri, Christie et al. 2009) and the Encounter Marine Park Management Plan (2102) incorporates a strategy to provide education opportunities to support the management of the Park. Both the education opportunity of the Marine Park and the importance of education for the success of the Marine Park were well recognised by respondents and focus group participants.

*One more thing, education: massive. Again, it's proximity to Adelaide means there is so much potential for schools... to be able to take kids in the water, get them actually looking at what's underwater... So I think the education benefits could – hopefully – be tapped into... I don't think it's happening yet, but I know people have plans.
[ID 1 NGOs and community groups]*

Encounter Marine Park is probably one of the parks with the highest adjacent population. It's closest to the metro coast, so it has strong education potential... about what marine parks are, why they're needed.[ID 13 Local Government]

*I think [marine parks] play an incredible educational role, I think they play an incredible role in connecting, and in some scenarios, reconnecting people with the space that we're part of... The role that marine parks and the Encounter park in particular, being so close to the city... in terms of that education and connection is really important, probably far more than other parks...
[ID 5 NGOs and community groups]*

...what has to go alongside those big reports is an education, touring kind-of outreach program, which isn't about the parks but the places that these people live in and work in.[ID State Government—DEWNR]

[To improve the success of the Marine Park] I've always been a big one for educating the young people, so getting into schools and setting up a proper marine education program that addresses the needs for teachers to teach about marine life in South Australia...[ID 10 NGOs and community groups]

Education is the key..... Education [can improve the success of the Marine Park], and targeted education, depending on which parts of the Marine Park you're in, and promotion through the media. [ID 37 Local Government]

Education is the key to the community, to tourists, and there should be more funding [Focus Groups B (Conservation interests)—KI].

Education is inherently linked with raising awareness and understanding, and discussion of these aspects overlapped substantially.

*One thing we're looking at doing with that is working a lot with the schools, to make sure that there's more marine education going on in the schools. So school kids come out with a better understanding and appreciation of the marine environment.
[ID 25 State Government—DEWNR]*

There was some evidence provided of the strategy being implemented:

*DEWNR staff are doing monitoring and education, and community education through DEWNR as well.....I work with schools and community and education, so we've jumped on board to make sure we educate the community about marine life, especially the unique marine life in this area, the leafy sea dragon... It's really important that we get that information into schools, that's a really big positive... I get out to fishing groups, boating groups, special interest groups...
[ID 10 NGOs and community groups]*

*I'm part of the NRM Education Board, and we're hosted out of the City of Onkaparinga. We have our eco-beach day, which we're working with Marine Parks [Dept.] on. I'm also working on a separate project where we're pulling together marine and coastal education information that's on the web, plus organisations, programmes and different sites, and we're trying to put them into one hub. Key players in that are Marine Parks [Dept.], Adelaide National Bird Sanctuary, the Dolphin Sanctuary, etc. So we're trying to have a hub, sort of a [web] page that students and teachers and uni students can go to as well, where there'll be a lot of marine information. Back in the '90s the Marine Education Society had quite a strong focus, but that's fallen by the wayside, so there's a push to increase that through the Marine Parks section in DEWNR, so we're involved in getting that going.....[In terms of NRM education] our focus is more on empowering schools to take action and community building, from doing stuff in the schools to being involved with their communities, so it can be a range of things, we don't just focus upon marine. Marine's not that big a focus for a lot of schools apart from the coastal ones, so we don't actually measure what they're doing. What we're about is building that capacity [for the students] to become environmental champions in the future [...], it's more about building a process so people have that capacity in the future.
[ID 38 State Government—DEWNR]*

However these initiatives seem to be currently limited in extent/reach and there was an indication that activities that are currently being undertaken need to be communicated better.

I think [in the future] you'll see more community education programs with the local NRM [...]. I don't think there has been enough promoting by the local NRM about marine parks. They've all been too scared to put their hand up and be proactive, it doesn't matter how much funding you've got, there's not enough. It's been in for a year but there's a few signs around, there's been no forums, no school community education [ID 37 Local Government].

No, it's been quiet [in terms of educational activities] since it [the Marine Park] has come in. The only thing I've had is a school from Adelaide has come over for two visits, and we've had two lots of groups of students over. Michael gave a talk to one,

and that's all I know.

[Focus Groups A (Fishing interests—commercial and recreational)—KI]

...that's really about communication and education programs... I'm not aware of any... Quite often I find that when government gets involved in public consultation and education and information, the agenda seems to be to protect themselves from criticism [ID 17 NGOs and community groups]

I think another thing that would be accepted by the KI community, is that they'll understand a little bit more about the seals that live here, because there are still kids that'll go down and throw rocks at seals at Kingscote, and still kids that don't know that Australian sea lions are an endangered species in South Australia, that's what I'm saying about education programs: they're not happening [...]. Those things will create acceptance within the children [Focus Groups B (Conservation interests)—KI].

There was also an acknowledgement that DEWNR resources are limited and that education initiatives, like all aspects of enhancing stewardship, need to be developed in conjunction with the community

At the moment DEWNR has carriage of the program. I don't think that could change in the short term, however I think we could enact a process where there's some kind of community network that could work with us – particularly in the education and outreach program – to deliver some of the things we have to do. There's two reasons for doing that: one is, I don't think we can reach enough people ourselves, and two, I think it's naive to think that one regional officer spend[ing] one day a week on stuff over a year, is enough to do anything beyond being a point of contact [ID 21 State Government—DEWNR]

You now have to have adequate resources set aside for management, monitoring, education, and some of that doesn't necessarily have to be done by government, some of that can be done by community groups, potentially local councils and others. But the resource probably ultimately needs to come from the government. [ID 5 NGOs and community groups]

The community also plays a role helping in identifying where people are doing the wrong thing, and also in terms of education and monitoring the parks... [ID 2 State Government—DEWNR]

One of the problems of measuring success is masked by a lack of resources for DEWNR; monitoring programs are restricted, education programs are restricted, etc. etc. [Focus Groups B (Conservation interests)—KI]

*If there were more resources available you could do more from a compliance point of view, you could do more from an education point of view: you could put on more activities for kids, you could put in more interpretive signs if that's what you decided you needed. But everything is now limited by resources.
[ID 35 State Government—DEWNR]*

Involvement in the day-to-day management and monitoring

Through their fourth stewardship strategy DEWNR aim to involve the wider community in the management of the Marine Park. This sentiment was expressed by multiple respondents, but this strategy seems as yet to be in the development stages.

We're looking for a multi-layered management model, and an expanding model. My vision is to perpetually increase the number of people involved in the day to day running of our marine parks... [ID 3 State Government—DEWNR]

We haven't been doing that much, yet, but one activity that we think is getting people more involved in the day-to-day management of the park.... So we want to partner up with industry, communities, universities, and that's through the stewardship priority. [ID 22 State Government—DEWNR]

We're trying our best with fairly tight resources to foster programs, to involve people in the marine environment a little more... we're trying to support existing things, like Reef Watch... trying to build the pool of people who are working for the marine environment [ID 6 State Government—DEWNR]

...fishing groups themselves and conservation groups are talking about how citizen science can get involved and how the everyday person can contribute to managing the parks... doing surveys potentially in the future, so monitoring and evaluation and reporting by community groups... It's being worked on presently... It will probably get going, hopefully in the next 12 months... It's a shame there's not any government funding around for that sort of thing. It's really difficult to get anything funded... [ID 10 NGOs and community groups]

I'm not sure if it has happened in Encounter, that the community is engaged in the management ... But I think community management of anything is variable, it can be very good and very bad, and anywhere in-between [ID 29 State Government—Other]

Working with Aboriginal communities

The final strategy for enhancing stewardship in the Encounter Management Plan (2012) is to 'Work cooperatively with Aboriginal communities to conserve country, plants, animals and culture'. As discussed throughout this report, the importance of involving the wider community in monitoring and management, of which the Aboriginal community is part, was highlighted repeatedly by many respondents. Some respondents also explicitly referred to the importance of including the Aboriginal community and identified specific ways they could be more involved.

We need to work more closely with Aboriginal groups to get them involved, both above and below water. A lot of Aboriginal groups have voiced interest in learning to scuba dive and get involved in monitoring of their own areas...

[ID 10 Local Government]

One thing I didn't mention is the cultural, we are also wanting to engage Aboriginal communities and trying to incorporate their cultural values. We haven't been doing that much, yet, but one activity that we think is getting people more involved in the day-to-day management of the park, and that includes Aboriginal people; in the monitoring of the park, run more citizen-science type projects, getting industries more involved [ID 22 State Government—DEWNR]

It has to be policed effectively, which must mean more employment opportunities for either the government side of things like PIRSA, more fisheries officers, potentially a chance for the Aboriginal-indigenous community to maybe be seconded in to policing some of the area, especially if it has got an indigenous impact, like Kings Beach, that Aboriginal fish trap. The locals obviously have had an affinity with the sea, so they should be brought on board, and it could be the potential benefit for a number of groups. [ID 23 Fishing interests—commercial and recreational]

Stewardship—community identification with Encounter Marine Park—concluding comments

Stewardship and community involvement in the Marine Park's ongoing management was of importance to respondents across the stakeholder groups. Unfortunately, there appear to be issues of ineffective, inadequate and inappropriate communication, which needs to be addressed lest it hampers the successful implementation of the government's stewardship strategies. The need for/importance of adequate resources to enable fulfilment of stewardship aspirations was raised multiple times. Nevertheless respondents provided evidence that some success in terms of stewardship and community involvement had already been achieved. Overall it seems, with sufficient ongoing investment, that there is a good opportunity to foster stewardship through community involvement with the Encounter Marine Park.

7. Indicators to measure MPA success

A successful MPA, once implemented should achieve changes in both social behaviours and environmental systems. Establishing whether or not a formally designated MPA has been successful in this regard requires a carefully designed monitoring system that includes robust performance indicators, baseline data, and control sites. However, 'In practice, many MPAs lack formal systems for monitoring environmental and, especially, social phenomena' (Pomeroy, Mascia et al. 2006: p.164).

In general, the development of social and cultural indicators is considered to lag behind ecological or biophysical indicator development, and historically, social and cultural indicators have rarely been considered in the early stages of planning (Pomeroy et al. 2006). However, this is changing, and there is increasing interest in developing more comprehensive indicator sets that are able to measure social, economic, cultural, and institutional outcomes alongside the biophysical (Pomeroy et al. 2005: p.488). Including robust social indicators that incorporate stakeholders' perceptions of success, in conjunction with the more standard ecological indicators, will give a more holistic picture of how well MPAs are faring. Hockings et al. (2006: p.29) argue that the non-material aspects of cultural and social values, while more difficult to define than biophysical indicators, can ultimately be assessed and rated in much the same way. They suggest that when determining social and cultural indicators, these should be able to be 'recognised by stakeholders, reflect threats, provide early warning, and be cost effective and relatively easy to measure' (Hockings et al. 2006: p.29). In addition, indicators need to be 'representative', to counter the problem of assessment being unable to measure everything. Pomeroy et al. (2005) take this a step further and provide more specific examples of indicators that are currently used to evaluate marine parks' progress against their stated goals, as illustrated in Table 11.

Table 11: Common MPA Socioeconomic goals and indicators

| Goals | Indicators |
|---|--|
| 1 Food security enhanced or maintained | 1 Local marine resource use patterns |
| 2 Livelihoods enhanced or maintained | 2 Local values and beliefs regarding marine resources |
| 3 Non-monetary benefits to society enhanced or maintained | 3 Level of understanding of human impacts on resources |
| 4 Compatibility between management and local culture maintained | 4 Perceptions of seafood availability |
| 5 Environmental awareness and knowledge enhanced | 5 Perceptions of local resource harvest |
| | 6 Perceptions of non-market and non-use value |
| | 7 Material style of life |
| | 8 Quality of human health |
| | 9 Household income distribution by source |
| | 10 Household occupational structure |
| | 11 Community infrastructure and business |
| | 12 Number and nature of markets |
| | 13 Stakeholder knowledge of natural history |
| | 14 distribution of formal knowledge to the community |
| | 15 % of stakeholder groups in leadership positions |
| | 16 Changes in in conditions of ancestral and historical sites, features and/or monuments |

(Adapted from Pomeroy *et al* 2005: p.293)

Existing indicator sets

There are a number of guides, workbooks and indicator sets developed to assess progress in MPAs attaining their social goals:

Bunce, L., P. Townsley, R. Pomeroy and R. Pollnac (2000). *Socioeconomic manual for coral reef management*. Australian Institute of Marine Science, Townsville, Queensland.

Staub, F. and M. Hatzios (2003). *Score card to assess progress in achieving management effectiveness goals for marine protected areas*, The World Bank, Washington, DC.

Pomeroy, R., J. Parks and L. Watson (2004). *How is your MPA doing? A guidebook of natural and social indicators for evaluating marine protected areas management effectiveness*, IUCN, Gland, Switzerland and Cambridge, UK.

Hockings, M., S. Stolton, J. Courrau, N. Dudley, and J. Parrish (2004). *The world heritage management effectiveness workbook*, The United Nations Foundation Washington, DC.

Wells, S. and S. Mangubhai (2005). *Assessing management effectiveness of Marine Protected Areas: a workbook for the Western Indian ocean*, IUCN Eastern Africa Regional Programme, Nairobi, Kenya.

Day J., N. Dudley, M. Hockings, G. Holmes, D. Laffoley, and S. Wells (2012). *Guidelines for applying the IUCN protected area management categories to Marine Protected Areas*, IUCN, Gland, Switzerland.

Stolton, S., M. Hockings, N. Dudley, K. MacKinnon, T. Whitten and F. Leverington (2007). *Management effectiveness tracking tool: reporting progress at protected area sites*, Second Edition, WWF, Gland, Switzerland.

The majority of these publications are intended for general use, rather than tailored to the goals of a specific protected area, and as such they provide broad guidance regarding the development of social and economic indicators.

Indicators need to be specific to a particular place, and reflect the needs and aspirations of local communities attached to that place. Designing place specific indicators will help develop community support for MPA(s) by either building on or maintaining conditions leading to benefits, or targeting and responding to barriers or negative social impacts generated by MPAs (Jones 2002, Himes 2007). Incorporating social and cultural goals and indicators into MPA planning and management should encourage a greater sense of community ownership or buy-in to the MPAs and help foster principles of stewardship and community involvement (Mascia 2003, Pomeroy, Parks et al. 2004, Himes 2007). Hockings et al. (2006) state that indicators should reflect elements that are important or of concern to local and Indigenous communities, which typically include 'the recognition and maintenance of traditional rights and land tenure, the existence of effective dispute resolution mechanisms, involvement in management decision-making processes, and the incorporation of traditional ecological knowledge into planning' (Hockings et al. 2006: p.46). As such, the development of a unique indicator set developed in conjunction with the local

Encounter Marine Park community will provide a new way of considering 'success' of the recently implemented MPA. It is hoped that this insight will benefit the management authority and serve to advance practical solutions to the management of the park and provide lessons for other places.

Indicators for Encounter Marine Park

The development of indicators for this study has been undertaken with both the broad objectives of the Marine Parks Act and the more specific Encounter Marine Park Management Plan (2012) management priorities and strategies in mind. This project focused on social indicators and so it did not consider the biological objectives of the Act, or, the 'protection' management priority of the Management Plan, which focuses on aspects related to ecological integrity of the Marine Park.

The relevant Marine Parks Act objectives are stated as: objective b (iv), 'allowing ecologically sustainable development and use of marine environments' and, objective b (v), 'providing opportunities for public appreciation, education, understanding and enjoyment of marine environments'. The three relevant management priorities of the Encounter Marine Park Management Plan (DEWNR 2012) for this study are:

- Stewardship through community involvement
- Performance assessment, knowledge and review and
- Compliance

The three management priorities and their companion strategies are outlined in more detail below.

Stewardship through community involvement

Within the 'stewardship through community involvement' management priority, there are five management strategies and indicator development considered all five:

- Provide for public appreciation, understanding and enjoyment of the marine park.
- Create and promote opportunities for sustainable nature-based tourism in the marine park.
- Provide education to support the implementation of the marine park.
- Seek to involve local communities and stakeholders in the day-to-day management and monitoring of the marine park.
- Work cooperatively with Aboriginal communities to conserve country, plants, animals and culture (DEWNR 2012, p.10).

Compliance

Within the 'compliance' management priority there are three guiding principles and one strategy. The three guiding principles that underpin marine park compliance are:

- Voluntary compliance is maximised through education initiatives;
- Across government collaboration supports compliance; and
- Operational improvement is achieved through monitoring and review of compliance activity.

Strategy 15. Develop and implement a compliance strategy for the marine park that:

- Is cost-efficient;
- Is focussed on sanctuary zones and other conservation priorities;
- Complements existing compliance efforts;
- Maximises voluntary compliance; and
- Includes measures to address serious or repeat non-compliance (DEWNR 2012: p.11).

This project focused on indicators required for monitoring overall compliance with regulations. It also considered indicators of ‘voluntary compliance maximised through education initiatives’.

Performance assessment, knowledge and review

This project also considered indicator development for one management strategy from the performance management priority, strategy 11: Foster partnerships to support the implementation of the MER [monitoring, evaluation and reporting] program incorporating opportunities for community and stakeholder involvement.

Indicators generated from this research

Respondents and focus group participants identified 57 indicators of success to attribute to the Encounter Marine Park. These 57 indicators were sorted into 10 categories based upon logical groupings, and where appropriate, have been correlated with the Marine Parks Act objectives, three of the Encounter Marine Park Management Plan priorities (‘performance’, ‘stewardship through community involvement’ and ‘compliance’), and the Encounter Marine Park Management Plan strategies.

The 10 indicator categories are:

| | |
|--------------------------------|------------------------------|
| Added value | Government support |
| Compliance | Longevity |
| Community support | New economic activities |
| Education and public awareness | Recreation and community use |
| Existing economic activities | Stewardship |

Each category is discussed below in alphabetical order, and correspond to Table 12. The number of respondents or focus group discussions nominating each indicator is stated where possible, but in some cases indicators have been extrapolated from abstract comments, and were therefore not readily counted.

Added value

Respondents and focus group participants perceived one measure of success to be if the presence of the marine park added value to activities or products within or adjacent to the Marine Park. Three respondents mentioned the possibility of using the Marine Park as a ‘sustainability’ brand for seafood products harvested within its boundaries, and the positive effect this could have on existing fisheries in the region:

For commercial fishers, it may exclude them from some areas, but what is something they can actually benefit from, is a beautiful place now has these marine sanctuaries,

and you could actually sell your products using that. You've got to look outside the square and go 'there's change, now I'm going to brand my product Kangaroo Island'. There's those sorts of things that it's not even looked at [...].
[Focus Group B (Conservation Interests)—KI]

[Fishers] can also draw benefit from this, because premium food from a clean environment is a state brand. They can trade on the fact that they are fishing in and around marine parks... and seafood they catch is top quality.
[ID 3 State Government—DEWNR]

Five respondents and focus group participants stated that if real estate or rental prices were to increase for properties adjacent to the Marine Park, that this would be a sign that the Marine Park had added value to the region. Similarly, if real estate or other businesses were found to be advertising the presence of the Marine Park, this would provide a measure of success:

So you'd do questionnaires of local business and maybe real estate companies, see what's happening with the market, or to the economy: more jobs or less jobs or land prices rising or going down, that would be a good reflection of how successful [marine parks] are for people living in marine parks...
[ID 10 NGOs and community groups]

In Shark Bay [WA] the real estate agents actually boast that there's a marine park there.
[Focus Group B (Conservation Interests)—KI]

If you look at interstate examples where there's been marine parks in place for some time, you'll start to see – even in real estate ads – 'great house next to a marine park'. You know you've got a measure of success when someone's using it as an asset in a real estate sale. [ID 35 State Government—DEWNR]

Compliance

Compliance was stated to be a useful measure of success by 16 respondents/focus group participants. The majority of respondents/focus group participants suggested that a decline in the number of reports or injunctions for non-compliance would be an indicator of success and community buy-in. Another suggested measure of community buy-in was the number of individuals or businesses that rang in when they witnessed perceived non-compliance.

One thing that we need to do is to be making sure, from a compliance point of view, that people are doing the right thing, otherwise there's no point in having these different zones [...]. And that's not just people going out and catching a whiting in the wrong place, it's bigger stuff as well, like developments that may or may not be happening [...]. It's something that we need to keep on top of.
[ID 25 State Government—DEWNR]

We've got a very high level of voluntary compliance. Which to me, reflects that people are happy with the way they're set up, they don't see a big incentive to breach the rules. So, compliance, I think, is a really good indication of success.
[ID 3 State Government—DEWNR]

Compliance is an issue I think [...]; compliance would be a good indicator [of success].
[Focus Group B (Conservation Interests)—KI]

Community support

Community support was considered by many to be a key indicator of success. Suggested methods of measuring community support included exploring levels of community involvement in local events, as well as following trends in messages received from the broader community.

That's another way to measure success, and of course the other thing is, to measure community buy-in: does the community support the marine parks, and does the active community support the marine parks?

[ID 19 Fishing interests—commercial and recreational]

Looking at the community involvement, so number of volunteers, even vandalism to signs... [ID 3 State Government—DEWNR]

For example at community engagement events... we're constantly trying to gauge the opinions that we're hearing from things like [community events] to get a sense of how successful we've been socially. [ID 6 State Government—DEWNR]

Monitoring of media messages to determine the ratio of 'positive' to 'negative' reporting on marine parks was suggested by three respondents, with one suggesting that the media was also important for monitoring misinformation circulating about the Marine Park. Another suggested that such a project could be undertaken in collaboration with universities, with the aim of collating and analysing media reports every few years.

I think the way that [the Marine Park] is used in the media and in advertising and in things like that, is also a good measure of [success]. [ID 35 State Government—DEWNR]

We really need to use local newspapers to spread the good word about the benefits of marine parks and what's actually happening down here... We need the background research from scuba divers or people who are monitoring the fish stocks in the area. [ID 7 Local Government]

Education and public awareness

Education and public awareness were commonly mentioned by respondents/focus group participants, with the most diverse number of measures suggested under this category. These included the number and quality of signs promoting the Marine Park and interpretive signage information about the Park. Two respondents suggested that the number of interpretive centres set up in future could be used as a measure of success. Respondents and focus group participants also suggested that levels of public awareness could be measured by polls, either through phone surveys or by surveys at boat ramps, or at other highly used visitor areas. Six respondents also mentioned the importance of targeted educational activities for school children by developing information on marine parks within the curriculum. The hosting of community events, was suggested as an indicator of success whereby the numbers of visitors could be used to measure the success of these events. An increasing number of citizen science or data collection programs was also considered a potential measure of success:

If you walked down to the beach at Normanville and asked 150 people [about marine parks] 'marine parks, what are they?' The government never informed the people,

*the process was wrong from the start, no one knows about it
[Focus Groups A (Fishing interests—commercial and recreational)—Yankalilla]*

*We would also measure it in terms of support for the science in the area,
[community] support and also funding support from within government; funding for
science, grants, these types of things, for people to actually engage in marine parks
in true scientific data collection and to enhance research tourism...
[ID 15 NGOs and community groups]*

*Is there enough signage, enough publicity about all this? I'd probably like to see a
little bit more. Even though [Encounter] is a huge marine park, a lot of my friends
would still struggle to say what they think it encompasses.
[ID 27 NGOs and community groups]*

Another respondent noted that a measure of success would be when the operators took it upon themselves to educate their customers about the Marine Park:

*Anecdotally, I know that some of the bus drivers who take bus tours around the
island have said that, they've always stopped at Pelican Lagoon to show people the
scenery [...], and occasionally people get out the bus and take a photo. Whereas now
he stops at the same place and says, 'this is now a marine park sanctuary zone' and
everyone gets out the bus to take a photo of it, just because it's a sanctuary zone.
[ID 35 State Government—DEWNR]*

Existing economic activities

The continued viability or enhancement of existing industries was mentioned by respondents/focus group participants from a variety of backgrounds. Suggested indicators often took the form of the continuance of local fisheries, and allied industries associated with fishing operations, such as the marine service industry, fish processors and fish sellers, and fishing tourism. The potential impact upon the local population was also suggested by respondents/focus group participants as a possible measure, although there was an appreciation that linking any changes to economic activities to the Marine Park would be challenging:

*Our customer base is mainly locals, and mainly the older population which like,
garfish, tommyies, snook, mullet [...]. We don't see these people anymore because
they can't afford to buy fish [...]. It's affecting the bread and butter fish that people
grew up on. [Focus Groups A (Fishing interests—commercial and recreational)—KI]*

*[The fishers] aren't going to spend as much money with us [...]. They're having to
travel further, burn more fuel, spend more days at sea, to catch, which will bring
down their profit [...]. So it will flow on.
[Focus Groups A (Fishing interests—commercial and recreational)—KI]*

*I want to see peoples' businesses get better, you don't want to see businesses going
backwards... it has created an overabundance of operators now, per area... The
viability of [businesses]... the sustainability... [is a measure of success]
[ID 12 Fishing interests—commercial and recreational]*

*The overall success has got to be balanced by the economic viability of the
communities that live nearby [ID 24 Local Government]*

Economically, if commercial fishing [is able] to continue into the future, that would be good; that would be the proof of the pudding. There should be a flow from marine parks into the fishing areas. [ID 27 NGOs and community groups]

Tourism – the number of tourists could be a measure, and the number of residents, but how do you know if migration is due to the marine park? There has been a reduction in numbers [of fishermen] in the commercial industry [as a result of marine parks], but it would be difficult to see if changes in the numbers of recreational fishers has occurred. [ID 20 Fishing interests—commercial and recreational]

Yes you can measure the number of people who visit caravan parks, or the number of fishing boats that go bankrupt. However, what the baseline for that is, I don't know how you measure the baseline because you can't eliminate external factors easily. [ID 21 State Government—DEWNR]

The next thing to look at would be economic, and I think the measure of that would be seeing allied industries or business areas grow, or at least not decline. I think the difficulty with that is because there are such fine linkages between what a marine park means and how that actually connects to the business of a hardware and fishing tackle store, or a fish and chip shop or even the fuel station, makes it very difficult. [ID 28 Local Government]

New economic activities

The potential, or loss of potential, for new economic activities within marine parks were considered by a number of respondents/focus group participants. Tourism was the main sector discussed, with respondents mentioning the potential for new tourism ventures to be implemented, thereby increasing the diversity of activities available for residents and tourists. There was also mention of oil and gas extraction, port and aquaculture development:

I suppose success could also be measured in those economic and political terms as well. Did new businesses get established because there's a marine park there? Have businesses suffered or been more successful since the Marine Park has been implemented? ...I think the government really needs to give the SA Tourism Commission a kick up the butt and give them a bucket of money, tell them to have development grants for products in marine parks... And also the regional development bodies... they help a lot of businesses develop in regional areas, and the Fleurieu is a regional area [ID 1 NGOs and community groups]

Like you say, more people coming [to the Marine Park], but what about servicing those people that would want to come here? New business opportunities that would provide those experiences [Focus Groups B (Conservation interests)—Victor Harbor]

There's been some aquatic tours which have established on Kangaroo Island, and they've really taken off. They've shown a diversity by creating an industry, or creating an experience on Kangaroo Island that hasn't formerly been there. [ID 28 Local Government]

You've got to explore for resources before you find them, and if you're restricted in your capabilities or even the perception of exploring then exploration doesn't

happen. If ultimately there were to be resources there [...] and there's no exploration, then you forego any potential benefits that may be there.

[ID 34 State Government - Other]

The main [economic measures] would be, both the impact on existing operators and incomes, and property values, and secondly, the opportunity costs: there's potentially a major aquaculture industry out here that I think has effectively been stopped.

[ID 32 Fishing interests—commercial and recreational]

Recreation and community use

The 'recreation and community use' category is about measuring the number of people visiting the Marine Park. This was generally accepted as hard to disentangle from other reasons why people might visit the region, however, other potential measures included the number of community events where the Marine Park was represented, collating community feedback after or during such events, as well as the number of events structured around the theme of marine parks. Two respondents/focus group participants also suggested that the number of charter fishing trips and patronisation of these trips should also be measured, to determine whether people were being put off fishing activities as a result of the presence of the Marine Park:

During the smaller [community events] we'd be collecting feedback surveys, we have a sheet that [asks], how much fun did you have, what did you learn, what will you take away from this, that type of thing. But for the bigger events it's really about the numbers that turn up and any incidental feedback you get back during the day.

[ID 37 Local Government]

I'd definitely be collecting visitor use data... The Councils often do surveys of coastal visitors, and they could maybe be a bit more finely focused around the Marine Park in some way or another. I think boat ramp fees are another good one, that's another good way to monitor use and visitor numbers....

[ID 39 NGOs and community groups]

...whether use has changed over time, from more impacting-type use to more conservation-type use. It might be snorkelling, diving, bird-watching, those types of things – more conservation-based use, eco-tourism. Whoever's measuring it would have to set up some sort of survey.

[ID 38 Local Government]

We can measure, again through surveys, if people are going to a certain site more because there is a marine park.

[ID 22 State Government—DEWNR]

I think knowing short-term, whether people can still do the recreational things that they've done in the past, so has it interfered with their recreational sports?

[ID 16 NGOs and community groups]

One is, do people continue to visit the marine environment on holidays, or to go fishing? So there's evidence of use and the kind of activities that are there.

[ID 21 State Government—DEWNR]

...number of visits, number of permits, number of tour operators

[ID 3 State Government—DEWNR]

Government support

Several different potential measures of government support were suggested, including continued funding of DEWNR's activities, particularly for education and compliance, that local government were shown to be taking responsibility with regards their obligations, that monitoring activities and policing maintained a visible presence on the water, and that government continued to support local community events by sending a representative to attend:

...and also funding support from within government; funding for science, grants, these types of things, for people to actually engage in marine parks in true scientific data collection and to enhance research tourism...

[ID 15 NGOs and community groups]

Money. If they haven't got any money they can't manage [the marine parks].

[ID 12 Fishing interests—commercial and recreational]

If we have a government or political leaders that enable us and resource us to do our jobs well, I don't think there are going to be too many disadvantages or drawbacks. If we have a political environment that is regressive with marine parks with respect to marine parks, then I think that it could go pear-shaped pretty quickly.

[ID 6 State Government—DEWNR]

Making sure that local government planners are aware of their obligations to consider the impacts of development upon marine parks, that's a local government responsibility. DEWNR working in collaboration with the NRM boards and the community conservation sector to host events... [ID 13 Local Government]

And I think success will depend whether or not the government allocates sufficient resources for monitoring and research, and adaptive management.

[ID 13 Local Government]

Local shows, or just local events. Bobbing up to a local event saying that 'okay, this area is important'. [Focus Groups B (Conservation interests)—KI]

Longevity

Longevity of the Marine Park was listed as a future challenge by the majority of interviewees, however, ways to measure longevity were not often provided. Those that did provide suggestions either stated that success could be measured by whether the Marine Park network received bi-partisan support, or by the fact that marine parks were no longer an election issue, that they had effectively been mainstreamed in the way that national parks are today:

The 10-year review will be a challenge if the political animosity has not been resolved. If you had bipartisan support from both the major parties, that would just make things so much easier. [ID 13 Local Government]

The last thing that marine parks need to be successful is for them to remain an election issue. If they continue to be politicised there is going to continue to be a problem, and this is where they need to be mainstreamed as much as possible. You don't get a lot of people saying 'oh we should get rid of our conservation park' [...],

*but with marine parks it's been a different story
[ID 19 Fishing interests—commercial and recreational]*

Stewardship

Stewardship was most commonly measured by the levels of community engagement in marine park activities, either through volunteering in marine park events, by helping to collect citizen science data, or by local community members becoming involved in the day-to-day management and running of the Park:

*Community involvement would probably be another one you could measure, so citizen science: people willing to actually put some of their time or effort to something, like the Reef Watch programs or Hooded Plover volunteers. That's another pretty serious measure of a change in attitude; if someone is actually willing to step up and donate their time, because we're all time poor.
[ID 35 State Government—DEWNR]*

*I'm involved with the Dolphin Watch group [...] they conduct boat tours every month. That citizen science thing is a really good way to connect and engage and see what's going on out there, and see what's going on out there, and get data in a non-invasive way. And I think it's really important; engaging and connecting, that sense of ownership. And that sense of ownership means a sense of responsibility; to speak up and front up to things, I think that's really important.
[Focus Groups B (Conservation interests)—Victor Harbor]*

*[In Western Australia] we had a friends group [...]. It doesn't sound a lot but it was great, we would do stuff: we put in a dive trail with the help of government funds around an island, we did do the odd [bit of helping] with research. So [the group] was advertised, there were pamphlets everywhere, and so people could get involved [...].
[Focus Groups B (Conservation interests)—Victor Harbor]*

...Getting people more involved in the day-to-day management of the Park, and that includes Aboriginal people, in the monitoring of the Park, run more citizen-science type projects, getting industries more involved [in citizen science]. So we want to partner up with industry, communities, universities, and that's through the stewardship priority. [ID 22 State Government—DEWNR]

... the number of volunteers and number of people who are willing to help, would be another key indicator of success... [ID 2 State Government—DEWNR]

Features of effective indicators

Indicators are 'succinct measures that aim to describe as much about a system as possible' and which 'help us to understand, compare and improve a system' (Pencheon 2008: p.5). Effective indicators of MPA success may provide information on how well an MPA is doing on the full range of its goals and objectives. Effective indicators are supported by data, properly interpreted and integrated into management; in other words they must be relevant, and provide information on something you need to know—in this instance, to gauge MPA success. Effective indicators are also easy to understand and communicate to people that are not experts. They should be simple, measureable, achievable, relevant and timely—SMART) (Alexandra, Higgins et al. 1998). This is particularly important in the context

of encouraging citizen science and facilitating community stewardship in MPA monitoring. Effective indicators and the methods of data collection need to be reliable and robust so as to be collected systematically by different individuals. Effective indicators should also be based on accessible data, and data that will remain accessible going forward. Ideally indicators should be developed in conjunction with the wider stakeholder community.

Table 12 summarises 32 effective indicators drawn from the 57 potential indicators identified by respondents (See Appendix 3 for the full list of indicators). Table 12 is sorted by the 10 categories in alphabetical order and provides a description of the indicator, and the potential method by which to measure the indicator. Table 12 also identifies for each indicator the objectives of the Marine Parks Act, the management priority from the Encounter Marine Park Management Plan, and strategies within the Plan to which the indicator is linked. Some indicators of success identified by respondents did not fit well under any of the currently identified management priorities and so some cells of the table are blank.

Table 12: Effective indicators of MPA success taken from respondents suggestions

| Indicator Category(ies) | Indicators | Potential measures | Potential data provider | Encounter Management Plan Management priority(ies)/Strategies | Marine Parks Act Objective |
|--|---|--|-------------------------|---|----------------------------|
| Community support | Percentage of poll of local community (living adjacent to the marine park) that feel positively or express a sense of ownership for the marine park | Poll percentage | DEWNR/Local government | Stewardship through community involvement Strategy 5 | Objective V |
| Community support | Number of negative articles vs number of positive articles in local media | Ratio of positive to negative media articles | University-led research | Stewardship through community involvement Strategy 6 | |
| Community support | Levels of vandalism to marine park signs/other marine park-affiliated property | Number of vandalism events recorded | DEWNR/Local government | Stewardship through community involvement Strategy 7 | |
| Community support Education and public awareness Stewardship | Number of partnerships between DEWNR and local industries/indigenous groups/research institutions/NGOs | Number of active co-management/partnerships per year | DEWNR | Stewardship through community involvement Performance Strategy 8 & 11 | |
| Community support Recreational and community use | Number of people from the local community attending marine park-based events | Number of attendees at event | Local government | Stewardship through community involvement Strategy 5 | Objective V |
| Compliance | Reports of suspected non-compliance by local businesses and/or residents | Number of reports to DEWNR Compliance Department | DEWNR/PIRSA | Compliance Strategy 6 | |
| Compliance | Number of non-compliance events recorded by government departments | Number of non-compliance events recorded | DEWNR/PIRSA | Compliance | |

(Cont...) Table 12: Effective indicators of MPA success taken from respondents suggestions

| Indicator Category(ies) | Indicators | Potential measures | Potential data provider | Encounter Management Plan Management priority(ies)/strategies | Marine Parks Act Objective |
|--------------------------------|---|---|-------------------------|---|----------------------------|
| Education and public awareness | Number of community events organised specifically to introduce people to/educate people about the marine park | Number of events per year | Local government | Stewardship through community involvement Strategy 7 | |
| Education and public awareness | Number of school visits to the marine park | Number of school visits to marine park location per year | Local government | Stewardship through community involvement Strategy 5 & 7 | Objective V |
| Education and public awareness | Visitor level of knowledge of the marine park | Poll of visitors, before-after survey | DEWNR/Local government | Stewardship through community involvement Strategy 7 | |
| Education and public awareness | Type of marine park education material distributed by tour operators | Number of tour operators disseminating information | University-led research | Stewardship through community involvement Strategy 5 & 7 | |
| Education and public awareness | Extent of visible and informative signage infrastructure sited around the marine park | Number of signs | DEWNR/Local government | Stewardship through community involvement Strategy 5 & 7 | Objective V |
| Education and public awareness | Extent of published information around the marine park | Type and availability of information produced about the marine park | DEWNR/Local government | Stewardship through community involvement Strategy 5 & 7 | Objective V |
| Existing economic activities | Number of commercial fisheries permits | Number of active permits each year | PIRSA | | |
| Existing economic activities | Total landed catch | Tonnes of each species landed | PIRSA | | |
| Existing economic activities | Value of fishing licences | Estimated value of fishing licenses for specific fisheries | PIRSA | | |
| Existing economic activities | Income level of local businesses | Poll of local industry | Local industry | | |

(Cont...) Table 12: Effective indicators of MPA success taken from respondents suggestions

| Indicator Category(ies) | Indicators | Potential measures | Potential data provider | Encounter Management Plan Management priority(ies)/strategies | Marine Parks Act Objective |
|--|---|--|--|---|----------------------------|
| Existing economic activities | Price of fish | Average sale price/market price per kg each year (adjusted for inflation) | University-led research/PIRSA | | |
| Existing economic activities | Availability of local species of fish (to buy) | Presence of species in local shops/markets | University-led research/PIRSA | | |
| Existing economic activities Added value | Extent to which local businesses advertise the marine park/use it as a promotional too | Audit of advertisements in local businesses | University-led research | | |
| Existing economic activities Added value | Coastal real estate/rental prices | Ratio of sale price/advertised price of real estate adjacent to MP vs non-MP | University-led research | | |
| Existing economic activities New economic activities | Number of business permits associated with marine tourism | Number of new/renewed permits per year | SATC/DEWNR | Stewardship through community involvement Strategy 6 | Objective IV |
| Existing economic activities New economic activities | Diversity of employment opportunities | Number of different businesses in marine park regions over time | University-led research/Local government | | |
| Existing economic activities Recreation & community use | Number of dive/charter/wildlife-watching/other marine-based trips occurring within marine park boundaries | Poll of local industry | DEWNR/Local government | Stewardship through community involvement Strategy 6 | Objective IV |

(Cont...) Table 12: Effective indicators of MPA success taken from respondents suggestions

| Indicator Category(ies) | Indicators | Potential measures | Potential data provider | Encounter Management Plan Management priority(ies)/strategies | Marine Parks Act Objective |
|--|---|--|--|---|----------------------------|
| Management effectiveness Government support | Number of people employed/involved in the day-to-day running of the marine park | Number of DEWNR employees, plus number of local government employees with component of FTE dedicated to MP | DEWNR/Local government | | |
| New economic activities | Investments in new businesses associated with marine environment | Number of new businesses per year | SATC/Local government | Stewardship through community involvement Performance Strategy 6 | Objective IV |
| New economic activities | Number of new developments occurring adjacent to the marine park compared to non- marine park areas | Number of new/approved buildings | Local government | | |
| New economic activities | Number and value of grants provided to support new marine park related businesses | Grant dollars spent | SATC/Local government | | |
| New economic activities | Diversity of tourism opportunities (types of tours) | Number and variety of tourism opportunities advertised | University-led research/Local government | | |
| Recreational and community use | Number of visitors to marine park-related webpages/social media | Numbers of website 'hits' per year | DEWNR/Local government | Stewardship through community involvement Strategy 5 | |

(Cont...) Table 12: Effective indicators of MPA success taken from respondents suggestions

| Indicator Category(ies) | Indicators | Potential measures | Potential data provider | Encounter Management Plan Management priority(ies)/strategies | Marine Parks Act Objective |
|-------------------------|--|---|------------------------------------|---|----------------------------|
| Stewardship | The number of active volunteer groups doing marine park related work | Number of volunteer groups, number of volunteers registered with each group, number of activities (e.g., number of beach clean-ups, number of fieldtrips) each year/month | Local NGOs/University-led research | Stewardship through community involvement Strategy 5 & 8 | |
| Stewardship | Number of citizen science opportunities available related to the marine park | Number of volunteer groups, number of volunteers registered with each group, number of activities each year/month (e.g. community monitoring events) | Local NGOs/University-led research | Stewardship through community involvement Performance Strategy 8 & 11 | Objective V |

Indicators—concluding comments

The literature pertaining to indicators suggests that the development of social and cultural indicators lags behind that of biophysical indicators. It is, however, increasingly recognised that the development of such indicators is of utmost importance if community support and buy-in is to be achieved (Jones 2002, Himes 2007). The existing indicator sets have attempted to fill this gap by focusing upon broad, non-specific examples, which reflect the wide variety of protected area management approaches and types of MPAs that exist. However, when developing MPA-specific social and cultural indicators, these broad examples are alone insufficient and local stakeholder involvement should be sought to develop indicators that have relevance to and reflect the priorities of the local community.

Our results help to fill this knowledge gap by providing fine-scale indicators, suggested by the local community, at the scale of an individual marine park. Suggestions for indicators were diverse, reflecting the range of stakeholders interviewed, and spanned local community buy-in, political support, and economic change.

As discussed previously, to be effective indicators should be readily understandable to non-experts, while the methods used to collate such information need to be reliable and robust to being collected by different individuals, or over different spatial and temporal scales (Alexandra, Higgins et al. 1998, Pencheon 2008). Importantly, the data used to develop indicators needs to remain accessible over time. Many of the indicators suggested in Table 12 fulfil this criteria, and some of the suggested data collection is already underway (e.g. compliance monitoring, and community polling). Some indicators would require substantial and continued investment (e.g. signage, event monitoring, and interpretive centres), but for other indicators (e.g. monitoring of media, real estate advertisements, citizen science projects and tourism development), monitoring could be cheaply implemented if DEWNR commenced partnerships with universities, local industry or NGOs. While respondents were asked about measures of success for the Encounter Marine Park specifically, many of the suggested indicators could potentially be measured and compared across multiple scales.

Despite the wide range of indicators identified by respondents, this list is not exhaustive; and the indicators identified by respondents does not span the full range of indicator types suggested for example, by Pomeroy et al. (2005). This may be a sampling artefact, as possibly our sampling methods did not pick up on the full range of stakeholders or community perspectives. However, it may also reflect the conditions specific to this particular marine park, and the types of measures important to the local community.

8. Conclusion

This study set out to investigate the socio-cultural dimensions of success of the Encounter Marine Park. It responds to both a wider call for social science research that investigates local perceptions and values associated with marine parks and local needs for community relevant indicators of success. Unlike many previous case studies, this exploration of locally held perceptions and values associated with the Encounter Marine Park, was conducted post implementation. The results serve as a useful baseline for future research.

Measuring success is a many layered task. Successes may accrue over different time scales: successes may be temporary, seasonal, or perhaps long-term features of an MPA. Success means different things to different people and there are many different ways to measure or consider success (e.g. biological, social and/or economic).

Many respondents participating in this study thought it was too early in the history of the Marine Park to try to measure its success. However, results show there are already some necessary prerequisites in place for it to be a successful park. To date it has received bipartisan support. It is designated under formal legislation, has funding and administrative support, and is guided by a formal management plan and performance measures.

While it may well be too early to be confident of success across all parameters (biological, social and economic), there are signs of some early accomplishments. The Marine Park has broad stakeholder support and there are signals of the development of a stewardship ethic both in terms of community capacity building (through citizen science initiatives, for example) as well as community generated compliance monitoring.

However, there are also some lingering negative sentiments toward the Marine Park that may hinder or prevent achievement of [some types] of success, and follow-up is warranted with communities feeling compromised by the designation of the Park. While conflict associated with the process of designating the Marine Park has largely subsided, some sectors and groups (those who feel they have lost out through the designation) continue to state their resentment, and resolving this ill will requires further attention.

This study has produced a broad range of effective (easily understood, reliable, data supported) stakeholder relevant indicators to monitor the ongoing success of the park. Creative data collection methodologies may be required in their application, especially for intangible stewardship indicators such as 'feeling proud' or having 'raised awareness'.

Key findings

The findings from this study challenge some of the claims of previous research which identify perceived benefits associated with Marine Parks to be largely biological while costs are social. Many benefits accruing to the Encounter Marine Park were identified in this study including ecological, intrinsic, as well as social, economic, and educational values. Participants engaged in this study generated examples of potential costs to ecological

integrity should tourism and visitor numbers drastically increase, or if governance arrangements fail to manage external threats.

All study participants and focus groups were able to identify biologically related objectives for the Park (either as habitat conservation or protection, enhancement of fish stocks, the concept of representativeness and sustainability of the marine environment for future generations). Fewer participants identified social, cultural or economic objectives of the Marine Park.

In answering the question how success might be measured many participants offered economic measures of success, some exclusively. So while our respondent group understood the Marine Park was designed to conserve biological features and habitats, they anticipated it might achieve other things too. The prominence of economic measures of success is a strong indication that local communities are concerned about potential financial challenges and are hopeful of localised economic benefits flowing from the Marine Park. Socio-economic indicators are tangible and perhaps more readily come to mind than measures for more ambiguous concepts of stewardship. This is an important consideration for communicating with local communities in the future. In addition to promoting biological successes, financial indicators are meaningful and important to communities adjacent to Marine Parks. Emphasis should be given to social benefits accruing to the Park that will help counter lingering negative sentiments connected to social costs incurred by the designation of the Park.

Increased tourism was the most commonly expressed socio-economic benefit perceived likely to accrue due to the existence of the Marine Park, as a result of the park attracting visitors coming to see enhanced fish stocks and increased species richness. This biological benefit has not yet been realised. Spin-off benefits associated with increased visitor numbers were also identified by respondents as possible accrued benefits. The potential for an increase in residential property prices adjacent to the Marine Park was also mentioned. Communiques for the Marine Park would do well to promote good news stories about local allied business benefitting from the existence of the Marine Park, to further improve its reputation, and help people understand the social benefits developing in association with it.

Educational benefits of the Marine Park were widely acknowledged, and, an enhanced understanding of the local marine environment burgeoning from having the Marine Park was anticipated. A consistent message however, was that more needed to be done to advertise the Marine Park both in terms of signage at key points on the perimeter of the Park but also as print material in government offices (local government/NRM) or prominent locales (e.g. the SA Whale Centre, Victor Harbor) and as ongoing news items in local press and media.

As identified by participants in this study, to some extent success of the Marine Park will be dependent on on-going resourcing for community engagement, communication, management, monitoring and enforcement. Indeed, insufficient resourcing was seen a threat to the future success of the Park and there was a pervading impression that the leading government agency was insufficiently funded to carry out its duties, especially

compliance monitoring. There was also the concern expressed that politically the Park is vulnerable, with changes in state government/government priorities being a potential threat to the Park's future success.

Participants in this study indicated that success of the Park would be dependent on engagement by DEWNR with the local community. Community support was considered to be integral to the Park's success. Some respondents thought that there exists a willingness and interest within the community adjacent to the Encounter Marine Park, to be engaged in ongoing management of the Park (through monitoring, compliance, and education). In some places, this stewardship ethic is already emerging. However, there was a widely held perception that there was much potential to increase community engagement efforts. The sentiment is that the community is not actively involved in day-to-day management efforts and that governance arrangements are top-down. There was a perception that the Aboriginal community is one group that has yet to be brought into assist in the management of the Park. This study has also found participants think more attention is needed in regard to increasing people's appreciation of the local marine environment and that while some effort has been made in educating the wider community about the Park more needs to be done.

This study has produced a suite of indicators that are recommended to be incorporated by DEWNR in their future monitoring program. The selected indicators are easy to understand, relevant (to the specific marine park and across the marine park network), and can be applied using reliable, robust and appropriate data collection methods.

If DEWNR's Marine Parks Monitoring Program is to capture aspects of success that matter to the wider community there is a need for indicators canvassing a wide range of parameters. However, change in many indicators (fish populations, tourists, housing demand etc.) will be difficult to attribute directly to the Marine Park. Data sets for indicators of success, specific to a local marine park, may not be readily available, especially for more complex or ambiguous socioeconomic aspects. Investment and purposive data collection activities will be required.

Suggestions for future work

Whilst this study has provided some very useful insight into local stakeholder perceptions of success, including suggested indicators, much more could be done to facilitate improved monitoring and management of South Australia's Marine Parks. In particular investment is warranted in improved understanding of the communities adjacent to the Marine Parks and how the uptake of stewardship may be enhanced. Five areas of future work have been identified and potential projects are described below:

Testing indicators and developing a baseline dataset

Testing and refining the indicators developed in this study and developing a baseline dataset should also be a priority. It would be beneficial to explore their practicalities both from a stakeholder and a regulator's perspective. Collection methodologies could be developed and pilot data collection studies commenced to test out the practicalities and the indicators

refined as needed. When finalised, a series of data collection programs could be rolled out, possibly including citizen science projects. Such studies could but are not limited to:

- Visitor perception studies—canvas opinions of visitors to South Australian marine parks about a range of park functions and initiatives
- Users of tourist charters and dive site studies—canvas opinions of customers in regard to reasons for selecting particular activities (i.e. are the parks a main attraction?)
- Media analysis of news reporting about the Encounter Marine Park
- An audit of Marine Park signage and promotional/educational information in the communities adjacent to the region.

What makes individuals/communities participate

Encouraging stewardship through community participation is a major theme in both the Marine Parks Act and the Encounter Management Plan. Facilitating increased stewardship will require an understanding of why individuals and/or communities participate and what are the conditions that facilitate and what are the barriers to participation. A study exploring these issues with South Australian communities, particularly those adjacent to Marine Parks, would be of great utility and could identify strategies to both maximise community participation/stewardship and maintain that participation/stewardship into the future. The project would involve both a literature review and a series of semi-structured interviews and stakeholder workshops.

Maximising the opportunity of Citizen Science

Resources for monitoring and management South Australia’s marine parks are limited, yet adequate understanding of how the marine parks are performing will require a substantial monitoring program. Citizen science offers a way of both engaging the community and gathering data. A recent Australia-wide study (Martin et al 2016: p.6) found volunteers are willing to contribute ‘generous amounts of time for marine research’. The 2013 South Australian ‘Mosaic Citizen Science Project, exploring the potential for citizen science in monitoring South Australia’s Marine Parks network’ is an important contribution towards planning for and managing engagement of the public in assisting in the monitoring marine parks.

Maximising the utility of citizen science data will require strategic engagement with and co-ordination of citizen science projects. There will almost certainly be a need to/benefit in encouraging the development of new projects to contribute to data gaps. Research targeted within communities adjacent to marine parks is needed to determine how much public interest there is to participate in citizen science programs in South Australian marine parks. By better understanding this interest, or otherwise, for engagement in citizen science programs, along with volunteer motivations, needs and preferences, it will be possible to design citizen science projects which result in greater impact for the investment. The proposed project would involve an evaluation of the recommendations of the 2013 Mosaic project, a literature review and a series of semi-structured interviews and community-based workshops.

Documenting and analysing impact

Capturing and communicating the positive impact of the marine park on local communities (sharing good news stories) is essential for gaining and maintaining community support. Capturing and understanding the negative impacts is essential for developing effective mitigation strategies. In addition to the indicators, it will be important to recognise the community stories and build on them to develop community ownership and stewardship of the parks. This proposed project will look at ways of effectively capturing and communicating impact stories coming out of communities. It will also explore mechanisms to analyse the socio-economic impact of the parks and management decisions through both community stories and indicators to tease apart the real impact of the park(s) from the background context.

Comparing communities

The study reported here, canvassed the opinions of a variety of people and groups but for only one of South Australia's 19 Marine Parks. The other 18 MPAs may have different local social dynamics and thus respondents in other places may have suggested different indicators, meaningful in their locale. It would be beneficial to repeat a similar activity for the other marine parks, focusing on local communities adjacent to parks.

The focus groups intentionally invited people with polarised views of the Park—those with commercial and fishing interests and those with conservation interests. A useful addition to the stakeholder interviews and the focus groups, would have been a general household survey, sampled from households adjacent to the Marine Park. This would have offered perspectives from individuals with no vested interest and possibly with no direct engagement in the Marine Park.

Future studies about community perceptions of Marine Parks should over-sample in the communities directly abutting the Encounter Marine Park. Canvassing opinions and perceptions from a more heterogeneous and representative sample of the population would add another set of insights into indicator design.

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Appendix 1 Interview Questions

- 1a Background information: What has been your involvement in the Encounter Marine Park? (Management, governance, recreational or commercial use, etc.). At what stage of the process?
- 1b What is your understanding of the purpose of the Encounter Marine Park?
- 1c Do you know who is involved in managing the Park? – (By management we mean anything that involves the running of the park – monitoring/education/community groups etc.)
2. What do you see as the benefits (potential or realised) of the Marine Park? (Potential and/or realised, long-term and/or short-term) Alternative Q: What are the good things that could come out of the Marine Park) How has/will the establishment of the MP led/lead to the benefit(s) that you mention?
3. What do you see as the disadvantages or drawbacks (potential or realised) of the Marine Park? (Potential and/or realised, long-term and/or short-term). How has/will the establishment of the MP led/lead to the disadvantage(s) that you mention?
- 4a. Do you think the Marine Park has been a success? Explore ideas of success and lack of success in detail. In what way(s) has it been/not been successful? What are the reasons for success or lack of it? (Explore both the process of implementation, and the established MPA (e.g., tourism, size, activities allowed/not allowed)
- 4b. How would you measure the success of the Marine Park? What information would you collect to demonstrate/measure the success or lack of it?
- 4c. Which are the most important? Of the top (5), in what order would you place these in importance?
5. At this present time, what do you think can be done to improve or make the Marine Park a success?
6. In your opinion, who should have the responsibility for making your suggested changes?
7. What do you think the future challenges are for the successful management of the MPA?
8. Do you have anything else you would like to add? Are there any other aspects around the Marine Park you would like to discuss?

Appendix 2 Focus Group Questions

We're here to discuss the success of the Encounter Marine Park MPA in conserving the marine environment. We'd like to hear from you some of your ideas about what aspects make it a success and what makes it difficult to manage in achieving its conservation goals.

1. Establish ground rules for groups
2. Find out what people know about the MPA and its purpose
What is your understanding of the role of the Encounter Marine Park
3. Have you been involved in consultation for the park and/or are you involved in ongoing aspects of management for the Park?
(compliance, monitoring, development of management plans)

Provide explanation of the current situation (in regard to the goals of the marine park and the date the Park was established) and who holds management responsibility for the Marine Park.

4. What do you see as the benefits of having the Marine Park?
5. Do you think the Marine Park has been successful? (in conserving the marine environment?)

Explore ideas of success and lack of success in detail—

What makes the park successful?

What are the reasons for success or lack of it?

How would you measure the success of the Marine Park?

6. How well do you think the marine park has been accepted by the local community?
7. What affect do you think has the marine park had on the community?
(winners/losers)
8. How well have you been kept informed/engaged about the Park/activities by the managers? (what has been the nature of that information/engagement)
9. In terms of the functioning of the MPA, what factors are assisting in the Marine Park achieving its conservation goals? How can these been enhanced?
10. In terms of the functioning of the MPA, what factors are hindering the Marine Park achieving its conservation goals? How could these issues be resolved?
11. Are there any other ideas or issues that you would like heard that have not yet been discussed?

Appendix 3 Full list of indicators identified by respondents and focus groups

| Indicator Category(ies) | Measures of success suggested by interviewees | Indicator(s) elicited |
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| Added value | Local council/towns advertise the presence of the marine park on their webpages and/or signage | Extent to which local council/towns advertise the presence of the marine park on their webpages and/or signage |
| Added value Existing economic activities | Marine parks are used as a marketing tool to value-add to products e.g. fishing produce (seafood labelling) | Existence and range of seafood/food labelling (audit of local produce outlets) |
| Community support | Community polls indicate that an increasing percentage of local residents perceive the marine park positively and feel sense of ownership | Percentage of poll respondents that feel positively or express a sense of ownership over marine park |
| Community support | Local media coverage of marine parks becomes less negative with time (number of negative articles vs number of positive articles) | Number of negative articles vs number of positive articles in local media |
| Community support | Levels of vandalism to marine park signs/other marine park-affiliated property decrease | Levels of vandalism to marine park signs/other marine park-affiliated property |
| Community support | Marine Parks are no longer an election issue | If marine park is an election issue |
| Community support | Level of conflict among fishing sectors/individuals does not increase | Level of conflict between sectors |
| Community support Education and public awareness Stewardship | The number of partnerships between DEWNR and local industries/indigenous groups/research institutions/NGOs increase | Number of partnerships between DEWNR and local industries/indigenous groups/research institutions/NGOs |
| Community support Government support | Community events (non- marine park specific) are regularly attended by a marine parks representative | Proportion of community events attended by marine park representative |
| Community support Government support Longevity | Number of Sanctuary Zones/Marine Parks increased throughout successive political cycles / Bipartisan support maintained for marine parks | Number/area of Sanctuary Zones/Marine Parks maintained or increased throughout successive political cycles |

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| Community support Recreational and community use | The number of people from the local community attending marine park-based events increases | Number of people from the local community attending marine park-based events |
| Compliance | Local businesses and residents report non-compliance | Reports of suspected non-compliance by local businesses and/or residents |
| Compliance | Numbers of non-compliance events recorded by department decrease over time | Number of non-compliance events recorded by government departments |
| Education and public awareness | Channels of communication about marine park activities/government activities increase e.g., social media pages are set up. | Number and range of communication channels related to marine park activities |
| Education and public awareness | Mis-information about marine parks declines with time | Amount of misinformation in local media |
| Education and public awareness | Community events are organised specifically to educate/introduce people to marine parks | Number of community events organised specifically to introduce people to/educate people about marine park |
| Education and public awareness | Marine park aspects are included in school curriculum, or are formally mandated by the Education Minister | Extent to which marine park is incorporated into school curriculum |
| Education and public awareness | The number of school visits to marine parks increase | Number of school visits to marine park |
| Education and public awareness | Polls conducted show an increase in visitor/resident levels of knowledge of marine parks e.g., goals, boundaries, knowledge of rules | Visitor/resident levels of knowledge of marine parks |
| Education and public awareness | Visible and informative signage occurs around the marine park | Extent of visible and informative signage around the marine park |
| Education and public awareness | Interpretive learning centres are developed and maintained | Presence and maintenance of interpretive learning centres |
| Existing economic activities | Fisheries profit margins are maintained | Commercial fishers' profit margins |
| Existing economic activities | Number of commercial fisheries permits do not decrease relative to other regional centres | Number of commercial fisheries permits |
| Existing economic activities | Existing commercial fisheries businesses do not downsize (e.g., number of employees/number of vessels remain the same compared to pre-marine park | Number of individuals employed by commercial fisheries associated with marine park |
| Existing economic activities | Fishers from regional centres adjacent to marine parks maintain their overall total catch | Total landed catch |

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| | (e.g., continue to meet quota each year) | |
| Existing economic activities | Fishing licences from regional centres adjacent to marine parks maintain their value/can be sold as readily as non-marine park regions | Value of fishing licences |
| Existing economic activities | Cumulative income of local businesses is maintained or enhanced over time/compared to other regional centres | Income level of local businesses |
| Existing economic activities | Local businesses maintain their support of community events (evidence of maintaining profit margins) | Local businesses' financial support of community events |
| Existing economic activities Added value | Coastal real estate/rental prices in regional centres are maintained or increased compared to non-MP regions | Coastal real estate/rental prices |
| Existing economic activities Added value | Commercial fishers' profit margins remain similar to or greater than regional areas without adjacent marine parks / Profit margins of allied businesses (e.g., fish and chip shops, marine hardware, tackle stores) remain similar to or greater than regional areas without adjacent marine parks | Profit margins of fishery-associated businesses |
| Existing economic activities New economic activities | Number of business permits associated with marine tourism (e.g., charter/dive businesses) increases | Number of business permits associated with marine tourism |
| Existing economic activities New economic activities | Regional employment opportunities are diversified e.g., compliance, marine park management, tourism ventures | Diversity of employment opportunities |
| Existing economic activities Recreation & community use | Number of dive/charter/wildlife-watching/other marine-based trips occurring within marine park boundaries increases | Number of dive/charter/wildlife-watching/other marine-based trips occurring within marine park boundaries |
| Existing economic activities | The price of locally caught fish stays comparable to the price of these species caught in non-marine park regions | Price of fish |
| Existing economic activities | Local species of fish remain available and affordable for local consumers | Availability of local species of fish (to buy) |
| Existing economic activities Recreation & community use | Number of boats bought in marine park areas same or greater than non- marine park regions | Number of boats purchased |
| Management effectiveness | Land-based threats to marine parks begin to be addressed (cross-government support) | Extent to which land-based threats are managed |
| Management effectiveness | Policing and monitoring of marine park remains at adequate levels | Levels of enforcement (policing) and monitoring |
| Management effectiveness | Applications for commercial development (e.g., mining, ports, aquaculture) are subjected | Level of scrutiny faced by applications for commercial |

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| | to a degree of scrutiny commensurate with marine park goals | development within or adjacent to the marine park |
| Management effectiveness Government support Longevity | Funding to DEWNR is maintained or increased | Amount of funding provided (to DEWNR) for marine park management |
| Management effectiveness | The number of fatal/major incidents at sea around marine parks does not increase compared to regional centres without marine parks adjacent (related to whether the fishing community still has the capacity to respond to emergencies) | Number of fatal/major incidents at sea around marine parks |
| Management effectiveness Government support | The number of people employed/involved in the day-to-day running of the park (e.g., management/compliance/research sector) increases | Number of people employed/involved in the day-to-day running of the park |
| New economic activities | Number of investments in new businesses associated with marine environment (e.g., tour operators) increases compared to regional areas without adjacent marine parks | Investments in new businesses associated with marine environment |
| New economic activities | The number of new developments occurring within marine parks compared to non-marine park regions e.g., new aquaculture opportunities | Number of new developments occurring in the marine park compared to non- marine park areas |
| New economic activities | Licensing/exploration activities can be conducted at no greater a cost than similar activities in non-marine park regions | Cost of licencing/exploration activities compared to non-MP areas |
| New economic activities | Grants from other government departments are provided to diversify/help set up new businesses related to marine park | Number and amount of grants provided to support new marine park related businesses |
| New economic activities | Tourism opportunities become more diverse over time | Diversity of tourism opportunities (types of tours) |
| Recreation & community use | Number of recreational fishers visiting regional centres adjacent to marine parks remain similar to non-marine park areas, or do not decline compared to pre-marine park numbers | Number of recreational fishers visiting region |
| Recreation and community use Existing economic activities Added value | Number of tourists visiting regional areas for marine environment-based use (e.g., diving/wildlife watching activities) increases compared to regional areas without adjacent marine park | Number of tourists visiting regional areas for marine environment-based use |
| Recreation and community use Existing economic activities Added value | The occupancy rate of holiday homes are maintained or enhanced compared to non-marine park regions | Occupancy rate of holiday homes |
| Recreation and community use Existing economic activities | The number of visitor nights in regional centres are maintained or enhanced compared to non- marine park regions | Number of visitor nights |

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|--------------------------------|--|---|
| Added value | | |
| Recreational and community use | The numbers of visitors to marine park-related webpages/social media increase over time | Numbers of visitors to marine park-related webpages/social media |
| Stewardship | The number of groups that volunteer to participate in marine-park related work increase over time (e.g., volunteering at events, litter clean-ups) | The number of groups that exist to volunteer for marine park related work |
| Stewardship | The number of individuals that volunteer to participate in marine-park related work increase over time | The number of individuals that volunteer for marine park related work |
| Stewardship | The number of citizen science opportunities available increase over time | Number of citizen science opportunities available |