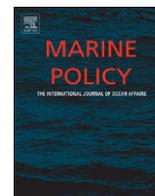




ELSEVIER

Contents lists available at [SciVerse ScienceDirect](http://www.sciencedirect.com)

Marine Policy

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

Methods of social assessment in Marine Protected Area planning: Is public participation enough?

Michelle Voyer^{a,*}, William Gladstone^a, Heather Goodall^b^a University of Technology, Sydney, Faculty of Science, School of the Environment, PO Box 123, Broadway NSW 2007, Australia^b University of Technology, Sydney, Faculty of Arts and Social Science, Social and Political Change Group, PO Box 123, Broadway NSW 2007, Australia

ARTICLE INFO

Article history:

Received 28 January 2011

Received in revised form

8 July 2011

Accepted 4 August 2011

Available online 9 September 2011

Keywords:

Marine protected areas

Social impacts

Socioeconomics

Public participation

Impact assessment

Marine conservation

ABSTRACT

Addressing social and economic considerations is crucial to the success of Marine Protected Area (MPA) planning and management. Ineffective social assessment can alienate local communities and undermine the success of existing and future MPAs. It is rare to critique the success of methods used currently to incorporate social and economic considerations into MPA planning. Three Australian MPA planning processes covering three states and incorporating federal and state jurisdictions are reviewed in order to determine how potential social impacts were assessed and considered. These case studies indicate that Social Impact Assessment (SIA) is under-developed in Australian MPA planning. Assessments rely heavily on public participation and economic modelling as surrogates for dedicated SIA and are followed commonly by attitudinal surveys to gauge public opinion on the MPA after its establishment. The emergence of issues around public perception of the value of MPAs indicates the failure of some of these proposals to adequately consider social factors in planning and management. This perception may have potential implications for the long term success of individual MPAs. It may also compromise Australia's ability to meet international commitments for MPA targets to gazette at least 10% of all its marine habitats as MPAs. Indeed, this is demonstrated in two of the three case studies where social and economic arguments against MPAs have been used to delay or block the future expansion of the MPA network.

© 2011 Elsevier Ltd. All rights reserved.

1. Introduction

MPAs are a cornerstone of marine conservation and currently cover approximately 1.17% of the world's oceans [1–3]. A range of international agreements, to which Australia is a signatory call for the protection of marine biodiversity through a global network of MPAs covering between 10% and 30% of its marine habitats by 2012 [1,2,4]. Despite significant advances in levels of protection in the last decade it is obvious that these targets are unlikely to be met within the specified timeframes [1]. Despite Australia being one of the more advanced countries in the world, in terms of its progress towards meeting MPA targets through the ongoing establishment of a National Representative System of Marine Protected Areas (NRSMPA) [5], at present MPAs make up just under 10% of Australia's territorial waters. Planning for additional MPAs is well advanced in a number of regions [6], but Australia's MPA protection remains patchy and it appears to be following an emerging global trend of establishing large MPAs in areas removed from human population. This reflects the complexities of establishing and

managing MPAs within the social, political and economic context of more densely populated areas [1]. The difficulties associated with planning and managing MPAs in high use, highly contested spaces suggests a need to re-evaluate the way social and economic considerations are incorporated into planning exercises.

The complexities of the relationship between people and their environment make it crucial to examine conservation problems hand-in-hand with societal beliefs, customs, attitudes and practices [7]. Despite this, opinion remains divided as to how much weight should be given to community views in conservation management decisions [8–13]. Divergent views within both the terrestrial and marine conservation fields include those that advocate a science based, top down approach, often involving 'preservationist' or no-take solutions, and those that argue for a community based, bottom up approach often centred on a sustainable use approach to conservation [11,13,14]. The challenge for global conservation is to find a 'middle ground' between these two points of view [13]. Any debate around what is an acceptable compromise between scientific and the socio-economic objectives (sometimes called the parks vs. people debate) requires a honest acknowledgement of the trade-offs involved in achieving conservation outcomes. It is only then that meaningful dialogue can commence around what is 'non negotiable' and 'negotiable' in planning exercises in both scientific and socio-economic terms

* Corresponding author. Tel.: +61413 945 640; fax: +612 9514 4079.

E-mail addresses: MichelleAnne.Voyer@student.uts.edu.au (M. Voyer), William.Gladstone@uts.edu.au (W. Gladstone), Heather.Goodall@uts.edu.au (H. Goodall).

[11,15]. Social assessment, therefore, plays an important role in building an understanding and appreciation of the social factors that influence conservation planning and provide insight into the possible areas, around which discussions of appropriate ‘trade-offs’ can occur.

Social assessment is a means of gathering information about the social domain in order to inform management decisions [16]. MPAs primarily regulate human behaviour, so it is inevitable that MPAs will have some effect on local communities [9,17–19]. The need to include social assessment in MPA planning has been recognised for some time and has long been part of the political and policy framework for the identification and management of MPAs, both in Australia and the rest of the world [18,20–24]. In practise, research into the social impacts of MPAs is limited [19,20,25]. The role of the social sciences in conservation and MPA management has often been criticised for lagging behind the bio-physical sciences or for being fragmented, disjointed or completely absent [17,22,26]. This is despite evidence that social factors are the primary determinants of the success or failure of a MPA [17,18,22,27,28]. Social impacts can be diverse and complex in their nature and are most likely to be felt by individuals, families or groups at a local rather than regional or national level [16,29,30]. In the case of MPAs and, in particular, no-take MPAs (where all forms of fishing or extraction are prohibited), social impacts may include increased congestion in unrestricted areas and a restriction in the choices available to users for safe and accessible fishing locations [19,31,32]. MPAs have the potential to affect the wellbeing of individuals and groups who value their use of the marine environment as integral to their ‘way of life’ and social identity [33–36]. MPAs may also cause equity issues within local communities if some stakeholder groups, such as fishers, feel marginalised in favour of other groups, such as divers and other tourism operators [17]. The ability and/or willingness of local communities to absorb these impacts can and does directly affect the success or failure of MPAs [17,18,21,22,27,28,32,37–39].

Social assessment takes many forms but the most developed tool for predicting social impacts in advance of a management action is arguably formal Social Impact Assessment (SIA). SIA is one of three key impact assessment disciplines, which have developed since the 1970s out of the principles of Ecologically Sustainable Development [40,41]. SIA, however, is acknowledged to be the ‘poor cousin’ of the other two disciplines of Environmental and Economic Impact Assessment, and is used far less commonly [16]. This could be due partly to the fact that international guidelines on the development of SIAs promote a comparative model, which involves studying events and impacts experienced in the past and extrapolating to another location where a similar action is proposed. A lack of adequate or reliable data on the impacts of past interventions can make this comparative approach problematic [16]. SIA, however, serves an important function in providing a strategic approach to social assessment incorporating a range of different methods [30,42,43].

‘Public participation’ is a tool used much more commonly for social assessment. It differs, however, in an important way from SIA in that it is not used to measure or assess social impacts in advance of a proposal. Instead it is mainly used to include the public in the decision making process in an effort to minimise social impacts through negotiation with key stakeholders [41]. Public participation may take many forms; ‘consultation’, where comments are sought from interested parties but ultimately the government makes the final decision; ‘partnership’ if the government works with recognised sectoral interest groups (often formalised through advisory groups or committees) to jointly make management decisions; and/or ‘delegation’, in which decision making is handed over to a board of community members to ensure separation of decision making from the political arena.

No matter, which form of participation is selected by governments, it is increasingly being met with mistrust and cynicism by citizens seeking more direct control over decisions that affect them [44]. ‘Consultation’, for example, may result in participants feeling disenfranchised if the outcome does not reflect their views while ‘partnership’ may disadvantage unorganised or disparate minority groups who are without a recognised lobby group [44]. Frustratingly for public officials, it is not uncommon for decisions taken by governments to be criticised over a lack of consultation or participation despite extensive and exhaustive efforts to engage local communities. This, perhaps, reflects a view that, despite being given numerous opportunities to ‘have their say’, stakeholders feel their views have not been listened to.

This paper examines the way in which social assessment is undertaken currently in Australian MPA planning processes by studying three significant contributions to Australia’s NRSMPA. The three areas under study incorporate both federal and state jurisdictions and two common MPA models—large multiple-use MPAs (where the park is zoned for different types of use) and smaller no-take models (where extraction of any kind is prohibited). The paper reviews the social assessment methods used in each of these planning processes and investigates whether these were sufficient tools for measuring and predicting the likely social impacts of these proposals. Finally, it identifies some emerging issues, relating to a public perception of the failure of management agencies to adequately assess and address the social and economic impacts of MPAs.

2. Social assessment in MPA planning—three Australian case studies

2.1. *The Great Barrier Reef Marine Park Representative Areas Program*

In Australia most statutes require the consideration of social and economic impacts prior to the declaration of an MPA and during the preparation of management plans [16,45–47]. When the Great Barrier Reef Marine Park Authority (GBRMPA) reviewed the Great Barrier Reef Marine Park (GBRMP) zoning plan (1999–2004), social and economic impacts were a key consideration in the review process. The Representative Areas Program (RAP) was overseen by a Social, Economic and Cultural Steering Committee who developed a range of principles to ensure consideration of these potential impacts [48–50].

An extensive public participation process was conducted as part of the RAP. It involved two formal public involvement phases, over 600 meetings in more than 90 locations, and over 31,000 submissions [51]. Ten Local Marine Advisory Committees (LMACs), located along the Queensland coast, made up of representatives of major stakeholder groups from the local area, also played a key role in the planning process [48].

Three independent socio-economic impact analyses of the RAP were undertaken in 2003 and delivered to federal Parliament with the final draft of the zoning plan. They included an overall social and economic assessment of the RAP, as well as more detailed assessments of the impacts on the tourism and commercial fishing sectors. Overall the reports used economic impact assessment methods to conclude that the plan would deliver net economic benefits with the value of tourism and the environmental benefits outweighing the losses suffered by commercial fisheries [52,53]. In relation to recreational fishing, the assessments found that the draft plan would close only 1.3 to 5% of regularly frequented fishing locations and that the plan’s impact on recreational fishers would be low [52–54]. The report on the commercial fishing sector is unique in its specific focus on social

(rather than just economic) impacts of the RAP on commercial fishing families and communities [55]. It identified 13 coastal towns with a high dependency on the GBRMP that were likely to be more vulnerable to the proposed change and attempted to measure the resilience of fishing families and communities. The report identified the communities and groups most vulnerable to impacts from the proposed zoning plan but concluded that additional targeted, regional level surveys would be required to quantify these impacts [54,55].

2.2. NSW Marine Parks

The state of New South Wales (NSW) manages waters within three nautical miles of the coast. State government policy is to develop a comprehensive, adequate and representative system of MPAs across all its six marine bioregions [56] through the establishment of a system of large multiple-use marine parks, supplemented by a number of smaller aquatic reserves and marine national parks. To date all but two of the six bioregions have at least one large marine park. Six marine parks have been established: Byron Bay; Lord Howe Island; Solitary Islands; Port Stephens-Great Lakes; Jervis Bay; and Batemans. All have current zoning plans, with the zoning plans for Solitary Islands and Jervis Bay Marine Parks reviewed in 2010 in accordance with legislative requirements for regular reviews [57,58]. NSW Marine Parks are declared under the *Marine Parks Act 1997* and a range of guidelines exist to steer the MPA declaration and planning process. It includes key principles relating to the consideration of the social and economic impacts and the equitable distribution of costs and benefits of any MPA proposal [5,59,60].

Port Stephens-Great Lakes Marine Park (PSGLMP) and Batemans Marine Park (BMP) are the most recent additions to the NSW system of MPAs. They were declared in 2005 and 2006, respectively, and zoning plans for both parks came into effect in 2007. Both the PSGLMP and the BMP underwent two formal public consultation periods. The two consultation periods for each park generated a combined total of over 13,500 submissions and involved more than 230 stakeholder meetings [61,62].

The selection and zoning planning processes also included the development of socio-economic impact reports for each park [63,64] and separate, independent economic impact assessments of commercial activities, including commercial fishing co-operatives [65–67]. Commercial fisheries' impacts were detailed in terms of forgone fishing effort and loss of income and employment opportunities. The reports concluded that these economic impacts would be largely offset at the community level by the revenue and employment generated by the marine park and, at the level of individual fishers, by the buy-back of commercial fishing licences. For non-commercial activities impacts were considered to be short term and offset by the benefits of marine park creation (such as improvements in fishing quality with an increase in fish stocks for recreational fishers). The assessments were undertaken prior to the finalisation of zoning plans so it was not possible to quantify the impact of the Parks. Post establishment surveys conducted in the Solitary Islands Marine Park, however, were cited as demonstrating overall long term satisfaction and support for marine parks within the local community [64].

2.3. Victoria

Distinct from most other Australian states, the Victorian government favours a smaller, no-take MPA model. The process for implementing the current system of MPAs began in 1991 when the State's independent public land use advisory body was instructed by the government of the time to conduct a marine and

coastal investigation of the entire Victorian coast. The process of selection through to declaration took 11 years in total. This was due, in part, to considerable opposition to the concept of MPAs from specific sectors within the community [68]. The declaration of the reserves attracted considerable resistance, the most dramatic example of which was the march of approximately 1500 fishers (commercial and recreational), fishing families and sympathisers on Victoria's Parliament House in May 2001 [36]. In the lead up to the release of the final recommendations for the establishment of MPAs the advisory body conducted six formal public submission periods and received more than 4500 submissions [68]. It held a series of public meetings and briefings in fifteen locations along the Victorian coast [69]. The process was also guided by an additional expert advisory group made up of a range of people with expertise in relevant areas such as recreational and commercial fishing.

Social impacts were also considered in a report prepared by an independent economic consultant. This found that only small and isolated impacts related to the restrictions on recreational fishing were likely due to the availability of alternative fishing areas, the mobility of fishers through boats and cars, and the fact that popular fishing locations had been excluded from the MPAs. In addition, it was noted that most towns did not rely heavily on spending associated with recreational fishing [70]. The report also predicted that restrictions on commercial fishing imposed by the proposed MPAs would result in very minor levels of employment loss in some coastal communities if the usual catch could not be sourced from other areas. It concluded it was unlikely that this would have long term adverse impacts on the coastal communities near the MPAs as they did not have a strong reliance on commercial fishing for income. It was recognised, however, that individual commercial fishers may be adversely affected by the proposals and structural adjustment was recommended [69,70].

3. Attitudinal studies and MPAs

Considerable efforts have been made in Australian planning processes to engage stakeholders (Section 2). Following implementation of the MPAs there is little data available to determine accurately how the MPA has affected local communities, and whether these attempts to incorporate social and economic considerations into the planning processes have been successful in minimising socio-economic costs while maximising environmental benefits. The primary goal of the NRSMPA is to "contribute to the long-term ecological viability of marine and estuarine systems, to maintain ecological processes and systems, and to protect Australia's biological diversity at all levels" [5]. MPA monitoring programs therefore necessarily focus on biological parameters such as fish stocks and habitat health to measure their success. Social or human factors are considered secondary, and monitoring tools commonly involve attitudinal studies and community surveys to demonstrate a wide community acceptance of the MPA [17]. These studies are generally not designed to assess social impacts but rather to gauge opinions and levels of support and acceptance within the local community, region or occasionally within targeted stakeholder groups. They generally take the form of quantitative phone surveys or mail or face to face questionnaires. They are valuable as they involve random sampling of the general population, therefore allowing insights into the views of the wider community including those who are unlikely to become engaged in public participation exercises [37,71–74]. They are also valuable in providing an insight into some of the demographic, cultural and social factors that influence community acceptance or non-acceptance of MPAs.

Attitudinal surveys have been regularly conducted, both in and outside of Queensland, in relation to support, acceptance and general attitudes towards the GBRMP. Young and Temperton found a very high level of community awareness (up to 97%) of the GBRMP, and up to 77% acceptance of 'Green' (or no-take) zones [74]. Sutton and Tobin conducted a more targeted survey programme towards recreational fishers in 2006–07 after the finalisation of the new zoning plan. They found that most fishers (68%) agreed that the rezoning process was a good idea and 57% supported (compared with 31% opposed) the new zoning plan. Importantly, the study found that support for the rezoning was influenced most strongly by a belief in its necessity and its conservation benefits. The majority of fishers were willing apparently to forgo some access for the 'greater good'—namely the conservation benefits flowing from the implementation of the zoning plan. Opposition to the zoning plan was, conversely, higher amongst people who believed that the plan had led to negative impacts on their fishing practices [73].

Surveys conducted in two NSW marine parks (Solitary Islands and Jervis Bay) also found broad community support for their local MPA. The overwhelming majority of respondents (respectively 87% and 84%) favoured conserving the marine parks [71,72]. These results are supported by other research in the parks [75,76]. No similar studies were found to indicate community attitudes towards MPAs in Victoria.

The results of these Australian attitudinal surveys and similar studies around the world demonstrate remarkably similar levels of wider community acceptance for MPAs, ranging between 75–90% support [20,37,77]. Lack of integration across biological and social monitoring programs makes it difficult to trace any shifts in people's social and economic conditions and attitudes in response to ecological changes brought about by the MPA. Many studies, however, point to a growth in community and stakeholder support for MPAs over time [20,25,37]. The inference from these figures is that opponents of MPAs (or those undecided) represent the minority (less than 25%) of the community. The surveys of recreational fishers in the GBRMP point to a link between social impacts and MPA opposition [73]. Yet, despite the fact that community surveys and attitudinal studies are not designed to assess or measure social impacts, proponents of MPAs often rely on them to dismiss the concerns of the opponents by labelling them a minority opinion [2,68]. This is an understandable reaction given the process for establishing a new MPA in Australia is an intensive and laborious process with considerable opportunities for public input (Section 2). A minority opinion becomes significant, however, when this minority is made up of key stakeholders who play a crucial role in determining the success and/or failure of an MPA. Section 4 of this paper reveals Australian evidence that dismissal of community opposition may, in the long term, be detrimental to future relationships with local communities, the success of existing parks, and future attempts to introduce new MPAs.

4. The politics of social assessment

Conservation groups in Australia argue for MPAs to cover anywhere up to 50% of state or federal marine jurisdiction, with these MPAs incorporating a significant (up to 33%) no-take component [e.g. 78–80]. In recent times these groups have become locked in an increasingly polarised debate with fishers who also consider themselves 'conservationists' but strongly resist MPAs, and particularly the 'no-take' model of marine conservation [e.g. 81–85]. This debate contains evidence of fundamental differences in the values, motivations and aspirations of each of the main protagonists, along the lines of the

preservationist versus sustainable use ethic described by Jones [13,86]. The use of MPAs as key election policies for both the Australian Liberal Party (who promised to stop them) and the Greens (who promised to increase them) in the 2010 Australian federal election highlighted the fact that politicians have become aware that this issue is gaining political capital [see 79,87,88]. In NSW, where the current MPA network remains incomplete, opposition to marine parks gained significant momentum and political mileage in the lead up to the 2011 state election. A parliamentary enquiry into recreational fishing in 2010 recommended delaying future MPA declarations, as well as allowing some forms of fishing within established Sanctuary (no-take) zones [89]. A variety of petitions, with an estimated combined total of more than 20,000 signatures, were forwarded to parliament opposing the creation of any more marine parks [84,90]. Numerous web pages, sites, blogs and forums critical of NSW marine parks, or at least of their no-take components, have also emerged in recent years [81,84,91]. The 2011 state election resulted in a change of government, which almost immediately implemented significant changes to marine park management in NSW, including transferring responsibility for their management from the Environment portfolio to the Primary Industries (incorporating Fisheries) portfolio and the implementation of a 5 year moratorium on any new marine parks. The Government also announced the reversal of a number of decisions made immediately prior to the election by the previous Government, which involved increases to MPA protection levels in the state. The reasons cited for this unprecedented reversal of existing MPA protection measures included the need for further public consultation and improved scientific research [92,93]. A similar situation exists in Victoria, where MPAs currently comprise 5.3% of the state's marine environment. Lobbying from fishing groups prior to the 2011 state election secured bipartisan support for a moratorium on any future marine parks until at least 2014 [94].

Efforts made by management agencies to engage and consult the general population and stakeholder groups appear to be exhaustive and extensive (Section 2). A body of evidence points to widespread community support for MPAs but despite this, opposition to MPAs remains a powerful and at times dominant force, regardless of the minority status of the opponents [20,38,39,77] (Section 3).

5. Discussion

Table 1 (a summary of the discussion above) shows that social assessment in Australian MPA planning takes two key forms, socio-economic impact reporting and public participation or consultation exercises. These are commonly followed by the development of attitudinal surveys in order to gauge public opinion on the MPA following its establishment. These may then be used to counter the arguments of any remaining opponents within the community and to support future MPA declarations [2,63,64,68].

5.1. Socio-economic reporting

Social and Economic Impact Assessment (usually termed socio-economic reports) is a common method of incorporating social and economic considerations into management planning. Socio-economic reporting in this context, however, differs from formal SIA. The former considers social impacts only in so far as they relate to shifts in local economic conditions, such as through loss of employment or income. None of the reports examined employed the strategic approach recommended in the latter [30,40,42,43]. GBRMPA stands out as the only management

Table 1
Overview of social assessment in Australian case studies.

Marine Protected Area	Management agency/ Jurisdiction	MPA size	Social impact assessment	Economic impact assessment	Public participation opportunities	Review/Audit
Great Barrier Reef Marine Park Representative Areas Program (RAP)	Great Barrier Reef Marine Park Authority—Federal jurisdiction	344,400 km ² [45]	1 report designed to measure the resilience of commercial fishing families and communities to changes as a result of the RAP	2 independent economic impact reports, also Regulatory Impact Statement. Completed after draught zone plan was released.	10 Local Marine Advisory Committees (representative), 2 public comment periods, range of public and stakeholder meetings	Community surveys and specific stakeholder attitudinal studies, Review of Act in 2008 incorporated review of RAP process.
Batemans Marine Park and Port Stephens-Great Lakes Marine Park	NSW Marine Parks Authority—State jurisdiction	BMP 850 km ² [58] PSGLMP 972 km ² [56]	No, some social considerations included in economic reports	2 socio-economic reports for each park focused primarily on economic impacts, particularly commercial fishing. These were completed prior to a draught zone plan being released.	Marine Park Advisory Committee for each park (representative), 2 public comment periods, range of public and stakeholder meetings	None on specific parks, but community surveys conducted on other NSW parks. Parliamentary enquiry in 2010 included consideration of all NSW Marine Parks.
Victorian Marine Parks and Marine Sanctuaries implemented in 2002	Identification and selection conducted by independent land use advisory body. Management of the MPAs is the responsibility of Parks Victoria—State jurisdiction	525.73 km ² in total for all MPAs [90]	No, some social considerations included in economic reports.	1 independent socio-economic report focused primarily on economics, completed after the final recommendations on proposed MPAs was released.	Independent advisory body conducted selection and identification, expert based advisory group provided input into process. 6 public comment periods, range of public and stakeholder meetings	None found

agency, which made a concerted effort to measure the potential social impacts of its plan, concentrating on a group they identified as being particularly vulnerable to the proposed changes—commercial fishers and their families. All the other reports were prepared by economists and focused primarily, or in some cases exclusively, on economics. The value of the socio-economic reporting used in NSW was further undermined by the reports being produced prior to the development of draft zone plans making any identified impacts largely theoretical. The socio-economic reports in all three of the case studies were prepared by external consultants separate from the planning processes and their associated participation programs [17,53,65,70,95].

Socio-economic reporting, which assumes that economic factors are the primary determinant of likely social impacts, fails to appreciate the importance of culture, history, tradition and 'sense of place' in the lives of marine users. Much of the worth individuals place on the marine environment has little or no economic basis so attempts by economists to assign economic value to the environment and other non-market commodities (such as through 'willingness to pay' models) are poor substitutes for the reality of loss of amenity and/or way of life [29,96,97]. While economic growth or shifts in the nature of economic benefits may be seen as a positive at the community, regional or national level, individual groups within the community may see them as having a negative impact upon family traditions, cultural heritage or social values [29]. In the Florida Key Marine Park, for example, a study showed that the management regime had low economic impacts but high social impacts through crowding and conflict amongst user groups [98 cited in 17].

5.2. Public participation

In all three case studies, public participation played a key role in the management planning process. It is clear from the time, effort and resources that were devoted to this form of social assessment that it was considered the key mechanism for incorporating social and economic considerations into each of these planning processes. Large numbers of submissions were received in all three case studies

indicating a high level of community interest and engagement. The current situation in MPA planning in Australia, therefore, appears to be characterised by a somewhat perverse relationship between public participation efforts and MPA opposition movements. Attempts by management agencies to engage and consult the general public is intensifying, yet the momentum and political influence of opposition movements is also growing. This requires careful examination in order to determine whether these exercises are fulfilling their aim of adequately incorporating social and economic considerations into MPA planning.

Examination of the methods of social assessment in the three case studies reveals that public participation is being used by management agencies as an end rather than a means—that is, public participation has become a substitute for SIA rather than one tool within SIA. The aim of these exercises is to attempt to minimise the social impacts of a proposed MPA, but this is being done without any rigorous multidisciplinary attempt to accurately determine what those impacts might be or who might be most likely to feel them. Separation of the public participation phases of the planning process from the development of socio-economic reports by external consultants also means that important data relating to social variables is largely lost to the impact assessment process. Public participation is a means of informing and guiding SIA and separating these two processes reduces the efficiency and efficacy of both. Public participation, used exclusively, relies on those who are most likely to be impacted by a proposal to act as their own advocates. Management agencies assume stakeholders are able to communicate (usually in writing) the social and economic impacts of the MPA on themselves and provide suggestions as to how these impacts can be minimised. Delegating this responsibility to stakeholders again assumes that stakeholders are able to understand and navigate a bureaucratic, political or regulatory system that can appear confusing, intimidating and inflexible. Power at the negotiating table devolves to the politically savvy, articulate and often well educated sections of the community and marginalises sectors of the community who have lower levels of literacy, confidence in speaking in public forums, or understanding of the intricacies of the political or bureaucratic system they are attempting to influence [29].

The focus of public submissions is often framed in terms of support or opposition for a specific proposal or aspects of the proposal [99]. This can mean that the complexities of the deeper social issues can be drowned out by the sheer weight of numbers harnessed by larger, more astute, lobby groups during what is essentially a political process. This is particularly true for more marginal groups such as Indigenous and commercial fishing communities.

5.3. Attitudinal studies and social surveys

Social surveys and attitudinal studies are effective tools for gauging community attitudes and overall public sentiment about MPAs. They are valuable in providing insights into the views of the often silent majority but many of the respondents to these surveys have nothing to lose through their support or opposition if they are not active users of the proposed MPA [76]. In addition, these surveys are not designed to measure social impacts. Whilst they may indicate widespread community support for an MPA, they do little to indicate whether the MPA has had or will have adverse affects on individuals, families or groups, particularly the most vulnerable. For these reasons community surveys should not be used to dismiss or minimise the genuine concerns held by minority groups who are direct users of the MPA and who remain concerned about the impacts of MPAs on their quality of life or livelihoods. In addition, the preference for quantitative surveys or questionnaires in attitudinal studies means that our understanding of community attitudes to MPAs is limited. We know that the majority of the community supports MPAs but very little data is available exploring the views of those people who hold opposing or undecided views.

5.4. The way forward

Equitable consideration of all points of view, including minority groups, is essential in ensuring a socially fair and just approach to MPA declaration and management. The potential impacts of MPAs are not distributed equally across society but are concentrated on extractive users [17,76]. While it is tempting to dismiss the views of opponents as a minority opinion, the case studies examined in this report highlight that they are having immediate and detrimental impacts on Australia's ability to further progress the NRSMPA. It is inevitable that some sections of the community will always remain ideologically opposed to restrictions on their fishing access, and therefore conflict is likely to remain a feature of MPA planning processes. Social assessment, however, if conducted in an effective and transparent way, should be able to identify where genuine impacts will be felt, identify means of mitigating or compensating these impacts and isolate those who are ideologically driven.

This review found that at present social assessment is currently being undertaken in an ad hoc manner. While all the tools currently used in Australia are important and useful inclusions in the social assessment toolkit, a more strategic approach to social assessment is required. Formal SIA is one option, which deserves further consideration. The preference for a comparative approach to SIA means that further work is required urgently on assessing the social impacts of existing MPAs in order to allow for more accurate understanding of potential future impacts of MPAs. In the absence of this data this review has highlighted a number of ways in which MPA planning processes can be improved immediately to allow for a more strategic and cross disciplinary approach to considering social impacts:

- Specific and targeted consideration of social impacts is needed (incorporating qualitative research techniques) separate from

(but informed by) consideration of economic impacts, with particular attention given to vulnerable groups within the community.

- Integration of public participation exercises with social and economic impact assessment would add value to each of these processes with each informing the other.
- Incorporation of social science expertise into planning processes would ensure social data is gathered and analysed in a meaningful and scientifically robust manner.

In addition this review highlights that a major rethink is required into the role of public participation in MPA planning processes, with emphasis shifting from it being the primary means of social assessment to an important support tool in SIA. SIA processes, which look beyond the simple 'support versus opposition' approach of public participation will allow for deeper understanding of the importance of access and use of the marine environment to all user groups and allow for more meaningful discussions around potential trade-offs to achieve optimum environmental protection.

6. Conclusion

Public participation and economic impact assessment are well developed and well utilised tools in MPA planning in Australia. Despite the need for SIA to be part of the MPA planning process, for the reasons outlined in this paper, it is infrequently used in Australia and public consultation is being used as a surrogate for SIA. The current controversy about further expansions of MPA networks in several Australian states suggests substituting SIA with public consultation is not effective. Without further studies on the social impacts of current MPAs it is very difficult to predict impacts any future MPAs may have. This is concerning given the increasing numbers of MPAs being proposed and implemented around the world. A lack of understanding of why people oppose MPAs, who MPAs are having an impact upon, and the severity and extent of these impacts allows for fear and misinformation to dominate planning processes. Moreover it can alienate those groups on whom the success of MPAs is most dependant.

Acknowledgements

The authors would like to acknowledge Mr Andrew Read and the anonymous reviewer for their valuable and constructive input. Thanks also to M, H and J Belcher, A.McLean and D. Voyer for editorial comments and advice.

References

- [1] Spalding M, Wood L, Fitzgerald C, Gjerde K. The 10% target: where do we stand? In: Toropova C, Meliane I, Laffoley D, Matthews E, Spalding M, editors. *Global Ocean Protection: Present Status and Future Possibilities*. Brest, France: Agence des aires marines protegee, Gland, Switzerland, Washington, DC and New York, USA: IUCN WCPA Cambridge UK: UNEP-WC-MC, Arlington USA: TNC, Tokyo, Japan: UNU, New York USA: WCS; 2010. p. 96.
- [2] Banks SA, Skilleter GA. Implementing marine reserve networks: a comparison of approaches in New South Wales (Australia) and New Zealand. *Marine Policy* 2010;34:197–207.
- [3] Kelleher G, Kenchington R. Guidelines for establishing marine protected areas: IUCN; 1992.
- [4] Wood L, Fish L, Laughren J, Pauly D. Assessing progress towards global marine protection targets: shortfalls in information and action. *Oryx* 2008;42(3): 340–451.
- [5] ANZECC. Guidelines for establishing the National Representative System of Marine Protected Areas. Australian and New Zealand Environment and Conservation Council TFMPA. Environment Australia, Canberra; 1998.

- [6] Commonwealth of Australia. National Representative System of Marine Protected Areas. Department of Sustainability, Environment, Water, Population and Communities; 2011.
- [7] Gray DL, Canessa R, Rollins R, Keller CP, Dearden P. Incorporating recreational users into Marine Protected Area planning: a study of recreational boating in British Columbia, Canada. *Environmental Management* 2010;46:167–80.
- [8] West P, Brockington D. An anthropological perspective on some unexpected consequences of protected areas. *Conservation Biology* 2006;20:609–16.
- [9] Blaustien RJ. Protected areas and equity concerns. *BioScience* 2007;57:216–21.
- [10] Wilkie DS, Morelli GA, Demmer J, Starkey M, Telfer P, Steil M. Parks and people: assessing the human welfare effects of establishing protected areas for biodiversity conservation. *Conservation Biology* 2006;20:247–9.
- [11] Miller TR, Minter BA, Malan L-C. The new conservation debate: the view from practical ethics. *Biological Conservation* 2011;144(3):945–7. doi:10.1016/j.biocon.2010.07.027.
- [12] Robinson JG. Ethical pluralism, pragmatism, and sustainability in conservation practice. *Biological Conservation* 2011;144(3):958–65. doi:10.1016/j.biocon.2010.04.017.
- [13] Jones PJS. Marine protected area strategies: issues, divergences and the search for middle ground. *Reviews in Fish Biology and Fisheries* 2001;11:197–216.
- [14] Gray NJ. Sea change: exploring the International effort to promote Marine Protected Areas. *Conservation and Society* 2010;8:331–8.
- [15] McShane TO, Hirsch PD, Trung TC, Songorwa AN, Kinzig A, Monteferrri B, et al. Hard choices: making trade-offs between biodiversity conservation and human well-being. *Biological Conservation* 2011;144(3):966–72. doi:10.1016/j.biocon.2010.04.038.
- [16] Lane M, Dale A, Taylor N. Social assessment in natural resource management: promise, potentiality, and practice. In: Dale A, Taylor N, Lane M, editors. *Social assessment in natural resource management institutions*. Collingwood, Vic: CSIRO Publishing; 2001. p. 3.
- [17] Blount BG, Pitchon A. An anthropological research protocol for Marine Protected Areas: creating a niche in a multidisciplinary cultural hierarchy. *Human Organization* 2007;66:103–11.
- [18] Ingram CB. Parks, people and planning: local perceptions of park management on the Ningaloo Coast, North West Cape, Western Australia [Unpublished]. Curtin University of Technology; 2008.
- [19] Northcote, J, Macbeth J. Socio-economic impacts of sanctuary zone changes in Ningaloo Marine Park: a preliminary investigation of effects on visitation patterns and human usage. *Tourism CRCFS*. Gold Coast, Queensland; 2008.
- [20] Cocklin C, Craw M, Mcauley I. Marine reserves in New Zealand: use rights, public attitudes, and social impacts. *Coastal Management*. 1998;26:213–31.
- [21] Fiske SJ. Sociocultural aspects of establishing Marine Protected Areas. *Ocean and Coastal Management* 1992;17:25–46.
- [22] Mascia MB. The human dimension of coral reef Marine Protected Areas: recent social science research and its policy implications. *Conservation Biology* 2003;17:630–2.
- [23] National Oceanic and Atmospheric Administration. National fisheries guidance for social impact assessment. US Department of Commerce; 2001.
- [24] IUCN. Policy on social equity and sustainable use of natural resources; 2000.
- [25] Taylor N, Buckenham B. Social impacts of marine reserves in New Zealand. Science for Conservation: Department of Conservation NZ. <http://www.doc.govt.nz/upload/documents/science-and-technical/SFC217.pdf>; 2003. p. 58.
- [26] Symes D, Hoefnagel E. Fisheries policy, research and the social sciences in Europe: challenges for the 21st century. *Marine Policy* 2010;34:268–75.
- [27] Kelleher G, Recchia C. Lessons from Marine Protected Areas around the world. *Parks* 1998;8:1–4.
- [28] Suuronen P, Jounela P, Tschernij V. Fishermen responses on Marine Protected Areas in the Baltic cod fishery. *Marine Policy* 2010;34:237–43.
- [29] Rickson RE, Western JS, Burdge RJ. Social impact assessment: knowledge and development. *Environmental Impact Assessment Review* 1990;10:1–10.
- [30] Vanclay F. Social impact assessment: International principles. IAIA Special Publications: International Association for Impact Assessment; 2003.
- [31] Bess R, Rallapudi R. Spatial conflicts in New Zealand fisheries: the rights of fishers and protection of the marine environment. *Marine Policy* 2007;31:719–29.
- [32] Kareiva P. Conservation biology: beyond Marine Protected Areas. *Current Biology*. 2006;16:R533–5.
- [33] Momtaz S, Gladstone W. Ban on commercial fishing in the estuarine waters of New South Wales, Australia: community consultation and social impacts. *Environmental Impact Assessment Review* 2008;28:214–25.
- [34] Jones PJS. Equity, justice and power issues raised by no-take Marine Protected Area proposals. *Marine Policy* 2009;33:759–65.
- [35] Solling Jnr M. A region in transition: the dispute over 'making the most' of the Manning River fishery [Unpublished]. Sydney: University of Technology Sydney; 2005.
- [36] Minnegal M, King TJ, Just R, Dwyer PD. Deep Identity, shallow time: sustaining a future in Victorian fishing communities. *The Australian Journal of Anthropology* 2003;14:53–71.
- [37] Wolfenden J, Cram F, Kirkwood B. Marine reserves in New Zealand: a survey of community reactions. *Ocean and Coastal Management* 1994;25:31–51.
- [38] Agardy T, Bridgewater P, Crosby MP, Day J, Dayton PK, Kenchington R, et al. Dangerous targets? Unresolved issues and ideological clashes around Marine Protected Areas Aquatic Conservation: Marine and Freshwater Ecosystems 2003;13:353–67.
- [39] Weible C. Caught in a Maelstrom: implementing California marine protected areas. *Coastal Management* 2008;36:350–73.
- [40] Burdge RJ, Vanclay F. Social Impact Assessment. In: Vanclay F, Bronstein DA, editors. *Environmental and Social Impact Assessment*. West Sussex: John Wiley & Sons Ltd.; 1995. p. 31–66.
- [41] Burdge RJ. The international institutionalisation of social impact assessment. In: Dale A, Taylor N, Lane M, editors. *Social assessment in natural resource management institutions*. Collingwood, Vic: CSIRO Publishing; 2001. p. 3.
- [42] ICoGP. Guidelines and principles for social impact assessment and project appraisal. vol. 21; 2003. p. 231–50.
- [43] Bureau of Rural Sciences. Socio-economic impact assessment toolkit: a guide to assessing the socio-economic impacts of Marine Protected Areas in Australia. Sciences BoR. Department of Agriculture, Fisheries and Forestry; 2005.
- [44] Bishop P, Davis G. Mapping public participation in policy choices. *Australian Journal of Public Administration* 2002;61:14–29.
- [45] Environmental Protection and Biodiversity Conservation Act. EPBC. Australia: <http://www.austlii.edu.au/au/legis/cth/consol_act/epbca1999588/>; 1999.
- [46] Marine Parks Act. MPA. Australia: <http://www.legislation.nsw.gov.au/main/top/view/inforce/act+64+1997+cd+0+N>; 1997.
- [47] Great Barrier Reef Marine Park Act. GBRMPA. Australia: <http://www.austlii.edu.au/au/legis/cth/consol_act/gbrmpa1975257/>; 1975.
- [48] Thomson L, Jago B, Fernandes L, Day J. Barriers to communication—how these critical aspects were addressed during the public participation for the rezoning of the Great Barrier Reef Marine Park. *Great Barrier Reef Marine Park Authority*; 2005.
- [49] Fernandes L, Day J, Kerrigan B, Breen D, De'ath G, Mapstone B, et al. A process to design a network of marine no-take areas: lessons from the Great Barrier Reef. *Ocean and Coastal Management* 2009;52:439–47.
- [50] Great Barrier Reef Marine Park Authority. Technical information sheet #7: social, economic, cultural and management feasibility operational principles. Representative Area Program background and history. Townsville; 2002.
- [51] Osmond M, Airame S, Caldwell M, Day J. Lessons for marine conservation planning: a comparison of three Marine Protected Area planning processes. *Ocean and Coastal Management* 2010;53:41–51.
- [52] Commonwealth of Australia. Review of the Great Barrier Reef Marine Park Act 1975. Report RP. Canberra: Department of Environment and Heritage; 2006.
- [53] Hand T. An economic and social evaluation of implementing the Representative Areas Program by rezoning the Great Barrier Reef Marine Park. PDP Australia Pty Ltd.; 2003.
- [54] Great Barrier Reef Marine Park Authority. Summary report of the social and economic impacts of the rezoning of the Great Barrier Reef Marine Park. <http://www.gbrmp.gov.au/_data/assets/pdf_file/0019/8254/JUG_SR_09-12-03pdf2003>.
- [55] Bureau of Rural Sciences. Implementing the Representative Areas Program in the Great Barrier Reef Marine Park: assessment of potential social impacts on commercial fishing and associated communities. Department of Agriculture Fisheries and Forestry. Canberra, ACT: Australian Government; 2003.
- [56] Marine Parks Authority. Developing a representative system of Marine Protected Areas in NSW—an overview. NSW Marine Parks Authority, Heartland Publishing, Canberra; 2001.
- [57] Marine Parks Authority. Solitary Islands Marine Park: zoning plan review report. Coffs Harbour: NSW Marine Parks Authority; 2009.
- [58] Marine Parks Authority. Jervis Bay Marine Park: zoning plan review report. Huskisson: NSW Marine Parks Authority; 2009.
- [59] ANZECC. Strategic plan of action for the National representative system of Marine Protected Areas: a guide for action by Australian governments. Australian and New Zealand Environment and Conservation Council TFMPA. Environment Australia, Canberra; 1999.
- [60] MPA NSW. Developing a representative system of Marine Protected Areas in NSW—an overview. In: MPA NSW, editor. Heartland Publishing, Canberra; 2001.
- [61] Marine Parks Authority. Summary of submissions on the Batemans Marine Park draft zoning plan. NSW Marine Parks Authority. Narooma, NSW; 2006.
- [62] Marine Parks Authority. Summary of submissions on the Port Stephens-Great Lakes Marine Park draft zoning plan. NSW Marine Parks Authority. Nelson Bay, NSW; 2006.
- [63] Marine Parks Authority. Socio-economic assessment of the Port Stephens-Great Lakes Marine Park. NSW Marine Parks Authority; 2006.
- [64] Marine Parks Authority. Socio-Economic Assessment of the Batemans Marine Park. NSW Marine Parks Authority; 2006.
- [65] Powell R, Chalmers L. The estimated economic impact of the proposed Port Stephens-Great Lakes Marine Park on commercial activities. Centre for Agricultural and Regional Economics Pty Ltd.; 2005.
- [66] Powell R, Chalmers L. The Estimated Economic Impact of Batemans Marine Park on Commercial Activities. Centre for Agricultural and Regional Economics Pty Ltd; 2006.
- [67] Read A. 2010. Personal Communication.
- [68] Wescott G. The long and winding road: the development of a comprehensive, adequate and representative system of highly protected Marine Protected

- Areas in Victoria, Australia. *Ocean and Coastal Management* 2006;49: 905–1022.
- [69] Environment Conservation Council. Marine, coastal and estuarine investigation, final report. Environment Conservation Council; 2000.
- [70] Essential Economics Pty Ltd. Potential social and economic effects of recommendations for Victoria's marine, coastal and estuarine areas. A review of the recommendations in the environment conservation council's marine, coastal and estuarine investigation final report. Council EC; Marine, coastal and estuarine investigation final report; 2000.
- [71] McGregor Tan Research. Jervis Bay Marine Park community survey. Final report; 2008.
- [72] McGregor Tan Research. Solitary Islands Marine Park community survey. Final report. Frewville, SA; 2008.
- [73] Sutton SG, Tobin RC. Recreational fishers' attitudes towards the 2004 rezoning of the Great Barrier Reef Marine Park. *Environmental Conservation*. 2009;36:245–252.
- [74] Young J, Temperton J. Measuring community attitudes and awareness towards the Great Barrier Reef 2007. Research publication (Great Barrier Reef Marine Park Authority: Online); no 90. Townsville, Qld: Great Barrier Reef Marine Park Authority; 2008.
- [75] Ryan C. Visitors to Solitary Island Marine Park their behaviours, attitudes and perceptions. An analysis of surveys: 2002 to 2005 2005.
- [76] Sant M. Environmental sustainability and the public: responses to a proposed marine reserve at Jervis Bay, New South Wales, Australia. *Ocean and Coastal Management* 1996;32:1–16.
- [77] Thomassin A, White CS, Stead SS, David G. Social acceptability of a Marine Protected Area: the case of Reunion Island. *Ocean and Coastal Management* 2010;53(4):169–79. doi:10.1016/j.ocecoaman.2010.01.008.
- [78] Winn P. The Torn Blue Fringe: marine conservation in NSW. Newtown, NSW2008.
- [79] Greens T. Marine and coastal areas. Australian Greens Policy; 2008.
- [80] Edmunds M, Mustoe S, Stewart K, Sheedy E, Ong J. VNPA nature conservation review: marine conservation priorities and issues for Victoria. Report to Victorian National Parks Association. Australian marine ecology report 405. Melbourne; 2009.
- [81] Ecofishers. <<http://www.ecofishers.com/>>.
- [82] Kearney B. Response to ACORF on The Torn Blue Fringe: marine Conservation in NSW (Winn 2008). 2009.
- [83] Kearney B. The Pros and Cons of Marine Protected Areas in New South Wales: who's being Hoodwinked? : University of Canberra; 2007.
- [84] Gay D. <<http://www.stopmarinelockout.com.au/>>; 2009.
- [85] Kearney R. The great Batemans MPA swindle: not science, a sham! *Ausmarine*. Baird Maritime; 2007. p. 16–7.
- [86] Jones P. Point-of-view: arguments for conventional fisheries management and against no-take Marine Protected Areas: only half of the story? *Reviews in Fish Biology and Fisheries* 2007;17:31–43.
- [87] Taylor L. No one wins in this game of fish *Sydney Morning Herald*: smh.com.au; 2010.
- [88] Liberal Party of Australia. Marine Protected Areas policy; 2010.
- [89] Parliament of NSW. Legislative Council. Select Committee on Recreational Fishing. Recreational Fishing in New South Wales. Sydney NSW; 2010. p. 446.
- [90] Parliament of NSW. Marine Parks Amendment (Moratorium) Bill 2010. 2010.
- [91] The outdoor loving people of Australia. Save fishing in the Solitary Islands; 2010.
- [92] Hodgkinson MP K. Media release:Grey Nurse Shark Public consultation commences. Minister for Primary Industries, Minister for Small Business. Sydney: Parliament of NSW; 2011.
- [93] Hodgkinson MP K, Barker MP R. Media release:NSW Government takes the politics out of marine parks. Minister for Primary Industries, Minister for Small Business, and the Minister for the Environment, Minister for Heritage. Sydney: Parliament of NSW; 2011.
- [94] Morton A. Fishermen win moratorium on marine parks. *The Age*. Melbourne: Fairfax; 2010.
- [95] MPA. NSW. Socio-economic assessment of the Port Stephens-Great Lakes Marine Park. NSW Marine Parks Authority; 2006.
- [96] Hundloe T. Valuing fisheries: an Economic Framework. St Lucia: University of Queensland Press; 2002.
- [97] Badalamenti F, Ramos AA, Voultziadoue E, Sanchez Lizaso JL, D'AAA G, Pipitone C, et al. Cultural and socio-economic impacts of Mediterranean Marine Protected Areas. *Environmental Conservation* 2000;27:110–25.
- [98] Dobryznski TJ, E. NE. An evaluation of the short-term social and economic impacts of marine reserves on user Groups in Key West. [Unpublished Masters]. Durham NC: Duke University; 2001.
- [99] NOAA. National Fisheries Guidance for Social Impact Assessment. Commerce Udo; 2001.