Transforming coastal and marine management: Deliberative democracy and integrated management in New South Wales, Australia

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ARTICLE INFO

ABSTRACT

The integrated management (IM) of coastal and marine environments is an enduring problem, particularly in multi-sectoral and jurisdictional systems, with coastal management of New South Wales (NSW), Australia being no exception. Historically, NSW coastal and marine management was dominated by ecological and economic approaches, implemented in parallel through multiple government agencies with overlapping jurisdictions. A review in 2012 of NSW marine park management recommended addressing the unintended consequences of this management approach, and the Marine Estate Management Act (2014), was established to integrate management of the whole of the NSW coast.

This paper discusses the role that a deliberative democratic approach has played in the approach to IM undertaken by the NSW Marine Estate Management Authority (MEMA). The NSW MEMA case study provides a robust reflection of the challenges identified by the literature in implementing effective integrated management, being the alignment of values, visions and methods of assessment, across multiple resources, ecosystems, stakeholders and administrative jurisdictions. Deliberative democratic approaches were used in reviewing the MEMA case to analyse its ability to address some of the challenges and realise benefits of IM. However, despite benefits being identified, a key finding is that achieving integration across multiple agencies with varied disciplinary approaches and organisational cultures, takes a significant amount of time. Even after several years, challenges remain in embedding cultural shifts and resource commitment at all levels to ensure the ongoing successful implementation of IM.

1. Introduction

Managing coastal zones is a challenge globally, given the increasing threats and pressures from both human activities and climate change. The multidisciplinary (and often jurisdictional) approaches that dominate marine planning, along with the increasing need for stakeholder involvement to understand these threats and pressures, requires complex co-operative management approaches to design integrated solutions into policy and management. To address these challenges, Integrated Management (IM) is posited as the key condition to achieve this [1–7].

In Australia there is some thirty years of history of attempting to design and implement an integrated oceans policy. This has not met with the success envisaged, due to what has been identified as a "*combination of factors, including lack of clear 'whole of Federation' ownership of the policy process; lack of buy-in through sectoral operational management; lack of sustained resourcing; the lack of agreement from all the Australian states and territories; lack of legislation; and the location of the National Oceans Office away from the centre of power in Canberra.*" [8]. Regional attempts have also had mixed outcomes and varying degrees of success; the Great Barrier Reef Marine Park being the most publicly applauded [9–11]. As a participant in these attempts to integrate oceans policy since the 1990s, the New South Wales (NSW) government also recognised the need for improved co-ordination of decision making that acknowledges the multiple values of marine and coastal resources, and the importance of meaningful stakeholder and community engagement and consultation

[9,12,13]. Many of the State's early efforts focused on ecosystem sustainability, based on bioregions, to frame the development of Integrated (Coastal Zone) Management (I(CZ)M) plans. This was as a result of the work and recommendations undertaken in the area of national oceans policy [8] p. 3 & 5). However, this ecosystem approach, as a sole management parameter, has become increasingly challenging due to burgeoning coastal populations and use pressures, requiring consideration and inclusion of a broader range of factors (social and economic) in marine management planning [2]). As identified by Vince et al. [8]; many of the challenges besetting a national approach to oceans management, also existed at the state jurisdictional level.

In 2012 the state Government of NSW commissioned an independent panel of experts to review the management of marine parks which also included threats to the marine environment and inclusion of social and economic impacts of marine park and associated management, on broader coastal management outcomes. This approach was in line with the lessons learnt regarding gaining uptake and compliance, from Australian Oceans Policy processes to Ref. [8] pp. 5–6). The objective was to provide advice on future management of marine parks and the coastal and marine environment more generally. The Report of the Independent Scientific Audit of Marine Parks in NSW (Audit Report) recommendations included: improve integration of local Indigenous knowledge; consider social and economic impacts on coastal users; and rationalise both the legislation and entities managing the coastal zone [14]; Executive Summary). The NSW government response to the Audit report was a new approach to managing the whole of the NSW marine estate (not just Marine Parks) including a recommendation to implement what became the Marine Estate Management Act 2014 [15]. This Act has an explicit objective to integrate the management of the marine estate (state coastal waters, estuaries and lakes subject to tidal flows, lagoons and other partially enclosed bodies of water that are permanently, periodically or intermittently open to the sea, and coastal wetlands subject to oceanic processes) [55]. The NSW Marine Estate Management Authority (MEMA) was created by the Act to manage the marine estate. MEMA is a statutory body set up to enact the objectives of the Act, and brings together the heads of the relevant NSW Government departments, forming an 'umbrella' for the integration of the management of the marine estate. The key objective of the NSW Marine Estate Management (MEM) Act is to promote a biologically diverse, healthy and productive marine estate, ensuring maintenance of ecosystem integrity, whilst also providing economic, cultural, social, recreational, and educational opportunities and for scientific use of the estate in a coordinated manner.[1] As a result, a means to implement integrated management (IM) in a more effective form is a key objective being pursued in NSW to improve outcomes for coastal management. The NSW Marine Estate Management Strategy (MEM Strategy) is a current example of IM in action, and in its seventh year of planning and second year of implementation, this paper provides an opportunity to examine how it has been achieved and what lessons might be learnt from it, for the effective implementation of IM. However, issues remain as to how to effectively create the environmental attributes in which the elements of IM can be most effective.

The first part of the paper outlines key points from the literature about the necessary but inherently challenging nature of implementing IM. Those challenges primarily include the alignment of values, visions and methods of assessment across multiple resources, ecosystems, stakeholders and administrative jurisdictions. The paper then outlines the deliberative democracy approach, and how it may offer a means to address challenges in IM. The lead agency for development of the MEM Strategy, the Department of Primary Industries (DPI), did not explicitly identify the theory or methodologies of deliberative democracy (or any

other conceptual framework) at the outset of the process in 2014. Nevertheless, in our review of the process to date, the iterative internal negotiation process adopted between departments, attributes of the process, and the community engagement approach selected, represents what is contended here to be an explicitly deliberative democratic approach. Consequently, the theory and methodologies of deliberative democracy are applied as a lens to examine the MEMA process undertaken since 2013, and to explicitly assess how effective these have been in, in the case of NSW, in overcoming the challenges of achieving IM.

The main body of the paper discusses the NSW case, highlighting the difficulties that have arisen in implementing IM, and utilising a retrospective lens of deliberative democratic theory, to assess how effective these approaches are and have been in resolving those difficulties. It finds that the implementation of IM has been successful in increasing management integration and reducing overlaps in NSW. This has been supported by the evolving implementation MEM Strategy that, in our view, has employed deliberative democratic approaches. Nevertheless, ongoing challenges remain.

2. Integrated management

To bring together the previously disparate processes of coastal management in NSW, a focus on IM amongst agencies, as well as disciplines, was required. Price and Khan [7] define IM as a "… dynamic process in which coordinated strategy is developed and implemented for the allocation of environmental, sociocultural, and institutional resources to achieve the conservation and sustainable multiple use of the coastal zone".[2]

Initially, much of the work on IM, in Australia as elsewhere, focussed on a integrating multidisciplinary approaches in the context of a single resource or sector [3,6,7,11,16–22,52,53]. However, as implementation of IM in an interdisciplinary context for single resources has occurred, the reality of the implication of multiple resources, ecosystems, stakeholder groups and administrative jurisdictions, further complicates the endeavour [17, 23–25].

Rochette et al. [13] highlight five dimensions of integration that are usually part of IM, and are the causes of fundamental issues with implementation. These are due to the differing values, priorities, resource uses, budgets, methodologies and governance structures amongst: inter-sectoral (differing values and resources uses); intergovernmental (differing priorities and budgets); spatial (ecosystems having multiple and potentially competing uses); science (interdisciplinary) management (differing values and methodologies); and international (being intergovernmental but also multi-national). Consequently, all integrated management plans must be tailored to their specific context, depending on the existence or not of each of these five dimensions (ibid).

To address the five challenges of IM, Box 1 details elements identified by Kenchington and Crawford [4] that must be present to realise beneficial outcomes from IM across multiple contexts. These are interrelated and must be managed and implemented holistically, and not in isolation, as identified by Harvey and Caton [9] in their discussion of the relative success of integrated management elements.

Armitage et al. [16,26] note that for the elements of IM to be applied effectively, they must be undertaken in an environment whereby the governance arrangements also display specific attributes. The elements alone are not enough to ensure compliance; rather they must be applied in a particular context of agreed behaviours. Harvey and Caton [9]) identified this lack of agreed behaviours in the context to which the IM was being applied was a key challenge of effectively implementing IM.

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[1] Source: Marine Estate Management Act 2014 No72 Part 1 Section Part 3, Objects of Act. https://www.legislation.nsw.gov.au/#/view/act/2014/72/part 1/sec3 Accessed 6/1/2020.

[2] Price and Khan identify that they base their definition on the work undertaken by the *Coastal Area Planning and Management Network* which conducted a workshop in 1989, of which the results were edited and published by R. Clark in 1991 as "The Status of coastal zone management: a global assessment" though the University of Miami.

BOX 1
Guiding Elements of Integrated Management (Adapted from Ref. [4] pp. 125–126).

- **Long term goal**: A dynamic goal or vision of the desired condition
- **Objectives:** Broad commonly-held aims or purposes upon which policies and a strategy can be developed.
- **Principles for decision making:** Guiding principles for managers or decision makers for management activity planning, granting approvals/funds or making changes to the purpose, or extent of use/access.
- **Policy agreement across agencies:** (horizontal integration) A strategy, and the commitment and resources for the objectives to be met through day to day activities amongst a variety of actors - government (national, state and local) agencies and community.
- **Authority and accountability**: Legally based clarity in regard to authority, precedence, and accountability for the achievement of the strategy.
- **Performance indicators**: Both indicators and monitoring methods must be developed that facilitate objective assessment of the extent to which goals and objectives are being/have been met.
- **Commitment to implementatio**n: There must be the political, administrative and community will to implement the strategy.
- **Vertical integration.** Communication and collaboration between spheres of government (national, state and local) as well communities, in regard to the process of strategy implementation.
- **Lead agency**: An entity is required to provide of a single point of focus, responsibility and co-ordination of activities and communications.

Consequently, the following attributes have been identified as required to ensure that the elements of IM are implemented appropriately (Box 2).

These two boxes (Box 1 & 2) summarise the generally agreed foundations of both the elements of IM, and preconditions for the enactment of those. However, while there has been extensive debate and discussion in relation to the elements of IM in fisheries, marine and sustainable development [21,27–29] and the pre-conditions for them in regard to governance structural requirements [21,28,30–34], there has been far less discussion about how those principles and preconditions might be activated [2]). It is proposed here that deliberative democracy approaches are a means to assist in activating the elements of IM, and the implied governance attributes to achieve those.

3. Deliberative democratic theory

Deliberative democracy is the dynamic process by which decision-makers transparently justify their decisions and effectively respond to the voices, needs, inputs and concerns and options of the communities to which they are responsible [35]. If undertaken properly it fosters; trust, transparency and effectiveness by delivering for the needs of communities while taking the legitimate concerns of the majority into account [36,37]. Deliberative democracy has evolved from a position whereby the public was perceived as needing to be educated, to one of recognising that communities possess: (1) important and relevant local knowledge; and (2) the capacity to understand and share knowledge [36]. Thus, with adequate time and support from decision-makers, communities can actively participate in knowledge co-production and in decision making. The role of decision-makers in this process is to listen and to make explicit the possible trade-offs (economic, social and moral) across competing interests and outcomes (Ibid).

Not all issues require deliberation, and deliberation can involve a number of mechanisms, including bargaining among groups as well as individuals, as long as they meet the fundamental requirement that the use of these forms are justified by alignment with and response to concerns of the citizens [35]. The most critical element of the deliberative democratic process is the *reason giving* requirement (Ibid, 2004, p.3). Namely, there is a precursor to decision making that involves the 'coming together' of concerned citizenry (per 'Participation' in Box 2) to deliberate on issues so that decision makers can respond to their concerns [38] p. 173. In mapping a possible deliberative democracy structure Gutman and Thompson [35] and Parkinson [37] identify the following key criteria (Box 3).

A deliberative democratic approach facilitates the activation of the governance attributes required for effective IM. Specifically, the attributes of access, equitability, knowledge co-production, legitimacy, participation (and to lesser extents, efficiency, flexibility and adaptability, and stability) are all recognised and achieved through addressing the four criteria of deliberative democracy.

A deliberative democratic approach is, however, recognised to have challenges around scale and motivation [37,39–41]. The scale issue originates from the personal process of internally weighing up options [40], and extension of this to the deliberations undertaken in small groups (less than 20) to ensure genuine democratic debate and deliberation. The challenge is that as group sizes for deliberation increase, 'speech making' can result whereby appeals to set positions replace genuine discussion and debate where participants maintain a level of openness to persuasion decreases [37]. The motivation issue relates to the fact that people's pre-determined thoughts, preferences and interests are what motivate them to get involved and enter deliberation. However, unless participants in deliberative processes are willing and open to possibly relinquishing these pre-determined positions, then the definition of deliberative democracy rules them out of participation [37].

Both scale and motivation issues are connected to, and addressed by, legitimacy in the process of deliberation, engagement and/or knowledge co-production [37]. Parkinson concludes that legitimacy comprises 'legality' (as determined by the reliability of the 'rules' that are followed, be they legally mandated or tradition) and 'justifiability' (as determined by those people affected by the decision(s)). Legitimacy is built over time, whereby the iterative nature of decision review of those making and enforcing decsions, is recognised and is subject to critical examination by those subject to the effects of those decisions. While not every person affected by a decision should or can be included in deliberative processes, legitimacy requires that their nominated or elected representatives should be part of the processes. The four elements of deliberative democracy (Box 3) reflect these elements of legitimacy.

There are other limitations on legitimacy to consider in terms of the requirement for effective discourse involving a number of perspectives/persons, that power structures affect discourse, and that outcomes will be challenged by how many people support them (one of the principles of IM being a commitment to implementation). However, these can be addressed through appropriate engagement processes and decision panels, and explicit management of power imbalances.

While the issues most often associated with deliberative democratic approaches can be addressed, those of adequate resourcing and time for the processes remain. This is particularly important for poor and vulnerable communities that may have had little or no opportunity to be informed or voice their concerns and needs, directly or through representatives. Without secure resourcing for a process that uses deliberative democratic approaches, a process may fall prey to not meeting requirements of the elements of IM (in regard to commitment to implementation, performance indicators, or accountability) or the majority of

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BOX 2

IM Governance attributes and definitions. Source: p. 525, Armitage, Derek R et al., 2019. "Integrating Governance and Quantitative Evaluation of Resource Management Strategies to Improve Social and Ecological Outcomes." *Bioscience* 69(7):523–32.

- **Access:** of different actors to a range of resources that allow the gaining and retaining of resources to engage in deliberation and dialogue.
- **Efficiency:** of governance processes and arrangements that make best use of existing capacity to promote optimal outcomes.
- **Equitability:** such that those engaging in the process feel that their interests are considered and reflected in the decision-making process.
- **Flexibility and Adaptability:** refers to arrangements that can accommodate uncertainty and encourage experimentation and innovation across institutions.
- **Knowledge co-production**: being a collaborative process to bring diverse knowledge sources and types together to build an integrated understanding of both the problem and potential solutions.
- **Legitimacy:** is the belief that the rule or lead has the right to govern the process.
- **Participation:** All key interests and those most affected by particular decision have a meaningful opportunity to fully engage as they are interested or able to.
- **Stability:** refers to the objective that the governance process be consistent with relevant policies and legislation associated with the particular issue.

BOX 3

Key criteria of deliberative democracy. Source: Adapted from Ref. [35]

1) Reasons that are given should appeal to the principals of individuals such that they cannot reasonably reject them when seeking fair terms of co-operation. That is, there is a moral basis for the reason giving, and that subjects of decisions should be treated as agents able to participate in the governance of their own society. Additionally, there is some form of inter-personal reasoning guiding the political procedure, and participation by individuals is based on a willingness/openness to be persuaded. (Principles of IM: Commitment to Implementation; IM Governance Attributes: Equitability, Knowledge co-production)
2) The reasons given in the process for decisions should be accessible to all the citizens to whom they are addressed/or affect. This requires:
   a) The deliberation itself must take place in a publicly accessible forum; and
   b) It must be in a format that citizens can understand its essential content.

Alternatively put, the political act of reasoning, should be a public act open to scrutiny and not private in the form of a ballot or vote.

(Principals of IM: Vertical Integration; Long term goal; Objectives; Principles for decision making; IM Governance Attributes: Access; Equitability; Knowledge co-production; Participation; Efficiency)

3) The aim of the process is to produce a decision that is binding for some (specified) period of time, but expects that deliberation may not necessarily cease, with a view to the decision being able to be reviewed at a future point in time. For the process to be binding it also means that it be consented to through the process of participation by those affected by the decision [39]. (Principles of IM: Policy agreement across agencies; Authority and accountability; IM Governance Attributes: Legitimacy; Stability; Knowledge co-production)
4) The process of deliberation is dynamic. It does not presuppose that because the decision is justifiable today that it will remain justifiable for the indefinite future, and is therefore open to review. (Principles of IM: Performance indicators; IM Governance Attributes: Flexibility and Adaptability).

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the governance attributes.

4. The NSW Marine Estate Management Strategy

As has been discussed, IM is necessary to address the complex challenges now facing integrated (coastal) management, and for it to be implemented effectively it must possess certain elements (Box 1) and be enacted in the context of agreed governance attributes and definitions (Box 2). However, getting to the point where these circumstances exist, it is necessary to identify means to bring people and agencies together to agree on those elements and attributes. The process of developing the MEM Strategy, while based on a five step decision making process [42] (p. 9) was, within this process, iterative and undertaken to respond to the Audit Report that found the management of the marine estate to be fragmented and deficient. Aside from utilising IM, no specific theory or methodology had been pre-determined for achieving the required outcome of a community supported management plan for the whole of the marine estate. Rather it was left to the Expert Advisory Panel and managing departments to collaboratively identify a means to develop and implement an IM strategy. As a result, the process undertaken was

an iterative, grounded approach to achieve the outcome of a community-supported management strategy.

On reflection of the process as it evolved, it is contended that a deliberative democratic approach offers the appropriate lens to understand the elements and governance attributes of IM that have been developed for the NSW MEMA and its MEM Strategy.

The 2012 Audit of NSW marine park management found that outcomes could be significantly improved through a whole-of-coast approach [14] (pp.22,40). Furthermore, increased stakeholder engagement was required to improve clarity in public communications on and actions taken to manage threats to the marine estate, and the biological, social and economic justifications for these actions [14,2]. As a direct result of these recommendations, the NSW Marine Estate Management Act came into being in 2014, with an Authority (comprised of the heads of NSW Government agencies that have marine estate responsibilities) to manage the governance of the process; a move which addressed one of the key failures of the national oceans policy process - being a lack of legislation [8] (p. 2). The purpose of MEMA is to "Ensure that policies

and programs address priority issues, are well coordinated, efficient, evidence based and result in positive outcomes".[3]

Prior to the Marine Estate Management Act, the NSW marine estate was managed in four separate and unconnected plans of management between Primary Industries (with responsibility for Catchment and Lands, biosecurity, fisheries management, and marine park related programs), Planning and Infrastructure (responsibility for coastal land use and development), Transport for NSW (responsibility for Ports, shipping, boating) and Environment and Heritage (responsibility for the national park system, Science and Policy) [14,55]. The programs of these departments were not well co-ordinated and efficient, which was recognised as contributing to the failure of the National Oceans Policy approach, as identified by Vince et al. [8]. Policy and regulatory actions by each of these departments thus caused unintended consequences for the resources being concurrently managed. Integrated management was the necessary element to affect the intent of the Marine Estate Management Act (Ibid). There were also issues of a limited disciplinary approach, whereby social and economic impacts of management were not considered or accounted for. Consequently, the new approach had to integrate not just management, but also disciplinary perspectives. Further, management of this NSW coast entails not only multi-disciplinary, but also multi-sectoral (fisheries, transport, environmental conservation and heritage, and planning) in the context of multi-jurisdictional management (local and state government machinery). A new approach to governance was required by MEMA, to bring about the development and then implementation of a 10-year MEM Strategy. This process was commenced with the establishment by MEMA of a vision (being of "A healthy coast and sea, managed for the greatest well-being of the community, now and into the future"[4]) and set of 10 principles by which they would undertake the management of the estate (Box 4).

This set of principles came into being two years after the need for a whole of coastal management plan had been identified. As with many politically motivated processes, no explicit conceptual model was established at the outset of the process. Government agencies simply worked in a grounded and iterative way towards the required outcome of a more efficient, community-supported and integrated whole of NSW coastal management strategy. This process has been lengthy, as detailed in the following timeline (Table 1), involved features of IM (Boxes 1 to 3), and may be characterised as employing principles of deliberative democracy.

As detailed in Table 1, a number of activities were undertaken that reflect a deliberative democratic approach. The key feature of the process undertaken, is that the engagement and communication required was not just external, to the public affected by the planning, but importantly, initially, internal to engage all departments involved. Explicitly these two processes were 1.) Intra governmentally - between the four government departments to establish principles of the process, a strategy, authority and accountability, horizontal integration and commitment to implementation; and 2.) between government agencies and the community, for ascertaining values, feedback, and reporting on progress.

The first - intra government – processes were necessarily underpinned by a lead agency to drive the process. It was important that the lead agency not make decisions by itself, but establish legitimacy to the drive the process, which it achieved this through a deliberative process between departmental heads and appropriate managers identified as the Marine Estate Agency Steering Committee (MASC). Through MASC the 'ground rules' of the governance attributes of the process were jointly established. These rules provided the basis upon which, within the MEM

Strategy development process, the departments could iteratively and coproductively generate knowledge; improve efficiencies; seek to ensure equitable access to resources; facilitate participation by relevant agencies at appropriate times; and to adapt to emerging knowledge and new information and circumstances, in order to develop the integrated management strategy that would contain all the elements of the ideal IM process. As identified by Hendriks [38]; the issue of power is ameliorated through the joint sharing of decision making, and creating the opportunity to come together to deliberate on the process from the outset. In this case, the departments involved in delivering the MEM Strategy worked through the lead agency, the Department of Primary Industries, to develop commonly-held principles. Further, all parties agreed to be bound by those principles and decision-making processes in the development and delivery of the strategy, while recognising the process was dynamic.

The lead agency and MASC thus used a deliberative democracy approach to achieving integration across the departments involved in MEMA, in order that: the principles of the process were accepted; the reasons for them were accessible to those involved; they agreed to be bound by them, and; they acknowledged that it was, within reason, a dynamic process.

The second process of engagement that utilised deliberative democratic approaches, was that of government to community engagement. This was required to ensure the issues and concerns identified in the Audit Report [14] were comprehensively addressed as committed to in the subsequent government response [15]). While the agencies tasked with implementing the government's commitment could have undertaken it independently of community or stakeholder engagement, to do so would have likely further eroded the trustworthiness of the policy process and governance and therefore confidence in its outcomes [36]. In such circumstances, the community or stakeholders feel powerless over issues that ultimately affect them.

As presented, external stakeholder and community engagement is not required to effectively implement IM, and even adherence to the recommended governance attributes does not require that government agencies engage externally. Consequently, utilising deliberative democratic approaches to extend the application of these IM elements and attributes into the sphere of external stakeholder and community members, can be particularly helpful in understanding how such an approach may minimise issues with trust and community support. Consequently, it is pertinent is to examine the steps of community and stakeholder engagement that occurred in the process of developing the MEM Strategy in the context of deliberative democracy criteria and the consistency of them in supporting the implementation of the critical elements of IM. Brooks and Fairfull [2] and the time line in Table 1, provide a summary of the steps of external engagement taken to develop the overall process. They primarily consist of: (1) the initial community survey; (2) development of a threat and risk assessment; and (3) development of management options to address primary threats and opportunities.

Step One: Community consultation and surveys were used to establish the values and benefits that the community derives from the marine estate, and establishing the principles for decision making throughout the process that the community could identify with. The legitimacy of the process was underpinned by stratified and regional face-to-face surveying, workshops and public feedback opportunities to identify the commonly held principles of the community [43,44, 54], NSW Marine Estate Management Authority 2018). However, it must be noted that engagement is never perfect, and while many issues of representation and scale of engagement/participation can be addressed, this process as with others was subject to a number of issues. These included the attempted 'hijacking' of on-line surveys by particular groups through directed and non-genuine participation. Additionally, there were issues of being able to engage large numbers of people within set periods of time on complex matters and issues, which led to some confusion and disengagement. These issues are inherent in conducting

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BOX 4

NSW Marine Estate Management Authority principles for managing the marine estate. (Marine Estate Management Authority NSW 2013)

1. Effective community engagement to identify and prioritise benefits and threats
2. Identification of priority actions will be based on threat and risk assessment
3. Values will be assigned to enable trade-off decisions between alternative uses of the marine estate
4. Best available information will be used in trade-off decisions, but judgement will still be required
5. The wellbeing of future generations will be considered
6. Existing access arrangements will be respected
7. The precautionary principle will be applied
8. Efficient and cost-effective management to achieve community outcomes
9. Management decisions will be transparent and adjust in response to new information
10. Management performance will be measured, monitored and reported and information pursued to fill critical knowledge gaps

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consultation at such a large scale and steps were taken to mitigate the influence of these, by identifying common sources of survey responses; and generating and improving the explanatory information preceding and during consultation.

Step Two: A 'Threat and Risk Assessment' (TARA) process brought together the existing scientific and other forms of knowledge for critical evaluation providing a scope of what was known and unknown and also recognised marine experts across multiple disciplines. A deliberative democratic approach was used in sharing the threat and risk assessment with stakeholders and the general public through an extensive series of workshops and community submission opportunities which also included specific consultation process with Indigenous communities [45]. This sharing process gave all NSW residents an opportunity to provide inputs and advice that was subsequently incorporated into the threat and risk assessment, allowing the community and stakeholders to access the process of decision making (criteria two of the deliberative democratic process, Box 3). Further, this process ultimately allowed the MEM Strategy, in its final form, to respond to the community's principles and values (criteria one of the deliberative democratic process, Box 3). As with Step one, there were challenges in engaging large numbers of people within set periods of time on complex matters, and was addressed in a similar manner through improving communication materials for specific audiences.

Step 3: Assessment of management options was, aside from primarily being based on ecological sustainability, linked directly to the findings of the community survey. The evaluations of options entailed multiple deliberations with affected communities, amendment of draft plans to ensure that not only did they reflect the key threats and the risks of those features of the marine estate being most affected and associated stakeholders (in step two), but that these were understood and endorsed by those who would have carriage for the implementation of the MEM Strategy. Consequently, both the assessment of management options and the distribution of the draft MEM Strategy employed the following deliberative democratic criteria (Box 3): one (reflect principles); two (allow access to the process of decision making); four (the process of deliberation is dynamic); and ultimately three (a binding process).

5. Discussion

While there are a number of useful heuristics to respond to the challenges of IM [3,7,16,17,21,46–48], its implementation is contextual [13]. In this retrospective analysis, the NSW marine estate process provides an example of IM utilising deliberative democracy principles to promote and optimise outcomes. The key issue that this case study highlights, is that while the implementation of IM and its necessary governance attributes have inherent challenges, deliberative democratic processes assist in addressing these. Specifically, these challenges are; aligning values, vision, and methods of assessments; and developing approaches that account for multiple resource uses and ecosystems,

stakeholder groups and administrative jurisdictions.

In the NSW process the governance attributes required to implement IM were developed early in the process through internal negotiation as facilitated by the lead agency, to agree a common vision, objectives and methodologies undertaken through MEMA and MASC (see Table 1). The approach built on multiple sources of knowledge, and contestability of understanding and management options, bringing together multiple resource managers and administrative jurisdictions to negotiate and identify common values to progress management. This approach does and did require resourcing, political support and time, as it is a process of modifying and recasting the culture of government processes. By contrast, a widely practised alternative is to merge departments or sub-departments through a 'machinery of government' change, forcing culture into a dominant one whereby compliance by public servants is ensured. While a forced change is a much quicker process, it may lack legitimacy and can often be ineffective in managing complex decision-making [49] as it does not account for the importance of the social element in (fisheries) governance [50]. This was undertaken in NSW in 2019, with a change of government structure due to an election cycle. The effect in the NSW MEMA context was felt, but relatively minimal, due to the foundation of five previous years of negotiation and collaboration. However, it did hamper progress through having to re-negotiate governance parameters within the new machinery of government.

The deliberative democratic approach has, therefore, been a useful approach in establishing the governance attributes necessary to implement the elements of IM in the NSW context, both between government agencies and with external stakeholders and community members. However, it would be incorrect to assert that the approach addressed all issues of IM, as it may in fact exacerbate some of them - such as the need for long-time frames and ongoing resources; both of which are usually predicated on the political will to support the process, which in countries like Australia, is affected by election cycles.

The time and resourcing issues occur at multiple levels (establishment, knowledge co-production, and planning evolution and endorsement) but is most keenly felt at the first stages of establishing common visions, objectives and principles. A further issue in developing IM is the involvement of specific advisory bodies, generated by time pressures and limitations. When MEMA was established, it was directed to be complimented by an independent panel of advisory experts known as the Marine Estate Expert Knowledge Panel (MEEKP). The MEEKP is subject to two key challenges. 1) Inadequate collaborative time to fully explore issues and develop solutions, and 2) with panel members being part time, physically situated across the whole east coast of Australia[5] and engaged in other work, which means, at times, the schedule of the process progressed with a number of decisions being made that did not

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[5] https://www.marine.nsw.gov.au/advisory-bodies/marine-estate-expert-knowledge-panel/meet-the-panel.

Table 1
MEMA process and timeline.

Years	Event	Purpose
2011	Independent Scientific Audit of Marine Parks [14]	To provide advice on future management directions of marine parks, and where appropriate, the coastal zone generally.
2012	Government response to the Independent Scientific Audit of Marine Parks in NSW [15])	This reflected the need for IM elements of both accountability and commitment to implementation (Box 1), and the first criteria of deliberative democracy (DD).
2013	Appointment of the NSW Marine Estate Expert Advisory Knowledge Panel	A resource to assist with the process of identifying and developing the process, and performance indicators and implementation of the process.
2013	MEMA Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting (Marine Estate Management Authority NSW 2013)	A document to articulate the vision, objectives and principles of decision making as per the first three elements of IM (Box 1).
2014	Establishment of the Marine Estate Agency Steering Committee (MASC) [42]	The MASC provides guidance to project leaders and supports Intergovernmental Working Groups in the delivery of priority marine estate projects. It includes senior executives from each Authority member agency, and allows the development of IM governance attributes and can be seen to adhere to the four deliberative democratic criteria in its decision making.
2014	Marine Estate Management Act 2014 enacted	This gave authority to the process, per the fifth element of IM (Box 1).
2014	Marsine Estate Community Survey Final Report (Sweeney Research 2014)	Undertaken to ascertain community values related to, and concerns about, the marine estate as a basis for management plan development. Reflects the governance attributes of access; efficiency; equitability; knowledge co-production and participation (Box 2) This also enabled a foundation of reason giving for all future decisions (first criterion of deliberative democratic (DD) Box 3).
2014	Marine estate community and stakeholder engagement strategy (NSW Marine Estate Management Authority 2014)	To provide a transparent and stable means by which all agencies involved would engage with stakeholders (Governance attributes of access and stability, Box 2)
2017	Marine Estate Management Regulation 2017	A review of the Regulation was undertaken to ensure: • all provisions were still relevant • consistency with other legislation • identify options for the improvement and/or streamlining of management. Specifically, this provided both the authority (in IM elements Box 1) and legitimacy (in IM governance attributes Box 2)
2017	NSW Marine Estate Threat and Risk Assessment Report (Fletcher et al., 2017)	An iterative process started in 2015, involving numerous workshops internally to establish a robust process to account for and attempt to integrate the ecological with the social and economic, and then engage experts, community and other stakeholders in both data collection, assessment and the final report. This process strongly reflected the second criteria of DD that decisions process should be accessible to all affected by decisions, and that it be a dynamic process (Box 3).

Table 1 (*continued*)

Years	Event	Purpose
2017	Development of the Draft Marine estate Management Strategy (NSW Marine Estate Management Authority 2018)	This initially required internal engagement across the participating agencies to generate a draft strategy, to ensure that all agencies agree to be bound by the principles outlined in the draft strategy as per DD criteria 3 (Box 3) and the governance attribute of participation (Box 2).
2017/ 18	Draft Marine Estate Management Strategy undergoes stakeholder and community consultation	External stakeholder engagement was undertaken to ensure connection with the values and concerns raised in the Community Survey (2014). This aligned with the governance attributes of knowledge co-production, flexibility and adaptability, and participation (Box 2), and the DD criteria of reasons appealing to the principals of individuals, and being accessible to them (Box 3).
2018	Finalised NSW Marine Estate Management Strategy 2018–2028 (Marine Estate Management Authority 2018) was released	This was generated as a commitment by the government for what they could be held accountable for (IM element, Box 1) in management of the marine estate, and produced a decision that was binding for a period of time before being reviewed, as per the IM element of commitment, governance attribute of flexibility and adaptability (Box 1), and DD criteria 3 of a binding decision (Box 3).
2018/ 19	Marine Estate Management Strategy – Implementation Plan (Stage 1 July 2018 to June 2020)	

have MEEKP endorsement, despite them being the key advisory body to the process.

A further element of the time and resource issue, which is highlighted by Lukensmeyer [41] is political buy-in, which requires bridging the gap between a proven method and its consistent use. Impatience and disengagement at high levels are often experienced in implementing a process such as that of NSW MEMA, due to the time required to implement IM utilising a deliberative democracy approach. This is exacerbated by influences from special interests; or the distortions that may arise from 'post-truth' positions [51], especially in terms of social media. In an effort to mitigate the effects of these issues the MEMA process sought to use the best available science, be transparent and provide for continuous community and agency engagement and communication, as deliberative democratic approaches cannot remove the issues entirely.

Time and resource issues can also be related to specific groups. In this process, a legitimacy issue occurred specifically for Indigenous communities. In this case, there are only a small number of Aboriginal community members well connected to government processes and tend, as a result, to be 'over consulted' and may become disengaged, or concerns amongst the broader community emerge around new processes, in that the liaison persons are not adequately informed and therefore not able to represent their communities'. This is in addition to a base level deficiency of trust, due to an historical legacy of lack of access for traditional uses for Aboriginal peoples. To counter this, much broader grass roots engagement was required, however due to cultural expectations and commitments, the focus groups and gatherings traditionally used to collect data are extremely time consuming to organise and implement. Consequently, in second and third rounds of consultation with Aboriginal people, greater time periods were allowed, along with resourcing to undertake one-on-one, face-to-face meetings. It was also recognised that in order to ensure legitimacy of the process, there had to

be much greater participation of Aboriginal people on an ongoing basis in the MEM Strategy development, not just implementation.

Despite the challenges encountered in implementing a deliberative democratic process, what is clear is that without the use of an approach that clearly aligns with deliberative democratic principles, it is unlikely that MEMA would have been able to achieve the level of IM it has in NSW.

6. Conclusion

Pursuing IM goals is occurring in an increasingly complex field of disciplines, actors, and pressures that require a much more complex and inclusive approaches to progress issues, let alone to be successful in addressing them. This paper has sought to articulate that while the elements of IM and its governance attributes are invaluable reference points, without an appropriately inclusive approach - such as deliberative democracy - the ability to activate the governance attributes across both internally and externally affected groups, will not be optimal to achieve a truly robust IM outcome in the long term.

While the NSW MEM Strategy is still in its infancy, it offers a valuable case study and alternative to 'direct and control' methods of decision-making in coastal and marine environments. In particular, the MEM Strategy can be seen to include key elements of deliberative democracy that have been key in delivering the foundational elements of IM. Such an approach, while both time and resource intensive, and challenged in attaining and maintaining political buy-in, is demonstrated here to deliver effective decision-making in the complex world of competing interests and values in the marine estate.

Author credits

K. Brooks: Conceptualisation, Methodology, Writing- Original draft preparation. **K. Barclay:** Conceptualisation, Methodology, Writing-Reviewing and Editing. **Q. Grafton:** Conceptualisation, Methodology, Writing- Reviewing and Editing. **N. Gollan:** Writing- Reviewing and Editing.

Funding

Declaration of competing interest

K. Brooks and K. Barclay are currently members of the NSW Marine Estate Expert Knowledge Panel (MEEKP), and Q. Grafton was the past Chair of the MEEKP, but is no longer a member of the Panel; and N. Gollan is an employee of the NSW government at the time of writing this paper.

Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.marpol.2020.104053.

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