

SURVEYING THE NSW COMMUNITY'S VIEWS ON THE MARINE ESTATE – VALUES, BENEFITS, THREATS AND OPPORTUNITIES

S Fairfull¹, S Attwood², L Diver¹, K Bronger¹

¹NSW Department of Primary Industries (Fisheries NSW), Wollongbar, NSW

²Sweeney Research, Sydney, NSW

Abstract

The Report of the Independent Scientific Audit of Marine Parks in NSW (the NSW Audit) found there was generally poor social assessment undertaken to inform marine estate planning and recommended a more strategic and rigorous approach to social benefit and cost assessment (Beeton et al. 2012). In March 2013 the NSW Government released its response to the Audit, outlining a new approach to marine estate governance and management, including a greater focus on social and economic research and assessment to inform decision-making.

In November 2013, the new Marine Estate Management Authority (the Authority) outlined the principles for providing advice to the NSW Government on marine estate management via its paper entitled “*Managing the NSW Marine Estate: Purpose, Principles and Priority Setting*” (MEMA 2013). The first principle notes the importance of early, effective community engagement to understand the benefits that the marine estate provides (environmentally, economically and socially) and the threats to those benefits, incorporating specific reference to Indigenous communities.

In 2014 the Authority commissioned a range of qualitative and quantitative social science research (termed the ‘Marine Estate Community Survey’). A representative sample of over 1,000 NSW residents (via an online survey) and 700 coastal residents and visitors (via field intercept surveys at seven coastal locations) were surveyed to understand the values and benefits they derive from the NSW marine estate (the estuaries, coastline and marine waters), their perceived threats to those benefits and opportunities for improving its management. The community’s views on marine parks, as one management tool within the marine estate, were also sought. This paper details the key findings from the research (the first of its kind in NSW), the lessons learnt and how the results are being incorporated into management. The findings reinforce some predicted views, but also reveal some surprising results on the values and benefits the community derives from the marine estate.

Introduction

The need for social science to inform marine estate management

The need to include social assessment in marine park planning has been recognised internationally for many years and is part of the policy framework in Australia and overseas (Mascia (2003) and Symes and Hoefnagel (2010) in Voyer et al. (2012)). However, social

assessment is often criticised as lagging behind the bio-physical sciences, undertaken in a disjointed fashion or completely absent (Voyer et al. 2012).

In the NSW Audit report, Beeton et al. (2012) found that there was generally a poor approach to social assessment for marine estate planning, if undertaken at all. The report recommended a more strategic and rigorous approach to social benefit and cost assessment that looks beyond the simple 'support versus opposition' approach of public participation. This would allow a deeper understanding of stakeholder values and the importance of access and use of the marine environment for all user groups. The information will inform a more meaningful discussion around potential benefits and trade-offs and help achieve optimal environmental protection, public use and enjoyment and community support for marine parks.

Beeton et al. (2012) requested that NSW **marine estate** planning processes 'be improved immediately to allow for a more strategic and cross-disciplinary approach to considering social impacts' (Voyer et al. 2012, p. 437), which should include 'specific and targeted consideration of social impacts (incorporating qualitative research techniques), with particular attention given to vulnerable groups within the community', in particular Indigenous views and values (Voyer et al. 2012, p. 437).

The NSW Government's response

In March 2013 the NSW Government announced its response to the Audit findings, which included a program of reforms that aim to deliver an integrated and coordinated approach to management of the **marine estate**. The response notes that decisions will be based on research across environmental, economic and social science (NSW Government 2013).

The NSW 'marine estate' includes marine waters, estuaries and the coast. It extends seaward out to three nautical miles and from the Queensland border in the north to the Victorian border in the south.

As part of the NSW Government's response, a new Marine Estate Management Authority (MEMA or the Authority) was established to provide advice to government on the management of the marine estate. An independent Marine Estate Expert Knowledge Panel (the Panel) with expertise in ecological, economic and social sciences was also formed to provide scientific advice to the Authority.

In November 2013 the Authority outlined its new approach to marine estate management via the release of *Managing the NSW Marine Estate: Purpose, Principles and Priority Setting* (MEMA 2013) – known as "The Principles Paper". The paper outlines ten principles and processes that will be followed in providing advice to the NSW Government on the marine estate. The Authority's new **vision** for the marine estate is "***a healthy coast and sea, managed for the greatest well-being of the community, now and into the future***" (MEMA 2013).

The need for a community survey

Principle 1 of the paper outlines the process for 'effective community engagement to identify and prioritise benefits and threats'. The principle notes that a critical component of this first step will be to fully understand the community benefits that the marine estate provides, environmentally, economically and socially, with specific reference to Indigenous communities.

To inform Principle 1, the Authority, on the advice of the Panel, commissioned Sweeney Research to undertake a range of qualitative and quantitative social research (collectively termed the 'Marine Estate Community Survey'). The research aimed to provide the Authority with a better understanding of the range of views amongst the NSW community on the values and benefits provided by the marine estate, the threats to those values and benefits, and opportunities to improve its management both now and in the future. No such research had been conducted to date at a state-wide scale in NSW to inform decision-making on marine estate management.

The survey is one component of effective early engagement to inform Principle 1 and the other steps from the Principles Paper outlined in Figure 1.

This paper describes how the survey was undertaken, the key findings, lessons learnt and how these results will feed into marine estate management over time.

Figure 1: Putting the principles for managing the NSW marine estate into practice – a logical sequence of steps to maximise community benefits

Step 1	HOW THE COMMUNITY BENEFITS FROM THE ESTATE 	Identify key economic, social and environmental benefits, and perceived threats and opportunities derived from the estate	Develop an ongoing engagement strategy: <ul style="list-style-type: none"> ▪ community consultation ▪ expert input ▪ stakeholder surveys Refine scope of key MEMA benefits.	<i>Principle 1</i>
Step 2	ASSESS THREATS AND RISKS TO BENEFITS 	Expert assessment of threats and opportunities to the key economic, social and environmental benefits	Prioritise threats based on their likelihood and consequence and consider relevant scale: <ul style="list-style-type: none"> ▪ local ▪ regional ▪ state-wide 	<i>Principle 2</i>
Step 3	ASSESS MANAGEMENT OPTIONS TO MAXIMISE BENEFITS 	Identify and assess current and potential management settings in delivering community benefits	Apply values to economic, social and environmental benefits of alternative uses. Assess which options deliver maximum community benefit.	<i>Principles 1, 3, 4, 5, 6 & 7</i>
Step 4	IMPLEMENT PREFERRED MANAGEMENT OPTIONS 	Implement options which maximise overall benefits to the NSW community as a whole	Identify the most efficient and cost-effective management options. Design measurable performance indicators. Develop strategic monitoring program to measure outcomes relative to the vision.	<i>Principles 1, & 8</i>
Step 5	BE ACCOUNTABLE	Monitor, measure and report on performance Review progress	Report transparently to the community. Promote strategic research to inform management and enhance future outcomes. Examine performance, including benefit, threat and risk status periodically. Review management arrangements for those not achieving adequate performance.	<i>Principles 1, 9 & 10</i>

Source: Adapted from MEMA (2013, p.9).

Objectives of the survey

The survey objectives are summarised in Table 1.

Table 1: The survey objectives

Perceptions of the marine estate	<ul style="list-style-type: none">• Determine what marine estate interest/user groups and the public view the marine estate to be.• Ascertain how marine estate interest/user groups and the public want the marine estate to look like in 20 years (and how they envisage marine estate management strategies should evolve to meet this ideal).• Record perceived changes in the marine estate over the short and long term and establish perceptions as to why these have occurred.
Values and benefits of the marine estate	<ul style="list-style-type: none">• Identify the perceived short and long term economic, social and environmental values of the marine estate.• Determine the benefits they derive from the marine estate.• Prioritise values and benefits according to key marine estate interest/user groups and the public.
Threats to the marine estate	<ul style="list-style-type: none">• Determine the perceived threats (both current and future) to the marine estate.• Prioritise these threats and identify those that the public and the marine estate interest/user groups consider need the most urgent attention.
Opportunities for the marine estate	<ul style="list-style-type: none">• Identify potential directions for vision development for the marine estate as suggested by key marine estate interest/user groups.• Understand the perceived opportunities for the marine estate from both the public and marine estate interest/user groups.

Source: Adapted from Sweeney Research (2014).

Methods

The survey design aimed to capture the range of views held by the people of NSW about the social, economic and/or environmental values of the marine estate, including those who may be direct or indirect users of the estate as a resource.

Key elements of the survey design included:

- ensuring representativeness of the views of the whole NSW community – spatially across NSW (including inland areas), across key marine estate interest/user groups; and across cultural groups including Indigenous and culturally and linguistically diverse community representatives;
- using qualitative research methods to inform the quantitative research;
- using randomised sampling methods to avoid biased results;
- including a variety of media and methods to reach a representative cross-section of NSW community members;
- allowing findings to be reported at both the estate-wide and regional scale (note Local Land Services boundaries were used to allow the results to inform regional natural resource management);
- implementation of an evaluation framework; and;

- incorporation of scientific rigour into the qualitative and quantitative survey components.

Table 2 summarises the qualitative and quantitative methods deployed for the survey from January – March 2014.

Table 2: Qualitative and quantitative methods used for the survey

Phase	Target Audience	Method
Qualitative research phase	Marine estate interest/user groups including Indigenous community representatives	<ul style="list-style-type: none"> • Detailed in-depth interviews (45 minute duration) with 36 key marine estate interest/user groups (see Table 3). • Five of these interviews were conducted with Indigenous community representatives (two from the South Coast, two from the North Coast and one from the NSW Aboriginal Land Council).
	Cross-section of the NSW general population	<ul style="list-style-type: none"> • Seven regional focus groups conducted with 8-12 members randomly recruited to represent a cross-section of the local community (1.5-2 hours). • Focus groups were held in Lismore, Coffs Harbour, Newcastle, Sydney, Batemans Bay, Eden (coastal) and Orange (inland).
Quantitative research phase	NSW general population	<ul style="list-style-type: none"> • A 19 minute quantitative online questionnaire was developed based on the qualitative findings from the in-depth interviews and focus group discussions. • A panel provider (PureProfile) was used to randomly source a minimum of 1,000 respondents representing an unbiased cross-section of the NSW community (based on age (>18 years of age), gender, income and regional location).
	NSW coastal residents & visitors	<ul style="list-style-type: none"> • A 10 minute quantitative tablet-based field questionnaire was developed based on the qualitative findings from the in-depth interviews and focus group discussions. • The questions were sourced from the online questionnaire. • Coastal residents and visitors (minimum of 350 each) to the marine estate were randomly sampled (weekdays and weekends) and interviewed using the tablet questionnaire. • To meet these totals a minimum of 50 residents and 50 visitors were sampled at each of the following 7 locations: Ballina, Coffs Harbour, Newcastle, Pittwater, Circular Quay, Batemans Bay and Eden.

Table 3: Marine estate interest/user groups interviewed during the qualitative phase of the survey (as noted in Table 2)

Stakeholder Type	Location						TOTAL
	Sydney	Newcastle	Coffs Harbour	Lismore	Batemans Bay	Eden	
Peak Body Groups (peak recreational fishing groups, peak recreational boating groups, bait shops, scuba divers)	<ul style="list-style-type: none"> Underwater Skin Divers and Fishermen's Association Aust. National Sports Fishing Association Aust. Fishing Trade Association Surfing NSW Yachting NSW Boat Owners Association Keep Australia Fishing Surf Lifesaving NSW 	-	<ul style="list-style-type: none"> EcoFishers Scuba Diving Business 	-	<ul style="list-style-type: none"> Narooma Port Committee 	-	11
Local Councils (local council representatives, ethnic community council)	<ul style="list-style-type: none"> Ethnic Communities Council NSW 	<ul style="list-style-type: none"> Local council 	-	<ul style="list-style-type: none"> Local council (Tweed Heads) 	-	-	3
Chambers of Commerce (representatives of local businesses)	-	<ul style="list-style-type: none"> Chamber of commerce 	-	-	<ul style="list-style-type: none"> Chamber of commerce 	-	2
Fishing/Boating Industry (commercial fishing, local fishing businesses, boating industry)	<ul style="list-style-type: none"> Sydney Fish Market Boating Industry Association 	-	<ul style="list-style-type: none"> Professional Fishermen's Association 	-	<ul style="list-style-type: none"> South Coast Fishermans United Group** Port Kembla Port Corporation 	-	5
Other Industry Bodies (coastal developers, NSW farmers, tourism industry, aqua culture industry)	-	<ul style="list-style-type: none"> NSW Farmers Oyster Committee 	-	<ul style="list-style-type: none"> Lord Howe Island Tourism Association 	<ul style="list-style-type: none"> Local oyster farmer South Coast Regional Tourism Organisation 	<ul style="list-style-type: none"> Local oyster farmer 	5
Indigenous Community (members of the Indigenous community, elders, Aboriginal land council)	<ul style="list-style-type: none"> Aboriginal Land Council 	-	-	<ul style="list-style-type: none"> Community Elder Aboriginal Community Centre 	<ul style="list-style-type: none"> Community Elder Aboriginal Community Centre 	-	6
Conservation/Science (marine science community, conservation groups)	<ul style="list-style-type: none"> National Parks Association Marine Science Association NSW Nature Conservation Council 	-	<ul style="list-style-type: none"> North Coast Environmental Council (Port Macquarie) 	-	-	<ul style="list-style-type: none"> Marine Education Centre 	5
TOTAL	15	3	4	4	8	2	36

Source: Sweeney Research (2014).

The **qualitative research** methods ensured that the range of views of marine estate interest/user groups were captured via in-depth interview and compared and contrasted with the views of the broader NSW community derived from the regional focus group discussions. Regional variations in responses were determined from this approach.

A specialist consultant with expertise in Indigenous community engagement was commissioned to conduct the four in-depth interviews with regional Indigenous representatives to ensure any views particular to this community were captured.

To obtain a representative sample of the NSW general population for the online survey, a random-stratified sampling (RSS) technique was utilised. This involved setting quotas for target groups of the NSW population to ensure that a robust and representative sample was achieved across specific population cohorts (i.e. age, gender, and region). The data used for weighting for age, gender and location were taken from the Australian Bureau of Statistics (ABS) population estimates.

The field intercepts were run concurrently with the online survey from 28 February to 17 March 2014. A non-probability quota sampling technique was used for this phase of the fieldwork. This involved setting arbitrarily determined quotas which precluded the possibility of all sections of a population being represented in a sample. This methodology

was chosen because of the difficulty in targeting coastal residents and visitors using a probabilistic approach and the time available to complete the fieldwork. Unlike probability based sampling, non-probability sampling can be affected by sampling bias. The fieldwork process included protocols to limit the potential for bias. The final sample was again weighted by the non-probability quotas for age, gender and location that were used during the interviewing process. The decision to weight according to these criteria ensured that each of the seven interviewing regions was given equal weight in the analysis process.

The results for the NSW general population sampled online were compared with the findings from the field intercept surveys of coastal residents and visitors at locations adjoining the marine estate. This enabled areas of consensus and variation between the three respondent groups (i.e. NSW general population, coastal residents and coastal visitors) and at both estate-wide and regional scales.

Further information on the methods, data weighting and cleaning, fieldwork protocols and quotas can be found in Sweeney Research (2014).

Results

The qualitative findings

Values of the NSW marine estate

Table 4 summarises the key values identified for the marine estate from the qualitative research phase. These values underpin the behaviours, perceptions and attitudes towards the marine estate.

Table 4: Summary of qualitative research findings on key values of the marine estate

<p>Identity</p>	<ul style="list-style-type: none"> • Uniqueness... The marine estate is home to a diverse range of endemic flora and fauna. • Continuing health of the marine estate...The NSW community expresses a need to protect the marine estate from degradation and unsustainable use. • Access...The NSW community need up-to-date and reliable infrastructure access to the marine estate as well as safe access to marine areas. • A part of our heritage and culture...The marine estate is considered an intrinsic part of NSW and Australian identity. Many people (including the Indigenous community) report a strong, sentimental attachment to this space.
<p>Enabler</p>	<ul style="list-style-type: none"> • Enabling connection...The estate offers a critical way for members of the community to spend time with loved ones and to strengthen relationships as well as feeling a part of the community. • Value as an escape...The estate provides the NSW community with an opportunity to get away from their everyday lives and relax. • Offering choice...Many enjoy and value the range of different activities and uses the marine estate offers them.
<p>Provider</p>	<ul style="list-style-type: none"> • A gateway to Australia... It provides an important link to other Australian and International markets for trade and tourism. • Support for local and state economies... It is also seen as providing substantial benefits to the NSW economy. • Source of food and industry... a key economic benefit of the marine estate was the variety of seafood that could be caught and eaten. • Facilities in place to help access the marine estate... it is imperative that the community feel they have access to the public resources available from the estate.
<p>The Great Outdoors</p>	<ul style="list-style-type: none"> • Enjoyment in just knowing it is there... The intrinsic value of the marine estate is very powerful. One of the most popular benefits is that people enjoy its natural beauty, even if they can't visit it regularly. • A celebration of biodiversity... The NSW community enjoys knowing that the marine estate is home to a wide range of marine life. This also has significant cultural implications for the NSW community as a whole. • A source of scientific discovery... Being able to use the marine estate to improve scientific knowledge and as a source of education about marine life is vital for the NSW community. • Safety... Regulations and usage bodies (e.g. surf lifesavers) are necessary to ensure that the community can engage safely with the estate.

Source: Adapted from Sweeney Research (2014).

Interrelatedness of values associated with the NSW marine estate

The qualitative findings identified a great deal of interrelatedness between the emergent environmental, economic and social values summarised in Table 4. One value, **the ongoing health of the marine estate**, is considered to be the **core value** of the marine estate, without which the other values could disappear or decline significantly either in the short or long term.

Figure 2 provides a visual representation of the interrelatedness of the values associated with the marine estate that were identified during the qualitative phase of the survey. The environmental values are shown in green, the economic values in blue and the social values in red.

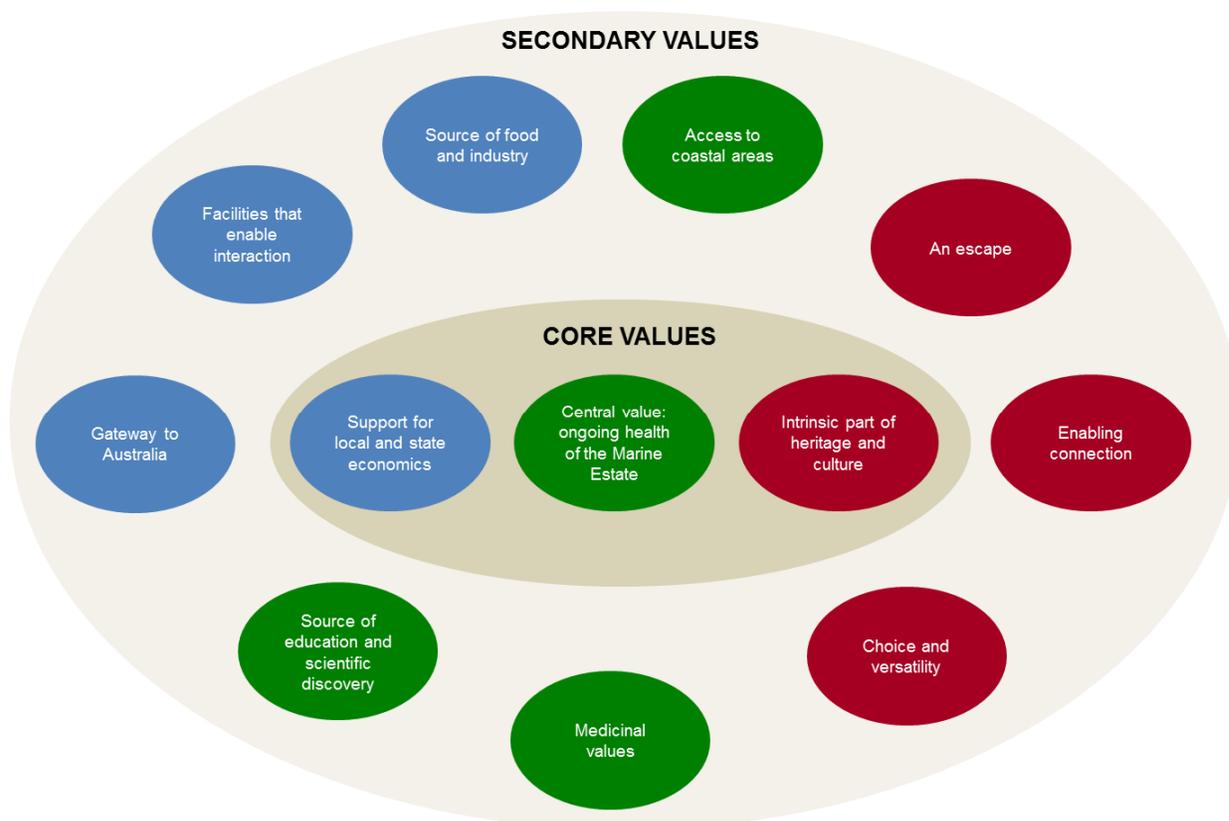


Figure 2: The interrelatedness of the core and secondary environmental, economic and social values identified during the qualitative phase of the survey

Source: Sweeney Research (2014).

The key quantitative findings

A summary of the views from the NSW general population (online survey) and the coastal residents and visitors (field intercept survey) on the key environmental, economic and social values, benefits, threats and opportunities for the NSW marine estate are provided in this section and are summarised in Table 5.

The full qualitative and quantitative findings, including those relevant to marine park management and regional analysis, can be accessed via <http://www.marine.nsw.gov.au/key-initiatives/marine-estate-community-survey>.

Environmental findings

Environmental well-being should take priority

Over 80% of the NSW general population sampled considers that the environmental well-being of the marine estate (its clean, safe waters and biodiversity) must take priority when developing policy. Forty-four percent of the online respondents (and 45 and 46% of coastal visitors and residents, respectively) considered the leading economic opportunity to be the marketing and promotion of the beauty and biodiversity of the marine estate, while the leading environmental opportunity is the protection and rehabilitation of habitats and wetlands in the marine estate (41% NSW general population, 32 and 35% for coastal visitors and residents respectively). The results indicate that the NSW community considers healthy habitats and the diverse and unique ecology of the marine estate as key drivers of economic outcomes in NSW.

The qualitative research found that this sentiment is recognised by all user groups, including commercial and recreational fishers who understand the need to conserve and support marine life so that future generations will be able to appreciate the marine estate as they have. Similarly, those involved in promoting development (e.g. Chambers of Commerce) recognise that the natural beauty of the marine estate is a key reason why people want to live in or near the coast of NSW. For example, 52% of the NSW general population noted that the marine estate was an important part of why they like living in NSW.

Major environmental threats to the marine estate

The three greatest environmental threats to the marine estate as perceived by the NSW general population are: littering/dumping of rubbish/marine debris (47%), oil and chemical spills (34%) and water pollution from sediment or run-off (29%). The same priorities were observed for coastal residents, but coastal visitors perceived water pollution from sediment or run-off to be the second most important threat, with oil and chemical spills third.

People consider overfishing to be less of a threat

Across the three groups sampled, the proportion of people concerned with overfishing (less than one in five) was significantly lower compared to all forms of pollution. However, the NSW general population was not oblivious to the potential threat of overfishing, with the majority (67%) agreeing that some areas of the marine estate should be protected, even if it means recreational and commercial fishing is excluded. Not surprisingly, fishers interviewed during the qualitative phase from all sectors (Indigenous, commercial and recreational) indicate that over-restriction of their activities would have a detrimental impact on their use of the marine estate.

Protecting and rehabilitating coastal habitats is a key focus

Forty-one percent of the NSW general population (and 32% and 35% of coastal visitors and residents, respectively) indicated that protecting and rehabilitating remaining coastal habitats and wetlands is the key environmental opportunity for the marine estate. The NSW general population would also like to see more effective litter collection services (34%) in the marine estate, as well as reducing water pollution through better land-management practices which would reduce run-off (26%). While these actions were also supported by coastal residents and visitors, their second highest priority was for more protected areas to conserve biodiversity (17% and 20%, respectively).

Economic findings

The marine estate directly and indirectly stimulates the economy

The marine estate represents a substantial economic resource to the NSW community, as well as a key source of food for certain community groups such as Indigenous people. Fifty-eight percent of the NSW general population surveyed identified that income provided by the marine estate was one of the most important economic benefits of the marine estate. Coastal residents and visitors differed in their preferences to the NSW general population. They noted the marine estate's iconic images of Australia which promotes tourism as their highest priority economic benefit. Their second highest priority was the marine estate as a source of income for local communities (36% and 34%, respectively).

Tourism is crucial

The NSW general population recognised the marine estate as a tourism drawcard and not necessarily as a natural resource for extraction. The majority considered that the economic benefits of the marine estate are derived from the iconic images of Australia which promote tourism (54%). This finding was amplified amongst the Indigenous community, with tourism being a key way for cultural values and traditions to be perpetuated.

The results generally indicate that the public perceive tourism as being positive socially, environmentally and economically, with relatively few drawbacks (apart from overcrowding and anti-social behaviour).

Given the focus on the tourism benefits of the marine estate, threats to tourism are seen as a priority. Water pollution affecting the viability of tourism (62%) and the loss of natural areas reserved for tourism (51%) are seen as the greatest economic threats to the marine estate by the NSW general population. These threats, coupled with the increasing costs to access and use the marine estate (42%), are seen as having the potential to cause major damage to the tourism industry in NSW. Similar preferences were reported for the coastal visitors, however coastal residents identified loss of natural areas reserved for tourism as their highest threat (47%), followed by water pollution affecting local businesses and tourism (44%) and then increasing costs and regulation of local businesses (20%).

Promotion of the beauty and biodiversity of the marine estate

The NSW general population consider the need to promote the beauty and biodiversity of the marine estate (44%) as of greatest economic importance. Coastal residents and visitors also identified this as their highest priority (46% and 45%, respectively). Implementing management processes to protect the coastline from storm surges, coastal erosion and inundation (40%) as well as improving public access to the marine estate (32%) were also prioritised as critical opportunities for the marine estate by the NSW general population. However, the results indicate that all three groups are cautious that tourism should not cause over-crowding in popular tourist destinations, as it is perceived that overcrowding can have a negative impact on people's enjoyment of the marine estate as well as impacting on the environment.

Social findings

The marine estate is integral to the social and cultural foundations

The marine estate holds great intrinsic value for the NSW community as a central part of Australia's heritage and culture. The most important social benefit identified by the NSW general population was the enjoyment people get from knowing its natural beauty is there, even if they cannot visit it regularly (48%). Other key benefits identified by the NSW general population included the marine estate being recognised as providing a safe space to spend quality time and socialise with friends and family (30%), as well as providing an opportunity to live a healthy and active lifestyle (27%).

The results differed for coastal residents who identified the uniqueness and value of the marine estate which can be passed onto future generations as their highest priority (26%) followed by providing a safe space to spend time with friends and family (21%) and its intrinsic values (18%). Coastal visitors identified the intrinsic value of the marine estate as their highest social benefit (26%) followed by the uniqueness and values that can be passed onto future generations (22%).

The social benefits of the marine estate are amplified in coastal Indigenous communities with many of the core traditions that underpin Indigenous culture being fundamentally linked to the estate.

Anti-social behaviour threatens the social balance

Anti-social behaviour is seen as the main threat to the social benefits of the marine estate by the NSW general population sampled (58%). Community members were likely to feel that visitors have a strong negative impact in terms of littering, pollution and anti-social behaviour.

Littering and pollution threaten social outcomes

Fifty-five percent of the NSW general population perceives that a key social threat to the marine estate is the potential loss of appeal due to pollution/littering. Following this, overcrowding (31%), danger to swimmers from recreational activities such as boating and jet skiers (31%) and a lack of public access (29%) were also recognised as potential social threats that may impact on their desire to use the marine estate.

Social opportunities for the marine estate

Education programs are considered an important way to engage the community (32%) and offer a sense of ownership and responsibility for the marine estate. Improving public access to the estate (30%) and providing community environmental action support programs (28%) were also considered important.

Table 5 summarises the key benefits, threats and opportunities for the NSW marine estate identified from the survey.

Table 5: Summary of key benefits, threats and opportunities for the marine estate

Benefits	
Economic	<ul style="list-style-type: none"> • A source of income for local residents and the state as a whole • Home to iconic images of Australia which supports local tourism
Social	<ul style="list-style-type: none"> • People are able to enjoy its natural beauty, even if they can't visit it regularly • Provides a safe space to spend time with family and friends • Allows people to facilitate a healthy, active lifestyle • Has a uniqueness which can be passed on to future generations
Environmental	<ul style="list-style-type: none"> • Natural and clean waters support a variety of habitats and marine life • There is an abundance of marine life which enriches the State as a whole • Contains biodiversity that cannot be found anywhere else in the world, underpinning the uniqueness that characterises NSW as a whole
Threats	
Economic	<ul style="list-style-type: none"> • Issues with water pollution are threatening to affect tourism in NSW • Loss of natural areas and habitats reserved for tourism can damage the reputation of this industry • Increasing costs to access threaten industries across NSW that rely on the marine estate
Social	<ul style="list-style-type: none"> • Anti-social behaviour (e.g. at beaches) • Loss of appeal due to water pollution/littering • Overcrowding impacts on peoples' enjoyment of the area.
Environmental	<ul style="list-style-type: none"> • Littering/dumping of rubbish/marine debris • Oil and chemical spills • Pollution from sediment or run-off
Opportunities	
Economic	<ul style="list-style-type: none"> • Market and promote the beauty and biodiversity of the marine estate to promote tourism • Develop and implement management strategies to prevent storm surges, coastal erosion and inundation • Improve public access

Social	<ul style="list-style-type: none"> • Provide more education programs regarding the use and management of the estate • Improve public access • Facilitate more discussion between experts
Environmental	<ul style="list-style-type: none"> • Protect and rehabilitate remaining coastal habitats and wetlands • More effective litter collection services • Improve land-management practices to reduce run-off • Provide community environmental action support programs

Source: Adapted from Sweeney Research (2014).

Discussion and conclusions

Lessons learnt from the survey

There is significant value in conducting qualitative research to inform quantitative survey design and findings when undertaking a community survey. The qualitative research findings provided valuable insights into the views of marine estate/interest groups, the Indigenous community, and the broader community at a marine estate, regional and local scale. They also provide insight into the language the community can relate to, and therefore the wording to use in the quantitative surveys to ensure unambiguous results. The quantitative results were more robust as a result of linkages to the qualitative findings.

Incorporation of the results into marine estate management

The findings of the survey were found to be consistent with the Authority's vision for the marine estate. The results are informing current programs undertaken by the Authority's member agencies and several priority projects in the Authority's Schedule of Works, to ensure the community's views and ideas are understood, valued and considered in decision-making, including:

- the Marine Estate Management Act and Regulations, including the objects for the new Act,
- the threat and risk assessments being undertaken for the marine estate,
- the new Marine Estate Management Strategy, and,
- informing the objectives of new management plans for marine parks.

The Authority will use the findings of the survey to inform future community engagement processes for the delivery of the steps and activities outlined in Figure 1 and to gauge the success or otherwise of these engagement processes when implemented.

References

Beeton, RJS, Buxton CD, Cutbush GC, Fairweather PG, Johnston EL & Ryan R (2012), *Report of the Independent Scientific Audit of Marine Parks in New South Wales*. NSW Department of Primary Industries and Office of Environment and Heritage. NSW.

Mascia, MB (2003), The human dimension of coral reef Marine Protected Areas: recent social science research and its policy implications. *Conservation Biology* 17: 630-632.

MEMA (2013), *Managing the NSW Marine Estate: Purpose, Underpinning Principles and Priority Setting*, NSW Marine Estate Management Authority, November, ISBN 978 1 74256 567 5.

NSW Government (2013), *Government response to the Report of the Independent Scientific Audit of Marine Parks in New South Wales – A new approach to managing the NSW marine estate*, NSW Department of Primary Industries, Sydney, 24 pp.

Sweeney Research (2014), *Marine Estate Community Survey – Final Report*. Sweeney Research, Sydney, 393 pp.

Symes, D and Hoefnagal, E (2010), Fisheries policy, research and social sciences in Europe: challenges for the 21st century. *Marine Policy* 34: 268-275.

Voyer M, Gladstone W & Goodall H (2012), 'Methods of social assessment in marine protected area planning: Is public participation enough?' *Marine Policy* 36: 432–439.