

# NSW Marine Estate Community Wellbeing Framework

## NSW Marine Integrated Monitoring Program



## More information

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  - Transport for NSW.

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## Acknowledgement of Country

The Department of Regional New South Wales acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.

## Cover image: Catfish (©DPI)

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# Table of contents

Introduction	4
<b>What is wellbeing?</b>	<b>5</b>
<b>What the community has told us already</b>	<b>5</b>
Background context	7
<b>Marine Estate Management Strategy</b>	<b>7</b>
<b>Marine Integrated Monitoring Program</b>	<b>8</b>
<b>Purpose 1 of the MIMP - Monitoring condition and trend of community benefits</b>	<b>9</b>
<b>Other applications of the Framework for the Marine Estate Management Strategy</b>	<b>9</b>
<b>Data management</b>	<b>9</b>
How the Community Wellbeing Framework was built	10
<b>Step 1: Identification of domains, attributes and indicator themes</b>	<b>10</b>
<b>Step 2: Development of indicators</b>	<b>11</b>
<b>Step 3: Review of the draft Framework</b>	<b>11</b>
<b>Step 4: Prioritisation of indicators for statewide monitoring</b>	<b>12</b>
<b>Step 5: Development of measures and units for priority indicators</b>	<b>12</b>
Application of the Framework for statewide monitoring	13
<b>Domain 1: Community use, health and safety</b>	<b>15</b>
<b>Domain 2: Community awareness and environmental stewardship</b>	<b>18</b>
<b>Domain 3: Culture and heritage</b>	<b>20</b>
<b>Domain 4: Economic benefits</b>	<b>23</b>
<b>Domain 5: Governance and management</b>	<b>24</b>
<b>Cross-cutting indicators</b>	<b>27</b>
References	28
Abbreviations	29
Appendix 1. Other wellbeing frameworks	30
Appendix 2. Evidence used to develop the Community Wellbeing Framework	33
<b>Domain 1: Community use, health and safety</b>	<b>33</b>
<b>Domain 2: Community awareness and environmental stewardship</b>	<b>35</b>
<b>Domain 3: Culture and heritage</b>	<b>36</b>
<b>Domain 4: Economic benefits</b>	<b>37</b>
<b>Domain 5: Governance and management</b>	<b>39</b>

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# Introduction

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The marine estate is one of the most significant natural assets of NSW. It includes tidal rivers and estuaries, the shoreline, submerged lands, offshore islands, and the waters of the NSW coast from the Queensland border to the Victorian border and out to 3 nautical miles offshore.

This is also known as Sea Country. It supports the wellbeing of the 6.3 million people who live within 50 kilometres of it – about 85% of the NSW community interacts with the coast, beaches and waters of the marine estate through their recreation, work, traditions and cultural practices.



Image: Bar Beach, Newcastle

A healthy marine estate is key to the wellbeing of the community, but we haven't had the data to be able to measure the community benefits.

The Community Wellbeing Framework (the Framework) is the first step towards filling this gap. It aims to provide for a consistent and robust approach to monitoring the community benefits of the marine estate, threats to these benefits to fill key social, cultural and economic knowledge gaps identified in the statewide Threat and Risk Assessment (statewide TARA). The lack of systematic monitoring – of the human (social, cultural, economic) dimensions of the marine estate – and the resulting a lack of social data are considered key threats.

This Framework report describes:

- How we developed the Framework
- The main components: the domains, attributes, themes and indicators
- How we will apply the Framework for statewide community wellbeing monitoring
- Other applications of the Framework for the Marine Estate Management Strategy and the Marine Integrated Monitoring Program.

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## What is wellbeing?

Community wellbeing is the total of all the economic, social, cultural and environmental benefits derived from the NSW marine estate (MEMA 2013). It's difficult to measure because there are so many parts. In addition to the tangible values, such as food, shelter and work, it also includes the concepts of quality of life, life satisfaction, physical, mental and emotional health (Schirmer et al. 2015; Scrivens and Smith 2013).

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## What the community has told us already

Surveys in 2021 and 2022 showed the substantial contribution of the marine estate to these aspects of wellbeing; to quality of life, emotional and mental health, physical health, social connectedness (spending time with friends and family) and cultural connection (DPI and Ipsos 2022, DPI and Ipsos ATSIRU 2022).

Participants said the contribution of the marine estate to their wellbeing was 'highly significant', for example:

*“The NSW coast represents moments of peace and serenity. Simply watching the beautiful landscape of the crystal blue water restores my mental state and helps me feel calm in a world that doesn't seem to stop.”*

*“I rely on the beach as a form of cleansing. Similar to a traditional smoking ceremony, the beach can wash away any negative energy or spirits. The salt also has many health benefits. Being able to visit rock engraving sites (many on Sea Country) are extremely important to practicing my culture. These things positively impact my quality of life.”*

*“It's the best place to do a variety of exercises so that I can stay healthy. It's for mental health too; being able to sit and watch the waves roll in is relaxing and helps me practice mindfulness. It's also a social place for my little family whether we're seeing extended family or friends it's a wonderful place to gather and enjoy a day. We don't usually have money for cafes or restaurants so picnics at the beach are our go-to for socialising.”*



These benefits can be particularly important during difficult times and beneficial to our youth:

*“The NSW coast provides a gateway for me to participate in activities that I love including surfing, swimming and just enjoying the view! The beach and coastal areas are involved in my everyday life, and as a Year 12 student undergoing HSC it really provides a sense of beauty and escapism from the books.”*

*“As a teenager in lockdown, mental health has majorly impacted my life. The beach plays a major part in helping me and many other teenagers to relax and escape their own thoughts. It is also somewhere to see my friends and help social lives.”*

These are just some examples of how the marine estate contributes to the overall wellbeing of millions of people—to their emotional, mental and physical health, economic wellbeing, social and cultural connections, and their identity. People value more than just the tangible aspects of the marine estate—the physical environment, food, shelter, or livelihood. Intangible aspects—beliefs, values, perceptions—are also important.

Aboriginal communities rely on Sea Country for their wellbeing as they maintain cultural practices and traditions. This includes collecting and sharing food from Sea Country, making traditional tools or art, performing music or dance, passing on or receiving cultural knowledge, and attending cultural ceremonies and celebrations.

The Framework allows us to expand beyond the traditional focus on environmental aspects of the marine estate. Incorporating wellbeing informs future threat and risks assessments and will facilitate an evidence base of social, cultural and economic data to assist with future decision-making.

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# Background context

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Increasing human populations and activities in and around the marine estate are increasing the pressure on environmental health; this affects community wellbeing.

Threats include climate change, water pollution, habitat loss, reduction in wildlife, pests and diseases, overcrowding, conflicting activities and illegal behaviours or activities. These threats will impact the provision of important social, cultural and economic benefits derived from the marine estate that contribute to the wellbeing of our communities.

To address these threats and improve or maintain the social, cultural, economic and environmental benefits derived by the marine estate, the NSW Government developed a coordinated, holistic, quadruple bottom-line approach to the management of the NSW marine estate – the Marine Estate Management Strategy.

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## Marine Estate Management Strategy

The *Marine Estate Management Act 2014* (the Act) requires the NSW Government to develop and implement a Strategy that outlines the vision and priorities for management of the marine estate. The Marine Estate Management Strategy 2018–2028 (MEMS) is the centrepiece of this approach with the vision:

***“A healthy coast and sea, managed for the greatest wellbeing of the community, now and into the future”***

To realise the marine estate vision, we are striving for better outcomes for the community, industry and the environment through improved planning and coordination.

This includes a new evidence-based approach that considers environmental, social, cultural and economic components. It recognises the importance of the \$15.4 billion ocean economy, and the 2.5% of total NSW employment. It underpins commercial industries such as fishing and aquaculture as well as international trade and tourism through the 4 major ports and its natural attractions (Deloitte 2022).

It also recognises that the community’s views are critical to improving how we all work collaboratively to manage, protect and enhance the NSW marine estate for future generations.

The 10-year MEMS is the first whole-of-government approach to identify management actions that address moderate and high-risk threats, and cumulative threats to the NSW marine estate. It addresses the priority threats to the social, cultural, economic and environmental benefits informed by a comprehensive, evidence-based statewide TARA.

It includes 53 actions across 9 interlinked initiatives to:

- Address priority, evidence-based threats
- Coordinate management of the marine estate as a single continuous system
- Complement related government reform processes, including commercial fishing, coastal and Crown land reforms.

The Framework is a key deliverable for initiative 8 under the Marine Estate Management Strategy – to improve the social, cultural and economic benefits that the NSW community derives from the marine estate.

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## Marine Integrated Monitoring Program

Progress towards implementing the MEMS and delivering the vision is measured and reported through the Marine Integrated Monitoring Program (MIMP).

The MIMP has 3 key purposes:

- a. Monitor the condition and trend of environmental assets and community benefits
- b. Evaluate the effectiveness of management initiatives and actions that aim to reduce priority threats and risks
- c. Fill key knowledge gaps that were identified as part of the statewide TARA process.

The MIMP is an important step in the adaptive management process for marine estate management; to monitor, evaluate and report.

This Framework report focuses on addressing the social, cultural and economic components of purposes 1 and 3 of the MIMP and is described below. The Framework also integrates relevant leading indicators and key performance indicators that were developed for purpose 2; although purpose 2 is not guided by this Framework.

Details on how the environmental component of the MIMP will be addressed has been developed and documented through another process, outlined in the Environmental Condition Framework.



Image: Port Stephens



## **Purpose 1 of the MIMP - Monitoring condition and trend of community benefits**

Monitoring community benefits, and the threats that pose a risk to these benefits, is a key component of the MIMP. This monitoring will allow the extent of impacts and reduction of risks to benefits to be tracked through time.

Monitoring of threats to community benefits will primarily focus on those that contributed to moderate or high risk levels in the statewide TARA, the 'priority threats'. In this context, the greatest threats were primarily related to environmental threats, resource use conflict and governance.

## **Purpose 2 of the MIMP – Evaluating the effectiveness of management initiatives and actions that aim to reduce priority threats and risk (out of scope)**

Purpose 2 is not part of this Framework. Instead, it is described in the Integrated Monitoring and Evaluation Framework for the Marine Integrated Monitoring Program (Aither 2019).

## **Purpose 3 of the MIMP - Filling key social, cultural and economic knowledge gaps identified in the statewide TARA**

The following knowledge gaps, based on inferred confidence ratings (as there is very limited evidence), were identified for the social, cultural and economic TARA:

- i. Resource use conflict (in particular overcrowding/congestion, loss or decline of marine industries)
- ii. Environmental (in particular wildlife disturbance, pests and diseases, modified hydrology/hydraulics and flow regime, sediment contamination and climate change)
- iii. Governance of the marine estate (in particular lack of community awareness of the marine estate)
- iv. Public safety (in particular wildlife interactions, seafood contamination, other water pollution/contamination affecting human health and safety)
- v. Critical knowledge gaps (inadequate social, cultural and economic information)
- vi. Loss of public access (in particular, limited or lack of access infrastructure to the marine estate, loss of public access)
- vii. Knowledge and awareness of the tangible and intangible benefits that Indigenous people derive from the marine estate.

Application of the Framework will directly address some of these knowledge gaps. Specific projects may also be developed to target key knowledge gaps.

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## **Other applications of the Framework for the Marine Estate Management Strategy**

The Framework may also be adapted to inform more targeted surveys of:

- Specific stakeholders – for example, recreational fishers, agency staff
- Topics – for example, climate change, water pollution.

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## **Data management**

Data collected will be stored in appropriate databases accompanied by metadata that comply with the appropriate standard. These are described in the Integrated Monitoring and Evaluation Framework for the Marine Integrated Monitoring Program (Aither 2019).

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# How the Community Wellbeing Framework was built

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We examined different aspects of community wellbeing as it relates to the marine estate and organised them from the most specific measures (indicators) through to the broadest (domains). Organising indicators in this way helps us build a cohesive picture of community wellbeing.

Once we had identified domains, attributes and themes, we developed indicators, invited expert review, refined the indicators and developed the testing measures. As we worked through the process, we refined the indicators we developed. This iterative process was key to developing the Framework.

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## Step 1: Identification of domains, attributes and indicator themes

Our aim was for the Framework to be universally applied while being specific to the context it was developed for. To develop the domains, we integrated 2 approaches: top-down (based in literature review and theory) and bottom-up (based on participatory approaches).

We started with a detailed literature review of wellbeing frameworks primarily related to the natural environment (see Appendix 1 for a summary).

To ensure the Framework was tailored to the local context, we also reviewed key documents that have guided the management of the NSW marine estate. Examples include:

- The NSW Marine Estate Community survey (Sweeney Research 2014)
- NSW Marine Estate Threat and Risk Assessment (BMT WBM 2017)
- Sea Countries of New South Wales report (Feary 2015)
- Summary of Aboriginal engagement on the draft Threat and Risk Assessment (Origin Communications Australia 2017)
- The Marine Estate Management Strategy (MEMA 2018).

The NSW marine estate community survey was vital to ensuring we measure what matters to our community. The survey explored the values, benefits, threats and attitudes of more than 1,700 participants. A summary of this evidence and relevance to domains, attributes and indicator themes is outlined Appendix 2.

The domains that emerged as being important to the NSW community are in Figure 1. They were:

- 1. Community use, health and safety**
- 2. Community awareness and environmental stewardship**
- 3. Culture and heritage**
- 4. Economic benefits**
- 5. Governance and management**

We chose these names as they are easily understood by a wide range of audiences. We took this approach with the language for categories and indicators used throughout the Framework.

Cross-cutting indicators have been identified and displayed separately as these indicators cut across all domains (for example, environmental health and impact indicators).

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## Step 2: Development of indicators

Our analysis shows that we could use indicators already developed to assess the effectiveness of the Marine Estate Management Strategy as part of the Marine Integrated Monitoring and Evaluation Framework.

A gap analysis identified the need for additional wellbeing indicators, some of which were not part of the 'usual' human wellbeing indicators, so they were included as we developed this Framework.

The indicators in this Framework include objective and subjective measures:

- Subjective indicators include aspects such as beliefs, values and perceptions.
- Objective indicators include aspects such as income and employment.

We need both types of measures because they work together to tell us how the marine estate contributes to the wellbeing of communities and what matters to people.

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## Step 3: Review of the draft Framework

An expert community wellbeing working group reviewed the draft Framework (drafted by DPI) and the broad approach to implementing the Framework.

The working group comprised:

- 2 independent social research experts
- 2 social science experts from the NSW Marine Estate Expert Knowledge Panel (MEEKP)
- MEMA agency staff with social, Aboriginal, and economic expertise.

Two separate workshops were held to review and refine the Framework.

The purpose of the first workshop was to test the validity of the Framework (domains, attributes, indicators), focusing on the following questions:

- Are the domains and attributes necessary to provide a comprehensive and easily understood index of community wellbeing related to marine estate management in NSW both now and into the future?
- Are the draft indicators relevant, clear and simple, and practical and realistic to measure?
- How can indicators be prioritised?
- What are the most important indicators to invest in?

The purpose of the second workshop was to finalise the broad approach for implementing the Framework, including discussing the merits of different survey methodologies, sampling designs, question types, and data analysis proposed.

An Aboriginal culture and heritage working group was also formed to provide strategic oversight for the development of the cultural and heritage dimension of this Framework. This working group met several times to review the attributes, indicator themes and indicators and methodologies for data collection.

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## Step 4: Prioritisation of indicators for statewide monitoring

The Framework is comprehensive, but MEMA agencies need to work strategically and within available resources. For this reason, we identified priority indicators for monitoring. This was based on whether an indicator would:

- Provide data on a key community benefit
- Provide data on a priority threat
- Contribute towards filling a key knowledge gap identified in the NSW Statewide Threat and Risk Assessment
- Be influenced by work undertaken in the Marine Estate Management Strategy initiatives.

We did this work as part of the design and implementation of the community wellbeing surveys – a statewide monitoring program with 4 key audiences: coastal residents, coastal visitors, youth (aged 14–17 years) and Aboriginal peoples.

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## Step 5: Development of measures and units for priority indicators

Once we had identified the priority indicators, we had to work out how to measure them and what units of measurement were most suitable. We did this work through the statewide community wellbeing monitoring surveys (tables 1-6). This was the first application of the Framework.

The community wellbeing surveys are part of a long-term monitoring program. So cognitive testing was done as part of the development of the surveys. The aim of cognitive testing was to ensure:

- Questionnaire validity (that questions were understood, consistently interpreted and measured what they were intended to measure)
- The questionnaire flowed in a logical order
- Individual questions were relevant and no crucial question areas were missing.

This body of cognitive testing aimed to investigate how participants interpreted and responded to the draft versions of the questionnaire as it was being developed. The purpose was to ensure the surveys were appropriately designed from the start and would be a sustainable research tool.



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# Application of the Framework for statewide monitoring

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The Framework is presented in tables 1–6 to:

- Present the conceptual framework
- Show what is being currently monitored in the NSW statewide community wellbeing surveys.

The tables identify the priority indicators and baseline data that has been collected through our statewide community wellbeing monitoring program, which had **4 key audiences**:

## 2,180 NSW Coastal Residents

Baseline data on the way people who reside in coastal NSW benefit from the marine estate and impacts to these benefits, as well as views on the management of the marine estate.

## 1,146 NSW Coastal Visitors

Baseline data on the way people who visit the NSW marine estate benefit from the marine estate and impacts to these benefits, as well as views on the management of the marine estate.

## 854 NSW Coastal Residents aged 14-17

Baseline data on the way youth benefit from the marine estate and impacts to these benefits, as well as views on the management of the NSW marine estate

## 562 Sea Country interviews with Coastal Aboriginal people across 11 coastal locations

Baseline data on the ways Aboriginal people value and culturally connect to Sea Country and impacts to these connections.

More details about the statewide community surveys are provided in the baseline community wellbeing survey reports found at [marine.nsw.gov.au](http://marine.nsw.gov.au). Details include the methods used, questions used and findings.

Framework indicators that are related to a MEMS indicator are also identified. This applies when an indicator was developed for Purpose 2 of the MIMP and listed in the [Integrated Monitoring and Evaluation Framework for the Marine Integrated Monitoring Program](#) (Aither 2019).

Where data is unable to be collected against specific indicators due to resourcing constraints, a 'placeholder' has been included in tables 1–6.

This Framework is a live document and will be reviewed as required to ensure it remains appropriate and practical.



Figure 1. The 5 domains of wellbeing that are important to the NSW community

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## Domain 1: Community use, health and safety

People use the marine estate in many ways, such as:

- Diving, snorkelling, swimming, recreational boating and fishing
- Socialising and building a sense of community with family and friends
- Connecting with nature, walking, or taking in the spectacular coastal view.

Community surveys suggest the marine estate is an important place for the whole community to take time out from their day-to-day lives and escape and relax. Passive recreation and leisure activities provide important health benefits (such as reducing stress hormones, improving mood, reducing anxiety and depression, enabling calming and relaxing). There are also health benefits associated with seafood consumption and active lifestyles.

These activities are all essential to our physical, mental and emotional health. Safety of the public while using the marine estate is also critical to wellbeing.

### The main attributes to emerge in this domain relate to 3 key areas:

- 1. Community health**
- 2. Access, amenity and safe-use**
- 3. Resource-use patterns.**

Eleven indicator themes and 25 indicators were identified around these attributes.



Image: Royal National Park, Jibbon Loop Track

Table 1. Community use, health and safety domain

Attribute	Indicator theme	Indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Community health</b>	<b>Quality of life</b>	Contribution of the marine estate to quality of life	x	x	x	x	Importance	0-10	KPI 3
		Satisfaction with 'life as a whole' (Global life satisfaction)	x	x	x		Satisfaction	0-10	
		Satisfaction with overall Personal wellbeing (Personal wellbeing index).					Satisfaction	0-10	
<b>Health</b>		Importance of the marine estate to physical health	x	x	x	x	Importance	0-10	KPI 3
		Importance of the marine estate to emotional and mental health	x	x	x	x	Importance	0-10	KPI 3
<b>Consumptive use</b>		Importance of subsistence fishing and gathering in the marine estate to nutritional needs			x		Importance	0-10	KPI 3
		Importance of seafood (self-caught or bought) from the marine estate to nutritional needs	x	x			Importance	0-10	KPI 3
		Importance the community puts on the provision of locally sourced (NSW) seafood	x	x			Importance	0-10	
		Satisfaction with access to locally sourced (NSW) seafood from Industry							
<b>Socialising &amp; sense of community</b>		Importance of the marine estate to spending time with family/friends/community	x	x	x	x	Importance	0-10	KPI 3
		Participation in marine estate activities with family/friends/community							
<b>Enjoyment</b>		Satisfaction with marine estate experience							KPI 8 and 9
		Enhanced opportunities for activities relating to the marine estate			x				LI 23
		Enhanced experiences for activities relating to the marine estate							LI 23



Attribute	Indicator theme	Indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Access, amenity and safe-use</b>	<b>Access</b>	Satisfaction with accessibility (physical) of the marine estate to undertake particular activities							
	<b>Amenities/ Infrastructure</b>	Satisfaction with visual quality of coastal land and sea scapes							
		Satisfaction with quantity of infrastructure to support marine estate activities							
		Satisfaction with quality of infrastructure to support use of the marine estate (e.g. appropriate, safe, reliable)							
	<b>Safe use</b>	Feelings of safety when using the marine estate	x	x			Agreement	0–10	
<b>Resource-use patterns</b>	<b>Demographics</b>	Who uses/visits the marine estate? (e.g. age, gender, ethnicity, postcode)	x	x	x	x	Frequency	Categorical	
	<b>Spatial &amp; temporal patterns</b>	Where people visit the marine estate		x			Frequency	Categorical	
		How often people visit the marine estate	x	x	x	x	Frequency	Categorical	
		When do people visit the marine estate							
	<b>Activity type/ frequency</b>	What people do when they visit the marine estate	x	x	x	x	Participation	yes/no	KPI 3
Main activity undertaken when visiting the marine estate		x	x			Participation	yes/no		



Image: NSW South Coast

## Domain 2: Community awareness and environmental stewardship

Being in nature allows people to connect with each other and with nature. The ecological understanding an awareness this can bring – both formally and informally through personal experiences – is an important component of enjoying the biodiversity and beauty of the marine estate. Place-based learning contributes to this process.

The resulting sense of ‘ecological identity’ shows a concern for other life forms, desire for coexistence, and demonstrated through expressions of environmental stewardship. This understanding typically has positive impacts on other social values, provides opportunities for interaction and fosters a sense of environmental stewardship. Environmental stewardship is the responsible use and protection of the marine environment through sustainable practices and conservation activities.

### The main attributes to emerge in this domain relate to 2 key areas:

#### 1. Awareness knowledge and appreciation

#### 2. Environmental stewardship.

Four indicator themes and 17 indicators were identified around these attributes.

Table 2. Awareness, knowledge & appreciation domain

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Relates to MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Awareness, knowledge &amp; appreciation</b>	<b>Awareness &amp; appreciation</b>	Awareness of benefits to the marine estate	x	x		x	Awareness	Categorical	LI 10 LI 27
		Awareness of threats to the marine estate	x	x		x	Awareness	Categorical	LI 10
		Awareness of the significance of Sea Country values by non-Aboriginal people	x	x		x	Awareness	Categorical	KPI 13
		Appreciation of the significance of Sea Country values by non-Aboriginal people			x		Agreement	0-10	KPI 13
		Awareness of agencies' respective responsibilities in managing the marine estate	x	x			Awareness	Categorical	LI 24
		Awareness of key terms used to describe the NSW coast	x	x		x	Awareness	Categorical	
		Understanding of rules and regulations related to use of the marine estate	x	x			Understanding	Categorical	LI 21
<b>Knowledge</b>	<b>Knowledge</b>	Knowledge of key benefits to the marine estate							
		Knowledge of key threats to the marine estate							
		Knowledge of key natural features of the marine estate (e.g. endemism, East Australian Current)							

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Relates to MEMS indicator (MIMP - Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Environmental stewardship</b>	<b>Environmental attitudes</b>	Concern about environmental problems in NSW marine estate (e.g. climate change, pollution, habitat loss)	x	x	x	x	Concern	Categorical	
		Concern about global environmental problems (e.g. climate change, deforestation, loss of biodiversity, pollution)	x	x	x	x	Concern	Categorical	
		Sense of personal responsibility towards maintaining a healthy marine estate	x	x		x	Agreement	0-10	
		Support for environmental regulations-in the marine estate							
	<b>Environmental behaviours</b>	Participation in marine estate stewardship activities (e.g. picking up litter)	x	x		x	Participation	yes/no	
	Compliance with rules, regulations, or best practice to reduce threats to environmental assets or social benefits	x	x		x	Frequency	Categorical	KPI 15	
	Attitudes and behaviours that align with safe use of the marine estate (related to a particular activity)								



Image: Wagonga Rangers litter removal – “caring for country”. Location: Handkerchief Beach Narooma.

## Domain 3: Culture and heritage

The marine estate is Sea Country of several Aboriginal nations, who derive tangible and spiritual benefits from their relationship with Sea Country. Cultural fishing for community wellbeing is a significant benefit.

Aboriginal cultural heritage and use are reflected in tradition, cultural practices, language, stories and significant places, including Aboriginal cultural uses. This knowledge is passed on through generations to ensure continuity of culture.

Reference to heritage includes the non-Aboriginal generational connections to place and culture, multi-generational interactions with natural resources and archaeological and historic sites. Many people report a strong, sentimental attachment to this space as it represents their own identity and their identity as a member of the broader NSW community.

### The main attributes to emerge in this domain relate to 3 key areas:

- 1. Aboriginal cultural values and practices**
- 2. Community connections to place and culture**
- 3. Non-Aboriginal culture (e.g. Historic maritime heritage).**

Four indicator themes and 24 indicators were identified around these attributes.



Image: “Importance of Sea Country for quality of Life” food resources –cultural fishing. Location: Wallaga Lake.

Table 3. Culture and heritage domain

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Aboriginal cultural values &amp; practices</b>	<b>Values, relationships</b>	Frequency of participation in cultural activities or traditions on Sea Country			x		Frequency	Categorical	KPI 3
		Fishing and gathering of food from Sea Country			x		Participation	yes/no	KPI 3
		Collection of Sea Country resources for 'non-food' purposes (e.g. art, tool-making, medicines)			x		Participation	yes/no	KPI 3
		Use of Sea Country materials to make traditional tools and equipment (e.g. baskets, boomerangs)			x		Participation	yes/no	KPI 3
		Participation in recreational activities to connect with Sea Country			x		Participation	yes/no	KPI 3
		Participation in cultural ceremonies and celebrations about Sea Country, held on Sea Country sites, or that use Sea Country resources			x		Participation	yes/no	KPI 3
		Sense of cultural responsibility to care for Sea Country			x		Agreement	0–10	
		Exchange of cultural knowledge about Sea Country			x		Participation	yes/no	KPI 3
		Performance of Aboriginal music, or dance, or creation of artworks related to Sea Country			x		Participation	yes/no	
		Use of cultural knowledge to understand the natural environment (e.g movements of wildlife)			x		Participation	yes/no	KPI 3
		Participation in activities related to 'Caring for Sea Country'			x		Participation	yes/no	
		Personal connection to totemic and culturally significant Sea Country species			x		Qualitative		
		Personal connection to particular Sea Country areas/ locations			x		Qualitative		
Importance of Sea Country to cost of living (e.g. catching seafood instead of buying it) - does not include employment			x		Importance	0–10	KPI 3		

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Community connection to place, culture &amp; nature</b>	<b>Connections</b>	Importance of the marine estate for connecting with nature	x	x		x	Importance	0–10	
		Personal connection to the marine estate	x	x		x	Agreement	0–10	
		Personal connection with specific locations within the marine estate							
	<b>Identity</b>	Importance of the marine estate to personal identity	x	x		x	Agreement	0–10	
		Sense of pride in the marine estate	x				Agreement	0–10	
		Contribution of Sea Country to cultural identity			x		Importance	0–10	KPI 3
		Contribution of Sea Country to spirituality			x		Importance	0–10	KPI 3
<b>Non-Aboriginal culture &amp; heritage</b>	<b>Heritage</b>	Importance of preserving maritime heritage (e.g. lighthouses, shipwrecks)	x	x			Importance	0–10	
		Identification of (culturally significant) historic maritime heritage sites							
		Number of historic maritime heritage sites with active management plans							



Image: Barrenjoey Head, Palm Beach

## Domain 4: Economic benefits

The marine estate supports industries that deliver social and economic benefits to community wellbeing, including active employment, fresh seafood and opportunities for nature-based tourism. Businesses such as fishing, aquaculture and marine tourism provide a livelihood for many people and their communities.

This domain has largely been informed by the NSW marine estate economic contribution report. The first economic report provided a baseline. We will be able to monitor trends in the economic health of the marine estate as we repeat the review in the future. The report estimated:

- The economic contribution of NSW marine-dependent industries to the NSW economy.

We will develop additional economic benefits indicators to better understand the various economic benefits provided by the NSW marine estate. Work is progressing on a natural capital accounting approach to develop our understanding in this area.

Table 4. Economic benefits domain<sup>1</sup>

Attribute	Indicator theme	Broad indicator	Data source – economic contribution report	Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
<b>Market contribution of marine dependent industries and businesses to the NSW Economy</b>	<b>Market</b>	Economic value of the marine estate	x	Value added	\$	KPI 11
				Income	\$	KPI 11
				Employment	number	KPI 11

<sup>1</sup> The total economic value of the NSW marine estate is made up of use and non-use values. Important non-use values include intrinsic (existence) and bequest values. The Framework includes indicators for intrinsic (existence) and bequest values in the section on cross-cutting indicators (Table 6). The Framework also contains other indicators that communicate economic benefits such as Domain 1: Community use, health and safety relating to recreational use of the marine estate.



Image: Coffs Harbour

## Domain 5: Governance and management

The way the marine estate is governed affects the wellbeing of the NSW community through:

- Governance between systems and community –with themes of transparency, inclusiveness, participation, equity and fairness, and trust in decision-making processes concerning the marine estate
- Governance and management within responsible government agencies –with themes of coordination, consistency, efficiency and effectiveness concerning the marine estate.

**The main attributes to emerge in this domain relate to 2 key areas:**

**1. Effective integration between governance processes and community**

**2. Effective governance systems.**

**Seven indicator themes and 29 indicators were identified around these attributes.**

Table 5. Governance and management domain

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Effective integration between governance processes &amp; community</b>	<b>Transparency &amp; inclusiveness</b>	Satisfaction with opportunities for input into governance	x		x		Satisfaction	0–10	KPI 12
		Satisfaction with access to information on decision-making processes (transparency)	x		x		Satisfaction	0–10	KPI 12
		Satisfaction with clarity of information on decision-making processes (communication)	x		x		Satisfaction	0–10	KPI 12
<b>Equity &amp; Fairness</b>	<b>Equity &amp; Fairness</b>	Inter-generational equity in marine estate-related decision-making (e.g. precautionary principle)							
		Decision-making supports fair outcomes							
		Intra-generational equity in marine estate related decision-making							
		Satisfaction that management arrangements related to the marine estate are fair and equitable							
<b>Trust</b>	<b>Trust</b>	Confidence in governing bodies to achieve management objective	x	x			Confidence	Categorical	
<b>Evidence-based decision-making</b>	<b>Evidence-based decision-making</b>	Acceptance of different knowledge systems as valid inputs into decision-making process (e.g. scientific, cultural, local knowledge)							
		Satisfaction that decision-making is evidence-based							



Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Effective integration between governance processes &amp; community</b>	<b>Sea Country Management</b>	Satisfaction that cultural knowledge is used in decision-making			x		Satisfaction	0–10	
		Satisfaction with engagement around Sea Country management			x		Satisfaction	0–10	KPI 6
		Satisfaction that culturally significant sites (on land and underwater) will be preserved			x		Satisfaction	0–10	
		Satisfaction that management of Sea Country allows for practice of cultural activities and traditions			x		Satisfaction	0–10	
		Aboriginal group or individual participation in Sea Country management, planning and monitoring							LI 13
		Aboriginal participants satisfaction with events, activities or programs for involvement in Sea Country management, planning and monitoring							LI 15
		Recognition and demonstrated understanding of Aboriginal cultural values, roles and responsibilities in managing Sea Country (responsible agencies)							LI 17
		Identification, recognition and registration of culturally significant sites and areas (land and underwater)							
		Opportunities for formal management of Sea Country (Aboriginal communities/ government agencies)			x		Agreement	0–10	
		Aboriginal employment in industries relating to the marine estate			x		Participation	Categorical	KPI 7
		Satisfaction that management of Sea Country recognises Aboriginal cultural rights			x		Satisfaction	0–10	
		Area of Sea Country under formal management agreements							LI 14
Number of programs or agreements initiated by Aboriginal groups or individuals for managing Sea Country							LI 16		

Attribute	Indicator theme	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
			Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Effective governance system</b>	<b>Coordination, consistency, efficiency &amp; effectiveness</b>	Satisfaction with governance of the marine estate (co-ordination; consistency; transparency; inclusiveness)						KPI 12	
		Satisfaction with governance of the marine estate (efficiency and effectiveness)						KPI 16	
		Confidence with capacity to fulfil governance roles and responsibilities						LI 11	
		Clarity of roles, responsibilities and accountabilities for managing the marine estate						LI 5	
		Improved processing times for regulatory processes and approvals						LI 6	
<b>Evidence-based decision-making</b>		Use of information relating to social, cultural, economic and environmental values (in strategies, plans, programs and decision-making processes)						LI 7	



Image: Coffs Harbour & District Local Aboriginal Land Council

## Cross-cutting indicators

Cross-cutting indicators are relevant to all 5 domains as they relate to the value and health of the natural environment. Our environment is the source of our continued wellbeing. It is essential to the quality of life of individuals and broader society. Nature has intrinsic value. People can place a high level of intrinsic value on the diversity and abundance of marine life in the marine estate. Also important is the bequest value – this is the value of knowing the resources in the marine estate will be available for future generations to enjoy and appreciate.

**These cross-cutting indicators are grouped into 3 key attributes:**

- 1. Environmental health**
- 2. Intrinsic and bequest values**
- 3. Impacts.**

Table 6. Cross-cutting indicators

Attribute	Broad indicator	Data source – statewide surveys				Measure	Scale	Related MEMS indicator (MIMP-Purpose 2)
		Coastal residents	Coastal visitors	Sea Country	Youth			
<b>Environmental health</b>	Importance of the health of Sea Country for preserving Aboriginal cultures and traditions			x		Agreement	0–10	
	Perceived health of the marine estate	x	x	x	x	Health	Categorical	
	Importance of the health of the marine estate for preserving social benefits (related to an activity)							
<b>Intrinsic &amp; bequest values</b>	Bequest value of a healthy marine estate	x	x		x	Importance	0–10	
	Intrinsic (existence) value of a healthy marine estate	x	x		x	Importance	0–10	
<b>Impacts</b>	Impact of key threats on cultural connections to Sea Country			x		Impact	0–10	KPI 3
	Impact of key threats on personal experience of the marine estate	x	x		x	Impact	0–10	KPI 3



Image: Solitary Island Marine Park

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# Abbreviations

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<b>CIW</b>	Canadian Index of Wellbeing
<b>DPI</b>	Department of Primary Industry
<b>MEMA</b>	Marine Estate Management Authority
<b>MEMS</b>	Marine Estate Management Strategy
<b>MIMP</b>	Marine Integrated Monitoring Program
<b>NSW</b>	New South Wales
<b>TARA</b>	Threat And Risk Assessment

# Appendix 1. Other wellbeing frameworks

Wellbeing frameworks	Description	Domains used
Better Life Initiative (OECD) OECD (2011)	Focuses on developing statistics that can capture aspects of life that matter to people and that, taken together, help to shape the quality of their lives.	<p><b>Material conditions</b> (income and wealth; jobs and earnings; housing).</p> <p><b>Quality of life</b> (health status; work-life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; subjective wellbeing).</p> <p><b>Sustainability</b> (Natural, human, economic and social capital).</p>
World Health Organization Quality of Life (WHOQOL) World Health Organization (1998)	The World Health Organization Quality of Life formed one of the early pieces in the multi-dimensional wellbeing research.	<ul style="list-style-type: none"> <li>• Psychological domain</li> <li>• Physical domain</li> <li>• Environment</li> <li>• A level of independence</li> <li>• Social relationships</li> <li>• Personal beliefs/spirituality/religion</li> </ul>
Measuring Australia's Progress (MAP) ABS (2002)	Measuring of Australia's Progress presents a suite of indicators to help Australians answer the question, 'Is life in Australia getting better?' MAP aligns key information with the hopes and aspirations of Australians. It provides a summary of progress measures informing on areas of life that Australians told us were important for national progress.	<p><b>Society</b> (health; close relationships; home; safety; learning and knowledge; community connections and diversity; a fair go; enriched lives).</p> <p><b>Economy</b> (opportunities; jobs; prosperity; a resilient economy; enhancing living standards; fair outcomes; international economic engagement).</p> <p><b>Environment</b> (healthy natural environment; appreciating the environment; protecting the environment; sustaining the environment; healthy built environments; working together for a health environment).</p> <p><b>Governance</b> (trust; effective governance; participation; informed public debate; people's rights and responsibilities).</p>
The Living Standards Framework New Zealand Government (2021)	The Living Standards Framework is a high-level framework on intergenerational wellbeing and is designed to support the Treasury's policy advice. Provides insights into key aspects of current and future wellbeing.	<ul style="list-style-type: none"> <li>• Civic engagement and governance</li> <li>• Cultural identity</li> <li>• Environment</li> <li>• Health</li> <li>• Housing</li> <li>• Knowledge and skills</li> <li>• Income and consumption</li> <li>• Jobs and Earnings</li> <li>• Safety</li> <li>• Social connections</li> <li>• Subjective wellbeing</li> <li>• Time use</li> </ul>

Wellbeing frameworks	Description	Domains used
Interplay Wellbeing Framework (Aboriginal) Cairney et al. (2017)	The 'Interplay Wellbeing Framework' was developed bringing together government priorities (based on national 'Closing the Gap' policies) of education, employment and health, together with community identified priorities of culture, empowerment and community.	<ul style="list-style-type: none"> <li>• Health</li> <li>• Empowerment</li> <li>• Employment</li> <li>• Culture</li> <li>• Education</li> <li>• Community</li> </ul>
RIMREP Human Dimensions Monitoring Program Gooch et al. (2019)	This conceptual framework identifies appropriate sets of indicators for characterising the desired state of the Reef's human dimensions at the whole-of-Reef and regional scales.	<ul style="list-style-type: none"> <li>• Aspirations, capacity and stewardship</li> <li>• Community Vitality</li> <li>• Culture and Heritage</li> <li>• Economic values</li> <li>• Governance</li> </ul>
The Social and Economic Long-term Monitoring Program for the Great Barrier Reef Marshall et al. (2014)	The Social and Economic Long-term Monitoring Program (SELTMP) for the Great Barrier Reef is assisting Reef managers and other decision-makers within the Great Barrier Reef region to incorporate the human dimension into their planning and management. SELTMP gathers long-term data specific to Reef users, communities and industries, enabling new insights into relationships, vulnerabilities and dependencies between people and the natural resource.	<p><b>Opportunities</b> refers to the perceived range of options that are related to access to the Great Barrier Reef for different purposes, the development and maintenance of Reef-dependent industries, direct employment in these industries and Reef management (e.g. contribution to livelihoods; recreational &amp; spiritual opportunities; skills &amp; capacity building for sustainable use and management).</p> <p><b>Empowerment</b> refers to the perception that people's needs are acknowledged and has been taken into account, and the ability of people to contribute to decision-making processes (e.g. people perceive that their needs around the Reef are acknowledged; contribution to decision-making; knowledge and stewardship).</p> <p><b>Security</b> refers to perceptions of social stability, environmental sustainability and environmental quality that the Reef and its management provides to individuals and communities (e.g. perceptions of Reef quality and sustainability; amenity and aesthetics; Confidence in Reef management).</p>
NOAA Breslow et al. (2016)	It developed a detailed conceptual framework of human wellbeing to guide the selection and analysis of social indicators for integrated ecosystem assessment.	<ul style="list-style-type: none"> <li>• Tangible Connections to Nature</li> <li>• Intangible Connections to Nature</li> <li>• Culture &amp; Identity</li> <li>• Social Relationships</li> <li>• Livelihoods &amp; Activities</li> <li>• Knowledge &amp; Technology</li> <li>• Freedom &amp; Voice</li> <li>• Governance &amp; Management</li> <li>• Health</li> <li>• Safety</li> <li>• Economy</li> <li>• Environment</li> </ul>

Wellbeing frameworks	Description	Domains used
Social and Economic Evaluation of NSW Coastal Professional Wild-Catch Fisheries Voyer et al. (2016)	Evaluate the economic and social contribution of professional fisheries and establish a methodology to be used for ongoing social and economic evaluations.	<ul style="list-style-type: none"> <li>• A resilient local economy</li> <li>• Community health and safety</li> <li>• Education and knowledge generation</li> <li>• A healthy environment</li> <li>• Integrated, culturally diverse and vibrant communities</li> <li>• Cultural heritage and community</li> <li>• Leisure and recreation</li> </ul>
Regional wellbeing survey Schirmer et al. (2015)	Examines the wellbeing of rural and regional communities, and how this wellbeing is influenced by the many social, economic and environmental changes occurring in these communities	<ul style="list-style-type: none"> <li>• Financial capital</li> <li>• Human capital</li> <li>• Institutional capital</li> <li>• Social capital</li> <li>• Physical capital and liveability</li> <li>• Natural capital</li> </ul>
Canadian Index of Wellbeing Canadian Index of Wellbeing (2016)	National index report of the Canadian Index of Wellbeing (CIW) that tracks changes in 8 quality of life categories or domains.	<ul style="list-style-type: none"> <li>• Community vitality</li> <li>• Democratic engagement</li> <li>• Education</li> <li>• Environment</li> <li>• Healthy populations</li> <li>• Leisure and culture</li> <li>• Living standards</li> <li>• Time use</li> </ul>



# Appendix 2. Evidence used to develop the Community Wellbeing Framework

## Domain 1: Community use, health and safety

Attribute	Indicator theme	Reference
<b>Community health</b>	<b>Quality of life</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>Community members and marine estate interest/user groups in particular feel their interactions with the marine estate afford them the opportunity to strengthen relationships with family members as well as make new connections with like-minded people (for example, by joining clubs).</li> <li>The marine estate is recognised as providing a safe space to spend quality time and socialise with friends and family.</li> <li>The marine estate provides an opportunity to live a healthy and active lifestyle.</li> <li>Exercising in the natural environment has benefits on emotional and mental health.</li> <li>68% of respondents agreed that it is important that the marine estate produces a local source of seafood for industry and personal and cultural use.</li> <li>The physical and mental health benefits currently derived from the marine estate are expected to decline if the health of the marine estate was compromised.</li> </ul> <p>The statewide TARA (BMT WBM 2017) identified:</p> <ul style="list-style-type: none"> <li>Water pollution impacts on safety, health and wellbeing are mostly related to recreation and enjoyment from short-term and localised beach closures following storm events.</li> <li>The impacts of marine debris and littering on health safety and wellbeing refer mostly to impacts on enjoyment and recreation associated with activities in the marine estate.</li> <li>Climate change impacts with increased frequency and severity of storm and erosion events will result in implications for socialisation and sense of community.</li> <li>A loss of enjoyment for visitors accessing locally caught seafood, including as a tourism product, is associated with coastal holidays as a consequence of reduction in abundance of species and tropic levels stressor.</li> <li>Mental health impacts for people in the fishing industry resulting from a number of stressors including area closures. These impacts include stress and anxiety on fishers and their families.</li> <li>Perceptions about illegal fishing activities can impact on community cohesion and harmony.</li> </ul> <p>Conservation management (especially marine parks) can come into conflict with existing recreational fishing uses and this can impact on the social acceptability of those measures, cause conflict and division within the community and exacerbate existing tensions between users.</p>
	<b>Health</b>	
	<b>Consumptive use</b>	
	<b>Socialising and sense of community</b>	
	<b>Enjoyment</b>	

Attribute	Indicator theme	Reference
<b>Access, amenity and safe-use</b>	<b>Access</b>	The NSW marine estate community survey (Sweeney Research 2014) identified:
	<b>Safe use</b>	<ul style="list-style-type: none"> <li>Without easy and unhindered access to the marine estate, many people in NSW feel that their deeper connection to the estate is under threat. This not only underpins the need for up-to-date and reliable infrastructure access, but also the need to provide access to safe marine areas. For example, fishing and anchoring restrictions can limit access to sheltered waters for fishing, boating. This is an impact on feelings of safety.</li> </ul>
	<b>Amenities and infrastructure</b>	<p>The statewide TARA (BMT WBM 2017) identified:</p> <ul style="list-style-type: none"> <li>Many of the social and economic benefits rely on people being able to access the state's waterways by boat, either through land-based infrastructure (such as boat ramps) or water-based infrastructure (such as moorings). Vessel ownership in NSW is forecast to grow, placing increased pressure on the need for boat storage and waterways access infrastructure.</li> <li>The marine estate is recognised as providing a safe space to spend quality time and socialise with friends and family.</li> <li>Anti-social behaviour and overcrowding are seen as key social threats to the safety and enjoyment of people that use the marine estate.</li> <li>Safety -A significant value is attributed by the community in particular to feeling comfortable when swimming without fear of coming into contact with harmful chemicals, as well as the protection offered to members of the public from services provided by organisations such as Surf Life Saving NSW.</li> <li>The impacts of marine debris and littering can affect safety (for example, exposure to glass and other sharp objects, syringes, human or animal waste).</li> <li>Loss of amenity associated with pollution from septic runoff, point-source pollution, and sewage overflows are likely to significantly impact people's relationship with the coast and their ability to appreciate marine biodiversity.</li> </ul>
<b>Resource-use patterns</b>	<b>Demographics</b>	The NSW marine estate community survey (Sweeney Research 2014) identified:
	<b>Spatial and temporal patterns</b>	<ul style="list-style-type: none"> <li>Many people enjoy and value the range of different activities and uses the marine estate offers them. For the Indigenous community, the marine estate offers a choice to return to the lifestyle that underpins their cultural and spiritual beliefs.</li> </ul>
	<b>Activity type or frequency</b>	<ul style="list-style-type: none"> <li>Walking or exercising in the marine estate, as well as swimming, surfing and socialising, are the most common recreational activities.</li> </ul> <p>The statewide TARA (BMT WBM 2017) identified the following:</p> <ul style="list-style-type: none"> <li>There were numerous concerns about, and examples of, conflict over resource use and access, such as illegal camping in parks and headlands in the marine estate, kite surfing, power boats used by dive operators, and tension between the local community and tourists.</li> <li>Different sections of the community seek different benefits from their recreational activities. Some of the activities are incompatible (for example, jet skis versus quiet contemplation); increased population and increasing competition for use of the marine estate is likely to impact some individuals and groups more than others.</li> </ul>

## Domain 2: Community awareness and environmental stewardship

Attribute	Indicator theme	Reference
<b>Awareness, knowledge and appreciation</b>	<b>Awareness and appreciation</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>• Scientific discovery as well as personal experience based on interactions with the marine estate provide the benefit of increased personal and collective knowledge.</li> <li>• Education programs are considered an important way to engage the community and offer people a sense of ownership and responsibility for the marine estate.</li> </ul> <p>The TARA identified a lack of knowledge and awareness of the marine estate may detract from the full extent to which people can appreciate and enjoy the benefits it provides. It may also influence the extent to which the community supports difficult management decisions considered necessary for environmental protection.</p>
	<b>Knowledge</b>	
<b>Environmental stewardship</b>	<b>Environmental attitudes</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>• People in the community feel they are personally responsible for the protection and ongoing maintenance of the estate.</li> <li>• Indigenous communities desire to be more heavily involved in the development of management strategies for the marine estate.</li> <li>• Commercial and recreational fishers both recognise the need to conserve and support marine life so that future generations will be able to appreciate the marine estate as they have.</li> </ul>
	<b>Environmental behaviours</b>	

## Domain 3: Culture and heritage

Attribute	Indicator theme	Reference
<b>Aboriginal cultural values and practices</b>	<b>Values, relationships</b> <hr/> <b>Caring for Sea Country (management)</b> <hr/>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>• The qualitative research showed that the social benefits of the marine estate are amplified in coastal Aboriginal communities. Many of the core traditions that underpin Aboriginal culture are fundamentally linked to the marine estate.</li> <li>• Aboriginal communities place great importance on the value of the marine estate as a source through which social structures and practices are maintained and reinforced.</li> <li>• Among the Aboriginal community, there is a strong historic, contemporary and spiritual link with the marine estate. This link drives a key feeling of national and personal identity for those members of the Indigenous community that live in or around the estate.</li> <li>• Many Aboriginal community members feel that there needs to be a greater recognition of Aboriginal links and understanding of the land when management decisions are made.</li> <li>• Aboriginal communities also wish to be involved with the development of management policies right from inception. There has often been a strong feeling in these communities that strategies are forced on them without proper consideration for their cultural, social and spiritual needs.</li> </ul> <p>The statewide TARA (BMT WBM 2017) identified:</p> <ul style="list-style-type: none"> <li>• There are high-risk threats that cumulatively impact up Aboriginal cultural heritage associated with Sea Country. There are also significant knowledge gaps relating to cultural values.</li> <li>• Aboriginal people and their cultural values are not currently appropriately represented or engaged in management of the marine estate.</li> <li>• Habitat (physical disturbance) from human activity such as dredging, fishing, boat anchors and other human activities that can cause damage to heritage sites and to places associated with cultural practices and traditions and to totemic or culturally significant species.</li> <li>• Water pollution can impact on tangible Aboriginal cultural heritage, such as sources of food, and can also cause damage to places associated with cultural practices and traditions.</li> <li>• Risk to tangible and intangible Aboriginal cultural heritage relates to equitable resource allocation and particularly to community attitudes and beliefs around which sectors should be prioritised in resource allocation exercises. Aspirations around improved cultural fishing rights are likely to be resisted by other sectors and conflict will increase as these rights are pursued.</li> </ul>
<b>Community connections to place &amp; culture</b>	<b>Attachment to place</b> <hr/> <b>Identity</b> <hr/> <b>Connections</b> <hr/>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>• That many people report a strong, sentimental attachment to this space as it represents both their own identity and their identity as a member of the broader NSW community. As part of this, the community not only feels a strong cultural connection to the estate but also feels personally responsible for the protection and ongoing maintenance of the estate.</li> <li>• The marine estate is broadly considered to be part of NSW and Australian identity. Many report a strong, sentimental attachment to this space.</li> </ul>
<b>Historic maritime heritage</b>	<b>Heritage</b>	<p>The marine estate community survey identified that the marine estate holds great value for all respondents surveyed as a central part of Australia's heritage and culture.</p>

## Domain 4: Economic benefits

Attribute	Indicator theme	Reference
<b>Economic viability of industries and businesses</b>	<b>Value of business activities (economic health and performance)</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>Local businesses that are dependent on the marine estate for their viability, such as commercial fishers and tourist operators, may experience major impacts on production, and therefore on employment, due to events such as closures and fish kills.</li> <li>The cumulative threats on viability of particularly the commercial fishing sector relating to social licence, competition with other sectors and regulatory pressure has potentially significant sectoral specific consequences for that industry and wider implications for the availability of goods or services to local communities. The most likely marine industries facing significant viability challenges in NSW at present appear to be commercial fishing and aquaculture.</li> <li>Local businesses that are dependent on the marine estate for their viability, such as commercial fishers and tourist operators, may experience major impacts on production, and therefore on employment, due to events such as closures and fish kills.</li> </ul>
	<b>Extractive</b>	
	<b>Non-extractive</b>	
	<b>Investment</b>	
<b>Sustainability and business confidence</b>	<b>Participation in recreational activities</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>The marine estate is also seen as providing substantial benefits to the NSW economy. Six in 10 (58%) indicated that a key economic benefit of the Estate is being a source of income for local communities. Similarly, the attraction of the Marine Estate to Coastal Visitors is perceived to have a strong flow-on effect (both direct and indirect) on businesses in NSW.</li> <li>Economically speaking, the Marine Estate also provides income for locals through various industries, particularly tourism and seafood related industries.</li> </ul>
	<b>Confidence in future of the industry</b>	
	<b>Confidence in own financial future</b>	
<b>Employment and livelihoods</b>	<b>Confidence in economic future of your community</b>	<p>The community survey identified 6 in 10 (58%) indicated that a key economic benefit of the estate is being a source of income for NSW residents.</p> <p>The statewide TARA (BMT WBM 2017) identified:</p> <ul style="list-style-type: none"> <li>Pests and diseases may impact on tourism operators, commercial fishers and aquaculture producers where impacts on habitats and marine life may be significant.</li> <li>Illegal activities have the potential to create long-term negative impacts on businesses and employment, commercial fishers may also be significantly impacted where their livelihoods are under threat from overfishing and habitat destruction related to illegal activities.</li> </ul>
	<b>Population and employment opportunities</b>	

Attribute	Indicator theme	Reference
<b>Intrinsic and bequest values</b>	<b>Non-market</b>	<p>The NSW marine estate community survey (Sweeney Research 2014) identified:</p> <ul style="list-style-type: none"> <li>• The most important social benefit of the estate (identified by respondents) was the enjoyment people get from knowing its natural beauty is there, even if they can't visit it regularly.</li> <li>• Both commercial and recreational fishers recognise the need to conserve and support marine life so that future generations will be able to appreciate the marine estate as they have.</li> </ul> <p>The statewide TARA (BMT WBM 2017) identified:</p> <ul style="list-style-type: none"> <li>• Conflict between sectors diminishes the intrinsic and bequest values held by people.</li> <li>• Awareness of pollution in the marine estate (e.g. urban stormwater runoff) can impact on intrinsic values, particularly for those people whose intrinsic values are linked to environmental benefits such as biodiversity, as urban stormwater run-off also threatens these environmental benefits.</li> <li>• Impacts of climate change are likely to have significant impacts on the intrinsic benefits some people and communities derive from the marine estate, including extractive users and passive users.</li> </ul>

## Domain 5: Governance and management

Attribute	Indicator theme	Reference
<b>Effective governance system</b>	<b>Coordination, consistency, efficiency and effectiveness</b>	Submissions received during the public engagement period of the draft TARA have noted the difficulty of obtaining licences and approvals to operate due to the presence of multiple regulatory bodies for the tourism industry. In addition, other marine businesses have noted the cost of compliance activities that place financial strain on businesses.
	<b>Evidence-based decision-making</b>	Submissions also noted the potential impact of inefficient or over-regulation on the viability of businesses. Examples include the impact of marine parks, beach access controls by councils, the implications of native title on fishing, and the impact of ineffective consultation.
<b>Effective integration between governance processes and community</b>	<b>Transparency and inclusiveness</b>	The NSW marine estate community survey (Sweeney Research 2014) identified:
	<b>Efficiency and effectiveness</b>	<ul style="list-style-type: none"> <li>Some community members and marine estate interest/user groups can feel disengaged and disconnected from the management of the marine estate either via lack of awareness of the processes in place, or a perception they are not consulted as decisions are being made.</li> </ul>
	<b>Participation</b>	<ul style="list-style-type: none"> <li>Some members of the community and marine estate interest/user groups report feeling a lack of empowerment to have any role in decision-making.</li> </ul>
	<b>Equity &amp; fairness</b>	<ul style="list-style-type: none"> <li>Lack of trust. Some concern around whether management of the marine estate is consistent and also the perceived importance placed on political pressure compared to scientific information or the wishes of the broader community.</li> </ul>
	<b>Trust</b>	<ul style="list-style-type: none"> <li>Transparency was a key issue. Relatively few community members were knowledgeable of the various management strategies currently in place to protect the marine estate. This result was validated by the quantitative finding in which 70% of respondents indicated that they neither agreed nor disagreed when asked if the marine estate was currently being managed well by the NSW Government.</li> </ul>
	<b>Evidence-based decision-making</b>	<ul style="list-style-type: none"> <li>The community survey identified concern about the perceived lack of consideration of scientific evidence. Scientific evidence should be at the centre of interactions and decision-making. This is a commonly held belief among Marine Estate interest/user groups, who believe the scientific evidence should be considered before other interests such as political concerns.</li> </ul>



The complete reports can be found at  
[marine.nsw.gov.au](https://marine.nsw.gov.au)

W: [marine.nsw.gov.au](https://marine.nsw.gov.au)  
E: [contact.us@marine.nsw.gov.au](mailto:contact.us@marine.nsw.gov.au)

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