

Northern Territory Marine and Coastal Science End User Knowledge Needs Assessment

Indigenous Engagement Report Part B - Consultation and Synthesis

Final Report by NAILSMA Ltd

December 2017

Acknowledgement

The North Australian Indigenous Land and Sea Management Alliance Ltd (NAILSMA) wishes to thank the communities of Maningrida, Galiwin'ku, and Borroloola; the Larrakia Rangers and Larrakia Nation Aboriginal Corporation in Darwin, Djelk Rangers in Maningrida, Garawa Rangers and members of the Mabunji Aboriginal Resource Association Inc. Board in Borroloola; Yirralka Rangers in Yirrkala, Northern Land Council staff, and individual Traditional Owners including from the Kimberley and Torres Strait; Stan Lui, Daniel Oades, Tony Duwun Lee and Ricky Archer from our advisory group; all of who readily contributed their time, advice and insights to inform this project, its related findings and recommendations.

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Executive Summary

The Australian Institute of Marine Science (**AIMS**) and Charles Darwin University (**CDU**) are co-sponsoring a survey of needs for better information for users of the Northern Territory's marine and coastal environments, titled 'Northern Territory Marine and Coastal Science End-user Knowledge Needs Analysis' (**NTMSEUNA**). The main report surveyed a number of sectors (e.g. mining, commercial and amateur fishers, pastoral, tourism and others) for their issues and research interests.

An important component of the study is to understand Indigenous peoples' needs, aspirations and concerns; and ways of securing appropriate engagement in marine research. This has been clearly identified by the research sponsors (Australia Institute of Marine Science and Charles Darwin University – AIMS and CDU) and others as critical for achieving more effective research outcomes in the future and particularly significant as Indigenous people have inalienable freehold title to around 85% of the NT coastline including the intertidal zone (to the mean low tide mark) and native title interests in other parts of the marine environment. The North Australian Indigenous Land and Sea Management Alliance Limited (**NAILSMA**) has undertaken this component of the study. The work reported here was informed by a desktop review of relevant literature relating to north Australian Indigenous interests in marine research (**Appendix 1 – Indigenous Engagement Report – Part A Desktop Review**) and, direct consultations with 'sea country' custodians with active management interests in marine environments in four broad areas generally associated with the communities: Maningrida (west Arnhem Land), Borroloola (Gulf of Carpentaria), Galiwin'ku (east Arnhem Land), and Darwin (**Appendix 2 – Consultations**). The desktop review identified key issues and interests from published management plans and strategies framed by various Indigenous groups involved in caring for sea country in the Northern Territory. Consistent with the resources available, a targeted approach to consultations was needed - specifically, to engage across a reasonably broad geography, focus on areas where known interests and concerns are shared by groups who have had recent experience and opportunity to reflect on them, to capture a diversity of historical and other circumstance (e.g. built up areas, areas with IPAs, different land tenure contexts, places with local research capability and initiatives, places effected by significant environmental impact).

Given a range of factors, such as the very limited engagement with Aboriginal land owners on this topic in the past and culturally discreet traditional owner estate interests, the project cannot offer comprehensive statements of priority. Themes emerging from the desktop review and initial discussions were confirmed during face to face consultations/workshops held with customary estate owners and managers in respective communities. This study highlights these as a snap-shot of interests, some indicative, some unique, and with important directives as to how research in this environment may be designed and carried out more effectively than in the past. This study is not intended as a base for a full, detailed and clearly prioritised research agenda across the Top End. However, the level of consistency in the information gathered can be used to inform an early stage research agenda and engagement process, including for example:

Biophysical/environmental interests

- Research to understand the impacts and threats (and opportunities) from damaging natural and anthropogenic sources such as climate change across all sectors.
- Independent information and monitoring of potential and actual impacts of mining (and related activities e.g. ports, roads) on ecosystems and human health. Examples raised

include individual projects like McArthur River Mine, Redbank Copper Mine, Western Desert Resources Mine, Inpex LNG project; and types of resource extraction activities including fracking and seabed mining.

- Research on the sustainability of commercial harvests of managed species (including consideration of causes for any decline in fish populations).
- Population studies to examine the potential for Indigenous participation in wild harvest/aquaculture of commercial species such as pearl, trepang (beche-de-mer), and also species such as trochus and oysters for which there is no or limited commercial harvest.
- Baseline information and monitoring systems for key species and marine habitats.
- Managing invasive species and improving biosecurity.
- Information on impacts (and opportunities) arising from tourism.
- Research on the impacts of offshore seismic surveys on marine species and environments.
- Information to guide management of marine pollutants (including marine debris/rubbish; their point of origin and how to influence them, recycling, transport and disposal options; opportunities for large scale collaborations/experience sharing amongst ranger groups).¹

Beyond the biophysical

Because Indigenous people see themselves and their land / sea as inseparable their research interests extend beyond biophysical marine science narrowly defined, to include social science, citizen science and (arguably scientifically equivalent) Indigenous Ecological Knowledge. The practical research lens includes legal, policy, social, economic and IEK issues;

- Research contributing to understanding and asserting legal rights and interests and influences on policy in relation to sea country/resource management, access, allocation and use, including increasing Aboriginal engagement in fisheries management through appropriate governance frameworks and capacity building.
- Approaches to devolution of enforcement powers to locals/rangers to respond to commercial and amateur fisher issues, including development of management models and support systems.
- Responses to sea country management (e.g. access and use agreements) that balance local management aspirations and capabilities with the need for regional consistency to reduce confusion and complexity regarding fisher and other access.
- Research to understand the need for and potential impacts of introducing recreational fishing licencing and boat registration and their interaction with management and compliance regimes.
- Improving documentation, management and protection of sacred sites and other places of value in the sea and coast.
- Improving understanding of options under relevant laws and regulations to make greater use of geographically differentiated management zoning (e.g. take/no take areas).
- Socio-economically oriented research needs including pathways to realising economic/enterprise development opportunities, encompassing development planning, governance (including options for Aboriginal cooperatives) and capability building.

¹ North Australian Indigenous Land and Sea Management Alliance Limited (2017) Remote recycling, rubbish and marine debris management in north Australia needs strong helping hands: Summary of Cape York Peninsular community case studies. Report by Regional Advisory & Innovation Network (RAIN) Pty Ltd, Mena Creek.

- Small-scale and low-impact enterprise development opportunities including land and sea management/provision of environmental services, Aboriginal participation in commercial fisheries and aquaculture, wild-harvest, and tourism.
- Improving governance structures, policy redesign and mechanisms for promoting access to opportunity (e.g. government procurement).
- Research to help reinvigorate and enhance recognition and application of Traditional Knowledge systems around marine and coastal environments.

Engagement in research

- Employing and supporting Aboriginal community-based researchers.
- Ensuring local needs influence research programs, projects and methods.
- Establishing better engagement processes and protocols for how research is designed and carried out.
- Recognition of local context, values and Indigenous perspectives when conducting research and development activities e.g. human health, customary obligations, livelihoods.
- Respectful, strong and equitable partnerships underpin successful research projects – engagement principles and processes / protocols (incorporating free, prior and informed consent; intellectual property; compensation; appropriate use of Indigenous knowledge; data collection and storage; and governance).
- Relevant and accessible information and educational resources for rangers, Traditional Owners, and the broader community (including schools).

Nature of apparent knowledge gaps

Apparent knowledge gaps sometimes relate to information about issues of interest not being available at a fine enough (or local) scale to be useful to Indigenous communities. In other cases, they arise as a result of knowledge derived from research being poorly communicated. Often, research outcomes are not accessible. For example, peer reviewed journal articles are largely inaccessible outside academic or institutional networks and invariably in language forms that are not useful locally. Respondents in this project identified a significant gap in non-Indigenous researchers and agencies understanding them, their co-dependent relationship with ‘country’ and even the practical import of their legal status under ALRA, Native Title and other instruments.

Conclusions

A key conclusion from this work is that needs and interests include, but encompass much more than the availability or quality of biophysical information relevant to the use, management and conservation of marine environments. Pressing needs include better understanding of opportunities and constraints on Aboriginal participation in use and management, and roles in shaping the wider social and economic life of the Territory, drawing on rights and obligations to sea country and its resources.

The depth and breadth of Aboriginal legal and cultural interests, including ownership of most of the coast require effective engagement with Aboriginal landowners and their communities. Improved engagement by government, industry, universities and relevant NGOs is essential on all fronts, including marine research. Well-designed research on any of the topics identified here, conducted to sound protocols for full Aboriginal participation, offers one useful pathway for fostering the necessary improvements in engagement contributing to a more comprehensive understanding of research priorities.

This report provides an overview of some presently recognised Indigenous (research) needs for sea country in the Northern Territory, together with engagement principles for building stronger relationships between research institutions and Aboriginal land and sea owners and managers. These relationships could inform more comprehensive and nuanced understanding of Aboriginal interests, leading to more effective research project prioritisation, design, operation and use in future.

Table of Contents

| | |
|--|-----------|
| Executive Summary | 2 |
| Table of Contents | 7 |
| Introduction | 9 |
| Background and purpose | 9 |
| Legal and customary rights and interests | 9 |
| Indigenous interests in marine science research | 9 |
| Engagement with Aboriginal people | 10 |
| Scope and Limitations | 11 |
| Methodology | 11 |
| Results | 13 |
| Table 1. Consultation Results | 14 |
| Discussion | 20 |
| Biophysical values | 20 |
| Key species and ecological communities | 20 |
| Mining impacts | 21 |
| Fishing impacts | 21 |
| Urban and coastal development impacts | 22 |
| Climate change | 22 |
| Cultural values | 22 |
| Fisher access to Aboriginal lands and seas | 22 |
| Other access to Aboriginal lands and seas..... | 22 |
| Cultural heritage..... | 23 |
| Local and traditional knowledge | 23 |
| Social values | 23 |
| Observance of Aboriginal rights | 23 |
| Progressive alienation from country and limits on customary access to country..... | 24 |
| Aboriginal influence over fisheries management..... | 24 |
| Enterprise development | 24 |
| Indigenous commercial/customary fisheries (including aquaculture) | 24 |
| Monitoring and environmental management opportunities..... | 25 |
| Local empowerment, livelihoods and research questions..... | 26 |
| Research engagement | 27 |
| Management of research activity..... | 27 |
| Outcomes/benefits for local people | 27 |
| Access and communication | 27 |
| Local researchers and local governance | 28 |
| Recognition and respect for local rights | 28 |
| Right people, right country, right time | 28 |
| Recognition and respect for local customs, knowledge (“two-way learning”) and existing capability..... | 29 |
| Key principles of engagement..... | 29 |
| Research design approaches | 29 |

| | |
|--|-----------|
| Conclusion | 31 |
| Appendix 1 – Indigenous Engagement Report Part A - Desktop Review | 33 |
| Appendix 2 – Consultations | 34 |
| Summary of community consultation meetings | 34 |
| Sample consultation topics/questions..... | 34 |

Introduction

Background and purpose

The AIMS and CDU co-sponsored Northern Territory Marine and Coastal Science End-user Knowledge Needs Analysis (**NTMSE UNA**) aims to understand the marine science knowledge required to support policy, regulatory, strategic and operational decisions made by government, industry and communities with respect to their interaction with the Northern Territory marine and coastal environment. Among other things, a key objective of the NTMSE UNA project is to identify knowledge needs that are common to multiple stakeholders and consider priorities for research investment in the Territory marine environment.

Another important objective of the study is to understand Indigenous peoples' needs, aspirations and concerns; and ways of securing appropriate engagement in marine research. The North Australian Indigenous Land and Sea Management Ltd (**NAILSMA**) has undertaken this part of the study. However, given the limited engagement with Aboriginal people that has occurred to date and the scope of this study, it is not possible to arrive at a comprehensive set of research needs; or of clearly articulated "sectoral" overlaps in needs that might be useful in assigning priorities. Instead, a longer-term properly supported engagement strategy is needed to get a valid sense of Indigenous priorities on a place-by-place basis, as culturally prescribed, rather than by generalisation from limited samples.

Accordingly, this report provides an overview of some presently recognised Indigenous (research) needs for sea country in the Northern Territory, together with engagement principles for building stronger relationships between research institutions and Aboriginal land and sea owners and managers. These relationships could inform a more comprehensive and nuanced understanding of Aboriginal interests, leading to more effective research project prioritisation, design, operation and application in future.

Legal and customary rights and interests

Aboriginal people hold inalienable freehold title over most of the Northern Territory coast and have rights to control access to that coast, to significant closed seas in the Arnhem region and are important end users of marine resources under native title (Brennan 2008). Further, although not properly recognised, Aboriginal peoples' traditional economies and customary rights to lands and waters extend well beyond the low water mark – commonly beyond the horizon. It follows that they seek, and will increasingly assert a central role in decisions about use and management of the Territory's near-coastal marine environment.

Finding better ways to foster Aboriginal interests in and benefits from the marine systems, while respecting existing interests and promoting socio-economic development are critical issues for the Northern Territory and Australia.

Indigenous interests in marine science research

Under the Aboriginal Land Rights (NT) Act 1976 (ALRA) developers, governments and other parties wishing to undertake activities (including researchers) or build infrastructure, require an agreement with the Land Trust. Prescriptions under ALRA (as with other relevant instruments) demand processes for Traditional Owner consultation and informed consent, for land and sea country owners and (ceremonial) managers - to understand the nature and purpose of proposed activities, the effects the activities will have on their lands and seas, and methods proposed to minimise adverse impacts and promote benefits. Without relevant and accessible information on benefits and risks, especially potential impacts on country, Traditional Owners cannot make fully informed

decisions or give free, prior and informed consent to proposed projects. Facilitating engagement and informed decision-making is a necessary precursor to governments' push for accelerated northern development, as set out in statements like the 2015 White Paper on Developing Northern Australia. In addition, relevant and accessible research would be useful to inform Indigenous-led local area planning processes, such as with Indigenous Protected Areas and multiple use planning.

It is therefore essential that Traditional Owners have opportunity to influence the direction of research and the manner in which results are presented, as key end-users of science. Like all other land owners, Traditional Owners seek access to the best information available to foster and take up rewarding livelihoods and inform care for country. Better and more accessible information will facilitate sound and timely decision-making.

While Indigenous and non-Indigenous people share interests in, and needs for, high quality marine science information, the premise underlying these interests and needs may be different. This means the basis of all collaboration must be an awareness of different systems of knowledge and avoiding simplistic assumptions about shared understandings that may exist between groups. All collaboration must be grounded in a mutual respect for the different knowledge systems and values that coexist in this context.

Engagement with Aboriginal people

Aboriginal people have a clear interest in research relating to their land and seas. Present systems for gathering, interpreting, reporting and applying science to management of sea country have generally been built around the interests and needs of government and industries. As a consequence, many research providers have little practical awareness of Indigenous rights, interests or research priorities.

Past and present weaknesses in engagement practice and performance compromise capacity and confidence to articulate Aboriginal interests clearly. Better engagement by government, industry, other NGOs and researchers with Aboriginal people must precede and inform attempts to prioritise Indigenous research and development needs.

Fortunately, well-designed and properly conducted marine research can itself offer a useful vehicle for helping to drive improvements in engagement. Best practice collaborative research around shared goals for improved livelihoods and better land, sea and resource management will, by definition, be built on close, respectful interactions with high levels of Indigenous participation. These interactions help build the familiarity and confidence to underpin cross-cultural understanding and fruitful collaboration.

Research in cross-cultural environments requires that underlying partnerships and processes to be treated as critically important to quality outcomes. Broader issues of communication, access, consent, intellectual property, scale and context, compensation, appropriate use of Indigenous knowledge and governance need to be considered in exploring what is best practice collaborative research.

In this report, we present views from Indigenous respondents that inform inclusive participatory research strategies and espouse the value gained in achieving strategic goals, a shared understanding of Aboriginal research interests and practical means for achieving mutual benefit.

Scope and Limitations

The study consisted of a desktop review of Indigenous sea country plans and other relevant published materials (**Appendix 1 – Indigenous Engagement Report Part A - Desktop Review**), together with targeted consultations in several coastal communities (**Appendix 2 – Consultations**). This report presents the findings of the consultations, building on the desktop review.

Given the potential breadth and depth of issues, achieving more representative engagement would require a comprehensive set of consultations involving many dozens of coastal groups, relating to discrete customary estates. However, with limited resources, a more targeted approach was taken consisting of engagement in four areas proximal to the communities: Maningrida (west Arnhem Land), Borroloola (Gulf of Carpentaria), Galiwin'ku/Elcho Island (east Arnhem Land), and Darwin. These focal areas are only a sample of the larger Indigenous interests across the Northern Territory coastline and even within the local communities from which responses were drawn, cannot represent the breadth or diversity of interests within those complex mixed towns.

Another important limitation arising from the scope of the consultations (as with the report on sector interests) is that, although some key overarching themes and interests were identified and explored, it was not possible to prioritise or assign relative rankings to those interests.

Methodology

Desktop review

The key issues and interests in the desktop review were identified primarily from published management plans and strategies framed by various Indigenous groups involved in caring for sea country in the Northern Territory, together with Indigenous- led economic development plans (**Annexure 1 – Indigenous Engagement Report Part A - Desktop Review**).

Further information was gathered directly from Traditional Owners in the consultation phase of the project, to compare issues and interests with those documented in plans etc and to widen the net to capture other and possibly more diverse issues that may translate into research interests. (**Annexure 2 – Consultations**).

Initial consultations

Telephone and face to face discussions were conducted with Traditional Owners/Custodians, rangers and coordinators, Indigenous researchers, and other people with relevant experience to help identify issues and interest in further participation. These preliminary consultations included discussions with Indigenous land and sea managers/Traditional Owners from both the Kimberley and Torres Strait to obtain broader perspectives and to compare experiences in neighbouring jurisdictions with sea country research and management issues, initiatives and priorities in the NT.

Indigenous working group

An Indigenous reference group comprised of four (4) Indigenous land and sea managers from different regions across northern Australia was initiated to provide advice and feedback to the researchers. In particular, members reviewed and commented on materials prepared by the project team (e.g. draft reports, communications products) and, in the case of NT members, acted as a conduit for communicating with community.

Selection of focal areas / communities

Locations for targeted consultations were selected using several criteria:

1. known interest in the general topic area;
2. capturing a diversity of experiences and contexts;
3. presence of operating ranger groups, and some familiarity with NAILSMA;
4. active projects through which consultations could be undertaken more efficiently; and,
5. logistical considerations.

In addition, the characteristics of each area were taken into consideration (see below) to ensure the project covered different environments, economic and legal contexts.

1. **Maningrida (west Arnhem Land)** – existence of an Indigenous Protected Area (IPA), Healthy Country Plan, ranger group, experience with small aquaculture ventures, exposure to illegal fishing, indiscriminate fisheries bycatch discard, conflict between fishing tours and commercial fishers, sacred sites issues, potential mining, historical engagement with fishing industry, connections to Croker Island (native title claim) and Goulburn Island.
2. **Borrooloola (Gulf of Carpentaria)** including sea country estates held by Yanyuwa and Garawa groups – existence of an IPA, sea country management plan, ranger groups, agreement with NTG on open intertidal access, mangrove die back, McArthur River Mine impacts, high fishing activity, tourism impacts, native title issues and significant determination, Bing Bong wharf development, concern with stretch of unmanaged/researched coast (Garawa people) and keenness to engage.
3. **Galiwin'ku/Elcho Island (east Arnhem Land)** – experience in crabbing and tourism opportunities; history with 'mission era' fishing industry; Island environment with significant amateur and commercial fisher activity; strong sea country culture; sea country closures; keenness to rebuild sea country knowledge; recent 'two way' collaborative science project on shellfish.
4. **Darwin (Cox Peninsular to Gunn Point including Bynoe Harbour and Port Darwin)** – primary area of development in the study area; intensive industrial, urban and port development; mining and spills issues; clearing of mangroves; Traditional Owners heavily impacted by city and other development; some engagement with harbour research; keenness to use research to strengthen culture and improve recognition of Traditional Owner; many potential enterprise and contract opportunities; many active sectors and research needs.

Consultations/participatory workshops with focal communities

Themes emerging from the desktop review and initial consultations were confirmed during face to face consultations/workshops held with individuals and small groups in focal communities. Specific local issues and interests were identified, and local engagement principles /processes were explored. The small group consultations were co-facilitated by a NAILSMA project staff member/consultant working alongside a local Indigenous person from each of the respective communities engaged.

A number of consultations had to be postponed or cancelled due to sorry business. Other constraints on consultations included consultation fatigue from other projects/issues, transport difficulties, and participant availability due to conflicts with employment responsibilities and other commitments. It was additionally difficult to get enthusiastic participation from many because

benefits to them or their community from this project were not obvious. The project team was unable to say what the ultimate purpose, outcomes or sponsors planned next steps would be, that may benefit and therefore encourage participation from TOs. This protracted the initial engagement stage.

The consultations ranged from semi-structured interviews to open-ended and informal discussions depending on the context. As we sought to avoid leading the direction of interviews when the project goals had been explained, we were sometimes required to infer research questions rather than cite verbatim questions articulated directly by informants. We did this only where the frequency of responses on such issues and related discussions permitted reasonably robust inference.

Further details of the consultations are included in Annexure 2.

Collation and analysis of results of consultations

Synthesised results of the consultations are set out in the table in the 'Results' section. Themes and research questions emerging from the consultations are set out and elaborated upon in the 'Discussion' section.

Results

A summary of the results of the consultations and workshops is set out in Table 1. The particular interest/concern to which the issue relates is identified as either biophysical, cultural, social, or economic/enterprise development depending on the particular disciplinary focus of the issue identified. The table also identifies wider connections and context for the interest or concern such as, for example, human health, customary obligations, or livelihoods to illustrate the relevance of the issue to the informants.

Table 1. Consultation Results

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|--|--|---|---|--|-----------------------------------|
| Biophysical values | | | | | |
| Coral reefs | Changing water temperatures | Climate change | Extent and impact of change | Customary economy Livelihoods | Maningrida Darwin |
| Marine carbon dynamics | Mangrove dieback Seagrass decline | Climate change Sedimentation Boat damage Other pollution | Extent and severity of change Causes of change Change in carbon stocks – PES opportunities | Ecosystem health Customary economy Livelihoods | Darwin Borroloola |
| Coastal environs | Mangrove and Paperbark/melaleuca dieback Coastal erosion & inundation | Sea level rise | Extent and severity of change Saltwater intrusion, cause of change | Landscape health Future utility of land | Borroloola Darwin |
| Sea bird nesting | Increased access to islands leading to overharvest | Reduced numbers/diversity. Breakdown of local protocols for access to resource | Extent and sustainability of harvest. Efficacy of hybrid forms of control - customary and scientific. | Customary economy Obligations to country | Maningrida |
| Dugong and other marine mammal populations | Port development and operations Commercial fishing Increased and unregulated boat traffic Defence operations / acoustic devices | Dredging Boat strike Pollution/ghost nets Bycatch | Extent and significance of change | Ecosystem health Obligations to country | Darwin Ngukurr |
| Marine turtle populations | Commercial fishing Increased and unregulated boat traffic | Boat strike Bycatch Pollution/ghost nets | Incidence of mortalities | Customary economy Obligations to country | south-western Gulf of Carpentaria |
| Benthic topography | Interactions with development | Sea level change | Mapping present features as baseline | Cultural heritage | Darwin |

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|----------------------------------|--|---|---|---|---------------------------|
| | | | | Understanding impacts of change | |
| Shellfish status | Toxicology Mud muscle population decline | Pollution Feral pig predation Loss of diversity | Current status and significance of change | Customary economy Human health Obligations to country Food sources | Darwin |
| Beach stone curlew status | Apparent decline | Disturbance | Current status, significance of decline and potential influences | Obligations to country | Darwin |
| Hermit crab status | Potential impacts of shell collection | Reduced availability of shells | Extent of shell collection and impacts | Obligations to country | Darwin |
| Atlas Moth | Decline in distribution and abundance | Loss of habitat | Continuation of revegetation work at Tree Point | Obligations to country Livelihoods | Darwin |
| Water quality | River borne mining Pollutants and sediments affecting estuarine systems | Decline in habitat quality Contamination of wildlife | Risks of chronic and catastrophic pollution Options for reducing risks Monitoring and reporting systems | Human health Customary economy Ecosystem health | Borrooloola Darwin |
| | Concentrate and other pollutant spills and dust at port loading facilities | | | | |
| | Agricultural sedimentation and pollution | | | | |
| | Urban development | | | | |
| | Dust problems associated with road transport of ores and concentrates | Decline in habitat quality Contamination of wildlife | Risks of chronic and catastrophic pollution Options for reducing risks | Human health Customary economy Ecosystem health | Borrooloola |
| Shale oil and gas extraction | Contamination of groundwater | Design of monitoring and reporting systems Risks of chronic and more acute effects Effects on continued access for customary purposes | Obligations to country Customary economy Livelihoods (constraints on other land uses) | Borrooloola | |

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|--|---|--|---|---|-------------------------------------|
| Gross physical disturbance of landscapes | Shale oil and gas extraction, Sea-bed mining, terrestrial mineral extraction | Loss of access to country Breaking connections in cultural landscapes (e.g. interruption of songlines) Landscape instability | Options for reducing risk design of monitoring and reporting systems Risks of chronic and more acute effects Effects on continued access for customary purposes | Human health Obligations to country Customary economy | Borrooloola |
| Fish populations | Extent and methods of Commercial harvest Tourist numbers | Overharvest Bycatch discards | Quality of allocation and other management prescriptions Options for improved regulatory systems and performance | Customary economy Livelihoods Ecosystem health | Maningrida Borrooloola Darwin |
| Crab populations | Extent and methods of harvest Change in relative abundance of giant and non-local orange mud crabs | Overharvest Failure to observe size and other restrictions Competition from new species | Quality of management and enforcement Options for improved regulatory systems and performance Understanding source, transport, impact and response | Customary economy Livelihoods | Borrooloola Darwin |
| Coastal land condition | Feral animals Weeds | Effects on habitat condition, carbon storage and wildlife (e.g. crocodile eggs) | Quantification of impacts of feral animals and weeds on natural and cultural values | Customary economy Livelihoods Incompatibility of some enterprises | Maningrida |
| Various relating to ecosystem health | Ballast water | Introduction of exotic organisms | Risks under current regulatory and enforcement provisions | Adding to other risks of increased port traffic | Darwin |
| Harbour management | Marine reserves in ecosystem health | Ongoing loss of ecosystem services - few areas protected from development | Role of marine reserves in maintaining ecological and cultural values | Customary economy livelihoods Aboriginal roles in decision-making | Darwin |
| <u>Cultural values</u> | | | | | |
| Commercial and recreational fisher access to | Damage and other violation of sacred sites | Gross offence loss of trust and confidence in | Exploration of options for redesign of laws and approaches | Cultural obligations to lands and seas Customary economy | Galiwin'ku Borrooloola Darwin |

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|---|---|---|--|---|------------------------------------|
| Aboriginal lands and seas | Unauthorised (illegal) intrusions into lands and seas Other illegal activity (e.g. taking wildlife) Discarded fishing gear (marine debris) Conflict between commercial and amateur fishers Management of tourist numbers Opportunity for enterprise. | management authorities and in fishers Unwillingness to grant further access | to enforcement of access prescriptions. Education of users Opportunities for enterprise development. | Livelihoods | |
| Other access to Aboriginal lands and seas | Entry without customary Permission (e.g. for public infrastructure) Choice of inappropriate sites | Gross offence Loss of trust and confidence in management authorities and in fishers Unwillingness to grant further access | Exploration of options for redesign of laws and approaches to enforcement of access prescriptions. Education of users | Cultural obligations to lands and seas Customary economy | Maningrida |
| Cultural heritage | Lack of recognition and Respect for values important to Aboriginal people, contributing to weak enforcement of rights | Damage to sacred and other heritage sites | Approaches to devolution of enforcement powers to locals Approaches to better protection for archaeological sites | Roles of sea rangers Formal roles of traditional owners | Maningrida Darwin Borroloola |
| Traditional knowledge | Lack of recognition and Application to management issues | Comprised management outcomes Rejection of management | Optimising systems for joint application of IEK and formal science. | Roles of rangers Design of decision-making forums | Maningrida |

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|---|--|---|--|---|----------------------|
| | | prescriptions that exclude IEK | Opportunities to enhance IEK and its transmission – including strategic collaborations | | |
| <u>Social issues</u> | | | | | |
| Observance of Aboriginal rights | Weak public and agency Understanding of rights | Conflict Legal challenges to public and private actions | Clarification of existing and emerging rights | Agreements with government and industry | Darwin |
| Progressive alienation from country | Urbanisation | Erosion of rights and opportunities | Options for assertion of influence over use of country | | Darwin |
| Customary access to country | Urbanisation | Foreshore closures Pollution of creeks | Legal issues in native title and exclusions and chronic losses of customary use | Customary economy Native title rights and obligations | Darwin |
| Aboriginal influence over fisheries management | Insufficient awareness of respect for Aboriginal views and interests Competition of licence holders with local initiatives Poor, politically-oriented allocation decisions | Gross offence Loss of trust and confidence in management authorities and in fishers Unwillingness to grant further access | New systems for fisheries governance, providing for increased Aboriginal participation in decision-making Redesign of management bodies Law reform | Obligations to country and culture Customary economy Livelihoods | Borroloola Darwin |
| <u>Enterprise development</u> | | | | | |
| Aboriginal participation in commercial wild-catch fisheries | Limited opportunity Past failures Limited capacity, government and industry targeted support | Exclusion from serious consideration in allocation decisions | Improved models for Aboriginal engagement Business structures for small scale geographically bounded enterprises Options for Aboriginal cooperatives | Conflict with customary economy Compatibility with cultural obligations Access to capital | Galiwin'ku |

| Value of interest/concern | Pressure/issue | known or potential impact | Research question(s) | wider connections and context | location |
|--|--|--|--|--|-----------------|
| Aboriginal participation in aquaculture | Inadequate infrastructure in remote sites Skills base not well-matched to intensive aquaculture | Number of failed ventures | Models for “low intensity”, “low tech” methods dependent on management of natural systems | Customary economy Constraints on customary access | Maningrida |
| Survey and monitoring | Few options to apply skills and values to pre- and post-development issues | Reduced employment and enterprise Inadequate pathways to other employment | Improving governance structures policy redesign and delivery mechanisms (e.g. government procurement) | Human health and well being Social cohesion | Darwin |
| Crocodile overabundance and public safety | Intrusion into human population centres | Migration from areas of high crocodile density | Options and management systems for transfer of responsibility to Aboriginal interests | Human health Livelihoods | Darwin |
| Role of research in socio-economic development | Limited pathways. Little recognition of local Aboriginal research capability and benefits | Unemployment reduced well-being | Optimal approaches for building on benefits of engagement in research to expand range of opportunities | Social cohesion Human health | Maningrida |

Discussion

An initial synthesis of the results of consultations is set out below to identify themes and knowledge gaps. These were categorised into four groups: biophysical values, cultural values, social values, and economic development. The consultations also considered appropriate engagement principles when approaching research, and these are discussed at the conclusion of this section.

Biophysical values

A key research interest was to understand and manage impacts and threats to country (and realise opportunities) from damaging natural and human induced causes. Threats identified related, among other things, to the impacts of climate change and proposed, actual or future (externally driven) pressures from mining, fisheries, tourism and urban/coastal development.

Key species and ecological communities

Some key species and marine and coastal environments were identified during consultations including, among others:

- Marine turtle and dugong: Impacts of fishing nets/ghost nets and boat strike, and sustainability of harvest (Borrooloola)
- Seabirds and shorebirds: monitoring nests; sustainability of egg harvest (Maningrida)
- Shellfish toxicology due to water quality issues (Darwin)
- Coral reefs: climate change impacts (Maningrida)
- *Melaleuca*/paperbark and mangrove dieback: extent and cause; changes in carbon stock (Borrooloola)
- Seagrass decline: damage from boats; sedimentation (Borrooloola and Darwin).

Issues affecting a number of other species were identified during consultations (e.g. Atlas Moth, Hermit Crabs, seahorse, Eastern Curlew). These species were identified as being of interest largely due to current or previous externally driven research collaborations, rather than because of any particular cultural, social or economic significance attached to the species. As such, it would not be appropriate to assign priority to these species over others. This reflects the difficulty of prioritising interests given the great variation in exposure of communities to research issues and options, based as it is on idiosyncratic interactions with external agendas rather than comprehensive planning to meet local needs.

But whatever the taxonomic focus, an overarching need for quality baseline ecological/environmental data and establishment of monitoring systems was identified. There are biosecurity concerns associated with bilge/ballast water in Darwin, where for example, it is believed to be responsible for introducing the non-local 'orange crab' (*Scylla serrate*) species giving rise to concerns that they are potentially competing with local crabs (*S. olivacea*). Other issues requiring ongoing monitoring included: exotic plants and animals (e.g. feral buffalo damaging crocodile nests around Maningrida; pigs damaging coastal habitats around Darwin and Borrooloola; Caltrop weed invading coastal habitats around Borrooloola; marine pollution including ghost nets and other discarded fishing gear around Maningrida and Borrooloola and additionally oil spills around Darwin Harbour). Some of these issues can be linked to a number of 'sectors' including but not limited to tourism, urban/port development, mining, and fisheries. [Importantly, other major issues known

about but not recorded in this project demand attention, for example *Mimosa pigra* weed infestations effecting the Moil River near Wadeye].

Mining impacts

The consultations highlighted the need for independent information and monitoring of potential and actual impacts of mining (and related activities e.g. ports/roads) on ecosystems and human health. Examples raised include individual projects like McArthur River Mine, Redbank Copper Mine and Western Desert Resources Mine (Borrooloola region), Inpex and Conoco Phillips LNG projects (Darwin); and types of possible resource extraction activities including fracking and seabed mining (Borrooloola).

In Borrooloola, pollution in the McArthur River was an issue of major concern. Strong concerns were expressed about the possibility that fish and shellfish in and near the MacArthur River system may have elevated lead levels. Monitoring of lead levels in riverine fishes is being undertaken, but the process is not understood or trusted by many. In particular, the involvement of Government and the mine operators in the monitoring process is viewed with deep scepticism.

In order to restore confidence, respondents called for a transparent and independent monitoring program, preferably with Aboriginal involvement. Respondents called for monitoring to include all species used by Aboriginal people, including game animals such as kangaroos that may drink water from the McArthur River. Garawa people also like to eat dugong and turtle, but are worried about the downstream effects of pollution from the mine on these estuarine/marine species. They see large amounts of silt from the McArthur River being deposited on seagrass beds each wet season, and wonder what pollutants are carried with it. Some respondents also called for monitoring for potential runoff and leaching impacts from the (currently non-operational) Redbank Copper Mine.

Concern was expressed about high levels of cadmium in oysters in areas near the Bing Bong Port (from where ore from the McArthur River Mine is shipped). Respondents reported that people could no longer eat these oysters. Western Desert Resources is believed to be considering reopening its iron ore mine, with its shipping activities to be moved to Bing Bong Port, or to proposed facilities near the mouth of the Roper River. Opposition was expressed to the development of the new haul road and concern over the prospect of transport from the Roper mouth.

Fracking is a matter of deep concern, in particular the potential impacts on groundwater.

A further comment stressed that outsiders really do not understand the importance of land to Aboriginal people. Damage to land through inappropriate disturbance is felt to have a real physical impact on the health (indeed, life) of traditional owners.

Fishing impacts

Respondents expressed concerns about overharvesting of several fish and crab species and waste of fish (both bycatch species and mismanaged on-target catch) in commercial operations (Maningrida and Borrooloola).

In Darwin respondents indicated that ship (and plane) wrecks provide good fish habitat but most are 'fished out', and it was queried whether any monitoring of these and recently created artificial reefs was happening.

Other concerns about the methods and behaviour of fishers are set out under appropriate headings below.

Urban and coastal development impacts

Clearing of mangroves and marine pollution in Darwin harbour were identified as key concerns during consultations. Biosecurity issues arising from shipping ballast/bilge water discharge including striped mussel, spotted prawn and feral/non-local crab species was also raised, as well as concerns about plastics and marine debris, including lost or discarded fishing gear and crab pots in and around the harbour.

Concerns were also expressed about current and future use/ development of the harbour particularly if there is an incident such as a processing plant or shipping spill because the tidal movements in the harbour would cause rapid and extensive spread.

It was noted that when research is undertaken it is usually only in response to development which is taking place, rather than establishing a comprehensive pre-development baseline. It was felt that any focused pre- (or post) development research should be done by independent researchers and the results published and made available in their entirety.

Climate change

Concern about actual or potential climate change impacts on coral reefs, *Melaleuca*/paperbark, seagrass and mangrove systems were noted during consultations (Maningrida and Borroloola). Other issues included the lack of recognition of traditional knowledge approaches to recognising and monitoring climate change and the subsequent lack of a focal point to collate and analyse locally collected information. Related to this is the lack of opportunity to use this to enhance and pass on traditional knowledge (for example, seasonal indicators) to next generations.

Cultural values

Fisher access to Aboriginal lands and seas

In Borroloola, there was a perception that commercial crabbers were operating in an uncontrolled manner. Because these operators can enter and disappear into river systems from the sea, Rangers have no ability to monitor their activities. Crabbers have big boats and cut up the seagrass beds, disturbing the feeding of dugongs. There have been incidents of conflict as commercial crabbers cut the floats off the pots of recreational crabbers – presumably leaving a ghost pot behind in the water. Bycatch issues are also a concern. It is well known that dugong are sometimes accidentally killed in commercial gill nets.

In Maningrida, there are ongoing concerns about commercial operators and recreational fishers disregarding fishery closure lines and fishers encroaching on Aboriginal waters, including closed seas, and the ranger group is actively monitoring this. Interest was expressed in research on the impact of moving the fisheries closure lines further out and for Rangers to obtain fisheries inspector qualifications and requisite support – Inspector levels 1 and 2 starting being made available through NT Department of Primary Industries and Resources (Fisheries).

In Galiwin'ku, commercial fishing by Balanda (non-Indigenous people) is concerning for Yolŋu (local Indigenous people) as they are not informed about what is happening on their country and others are accessing sea country without their permission or knowledge. Respondents called for Indigenous rangers to be given enforcement powers.

Other access to Aboriginal lands and seas

In Borroloola, there has been a perceived increase in both the number and size of visitor boats. Increased propeller size on bigger boats was specifically mentioned. Disturbance of seagrass beds and physical injury to dugongs and turtles were described. Visitors in boats were believed to be

wasteful, taking too much and throwing away what they don't want. The visitors associated with the 'King Ash Bay fishing club' are seen as creating most of the tourism-related problems in the area. Tourism management is seen as both a burden and an opportunity. There is a desire to restrict tourists to a few designated campsites and possibly build an enterprise from them. Random camping on the islands was seen as a particular problem.

In Maningrida, visitor management issues have arisen relating to the nearby islands. Tourists have been leaving rubbish that attracts problem crocodiles; fast boats are now accessing the islands increasing visitor numbers; and there are concerns by Traditional Owners in particular that turtle and bird eggs are being over-harvested (often by opportunistic and ill-informed locals). Calls were made for rangers to be granted enforcement powers to respond to these issues. Concerns have also been raised about public infrastructure being constructed without proper consultation.

In Darwin, concern was expressed about the influence of recreational fishers, exacerbated by the granting of public open access to the intertidal zone on the Kenbi land Trust, effectively limiting Larrakia protection and management of their country and limiting potentially highly prospective opportunities for enterprise development in managed tourism.

Cultural heritage

In Maningrida there are many sea country sacred sites yet to be registered, and general concern about the ongoing integrity of sea country sacred sites. It was considered that more work was needed on sacred site registration, recording, and identification.

In Borroloola and Darwin concerns were expressed that protection of sacred sites poses a dilemma, since any overt efforts to protect them such as fencing or signs may just alert visitors to their existence, leading to intentional ingress and possible damage (not to mention danger to the visitors).

Local and traditional knowledge

Maningrida consultations stressed that people would like to see some formal recognition and respect of the vast body of traditional ecological knowledge (and skills) that local Indigenous people hold, and respect for cultural values that can differ from western values. It was also considered important to recognise the central role that the 'two toolbox' approach of utilising both 'Western' science and local Indigenous knowledge plays in land/sea management (and in other areas of community management). Respondents were emphatic that intergenerational transfer of knowledge and bilingual education should be valued. There are many questions about how this may be improved but the commitment amongst partners is generally not there.

Social values

Observance of Aboriginal rights

Consultations in Galiwin'ku and Darwin highlighted that there is weak understanding and observance of existing and emerging Aboriginal legal (and customary) rights by agencies, business and the public. In Galiwin'ku respondents stressed that agencies need to know who has authority over land and sea and Aboriginal people need information about their rights and how to assert their authority.

Maningrida respondents noted that their lore (traditional law) never changes, but seemingly constant changes in western law are incredibly confusing. An example was provided of the Shire Council not actually understanding their own jurisdiction when telling Rangers they couldn't undertake certain activities.

For many respondents, a pressing issue is intertidal zone management – having a say in how it is regulated and understanding ones’ rights and how to exercise those rights. It was felt that misunderstandings about these rights created serious tensions between families/clans and that clear, accurate information was needed. Several respondents noted that rights arising from the Blue Mud Bay decision (*Northern Territory v Arnhem Land Aboriginal Land Trust* [2008 HCA 29]) are not well understood. Concerns were also expressed about the limitations of the decision as it deals with the area between the high and low water mark, whereas Aboriginal peoples’ dreaming extends well beyond the low-water mark (and as such it was felt that legal rights should respect ‘traditional’ boundaries).

Progressive alienation from country and limits on customary access to country

In Darwin, increasing urbanisation has led to a corresponding alienation from country and limits on customary access to country. The ability of traditional owners to access and use country for customary purposes is increasingly constrained by urbanisation. Examples cited by respondents included overuse, foreshore closures and pollution of local creeks and Darwin harbour constraining access to and/or edibility of bush tucker. Respondents stressed how difficult it was to manage land and sea in an urban centre.

“We can’t even swim or fish in Rapid Creek now because it’s polluted.” (Darwin, Larrakia respondent).

Increases in traffic in Darwin harbour as a result of port development has led to pollution from spills and bilge toxins leading to calls for a marine sanctuary to be established in the harbour and independent monitoring of the harbour health.

“They are poisoning our water and we don’t have a say.” (Darwin, Larrakia respondent)

Aboriginal influence over fisheries management

Traditional owners’ desire to assert influence over decision making in relation to fisheries management was a strong theme that emerged during consultations (Maningrida and Borroloola).

The need for a system of monitoring and enforcement was identified. In particular, rangers’ enforcement powers and education of non-Indigenous people about Indigenous values in relation to fisheries were seen as vital.

In Borroloola, some respondents indicated they would like to see more Aboriginal people sitting on the Fisheries Management Board. In Maningrida, Darwin and Borroloola several rangers have been trained in fisheries compliance at various levels. One Larrakia ranger has held an Inspector level 1 certification (without the formal position) for some time. Overall, monitoring and surveillance of recreational water-based activities is very difficult when there is no boat registration nor recreational fishing licence system in place in the Northern Territory.

Enterprise development

The desire to realise economic/enterprise development opportunities in the marine environment was a key interest expressed during consultations. However, before committing, Aboriginal people want to understand what effects different activities will have on the attributes they most value.

Indigenous commercial/customary fisheries (including aquaculture)

Consultations affirmed interest in pursuing livelihood opportunities based on fishing and crabbing in Maningrida, Galiwin’ku, and Borroloola. There was interest in securing licenses for commercial species, but there was a desire to learn more about the sustainability of those fisheries before

pursuing such activities. It appeared that existing information about fishery sustainability was not getting back to communities (Maningrida).

In Maningrida, enterprise development interests identified include:

- securing licenses for commercial species (subject to information about the sustainability of those fisheries);
- semi wild harvest and/or 'ranching' aquaculture projects of trepang, oysters, pearls, trochus (subject to research to determine population status and potential for harvest). It was also noted that in the past there had been start-ups, but there had not been enough work done to scope viability. In some case there had been as assumption of transferability from one community situation to another, which proved unsuccessful;
- fee for service monitoring;
- contracting of local researchers (e.g. Aboriginal Research Practitioners Network, Yalu researchers at Galiwin'ku et al)
- biosecurity and other contracted services

In Darwin, interest was expressed in employment and economic opportunities in the 'natural economy' and long-established traditional trade equivalent to the past Macassan trade in trepang.

Aboriginal Coastal Licences (**ACLs**) allow Aboriginal people living in remote communities to catch and sell up to 5 tonnes of fish per annum. The agreement and support of the local community is required and certain fish cannot be taken or sold under an ACL including commercial species (barramundi, king threadfin, Spanish mackerel, trepang, or mud crab). A number of people in Maningrida have been having success with ACLs over the last 10 months, highlighted by a recent shipment to the Darwin market. It is believed people in up to 20 communities (including homelands) are actively using these licences. One local license holder is interested in expanding into crayfish, and thinks some science around viability of these options would be useful. The Bawinanga Aboriginal Corporation has expressed a willingness to support any such research.

In Borroloola, there is only one ACL holder. Some families have held, or currently hold commercial fishing licences and boats, but none are currently working as commercial fishermen. Reasons for the lack of active participation in the enterprise seem to be related to the difficulties of negotiating family and commercial interests. Interest was expressed by one respondent from Ngukurr in getting assistance to obtain a fishing licence and operate a small business which would provide income to support his people to live on their homeland/outstation and for young people to work with him. In Darwin, there is no fishing licence involvement because ACLs are only available in remote communities.

In Galiwin'ku, there has been limited Indigenous involvement in commercial fishing or crabbing in the last generation, despite recent efforts by some individuals. A desire to obtain targeted support to develop specific enterprises including attracting more sea-bound tourists to Galiwin'ku and establishing fishing ventures was highlighted. There is also difficulty identifying services and service providers relevant to specific needs, particularly in relation to economic development opportunities. Another issue was a lack of trust for specific agencies/service providers based on poor track records and concern that local people's priorities and values are continually being overridden by others who pursue the agendas of their agency as opposed to consulting with locals to identify local priorities.

Monitoring and environmental management opportunities

Respondents expressed interest in pursuing fee for service monitoring opportunities e.g. biosecurity (Maningrida and Darwin). Some rangers showed interest in being more involved in crocodile

monitoring and removals (Darwin). There was also interest from rangers in undertaking sacred sites protection /heritage management work relating to fish traps and middens and a desire to engage with Elders more regularly to support this kind of work (Darwin).

In Borrooloola, Garawa Traditional Owners who are custodians of the stretch of coastline from the mouth of the Robinson River to the Queensland Border noted they have been trying to obtain funding for a Sea Ranger Program for several years so that they can gain the necessary access to manage this stretch of coast. Respondents expressed a desire to monitor tourist activity, conduct biological surveys, (including weed surveys) and to clean up ghost nets. A helicopter survey in recent years revealed an estimated 40 tonnes of ghost nets. Respondents are worried that mangrove die-back may be happening on their coastlines, but they cannot access the area to check. The li-Anthawirriyarra sea rangers, based in Borrooloola have previous research experience on turtle counts and in recording and preservation of rock art on islands.

Some Darwin respondents are keen to pursue opportunities related to carbon sequestration in marine environment (blue carbon), cultural tourism opportunities, heritage management, and commercial contracts including potentially operating a passenger ferry service and cultural experience to Mandorah - subject to funding and availability of legal advice /business support.

In Galiwin'ku there is some interest in developing 'small scale' fishing and hunting tours, but business advice and support is needed. It was felt that the challenges of establishing and running a business needed to be realised at the outset. The motivations for starting a business also need to be considered as financial gain may not be the main priority. It was felt that small-scale operations were often preferable as large businesses could be expensive to start up and overwhelmingly bureaucratic.

A need for more flexibility to offer training relevant to specific needs identified and requested by local people as opposed to concepts for training being generated by non-local people was also expressed.

Local empowerment, livelihoods and research questions

An obvious feature of this summary of recurring interests and concerns is the substantial proportion not accompanied by specific propositions about related research. Many of the problems articulated are longstanding and some, especially those relating to remote livelihoods, persist despite overarching government policy and programs seeking redress. With regard to livelihoods, principles for effective community development programs are well understood through studies of aid programs in developing nations. But these lessons are rarely applied to remote regions of Australia. Emphasis remains on small numbers of very large developments that research has repeatedly shown deliver benefits in too few places and, even when sited nearby, for too few local people to overcome chronic remote and regional disadvantage.

Work is needed to explore (often small scale) options that draw directly on local assets and capabilities. Some of these, like payments for environmental services, have been highlighted by respondents and are considered further in the sectoral report. Local groups are rarely positioned to consider options systematically and, although plausible livelihood options are identified, small scale developments in cross cultural environments do not usually attract attention or adequate, capable support. Clearly there is much applied research to be done around pathways to sustainable local development – much of which needed from local Indigenous researchers and through equitable partnerships.

As mentioned earlier, engagement in research itself can be an important starting point for building local capability and interest in exploring livelihood opportunities. The now substantial fire and carbon management businesses began as action-based collaborative research program. Research much be approached the right way if such exemplary outcomes with wider mutual benefits are to be realised.

Research engagement

The consultations highlighted that a better approach to research is needed where Indigenous community members are involved in all facets of research development and activity, and where outcomes are accessible, relevant and valuable for Indigenous groups. Particular issues relevant to research engagement that were raised during the consultations are discussed in detail below.

Management of research activity

The need to develop research protocols/strategies was noted during consultations. In particular, concerns were expressed about how to control how researchers and associated people, such as media, access country. For example, in Maningrida concerns were raised that, without proper planning researchers may accidentally be doing the wrong thing, potentially damaging sites and misrepresenting local opportunities and interests. The need for some kind of local ethics approval process was identified and a formal process whereby researchers apply to work in the area and Traditional Owners/Rangers assess those applications according to local interests. A 'position paper' outlining research and development interests against which to judge applications and align research in relation to the Indigenous Protected Area was suggested as potentially useful at the local level. Overall, it was felt that improved communications with various sectors would be of local and mutual benefit.

In Galiwin'ku and Borroloola, respondents stressed that people wishing to conduct research on Aboriginal land/sea (under ALRA) should contact the Northern Land Council in the first instance – recognising the need for improved processes within the NLC. In Darwin, it was emphasised that engagement by research organisations needs to be based on relationship building and thereby supporting capacity building. It was felt that divisions within local groups and their organisations were sometimes exploited.

Outcomes/benefits for local people

A strong preference was expressed for research directed at livelihoods opportunities and assessing the environmental impact of any proposed development(s). In Maningrida, research aligned to local priorities (as expressed in the Healthy Country Plan, for example) as well as research with commercial outputs for local people were sought (e.g. viability/feasibility studies regarding culture based tourism). Benefits for local people to participate in research was considered of high importance, as was recognition and protection of their intellectual property. There was also strong interest in supporting 'learning on country' (a model for teaching young people through land and sea based activities and tutelage by elders).

One respondent from Ngukurr gave an example of a successful research collaboration where a research institution worked with local women doing biophysical research (e.g. water monitoring work) which resulted, not only in improvements to the health of the billabongs that were fenced as a result but also for the women involved in the research, several of whom went on to study at university as a result of this experience.

Access and communication

It was felt that the outcomes of many kinds of research is not getting back to the relevant community. In Maningrida, consultations highlighted a strong desire for research results to be give

back to community (including schools) in local language/s. Another suggestion was to establish a centralised place for such information to be stored and managed by an organisation such as Bawinanga Aboriginal Corporation. Progress reports and a final report into the research must come back to the community in a format and language that ordinary people can understand.

Local researchers and local governance

It was noted that non-Indigenous researchers are often not aware of who and what is happening on the ground, of existing non-Indigenous and traditional governance structures. In Maningrida, it was suggested that it would be good to have a coordinated contact point similar to a past setup for the pastoral industry. Bininj (local West Arnhem Land Indigenous people) want to be respected as equals and want service providers to collaborate with community leaders to develop mechanisms for visiting staff to learn how the 'Bininj world' works and how to engage appropriately. This includes employing local people more often, as cultural guides from the negotiation stage of projects and activities.

"We need more local researchers doing the work, like the ARPnet/Yalu models; but also driving the research agenda. Bininj (local Indigenous people) should at least be involved in all on-ground Balanda led research activities." (Maningrida respondent)

Recognition and respect for local rights

In Darwin, Larrakia respondents felt that there is much more engagement with Traditional Owners happening elsewhere. Larrakia people are often not recognised as Traditional Owners because their cultural interests in and title to certain land under and around the city of Darwin is not properly recognised. It was also felt that government procurement processes did not support local Indigenous businesses and that perceptions of Larrakia people compared with groups in remote areas impacts funding opportunities.

Overall disappointment was expressed at the lack of real opportunity provided to local Aboriginal people from the mining and resources sector. However, Larrakia rangers are investigating opportunities for marine traineeships (to become skippers) and some interest has been expressed by a resources company to support these marine rangers. This could include research activities/capability building.

Right people, right country, right time

In Borrooloola, it was noted that, in some cases, where previously research organisations would come to Indigenous organisations to consult, now they come to them late with an already fixed agenda. Good relationships need to begin with an introduction to the right people who should include:

- A Cultural Advisor
- Traditional Owners for the region where the research is to be conducted, and
- Tjungkayi (ceremonial managers) for the region and/or Traditional Owners involved.

In some instances, it was noted that women prefer small group meetings as they can find it difficult to have their voices heard in large meetings. A strong desire to participate in any research was also expressed.

In Galiwin'ku, respondents noted that agencies need to factor in sufficient time and money to do consultations and show flexibility to accommodate cultural business such as funerals. Concerns were expressed that non-Indigenous individuals and organisations are using their capacity to operate effectively within the mainstream funding environment to represent Indigenous people's interests

when securing a range of funding opportunities for themselves with little or no consultation with the people they claim to be representing and providing services to.

Recognition and respect for local customs, knowledge (“two-way learning”) and existing capability

One respondent from Yugul Mangi Land and Sea Management group (whose area of operation includes sea country from Wuyagiba to Limmen Bight in the southern Gulf of Carpentaria) in Ngukurr stressed that researchers should have some cultural awareness training before doing any research on their country. He noted that he would like to do the research himself (and be paid for doing it) and that there should be ‘two-way learning’ – that is, he would like to learn from researchers and have researchers learn from him, including passing on traditional knowledge. He would also like to see the research shared with the community particularly children because “they are the future”. Recognition and respect for existing capability is of high importance with Rangers playing an important role in sea country management including carrying out extensive patrols of the coastline.

Key principles of engagement

Some key principles of engagement and criteria for measuring the value of research propositions are reflected in the results of the consultations and can be summarised as:

- know and respect local rights, interests and aspirations
- recognition and integration of traditional/local knowledge
- results given back to community in accessible form
- seeking and obtaining permission to access country and advice on measures to protect sacred sites
- ensure outcomes/benefits for local community
- consider livelihoods research/research assessing environmental impact of development i.e. research beyond traditional science
- Intellectual property recognition and protection
- respect for local authority/governance structures
- use opportunity to employ and pass on skills
- respect local timeframes
- right people, right country
- real involvement in on-ground activity, respecting existing capability and investing in development of future capacity
- recognition of the capability local people already have and of planning to date (e.g. IPA plans, Healthy Country Plans, Sea Country Plans)

Building better processes and structures for industry and government engagement with Indigenous interests is an essential part of a strategy for driving progressive improvements in a deeper understanding of Indigenous research needs.

Research design approaches

One of the purposes of the NTMSC UNA study was to identify common needs for ‘hard’ evidence in biophysical science to inform development decisions, including the “social license” to take up opportunities.

However, it is also necessary to recognise that participants varied in their capacity and interest in contributing to identification and justification of such biophysical research needs. For example, well-established industry organisations and larger companies are well placed to promote options based

on long and direct experience and honed analysis of gaps that need to be filled to optimise their performance. These will often require single-discipline (often biophysical) studies. Other groups, especially those representing community interests, may have had limited direct exposure to the utility of basic and applied biophysical research to address their interests about use and care for the marine environment. The experiences of Indigenous landowners and their communities prompts different responses: around compatibility of commercial use and customary obligations and ways of influencing interactions to minimise environmental and cultural costs and capture development benefits locally.

This mix of perspectives creates a somewhat disjunct array of issues and disciplinary emphases. Elements of the problem are summarised in Figure 1 below, which considers the sorts of biophysical and social science needs that arise regarding many economically plausible development options. Our consultations indicate that many of our informants seek better understanding about issues sitting in the upper right quadrant. Whilst they clearly recognise and have identified important biophysical research interests and consider that they have insights to offer in these matters, many (if not most) frequently express concern at the way that management and regulatory systems are deployed to deal with biophysical constraints: in ways that too often fail to recognise their particular socioeconomic needs and to protect cultural values. They are particularly troubled by their present inability to influence design and applications of regulatory instruments.

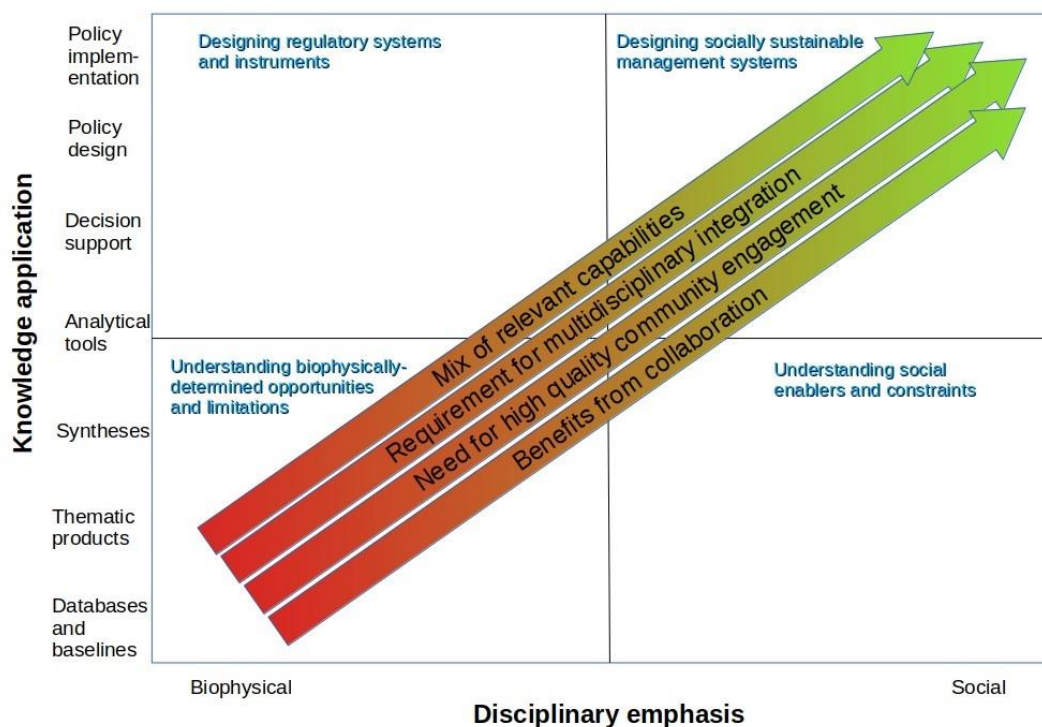


Figure 1: Representation of a 2-dimensional space within which marine research for the Territory may be designed, conducted and applied. Obviously, many other dimensions may be relevant but these are considered most relevant to this discussion.

Within the constraints of the project brief and the available funds and time, there is no simple way to resolve or even to comprehensively explore this perspective. However, there is clearly an

obligation to consider how the somewhat disjunct emphases of industry, government and the community of Indigenous owners and managers of sea country (and arguably other sectors of the Territory community) can be brought into better alignment. In particular, how should individual research projects or programs be designed and deployed to help join up the interests and actions of Indigenous people, industry and government?

As foreshadowed in the emphasis on traditional owner and community engagement in presentation of Indigenous views, improving both industry and government processes and structures for engagement is an important part of the answer.

Conclusion

Many of our informants have obligations to look after sea country or depend on it for customary livelihoods. When asked to consider issues for management of marine environments, powerful emphasis on issues affecting contemporary capacity to meet customary obligations, maintain livelihoods and sustain relationships with country is inevitable. Lived experience of recurring disrespect for sacred sites, resource allocation regimes that exclude Indigenous owners, government determination to make agreements that trade off influence over activities on Indigenous lands, and other damaging or offensive behaviour from those gaining access to their lands, strongly influence responses. The relevance of gaps in formal scientific (especially biophysical) knowledge to these immediate dominant concerns is often far from obvious.

This has important implications for this study. In particular:

- some informants were unwilling to forgo the opportunity to put deeply held concerns even if they were unable or unwilling to connect them to research questions
- others connected these fundamental concerns to processes in policy-framing and related decision-making, which are clearly legitimate questions for research but require different disciplinary foci, approaches and participants from the chiefly biophysical interests expected from many industry and government informants
- because we sought to avoid leading the direction of interviews when the project goals had been explained, we were sometimes required to infer research questions rather than cite verbatim questions articulated directly by informants. We did this only where the frequency of responses on such issues and related discussions permitted reasonably robust inference.

We appreciate that this situation considerably complicates presentation of a coherent suite of research needs; or of clearly articulated “sectoral” overlaps in needs that might be useful in assigning priorities. Treatment of Indigenous interests – one third of the whole of Territory society and most of the coastal population and owners of coastal lands - as equivalent in standing to a discrete industry sector or recreational fishers calls into question the validity of overlap criterion anyway. This problem is exacerbated by the fact that the overwhelming Indigenous response is to question the status quo and seek major policy and regulatory change to accommodate Indigenous interests better, whereas other industry and government statements just as consistently seek to entrench existing non-Indigenous interests and, in the process, weaken Indigenous influence.

This report provides a snap-shot of marine science research needs from Indigenous perspectives – some unique to particular areas and others with apparently common emphases. Perhaps more importantly this work has described the customary, economic and legal context in which much marine research will take place. Hence the particular emphasis on engagement principles.

It is clear that Indigenous people are keen to engage in useful research and perhaps associated development, but wish to do so in accordance with their own interests, rights and wellbeing. Research endeavours based on practical recognition, mutual respect and agreed principles of engagement are more likely to deliver triple bottom line outcomes useful to sea country owners and managers.

This report has also sought to articulate some elements of a conceptual framework for selecting and designing research projects, built predominantly on acceptance of the obligation to engage closely with the traditional owners of coasts and seas to ensure that cultural, social, economic, biophysical and other values inform those processes.

Assigning research priorities across all the issues impacting the lives of the Indigenous people with interests in coasts and seas is presently out of reach, given that various community interests and industry sectors are acting more or less independently and often without agreed mutual aims. This report and the sector focused NTMSEUNA report, confirm the need for such a framework to drive effective application of this large body of information on gaps in understanding of the marine environment and ways in which optimal benefits can be gained from future use and management.

Appendix 1 – Indigenous Engagement Report Part A - Desktop Review

Appendix 2 – Consultations

Summary of community consultation meetings

| Region, community | Individual, Group or Agency | Method |
|-------------------|--|---|
| Kimberley | Indigenous land and sea manager /Traditional Owner | Telephone interview |
| Torres Strait | Indigenous land and sea manager/Traditional Owner | Telephone interview |
| Nhulunbuy | Yirrkala Ranger Group Coordinator | Telephone interview |
| Maningrida | Djelk Ranger Group Coordinator | Telephone and face to face interview in Darwin |
| | Traditional Owner | Telephone interview |
| | Indigenous research practitioner/Traditional Owner | Face to face interview in Darwin |
| | Traditional Owners | Small group meeting in Maningrida |
| Borroloola | Traditional Owners (Garawa) | Small group meetings in Borroloola (2) |
| | Mabunji Board members | Small group meeting in Borroloola |
| | Senior ranger (Waanyi Garawa Rangers) | Telephone interview |
| Ngukurr | Traditional Owner (Yugul Mangi) | Face to face interview in Darwin |
| Darwin | Larrakia Development Corporation representative | Face to face meeting in Darwin |
| | Larrakia Nation representative | Face to face meeting in Darwin |
| | Larrakia Rangers | Small group meeting in Darwin |
| | Traditional Owners (Larrakia) | Small group meetings in Darwin and Palmerston (2) |
| Galiwin'ku | Traditional Owners | Individual face to face meetings in Galiwin'ku |

Note: Small group meetings ranged in size from 2-8 participants. In addition to the detailed community consultations and interviews noted above, preliminary discussions were held with Traditional Owners/Custodians, rangers and coordinators, Indigenous researchers, and other people with relevant experience to assist identifying issues and interest in further participation.

Sample consultation topics/questions

Looking after your sea country

What are the important things for looking after your sea country? What is going well with the management of your sea country?

Do you have worries about the way your sea country is being managed? What are they?

Do you need more information to help look after your sea country? Do you have questions that you

think need to be answered right away?

Using your sea country

Are there new things that you want to do on your sea country to look after it better, or to make money, or to provide opportunities for family and community?

Have you heard about any activity that is happening on your country that may affect your sea country? Do you have any concerns?

Is your community involved in any business on sea country, e.g. commercial fishing? Are there reasons why your community isn't doing business on sea country?

Research

Have you worked with researchers and scientists before to understand more about your country? Is there research about your country that you would like to know more about?

Can you access research and scientific information easily, and how should you and other local people be involved in research about sea country?

Laws and policy for managing sea country

We have looked at statements made by Aboriginal organisations around the Territory about the need for better laws and policies that might affect the way governments try to manage what happens on sea country. To make better laws, they need to know what you think about the use of sea country.

Do you have a say in who comes into your sea country and what they do there? Are you involved in fisheries and other advisory committees? Are you confident your sea country and the important animals and places are being looked after?