

31 January 2014

Queensland Government
Great Barrier Reef Marine Park Authority
C/- Reef Feedback

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Environment
Institute of
Australia and
New Zealand

The Environment Institute of Australia and New Zealand (EIANZ) is pleased to submit its comments on the Great Barrier Reef (GBR) Strategic Assessment (SA) reports. The Institute acknowledges the efforts being made by the Commonwealth and Queensland governments to respond to and address the recommendations of the UNESCO World Heritage Committee for management of the Outstanding Universal Value (OUV) of the Great Barrier Reef World Heritage Area (GBRWHA). The Institute considers that there is more that needs to be done to ensure that the SA reports and the associated forward programs of action represent good practice environmental management for the World Heritage property.

The EIANZ is the leading professional body in Australia and New Zealand for environmental practitioners, and promotes independent and interdisciplinary discourse on environmental issues. On all issues and all projects the Institute advocates good practice environmental management delivered by competent and ethical environmental practitioners. The EIANZ's detailed comments (attached) focus on the soundness of the methodological approaches used in undertaking the strategic assessment, and the efficacy of the forward programs of action in achieving sustainable and best practice management of the GBRWHA.

The SAs represent a large body of work and a good overview of issues facing MNES associated with the coastal zone and the GBR ecosystem. The GBRWHA is a geographically large property, and the attributes that contribute to its OUV are complex, varied and heavily inter-related. The EIANZ acknowledges that this poses many planning and management challenges, however, the Institute has major concerns regarding the approaches taken in the SAs and the resulting forward programs of action and consider that these do not adequately reflect the size and complexity of the property and therefore do not provide a sound basis for the property's ongoing management and protection.

The EIANZ considers that the documents, as they presently stand, do not demonstrate and give confidence that an enhanced joint management approach for the GBRWHA can be developed by the Commonwealth and Queensland governments. The EIANZ considers that the SAs fall short of addressing the issues raised in the UNESCO Mission Report, recommendation R5 (http://whc.unesco.org/download.cfm?id_document=117104).

The key concerns of the EIANZ are the:

- Lack of integration and consistency between the two SAs with no clear evidence of progress having been made in addressing jurisdictional issues that underpin good practice management of the GBRWHA;
- Limited focus on the full range of attributes that contribute to the OUV of the GBRWHA and lack of detail on the values, current states, pressures and trends associated with those attributes. The EIANZ notes that the issue of the integrity, an important attribute of World Heritage properties, needs to be more extensively analysed and better understood so that threats to integrity can be comprehensively assessed;
- Lack of site specific assessment of issues, with limited use of available data published by government, research organisations and consultancies, or analytical tools to advance the understanding of the OUV of the GBRWHA;



- Inadequate evidence and analysis in the SAs as a basis for the conclusions drawn, and inconsistency between the conclusions drawn in the two documents;
- Vague forward management program focussing mostly on further studies to fill identified information gaps, rather than real actions to address the issues identified by the UNESCO World Heritage Committee; and
- Lack of clarity on whether the SAs will be used to eliminate project by project assessment under the strategic assessment provisions of the EPBC Act.

These are discussed below. More detailed comments on individual sections of the reports have also been prepared and are attached.

1. A single strategic assessment

The EIANZ supports an integrated approach to what is a single World Heritage property and is concerned that a single SA has not been prepared. A single SA has the major advantage of demonstrating the kind of collaboration and shared objectives between the Commonwealth and Queensland governments that are so important to the management of this multi-jurisdiction World Heritage property. A single SA would give stakeholders, including the UNESCO World Heritage Committee more confidence in the forward programs of action and the likely success of the joint management of the World Heritage property.

The EIANZ found the approach of preparing separate SAs for the coastal and marine zones added to the complexity of the issues, because different methodologies were used in the preparation of each, and it seems that the scope of assessment was also different (the Coastal SA looked at all MNES in a high level manner, while the Marine SA focussed extensively on the ecological and biodiversity values within the GBRMP). This led to there being:

- Confusion regarding the coverage of inshore waters and coastal ecosystems, ports and islands;
- Inconsistent conclusions between the two documents, for example, on the state and trends of inshore coastal ecosystems and the effectiveness of various program components; and
- No further clarification of management arrangements for coastal waters.

The EIANZ notes that there was very limited mention of the Great Barrier Reef Intergovernmental Agreements in either of the SAs, and no proper evidence-based evaluation of how effectively these arrangements are put into practice. The forward programs did not fully address how these agreements would operate in future.

2. Lack of coverage of all attributes that contribute to the OUV of the GBRWHA

Although the impetus for the strategic assessment arose following a mission by the UNESCO World Heritage Committee in relation to management of and development within the GBRWHA, there is, in the EIANZ's view, limited focus in either SA on exploring the full range of attributes that contribute to the OUV of the GBRWHA, or advancing the understanding of the values, current states, pressures and trends associated with these attributes, and management arrangements for them.

The Marine SA focusses heavily on the matters that fall under the remit of the Great Barrier Reef Marine Park Authority (GBRMPA) through the *Great Barrier Reef Marine Park Act 1975*, meaning that the assessment really only addresses *criterion x* of the World Heritage listing in any detail. The Coastal SA covers all MNES in the coastal zone, rather than focus only on the GBRWHA, with the consequence that its analysis and conclusions are extremely high level and diluted.

The assessments of management effectiveness in both the Coastal SA and Marine SA are biased towards management of the ecological values of the GBRWHA. Little information is provided in terms of the plans and management actions that protect the attributes that contribute to *criteria xii, xiii* and *ix*. Such attributes include landscape and visual amenity, superlative natural phenomena, geological and geomorphological processes and evidence of geological history and evolutionary processes. Importantly, the lack of management programs and protection measures specific to these values was not identified as a gap in either SA.

While measures to manage and protect biodiversity and habitats will, to some extent, also protect these other attributes, the EIANZ considers that specific legislative protection and targeted management is required, given the extent to which these features contribute to the OUV of the GBRWHA.

3. Lack of Detailed Assessment

Both the Marine SA and Coastal SA present existing information in a very generic manner, largely re-presenting earlier studies, rather than evaluating and synthesising new information. The assessment presented in the Marine SA appears to be largely reworked from the 2009 Great Barrier Reef Outlook Report (GBRMPA 2009). The Coastal SA does not present any substantial data or evidence-based evaluation to support the assessment components.

There is a lack of rigorous analysis of the current condition of the attributes that contribute to the OUV of the GBRWHA, or other MNES. New information available from, for example, monitoring programs undertaken for port related development, has not been incorporated. Discussion of pressures and impacts are generic, with no location specific information provided, and little quantitative data to substantiate conclusions regarding the severity of pressures and impacts. This is particularly the case in the Coastal SA.

Analysis of monitoring data from locations such as Hay Point and Gladstone Port/Port Curtis could have provided specific information on the impacts of large industrial and marine development projects, and the effectiveness of the mitigation measures in avoiding and controlling impacts. This could have been used to inform discussions of the impacts of dredging, industrial development and port activities more specifically.

Whilst the EIANZ notes that a number of detailed technical studies have been undertaken, particularly to compliment the Marine SA, it is of concern to the EIANZ that these received only limited mention in the SAs. These studies could have informed the SAs and allowed advancement of the understanding of the systems, pressures and impacts.

The question of an appropriate level of development in any area with important natural attributes is a very difficult one and EIANZ appreciates that there are very few examples of where this question has been satisfactorily answered and translated into a management program. However, examining this issue is at the crux of the UNESCO World Heritage Committee recommendations, and the SAs consistently shy away from this issue. Information and insight on appropriate developments and activities within the GBRWHA has the potential to significantly enhance the quality of impact assessment, and decision making in relation to use of the area, which is considered fundamental in attending to the concerns raised by the UNESCO World Heritage Committee, and the current high level of community concern regarding port and other development activities. It is also critical if the SAs are to be approved under the strategic assessment provisions of the EPBC Act.

4. Methodology

The EIANZ has a number of concerns regarding the methodology used for the SAs and the evidentiary basis for the conclusions drawn. Overall, the documents appear to have been process driven rather than outcome oriented in their development.

Key concerns include:

- The methodology outlined in Section 3 for the Coastal SA is not coherent, nor is it possible to see how the methodology was carried through into the actual assessment. The methodology does not appear to have drawn on accepted standards of good practice for environmental assessment;
- The methodology for the Marine SA is more detailed, but the assessment itself does not necessarily deliver on the depth of analysis envisaged in Section 2.
- There appears to be a limited evidentiary basis for the conclusions drawn in the Coastal SA, and in many cases, it was difficult to see how the conclusion had been drawn, based on the information presented. This undermines confidence in the conclusions of the assessment and the validity of the forward programs of action. The analysis of effectiveness of the current program in the Coastal SA is particularly weak. For

example, significant recent and proposed changes to legislation and policy do not appear to have been taken into account, and there is very limited analysis of how the program deals with land use change and the range of smaller projects that do not trigger an EIS. As a result of this assessment, conclusions have been drawn regarding the effectiveness of current management that appear to be erroneous.

- The Coastal SA appears not to draw on current data, nor existing historical data. A more comprehensive assessment and analysis of available data is clearly required. The Marine SA presents a more rigorous analysis, although it does draw largely from the analyses in the 2009 GBR Outlook report.
- The case studies and demonstration cases simply describe the arrangements in place, with no quantitative or qualitative evaluation of the effectiveness of the management arrangements. No international case studies are presented that demonstrate effective arrangements in other World Heritage properties.

5. Forward program

The EIANZ is concerned that the forward programs of actions contained in both SAs are vague and lack clarity, accountability, resource requirements, implementation plans, time frames, monitoring and reporting mechanisms and specific outcomes. As the forward programs are generic and not the result of rigorous assessment of issues and gaps, the EIANZ considers that these programs should have been the starting point for the SAs, with the SA then focussing on filling the gaps identified, rather than revisiting existing information.

The lack of incisive analysis in the SAs has meant that decisions about the acceptable level of development and activity has simply been put off until further information is available. The EIANZ notes that the physical and biological systems that make up the GBRWHA are complex and inter-related, and it is unlikely that these systems will be fully understood, regardless of the depth and breadth of research, and sophistication of models that might be developed. Hence, the ability to predict and avoid impacts is also likely to be imperfect. Never the less, the EIANZ considers that the SAs must tackle the difficult issue of identifying the locational and other constraints on development that occurs in or impact on the GBRWHA, and the opportunities for actions that improve the protection of the OUV.

The EIANZ supports the recognition in the SAs of the need for adaptive management as this is a key tool for dealing with uncertainty in impacts on environmental systems. One of the key foundations of adaptive management is that it allows actions to proceed when there is some uncertainty as to the actual impacts, providing that monitoring is conducted using appropriate indicators and that management actions are adjusted accordingly based on the monitoring outcomes. This approach however must be underpinned by clear performance indicators and meaningful monitoring programs as well as a strong commitment to change management approaches and if necessary, reduce the level of activity, where monitoring indicates that performance indicators have not been reached.

Given EIANZ's concerns regarding the conduct of the SAs, the EIANZ suggests that the forward program of actions be extensively revised, once comments from the EIANZ, the Independent Peer Reviewers and other stakeholders have been considered and assessed. In this review, stronger linkages between the findings of the SAs and the forward program should be drawn.

EIANZ has several other key concerns with the forward programs of action:

- The programs do not clearly demonstrate how an integrated management approach to the OUV of the GBRWHA will be delivered. The EIANZ notes that there are some strong examples of integrated, multi-jurisdictional management of environmental systems, including the Wet Tropics WHA management arrangements and the Healthy Waterways partnership in South-East Queensland, to name two very successful approaches. The EIANZ strongly suggests that successful management of the GBRWHA will only be achieved through the development of a single management plan that all relevant agencies and other stakeholders are aligned and operating in accordance with. As with the Wet tropics World heritage Area and the Healthy Waterways program, it may be appropriate to establish joint administrative agency to oversee the development, implementation, and periodic review of a single management plan in

conjunction with the various stakeholders. Such a plan and agency may also support the establishment of a “one stop shop” for assessment and approval of actions in the GBRWHA;

- The forward management of the GBRWHA and other MNES hinges on preparation of a sustainability plan, however very little information is presented on how this will be developed. The EIANZ notes that fundamental conflicts between the preservation and development of natural resources have presented a significant challenge to attempts at sustainable management across the world. The EIANZ considers that, if the proposed sustainability plan is to be effective, the SA must, set out how this issue will be dealt with. Development of a sustainability plan creates the challenge of determining appropriate levels of development and use, and mechanisms to ensure that environmental protection thresholds are not exceeded. This will require that all stakeholders agree on thresholds and outcomes in terms of impacts on the various attributes that contribute to the OUV of the GBRWHA, and be willing to take responsibility for and the actions necessary where these thresholds are exceeded. This is the case even if this means imposing restrictions on use and development, both in the GBRWHA and the adjacent catchments. It would also be appropriate to provide examples of where such a sustainability plan has been successfully implemented, and an analysis of the lessons learnt in developing and implementing such plans;
- The SAs state that while climate change is identified as one of the most significant risks for the GBR ecosystem and other ecosystems that make up the GBRWHA, management of this impact is outside the scope and jurisdiction of the agencies involved. Hence, the forward program focusses heavily on building resilience through management of other impacts. In this regard, the next most important initiative is management of contaminants in land-based runoff through ReefPlan. The EIANZ is concerned that, even if all the outcomes sought in ReefPlan can be achieved, and other impacts and pressures can also be reduced, this may not be enough to build sufficient resilience to resist the cumulative impacts of climate change and other pressures. This is a gap that requires urgent action to investigate and analyse potential efficacious mitigation and resilience building strategies and actions;
- Notwithstanding the requirements of the EPBC Act in relation to assessment of impacts of new development proposals on the OUV of the GBRWHA, it is of concern to the EIANZ that there is still no clear legislative requirement in relation to day to day management and protection of the OUV of that part of the GBRWHA that lies outside the GBRMP, nor those aspects of the OUV that lie within the GBRMP but relate to criteria vii, viii and ix (see also Section 3 of Lucas et al, 1987);
- It is also of concern to the EIANZ that there is no intention to add MNES specific requirements to Queensland legislation. It is proposed to develop guidelines on how MNES can be addressed in development of policies and plans. However, such guidelines are unlikely to carry any legislative weight. This point would seem particularly important in the light of the stated MOU between the Federal and Queensland governments to develop an “approval bilateral agreement”.

6. Strategic Assessment under the EPBC Act

Under the EPBC Act, approval of a program or plan through a strategic assessment removes the need for project by project assessment of activities that take place in accordance with the approved program or plan. While the SAs were prepared under the strategic assessment provisions of the EPBC Act, it is not clear how the SAs will function in this regard.

The current documents do not, in the view of the EIANZ, contain enough information to provide the basis for a set of actions to be approved under the strategic assessment provisions of the EPBC Act. The extent to which the SAs might be used in future to avoid or reduce the need for project level assessments should be clarified. If it is intended to approve the SAs such that certain actions outlined in the SAs can take place without further assessment, the EIANZ considers that significant additional analysis of environmental impacts of the SAs and public consultation on subsequent drafts of the SAs is required.

7. Other Matters

The EIANZ also notes that:

- As with other types of environmental and social impact assessments, each SA should contain greater transparency by providing a list of individuals and organisations involved in project management, writing and technical components of the assessment. The qualifications, organisational affiliations and relevant experience of these individuals should also be provided.
- It would have been illustrative to bring in case studies and examples from other locations in Australia and overseas to demonstrate how the proposed management arrangements will be effective
- A cross referencing table demonstrating how the independent review comments were addressed and where comments are not supported, how a comment will be refuted.
- It is of concern that not all of the recommendations of the independent peer review of the Coastal SA have been addressed in the current draft. We also understand that a peer review of the Marine SA is also underway and seek information on the process for this to also be considered by the public.
- Clarification should be provided as to the process for dealing with comments on the current documents, including whether comments will be in the public domain, and whether they will be sent to the UNESCO World Heritage Committee.

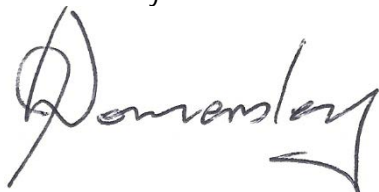
8. Closing Comments

In summary, the EIANZ recommends that:

- A single integrated SA be prepared, with the primary focus on protection and management of the OUV of the GBRWHA;
- The integrated SA be reviewed by an expert panel. The EIANZ is in a position to nominate expert reviewers from amongst its membership;
- The integrated SA leads to a single integrated management plan (sustainability plan or other terminology that obfuscates the real purpose of the document should be avoided) for the GBRWHA, which will then allow an integrated and consistent inter-agency response;
- This integrated management plan should be coupled with a review of the intergovernmental arrangements for management of the GBRWHA to ensure that management of all geographic areas and attributes of the GBRWHA are assigned to the appropriate agencies, without gaps or overlap;
- Preparation of the integrated management plan and tools such as the guide to incorporating MNES considerations into the Queensland planning and development assessment processes is also overseen by an expert panel. Again, EIANZ is in a position to nominate suitable experts from among its membership;
- There be a clear commitment to prepare a follow-up SA within two years that fully addresses the UNESCO Mission Report recommendations and conforms to the requirements of the EPBC Act by nominating activities and classes of actions that can proceed without further assessment under the EPBC Act.

The EIANZ would be pleased to assist in and contribute to the further development of the SAs. I can be contacted directly on 0457 509 201 or at president@eianz.org.

Yours faithfully



Jon Womersley
President

Cc: The Hon Greg Hunt MP, Minister for the Environment
The Hon Andrew Powell MP, Queensland Minister for Environment and Heritage Protection
The Hon Jeff Seeney MP, Queensland Minister for State Development, Infrastructure and Planning



Environment
Institute of
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Great Barrier Reef Strategic Assessment – Detailed Comments on Coastal Component

January 2014



Table of Contents

1. Draft Program Report	1
2. Strategic Assessment Report	5
2.1 General Comments	5
2.2 Chapter 3 – Assessment Approach	7
2.3 Chapter 4 – Condition and Trend.....	9
2.4 Chapter 5 – Pressures and impacts on MNES.....	10
2.5 Chapter 7 – Program effectiveness.....	14
2.6 Chapter 8 – Projected condition	23
2.7 Chapter 9 – Adaptive management	24
2.8 Chapter 10 – Recommended changes and forward commitments.....	24
3. Demonstration Case Studies.....	24
3.1 Abbot Point demonstration case	24
3.2 Gladstone Harbour demonstration case.....	26
3.3 Island Management Demonstration Case	27
3.4 Water Quality Demonstration Case	28
4. References	30



1. Draft Program Report

Section/topic	Comment
Program intent	<p><i>"By considering matters of national environmental significance (MNES) early in the planning and development process it is the aspiration of both the Queensland and Australian governments that this Program will result in further removal of administrative burden by removing the need for project by project assessment and approval by the Australian Government".</i></p> <p>The premise that assessment of protectionist requirements at a national scale is an appropriate basis for removal of regulatory requirements designed to manage effects of development that operate or are expressed at smaller scales is not advisable or appropriate. Other legislation has been prepared in the context of federal legislation (EPBC Act) designed for use at a scale and in time frames relevant to individual projects. EIANZ is of the opinion that the new approach would be reasonable only if new national environmental legislation was already in place in 2014.</p>
Table of Contents/ Sn. 1.8	<p>The Table of Contents listed Section 1.8 as, 'What will the strategic assessment mean for future development'. This is arguably the most critical Section of the draft Program report. However, it was not included in the body of the report.</p>
Figure 2.3.1 – program commitments	<ul style="list-style-type: none"> • Guidelines alone may be insufficient to ensure the consideration of MNES in planning, development and land use decision making. A better approach would be the explicit recognition and protection of MNES in Queensland legislation in the same way that State significant environmental values are recognised and protected • More clarification is needed on how a clearer, more strategic approach to offsets will protect MNES, particularly the OUV of the GBRWHA. EIANZ understands that offsets policies are under review and it is critical that any assessment of program effectiveness take this into account. • It is unclear how offsets can be used to achieve a net environmental gain unless offsets are secured well in advance of impacts and in nearby areas so that ecological function is maintained • For adaptive management to be successful, clear indicators and targets must be set and comprehensive monitoring undertaken. It would be appropriate for the Strategic Assessment to provide these indicators and targets
Table 2.2.1	<p>The desired outcomes for trend (improving and stable) do not make sense. Maintaining a trend may not be desirable if the trend is negative.</p>
Section 3	<p>Comments on Section 7 of the Strategic Assessment Report are also relevant here</p>
Figure 3.2.1	<p>Alignment between matters of State and National environmental significance would appear to have been overstated. There is no recognition of WHA values in State legislation, nor is there recognition of Ramsar wetlands or National Heritage</p>
Section 3.3	<p>The statement "this is required for all new industrial developments in the GBR" is not supported by evidence. There are no formal or informal requirements for any State-based assessments to consider MNES unless there is a bilateral agreement in place for the assessment. A large number of industrial and non-industrial developments may not trigger an EIS and therefore not trigger a bilateral. For these developments, there is no requirement to consider MNES in the State approval process.</p>
Section 3.3	<p>States that with strategic approach to offsets, a net gain can be achieved for MNES. Is this a commitment in relation to the current review of State offset policies and requirements? Are there examples or case studies that support this?</p>



Section/topic	Comment
Section 3.4.1	Note that Nature Refuges do not provide any real protection (for example, the recently approved Waratah Coal Mine will result in removal of the Bimblebox Nature Refuge)
Section 3.4.1.1	A suitable approach to expanding the protected area estate and targeting strategic offsets could be based on the Representative Areas Program approach utilised by GBRMPA for the GBRMP (see http://www.gbrmpa.gov.au/zoning-permits-and-plans/rap). This approach would ensure that areas representative of the full range of terrestrial biodiversity values were protected
Section 3.4.2	The statement that the Queensland Government planning system provides for consideration of environmental values early identifying land for development should be tested against a range of actual examples and case studies.
Section 3.4.2	The current version of the State Planning Policy contains a single requirement in relation to MNES; that MNES be “considered” when Making or amending a planning scheme and designating land for community infrastructure. If the assertion is to be made that the SPP provides an adequate level of protection for the GBRWHA and other MNES, it would be appropriate to provide some examples that demonstrate how this works in practice.
3.5.1 (and elsewhere)	Note that the EP Act provides for management of petroleum activities as well as mining
3.5.1.3	Note that the EIS process under the EP Act only applies to resource projects (mining and petroleum). An EIS is not required for other environmentally relevant activities.
Section 3.5.1.4	for those Port environmental management plans that are available on the internet, it does not appear that coverage of MNES is “comprehensive”. It is suggested that then individual plans be checked to ensure that there is evidence to support the conclusion that coverage of MNES is comprehensive. Also, note that the Port EMPs are not a consideration in making decisions regarding actions at ports.
Table 3.5-1	Note that “operational waterway barriers and fishways” is also incorporated under the SP Act
Table 3.5-1	Note that the Water Act also regulates environmental flows; this is an important consideration in relation to coastal ecosystems and geomorphological processes
Section 3.5.2	It would be appropriate to provide examples of how SARA provides for protection of MNES s there does not appear to be any formal requirement in this regard. Are SARA staff trained in the identification of MNES?
Section 3.5.3.1	In relation to the comment that management changes ensure that fisheries remain ecologically sustainable, it would be useful in some part of the SA report to discuss whether fisheries are operating sustainably or not and provide data to support this, as this is a key value of the GBRWHA
Section 3.6	In relation to the length of time that offsets have been used in Queensland, the fisheries related offsets have been in place since about 2000, however the vegetation offset policies were introduced in 2008. Given the heavy reliance of the program assessment on the efficacy of offsets, and the relatively short time frames in which offset policies have been in place, it would be valuable to provide examples of where offsets have been provided that have fully replaced biodiversity values in Queensland or elsewhere. It is of concern that there is a considerable time lag between the clearing of a particular area and the re-establishment of equivalent biodiversity values at the offset location, and this needs to be addressed.
Section 3.7.3	A more quantitative analysis of the success of ReefPlan in achieving its targets across



Section/topic	Comment
	all basins draining to the GBR would be appropriate, given how critical this program is to protecting the GBR
Section 3.7	For each of these supporting programs, it would be useful to have some quantification of the effectiveness of the program, including actual expenditure, the land area within the GBR catchment that has been targeted by various activities (eg weed control), and the success of the programs in achieving the outcomes
Section 3.8	Compliance is a critical matter as the effectiveness of imposed conditions of approval depends entirely on the extent to which proponents comply. Rather than simply list the compliance activities, some quantitative information should be provided on enforcement activities and the actual level of compliance
Section 3.9	More information on the monitoring programs should be provided, particularly in relation to funding and geographic coverage
Table 4.1.1	Given the extent of comments on Section 3 of the Program Report and Section 7 of the Strategic Assessment Report, it is suggested that this table be extensively reviewed as it would appear that the effectiveness ratings have been overestimated
Table 4.1.2	The information in this table does not seem to relate well to the information in the strategic assessment report and should be checked carefully for consistency. The table may also need to be extensively reviewed once comments on Section 3 of the Program Report and Section 7 of the Strategic Assessment Report have been addressed
Section 4	In relation to standard conditions for MNES, EIANZ has concerns with the use of standard conditions as each project is unique in itself and in its location and impacts.
Section 4	Many of the measures recommended to strengthen management would appear to already be in place. Is it intended to modify these existing measures to ensure better coverage of MNES?
Section 4, Section 5	<p>It is critical that all new policies, plans and strategies in relation undergo Strategic Environmental Assessment to check whether the implementation of the policy, plan or strategy will have unacceptable impacts on the GBRWHA, other MNES and the environment generally. Note that this form of Strategic Environmental Assessment is much broader than the types of strategic assessment undertaken under the EPBC Act. More information on the theory and practice of Strategic Environmental Assessment is available at:</p> <ul style="list-style-type: none"> • http://www.iaia.org/publicdocuments/special-publications/SEA%20Guidance%20Portugal.pdf • OECD http://www.oecd.org/dac/environment-development/37353858.pdf • European Union http://ec.europa.eu/environment/eia/sea-legalcontext.htm
Section 4, 5 and 6	These sections need to be reviewed once comments on other aspects of the strategic assessment have been addressed
Section 5.2.2	The term “sustainability plan” is very broad and can be used in a wide range of contexts. A more detailed description of the sustainability plan should be provided, covering the content of the plan and how it is to be developed. EIANZ suggests that Integrated Management Plan may be a more suitable name.
Section 5.2.2	Given the importance of the “long term sustainability plan” it would be appropriate to provide a lot more detail on what this plan will cover and, more importantly, how the plan will deal with the inherent conflicts between preservation and conservation of natural resources and pressure for economic development
Section 5.2.2	In order for a sustainability plan to successfully guide development and use of the



Section/topic	Comment
	GBRWHA while still protecting the OUV of the property, the plan must clearly identify the values to be protected and the desired state of these values and set out thresholds for individual and cumulative impacts. The Plan must then contain a mechanism for removing pressures, and preventing further pressure in the event that thresholds are reached. For this to be effective, there must be a clear policy directive that, should thresholds be reached, further activity and development will be halted.
Section 5.2.2	Are there examples of where sustainability plans of this type have been successfully implemented elsewhere in Australia or overseas?
Section 5.2.2	A revised draft of the Coastal SA should include the draft vision and draft outcomes framework. It is critical that the outcomes framework be quantitative.
Section 5.2.2	It is not considered that ReefPlan is a suitable model for the proposed sustainability plan.
Table 5.2.1	The desired outcomes for trend (improving and stable) do not make sense. Maintaining a trend may not be desirable if the trend is negative.
Section 5, Section 6	It is of concern that there is no intention to develop legislation in relation to management of the GBRWHA. While the Commonwealth EPBC Act provides a process for assessing impacts of proposed actions on the GBRWHA, there is no legislation at either Commonwealth or State level that covers management of the GBRWHA. The GBRMP Act covers management of marine biodiversity. Otherwise, there is no legislated requirement to manage those areas of the GBRWHA outside the GBRMP boundaries, the islands of the GBRWHA that are not managed as national parks, or the values that contribute to criteria xii, xiii and ix.
Section 5, Section 6	More generally, none of the programs or forward commitments appear to address the values that underpin criteria xii, xiii and ix.
Section 5, Section 6	Funding gaps are not addressed
Section 5.3.3	A review of the Draft Cape York regional plan did not identify the mechanisms by which the plan would assist with balancing economic development with potential impacts on MNES
Section 5.4.2	Note that there is established methodology for conduct of cumulative impact assessment, but cumulative impact assessments conducted at the project level are typically very weak because of the lack of regional thresholds against which project specific cumulative impacts can be undertaken. Cumulative impact assessment at the project level is also weakened where there is no regional approach to management of cumulative impacts. It would be more helpful to develop regional thresholds and frameworks for cooperative management of cumulative impacts (for example, nutrient trading, joint management and monitoring programs).
Section 5.4.3	A key weakness of offsets as a measure to protect biodiversity is the lag between the impact and the provision of the offset. The most valuable contribution that a new offsets policy could make would be to require advanced offsets



2. Strategic Assessment Report

2.1 General Comments

This section provides a series of general comments on the Draft Coastal Strategic Assessment Report (Coastal SA). Note that detailed comments have not been provided on all sections and case studies due to lack of time.

Section/topic	Comment
Study area	The area covered by this assessment does not appear to be clearly defined in the Coastal SA. Is the full extent catchments draining to the GBRWHA included or only a coastal strip? Are coastal waters and habitats (and the species that inhabit these) included? Is the GBRCMP included in this assessment? The Marine SA also covers coastal waters and this is confusing.
Study intent	While the objectives of the SA are briefly outlined in Section 1.3, the actual intent and expected usage of the document (i.e. its intended usage at the broader regional and national level) is not clearly articulated, nor is it adequately explained how it will be used, and most particularly its role as a strategic assessment under the EPBC Act. Further clarification in the final document is advised.
Study intent	One paragraph in Section 1.3 indicates that an aspiration of the Queensland and Australian governments is for this strategic assessment to streamline the overall approvals process. However EIANZ has concerns regarding how this document will be used to meet this objective. The report needs to clarify how it will be used in this fashion.
Study intent	<p><i>"Where impacts cannot be avoided, they must be mitigated or minimised as far as possible. This primarily occurs through the development assessment process to ensure infrastructure is appropriately designed and conditions are placed on individual development approvals."</i></p> <p>The language and base legislation are reflective of the need to move or modify development as the result of first assessment non-compliance. It is important that the option to "say no" to development be considered and to acknowledge the legal provisions for this. For example, placing a clear limit on Port development. The assessment does not adequately address this possibility and, therefore, could be seen to presume that development will be approved.</p> <p>This statement also raises questions regarding the effectiveness of mitigation measures and enforcement of conditions of approval. The concept of placing conditions on developments cannot be considered effective unless it can be demonstrated that (a) compliance with the conditions will actually lead to acceptably low impacts on values and (b) the conditions are actually complied with.</p>
Study approach	<p><i>"The intent of a strategic assessment is to take a big-picture view of an area to assess how environmental, cultural and heritage values can be best protected while allowing sustainable development"</i>.</p> <p>EIANZ is concerned that this does not represent the usual view that sustainability is about systems approach (socio-ecological) and not asset protection. Assets ultimately cannot be protected from development, rather they must be built into anticipated and preferred development scenarios. One is an inclusive, collaborative, consensus approach for managing value and functional outcomes, whilst the other is a competitive prioritisation process in which there are winners and losers (Acceptable or Unacceptable impacts). The premise on which the assessment is based does not provide any basis for managing and resolving the</p>



Section/topic	Comment
General	<p>conceptual conflict inherent in sustainable development.</p> <p>While it is obvious that a wide range of matters have been considered vast in the preparation of the Coastal SA, EIANZ has concerns relating to the general content, more specifically:</p> <ol style="list-style-type: none"> a. Repetition of high level information both within and between Chapters makes it difficult to use the document; it is not easily useable for the purpose of identifying, planning and managing existing and emerging risks to MNES and OUV. b. There is a lack of referencing/support information to back up many statements or assumptions made throughout the document, including in relation to how the methodology of the assessment was derived. The fundamental basis of the strategic assessment is founded on the methodology which needs to be solid and fully defensible. c. Much of the Coastal SA reads more like an extensive literature review than a strategic assessment. It relies heavy on information reviewed from other reports, plans policies etc., and is limited in the number of workable strategic objectives, recommendations and actual actions. d. While the Coastal SA refers to its peer review process at a broad level and, in some parts, identifies personnel involved, it does not identify the original authors of the document, their places of employment, roles and qualifications. e. The Coastal SA does not print well at the A4 level, which does not make it useful for the general community to use as a day to day resource document. The font used appears small for A4 print, particularly text boxes, tables and figures. Additionally, the choice of colours selected for the document and layout do not lend themselves to B&W printing, something that should be considered for members of the public who cannot afford the cost of printing the document in colour.
General	<p>A list of contributing authors, and technical specialists and project managers should be provided, including the individuals' qualifications, relevant experience and years of experience as well as organisational affiliations and positions within these organisations. The list should also indicate membership of professional organisations such as EIANZ and professional certifications such as Certified Environmental Practitioners (CEnvP).</p>
Knowledge gaps	<p>Given the scale of the GBR coastal zone and the number of MNES contained within it, there are a number of knowledge gaps evident in the Coastal SA. Failure of the SA to fill these gaps undermines the validity of the SA.</p> <p>Additional information and analysis is required to minimise the knowledge gaps and allow for more effective evaluation of MNES condition and trends. This includes:</p> <ol style="list-style-type: none"> a. more modelled habitat data for MNES species b. more marine and estuarine habitat data and mapping c. condition measures for MNES species' habitat and WHA OUV d. long-term monitoring data to identify current status and changes over time for many MNES species' habitat and key attributes related to the OUV of World Heritage properties e. better definition of pressures and impacts, and links between pressure, state and trend for MNES, as well as relationships between pressures and impacts f. identification, understanding and mapping of environmental processes that underpin MNES g. identification, understanding and mapping of the ecosystem services in the GBR coastal zone



Section/topic	Comment
	h. comprehensive inventory of natural and cultural heritage.
Recommendations	<p>The EIANZ is concerned that there do not appear to be sufficient measures or future commitments that will address the current knowledge gaps of the Coastal SA. If there is insufficient information to make informed decisions regarding the existing threats to MNES/OUVs and the knowledge gaps are not adequately addressed, then no amount of changes to planning, policy, guidelines or condition assessments will protect/conservate the MNES/OUVs of the GBR. Most notably:</p> <ul style="list-style-type: none"> a. 21 recommendations were identified by the Coastal SA. Of these, 11 recommendations have proposed measures, mostly planning related changes. b. Agriculture has been identified as the major threat to the reef within the Coastal SA, yet it is a relatively unregulated activity. How does the Coastal SA serve to avoid, mitigate or manage agriculture (the major threat to the GBR)? The remainder have been identified as future commitments. c. The proposed measures have no timeline or responsibility attached to them. d. Many of the future commitments have no timelines attached to them.
MNES	<p>EIANZ note that potential drivers, activities and pressures/impacts to MNES in the GBR coastal zone have been addressed in the Coastal SA. However, further detail to the information is advised to facilitate better management and positive outcomes for MNES, including:</p> <ul style="list-style-type: none"> a. population growth b. economic growth c. urban and industrial expansion d. ports and shipping e. agriculture f. cumulative impacts

2.2 Chapter 3 – Assessment Approach

Section/topic	Comment
Assessment approach	This section refers to the use of a multi-scale assessment approach as part of the methodology. However, the use of this approach is not evident beyond the methodology section.
Assessment approach	The methodology states that the strategic assessment “ <i>provides an opportunity to ensure long-term that the Queensland Government’s planning and development system directs development to the most appropriate locations to minimise impacts on MNES and support sustainable development</i> ”. Achievement of this outcome is not evident in the report.
Future/emerging risks	There is little emphasis on emerging or future risks to the MNES/OUV. This is not consistent with the objectives of the document. The majority of emphasis has been on past and existing risks. Further work is required to discuss and detail future and emerging risks, which have the potential to be just as deleterious to the MNES/OUV values of the coastal environment.
General	The text in this section jumps around with minimal connectivity to other parts of this chapter or other chapters. This makes understanding the rationale behind the assessment approach difficult.
S3.1	The Coastal SA indicates that the key principles outlined in Section 3.1 have been adhered to in developing the report. However, it is clear that this has not always occurred. For example, clear and transparent documentation of data for demonstration cases, risk assessments, choice of species and communities for



Section/topic	Comment
	assessment and the process used to eliminate consideration of other species/communities within the region is lacking.
S3.2.1	EIANZ questions the validity of grouping overlapping MNES for the purpose of assessment. Has a trial assessment or test case been done to ensure that the outcomes are consistent for this approach compared to undertaking the assessments individually?
S3.4	Currently much of the methodology for the Coastal SA is premised on information that is high level, extrapolated data (e.g. RE mapping, Wildnet searches). While the EIANZ acknowledges that this is probably the most accurate and appropriate information available, it is widely known that for many regions within Queensland these data sets are not complete or contain errors. There does not appear to be any validation of the information from key areas of concern.
S3.4	EIANZ is concerned about the methodology used for selecting the species/communities upon which the management strategies and recommendations are developed for the entire GBR. Firstly, the approach is based only on MNES in the region, and neglects any species or communities that do not have an MNES classification, and overall biodiversity. This assumes that only species that are already classified as threatened are of value or play a role in long term sustainability of the region’s ecosystems. Secondly, it is premised upon general assessment of a very few (11) species and two communities of the MNES listed species and communities.
S3.4, Table 3.5-1	<p>The Australian Painted Snipe, listed as endangered under the EPBC Act, is not identified as a key threatened species that is supported within the GBR coastal zone. Yet, specialist studies associated with the Abbot Point Cumulative Impact Assessment identified that the Caley Valley Wetland, which is within the GBR coastal zone, supports at least 2.3% of the Australian breeding population of this endangered species and is a known breeding site. Consequently, the Caley Valley Wetland is possibly the single most important site for Australian Painted Snipe in Queensland. Other coastal wetlands within the GBR coastal zone may similarly support this species. Therefore, this species qualifies for inclusion as a key threatened species within the GBR coastal zone. The omission of this species supports the comment directly above relating to our concern with the methodology chosen, and the paucity of evidence documented, for choosing species/communities for detailed assessment.</p> <p>Incidentally, and related to Section 3.5 ‘Extent, Condition and Trend’, the Caley Valley Wetland is a partially artificial wetland whose condition for supporting MNES has improved over the past several decades.</p>
3.4.1	<p>“The majority of habitats for key TECs, threatened species and migratory species have been mapped based on REs associated with MNES sightings or habitat models.” With reference to sightings and habitat models – does this refer to those previously undertaken as part of RE definition, or is this based on fieldwork and modelling conducted as part of the Coastal SA development? Further elaboration is requested as to how the habitats were mapped. Also, the text above refers to ‘majority’. What was the case for the remainder of habitats?</p>
3.4.1	<p>“Cleared and non-vegetated areas (eg. Water) were not included...” in the mapping of habitat. What waterbodies does this refer to? Presumably waterbodies within the coastal region and intertidal areas should still be mapped as habitat? Waterbodies also provide a crucial resource for many animals which need to drink regularly.</p>
3.4.1	Migratory species mapped habitat is indicated to be based solely on REs and wetlands. Were any additional studies, EISs, plans etc where recent fieldwork had



Section/topic	Comment
	been undertaken to determine species presence and distribution also referred to? Sole reliance on mapped REs is not advisable if accurate species information is sought for an area and is certainly not current practice when undertaking a detailed study for the purposes of a proposed development.
3.4.1	The Coastal SA indicated that “ <i>only migratory bird species were considered as the majority of other migratory species are marine</i> ”. Again the word “majority” lends itself to indicate that this does not mean ALL species. Further clarification of how particular species were chosen would benefit the SA.
3.5.1	Much reference is made in this section as well as other areas of this chapter of the use of RE mapping. In 3.5.1 as well as other areas it would be worth clarifying which version of mapping was used and also again re-emphasizing to what scale. Was this 1:100,000?
3.5.2	With reference to grading statements – it would be beneficial for the document to provide more referencing to ensure the robustness of the methodologies used. I.e., here, where the use of grading statements are mentioned, suggest reference based on whose grading statements were used (IUCN?) If they were developed separately as part of the Coastal SA then state accordingly and do so upfront in the section.
3.5.2	States that there is no ‘assessment technique’ available for measuring condition of broadscale areas. Is this really the case? A lot of emphasis in this SA has been placed on existing desktop information without validation in the field. Given the importance of this document and its potential uses in the future as is alluded to in Chapter 1, it would appear that an exclusively desktop approach without any field validation is highly risky given the certain inaccuracies inherent in the available information.
3.5.2	This section also makes the assumption that conservation areas managed by the Queensland Government such as national parks, essentially remain intact with relatively minimal human impact. On this basis these areas have been assumed to be in “relatively good condition”. Additionally state forests and military training areas have all been grouped as in “good condition”. In actual fact all areas are exposed to different pressures and levels of intensity. Experience has shown that military areas require vast tracts of land to act as buffers for the training and are frequently well maintained in the majority of a training area. Impact from training, while significant, is often contained to small areas. Conversely, impacts within National Parks can vary significantly, as does their maintenance practices. As such the assumptions made in this section to determine Condition, without any form of field verification, is potentially likely to result in erroneous conclusions.
3.7	<p>“<i>The avoid, mitigate, offset’ approach is widely used to ensure no significant impacts on the environment result from future development decisions.</i>”</p> <p>The SA should explore in detail the extent to which mitigation measures are successful in preventing unacceptable impacts on MNES (and the environment generally) and the extent to which offsets have actually delivered “no net loss” of biodiversity”.</p>

2.3 Chapter 4 – Condition and Trend

Section/topic	Comment
Habitat extent	The mapping of habitat extent for some of the threatened species presented in the



Section/topic	Comment
	<p>Coastal SA bears little resemblance to the actual extent of their distribution.</p> <p><u>Example 1:</u> The mapped extent of Yellow Chat habitat (Figure 4.7 10) overestimates the extent of habitat for this threatened subspecies, including mapping a large area of habitat in the Townsville area that is over 400km north of the northern distribution limit of the subspecies. Consequently, the estimated area of occupancy of the threatened subspecies of Yellow Chat is 6,000 ha (DoE 2014) which is substantially less than the 250,000 ha derived from the habitat mapping presented in Chapter 4.</p> <p><u>Example 2:</u> The majority of the mapped habitat of Southern Cassowary (Figure 4.7 12, all mapped habitat south of Townsville) is outside the known distribution range of the species (refer to the Commonwealth Government mapping of potential habitat for the species in DEWHA 2010).</p> <p>Not only does this give a misleading impression of the extent of habitat occupied by these species, it has the potential to bias the assessment of condition and trend of habitat.</p> <p>Mapping species' habitat based on known associations with vegetation communities (including Regional Ecosystems) is an accepted approach to species habitat mapping when broadscale mapping is required. However, such habitat models are usually refined using additional decision rules such as confining habitat mapping to the known range of the species. The Regional Ecosystem-based habitat mapping should therefore be refined to better reflect the historical and current distribution of the species. For example, it is unclear why the Commonwealth Government mapping of potential habitat for Southern Cassowary, which would have been underpinned by rigorous specialist advice, was not used.</p>
Habitat condition	<p>The case of the Yellow Chat also illustrates a pitfall in assuming that habitat in conservation or minimal use areas is in good condition. The only sub-population of Yellow Chat present in a conservation area is the sub-population within Curtis Island Conservation Park, an area which is under grazing lease, but is managed for conservation purposes. Approximately 20% of the total estimated population is included in this habitat. However, it is now thought to be extinct in this area (Garnett et al. 2011, DoE 2014), with grazing and associated trampling and digging by high densities of feral pigs identified as a contributing factor (Garnett et al. 2011). The paucity of resources for the management of conservation areas in Queensland has recently been identified as a growing issue for threatened species management in conservation areas.</p>
Emerging/future risks	<p>This Chapter concentrates on identifying and assessing those risks that are historical or existing. There is little emphasis on emerging/future risks, which in reality should be given equal emphasis to ensure the objectives of this document are realised and developed management strategies and mitigation measures are accurate and representative of the issues likely to be faced in the future. Section 1.3 and Section 3 indicate that the document is to cover emerging risks.</p>
S4.9.1	<p><i>Environmental Processes – Freshwater Inflows:</i> Queensland Water Resource Plans establish statutory flow objectives for all the major river systems. The effectiveness of these plans in relation to protection of MNES should be considered and reported on as part of existing management arrangements.</p>

2.4 Chapter 5 – Pressures and impacts on MNES

Section/topic	Comment
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Section/topic	Comment
General	Pressures are often only referred to in general terms in this section. There needs to be a more detailed analysis. The approach adopted in the Marine SA (in Chapter 5, 'Drivers and Activities') is far more robust than that undertaken in the Coastal SA. A common methodology and approach should apply for both SAs. (Note also there is a high degree of repetition between the coastal and marine for this matter).
S5.1	There is confusion and also inconsistencies between the identified activities and drivers of change as documented in this section. The list in the text is not consistent with the list in Figure 5.1.1, and neither of these two lists are consistent with the subheadings in Section 5.2.
Drivers of change	It is unclear how the "drivers of change" relate to the activities and causes. Further documentation is required in this section including evidence and examples to support the reporting.
Activities definition	GBRMPA typically makes a distinction between visitors undertaking tourism activities (people who pay to utilise a commercial tour service) and recreational activities (people accessing the GBRWHA/MP on their own, for example, using their own boats). The impacts of the two types of activities can be different as there is a much higher level of control over the commercial tour operators compared to private individuals. It is not clear throughout this assessment which impacts are attributed to which type of visitor activity. Additionally neither activity has been adequately defined for the purpose of this SA.
Activities definition	Does "land and natural resource management" include extraction of natural resources such as freshwater? Is commercial fishing included?
Figure 5.1.1	This figure is too simplistic. A more detailed representation of the cause and effect of relationships between the activities/causes and pressures/impacts would be useful. For example, tourism development and use does not lead to sea level rise and ocean acidification.
S5.2	This section is currently too generic. A more detailed and quantitative description is needed to provide clear and accurate insight into whether current and likely future levels of development and activity are sustainable.
S5.2	This section is currently not clear enough in terms of which MNES values are affected by each of the impacts described. Further detail is required.
S5.2.5	The text gives the impression that there is only small scale historic mining activity in the GBR Coastal Zone. There are however some significant mining activities occurring in the catchments that drain to the GBRWHA, many of which are located within 100km of the coastline. In recent years, almost all major mining projects, mine expansions and mine infrastructure projects have triggered assessment under the EPBC Act, with GBRWHA and GBRMP included as controlling provisions indicating that the Federal environment agency considers that these projects will have a potentially significant impact. These activities should therefore be considered in the drivers and pressures.
S5.2.6.1	Is pest and fire management a pressure or an activity?
S5.3	This section is considered too generic and does not discuss how significant or severe the identified pressures are on MNES values. For example, in relation to habitat connectivity, which habitats are most at risk, which animals are most affected, what other processes are affected?
S5.3.2	The level of detail provided in relation to the independent science panel on water quality impacts, as well as water quality impacts generally is appropriate for this type of assessment. The information provided gives some sense of how significant the impact is, and what values are most affected. This could be used as an example to update the information for the other impacts to the appropriate level.



Section/topic	Comment
S5.4	The risk assessment discussion provides reference to the process used and the final level of 'effect' is outlined in Tables 5.4.1 and 5.4.2. However this section does not show the workings, in terms of consequence and likelihood, of how the levels in the tables were achieved.
Table 5.4.1	Should the GBRMP be included?
Table 5.4.2	The impact significance here is not consistent with the conclusions of the Island Management Demonstration Case study.
Table 5.4.1 and 5.4.2	The findings in these tables are not consistent with the Marine SA.
Table 5.4.1	Does the GBRWHA column relate to both land (island) and sea components of the GBRWHA?
Table 5.4.1	There is inconsistency in table data relating to the decline in water quality in GBRWHA. The colour designates a "high effect" but the text says "very high".
Table 5.4.1	Modified fire regimes are identified as having no effect on the GBRWHA. However, altered fire regimes may affect islands within the GBRWHA
Table 5.4.2	There is inconsistency between SAs. The Marine SA states that discharges from urban and industrial development are a minor impact
Table 5.4.2	It is not clear how natural resource management can have a "very high effect" on pest and weed species and modified fire regimes – good natural resource management should have a "positive effect" on these. Further clarification is sought.
S5.5	The cumulative impact assessment does not focus on quantification or detailed description of cumulative impacts. This is one of the most important outcomes that a Strategic Assessment could provide.
S5.5	This section refers to numerous monitoring activities. It would be useful to provide a full list of the monitoring activities, including locations/spatial coverage, objectives and range of data collected. When dealing with project level impact assessment, regional level data, particularly where data extends over several years or more, are extremely valuable.
S5.5	<p>The statement "<i>The methodology for assessing cumulative impacts is challenging and is still developing nationally and internationally</i>" is not considered correct. The methodology for cumulative impact assessment is well established. While established methodologies are available, it is acknowledged that the prediction of cumulative impacts is in itself inherently difficult, not least because of lack of information, and even more difficult is the management of these impacts where the impacts are caused by multiple parties. It is unlikely that a perfect approach to cumulative impact assessment will ever be identified. However, it should be possible to improve understanding, and also to provide better guidance on the nature and scale of development and activities that might be commensurate with maintaining the OUV of the GBRWHA.</p> <p>There are a number of practical difficulties in performing cumulative impact assessment (CIA), particularly when undertaken by proponents in project level EIA:</p> <ul style="list-style-type: none"> ▪ Effective CIA requires an understanding of carrying capacity and assimilative capacity of the environment. This requires regional scale monitoring programs, and interpretation of data collected. Development of regional scale models for parameters such as water quality and air quality can also provide critical support to CIA. An example where this has been done is the Healthy Waterways Partnership in Brisbane River/Moreton Bay region. ▪ For individual proponents, it can be very difficult to obtain information from other proponents or existing activities to feed into CIA. Other proponents and operators are generally reluctant to share information on actual and potential environmental



Section/topic	Comment
	impacts. This limits project level CIA to high qualitative assessments. These difficulties emphasise the need for a regional framework, and government led approach to CIA.
S5.5	While IPENZ appears to be a very reputable organisation, it might not be considered to be the most definitive source of information on cumulative impact assessment. (Note also that the SA does not actually provide a reference for this statement and the statement could not be found on the IPENZ website). Other, more reputable information sources and guidelines may include: <ol style="list-style-type: none"> International finance corporation http://www.ifc.org/wps/wcm/connect/3aebf50041c11f8383ba8700caa2aa08/IFC_GoodPracticeHandbook_CumulativImpactAssessment.pdf?MOD=AJPERES European Union http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf USEPA http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf
S5.5	Given the scale of the GBR, guidelines on strategic environmental assessment may also be of use: <ol style="list-style-type: none"> http://www.iaia.org/publicdocuments/special-publications/SEA%20Guidance%20Portugal.pdf OECD http://www.oecd.org/dac/environment-development/37353858.pdf European Union http://ec.europa.eu/environment/eia/sea-legalcontext.htm
S5.5	This section simply explores some of the issues around cumulative impact assessment. The most critical aspect for the GBR, and the step that contributes to most cumulative impact assessment processes unravelling, is the setting of thresholds for impacts (this is correctly identified in Figure 5.5.1 – “The IPENZ further noted some of the more practical considerations with cumulative impact assessment including the restriction of development activity based on the cumulative impacts which may result”). Unfortunately, the strategic assessment does not lead stakeholders any closer to understanding this.
S5.5.1	It would be appropriate to state all of the mechanisms that are in place, for example in which locations are processes to assess and monitor cumulative impacts in place? This would allow a more evidence based conclusion regarding the adequacy of such mechanisms to assess and manage cumulative impacts.
Table 5.5.2	The Coastal SA does not appear to have drawn on information presented in the Queensland State of the Environment reports
Demonstration case snapshot – Abbot Point CIA	It is not clear why this is judged only Partially effective? Elaboration is, therefore, required. As with many of the case studies and snapshots, the information presented is factual, with no analysis of the actual effectiveness.
S5.5.4	The issues identified in this section are those already identified in Sections 5.2 and 5.3. Therefore, this would appear to be unnecessary repetition.
S5.6	The strategic assessment does not progress some of these knowledge gaps, particularly “ <i>condition measures for MNES species’ habitat and WHA OUV</i> ” “ <i>a lack of understanding of pressures and impacts, and links between pressure, state and trend for MNES, as well as relationships between pressures and impacts</i> ”, “ <i>An analysis of the trade-offs and consequences of having fewer larger ports rather than more smaller ports in the GBR coastal zone is important to better inform management and address public perception issues.</i> ”
S5.6	Some of the gaps identified are inconsistent with the assessment of program



Section/topic	Comment
	effectiveness. For example, the assessment of program effectiveness in Section 7 notes that there is good mapping and data available on habitats, yet Section 5.6 states that there is “ <i>limited marine and estuarine habitat data and mapping</i> ” and “ <i>insufficient modelled habitat data for MNES species</i> ”.

2.5 Chapter 7 – Program effectiveness

Section/topic	Comment
Programs	The focus in this section is on programs in relation to the approvals process. A more balanced view of program effectiveness would be achieved by also examining management programs for impacts from existing activities and development.
General	Throughout this section, the “summary of effectiveness” tables do not provide an accurate summary of the text discussion of program effectiveness. In many cases, the tables are quite inconsistent with, or irrelevant to, the text. Some illustrative examples are given below, but it is suggested that each of the tables be carefully reviewed.
Table 7.3.2 (and elsewhere)	Note that species listed as OUV are also species of MNES and therefore do not need to be listed separately (ie “MNES and OUV” is not strictly correct. “MNES including OUV” would be correct).
Table 7.3.2	Gladstone Harbour – what is meant by “a range” in relation to activities? Further clarification required.
S7.4 (and elsewhere)	The statement that there is “ <i>A well established development assessment process that applies conditions to approvals to avoid, mitigate and offset impacts on MNES. The Queensland Government’s process for assessing projects that require environmental impact statements has been accredited by the Australian Government under a bilateral agreement</i> ” appears to contradict the statement “ <i>A lack of explicit consideration of MNES. Queensland Government’s planning and development assessment is well advanced, but doesn’t explicitly require impacts on MNES to be considered and avoided, mitigated or offset</i> ”.
S7.4 and throughout	There are a number of recent changes that have been made and further changes that have been proposed to Queensland’s vegetation clearing laws and offset policies. Were these changes taken into consideration when assessing the effectiveness of these programs in protecting MNES?
S7.4	In addition to the lack of clear framework for cumulative impacts, there is no requirement in Queensland for Strategic Environmental Assessment of plans, policies and strategies. Note that the document under review, and the general application of “strategic assessment” under the EPBC Act, does not constitute a Strategic Environmental Assessment in the way that this terminology is used internationally. See for example http://www.iaia.org/publicdocuments/special-publications/SEA%20Guidance%20Portugal.pdf , http://www.oecd.org/dac/environment-development/37353858.pdf , http://ec.europa.eu/environment/eia/sea-legalcontext.htm). A Strategic Environmental Assessment would focus on the impacts arising from implementation of a plan, policy or strategy.
Mitigation measures	EIANZ is not aware of any data or studies that demonstrate the effectiveness of mitigation measures. The assessment that mitigation measures are effective in reducing impacts to an acceptable level should be based on clear evidence, for example studies that validate that mitigation measures proposed in an EIS are actually effective. Further discussion is also provided below.



Section/topic	Comment
Table 7.4.1	This table notes that a number of GBRWHA values continue to decline and attributes this to legacy issues from past management and climate change, rather than current development and activities. This is not consistent with the Marine SA, and is also inconsistent with the finding of UNESCO in its Mission Report
General	Throughout this section there is an assertion that there is a “ <i>well developed assessment process that applies conditions to approvals to mitigate impacts on MNES</i> ”. There does not appear to be any evidence provided in the Coastal SA to support this statement. Was a review of recent development approvals (for example over the past 12 months) undertaken to check that conditions included explicit or implicit conditions in relation to MNES? An evidentiary basis for this conclusion should be clearly presented.
General	MNES are not formally recognised in any Queensland legislation. Plans, strategies and policies may occasionally make reference to GBRWHA or GBRMP but this is the exception rather than the rule. Species listed under Queensland’s <i>Nature Conservation Act</i> as threatened or otherwise of conservation significance do not align with the listings of threatened and migratory species under the EPBC Act. While Regional Ecosystem classifications can be used to determine the presence of Threatened Ecological Communities, the classification of REs that correspond to TECs does not always correlate. For example REs that relate to TECs may be of least concern or of concern, and not necessarily classified as endangered.
Existing MNES assessment	<p>There is only a formal requirement to consider MNES in development assessment when a project is undergoing assessment through an EIS process, i.e. under the bilateral agreement (processes which only apply to Coordinated Projects under the SDPWO Act or resource projects under the EP Act). A large number of development projects in Queensland do not require an EIS and therefore, even if EPBC Assessment is triggered, they are not undertaken under the bilateral agreement.</p> <p>Evidence that MNES issues are assessed in development approval applications and applications for environmental authority that do not trigger an EIS is required to support the assertion that there is a well-established development approval process in place at the State level that takes MNES into account. This evidence could be in the form of reviews of development approvals given in the past 12 months, reviews of minutes from pre-lodgement meetings facilitated by SARA (demonstrating that MNES issues were discussed pre-lodgement) and review of documentation submitted by proponents in support of development approval applications showing specific consideration to MNES matters.</p>
Nature refuges	Note that nature refuges do not actually provide any real level of protection for native vegetation or habitat. For example, several recently approved mining projects will involve destruction of habitat within a nature refuge.



Section/topic	Comment
S7.10.1.3 Water quality	<p>A common theme throughout the Coastal SA was that agricultural run-off was having adverse impacts on water quality within the GBRWHA. The major tool for managing water quality within the GBRWHA is the ‘Reef Water Quality Protection Plan’ which was a major contributor to ‘<i>enhancing MNES</i>’ and given a rating of ‘<i>very effective</i>’.</p> <p>Note also the comment (p 7-268),</p> <p><i>‘One of the most significant and successful programs of work improving the resilience of the GBRWHA are the actions being taken to address poor water quality’.</i></p> <p>These conclusions do not appear to be supported by objective analysis. The estimated pre-European loads are the current best available estimate of the loads required to achieve the overall goal of ‘no detrimental impact’ on the Reef. Although these are likely to be conservative, they are appropriate to adopt for planning purposes¹. Therefore for suspended sediment, the estimated 6%² reduction in load to the Reef achieved so far has to be benchmarked against the required reduction of up to 82% to achieve the Reef Plan goal. That is, the reduction achieved to date is only 7% of the optimum reduction. Using the categories described in the Marine SA assessment methodology, such a program would be described as ‘<i>ineffective</i>’.</p> <p style="padding-left: 40px;"><i>ineffective — zero to 20 per cent of optimal condition</i> <i>partially effective — 21 to 50 per cent of optimal condition</i> <i>mostly effective — 51 to 80 per cent of optimal condition</i> <i>effective — 81 to 100 per cent of optimal condition</i></p> <p>Similarly, the estimated reduction in DIN of 13% needs to be compared with a required reduction of up to 69%, or 19% of optimum. Again the program would be categorised as ‘<i>ineffective</i>’.</p> <p>Moreover, given that early gains are generally based on the ‘low hanging fruit’, the likelihood of achieving the required reductions in loads by 2020 given current practices would appear to be unlikely. Drastically improved management practices are required.</p> <p>A similar conclusion was reached by the Independent Expert Scientific Panel: “<i>While current management interventions are starting to address water quality in the Great Barrier Reef, sustained and greater effort will be needed to achieve the ultimate goal of no detrimental impact on the health and resilience of the reef. In addition to continuous improvement, transformational changes in some farming technologies may be necessary to reach some targets”.</i></p> <p>EIANZ believes it is a reasonable expectation that the 25-year program would identify the necessary improved management as well as the ‘<i>transformational changes in some farming technologies</i>’ necessary to achieve, by 2020, no detrimental impact on the GBRWHA.</p>
Table 7.4.2 and elsewhere	Duplication of assessment processes may not be a weakness in terms of effectiveness of assessment processes in protecting MNES
Table 7.4.2 and elsewhere –	It would be useful if the full range of monitoring and evaluation programs in place were listed in the Coastal SA together with the geographic area covered and data collected.
S7 and elsewhere	The use of standardised conditions in development approvals is seen as a positive step in terms of protecting MNES given that EIANZ has not seen examples of State based approvals that currently contain any conditions relating to MNES. However, while there are some benefits in ensuring that conditions relating to MNES are always applied to approvals, EIANZ does not necessarily support the use of standardised conditions

¹ ,...setting the trigger values conservatively is appropriate given the World Heritage status of the Great Barrier Reef’ – *Water Quality Guidelines for the Great Barrier Reef Marine Park*

² Given the uncertainty in estimation, the true figure may well be less than 6%. No information is provided on the confidence/uncertainty of the estimates of this nature



Section/topic	Comment
	except in circumstances where the values present, and impacts on those values are straightforward. When approving projects that might impact on the OUV of the GBRWHA in particular, the complexity of values that contribute to the OUV and the complexity and inter-relationships among impacts means that project specific conditions will often need to be generated to protect the MNES.
S7.6.3	To assess cumulative impacts, particularly at a project level, there must be an established framework that sets thresholds for impacts on environmental values.
Table 7.6.1	For the examples given, what is the geographic coverage? For example, are water quality monitoring programs undertaken across the GBR coastal zone or only in isolated locations?
S7.6.3	There are currently no water quality guidelines in relation to runoff from agricultural land. Agricultural runoff is recognised in the Coastal SA as a major impact on the GBR coastal zone. The Marine SA also identifies this as a significant issue for the GBR region.
S7.7	A number of activities are allowed in National Parks that may conflict with achieving high level of protection of MNES.
S7.7	Fish habitat areas do not preclude development; development can occur with a development permit. The matters required to be considered under the Fisheries Act do not include MNES, or proxies for MNES.
S7.7	As noted above, nature refuges do not offer any real protection for MNES as activities such as mining can occur.
S7.7	Declaration of a State Development Area is a key matter for which a Strategic Environmental Assessment would be appropriate. When the Curtis Island precinct of the Gladstone SDA was declared, there did not appear to be any acknowledgement that Curtis Island was within the GBRWHA. A Strategic Environmental Assessment, or even a straightforward environmental assessment, would prevent such actions from occurring without transparent consideration of the suitability of the SDA for development.
S7.7	Resource projects (mining and petroleum) are exempt from many of the program elements identified as protecting MNES. For each of the program elements, a specific assessment of the level of effectiveness of the program in relation to resource projects should be provided. The Wongai Project, which is currently undergoing parallel assessment under the EPBC Act and Queensland State Development and Public Works Organisation Act would be a good case study in this regard.
S7.7.1	This section notes that the preferred time to identify MNES issues is in the decision to designate an area for development. It is at this stage that a Strategic Environmental Assessment of a land use plan would be of greatest benefit in protecting MNES and other environmental values.
S7.7.1	This section notes that 30% of the coastal region is in conservation estate. It would be of interest to examine how this compares to other countries. This figure should also be split into areas fully protected from resource activities and other development pressure, as well as grazing leases and those not fully protected.
S7.7.1 – 7.7.6	The statement “ <i>these areas are not designated for future coastal development but they are not of high environmental value because of the modification that has taken place</i> ” does not make sense in the context it is applied.
Figures 7.7.1 - 7.7.6	The different shades of green in this figure are difficult to distinguish. Also, it is not clear what these figures are demonstrating. Are the figures intended to show the overlap between occurrence of MNES and protection through conservation estate? It might be clearer if the protected estate areas were hatched.
Demonstration	In this and many of the demonstration case snapshots, the text describes the



Section/topic	Comment
Case Snapshot – Island Management	management measures and management issues, but does not provide any evidence of the effectiveness of these in protecting MNES.
Figure 7.7.9	The misalignment between the GBRMP and GBRWHA may be one reason why there have been gaps in management of the GBRWHA (both in terms of geographical coverage, and the values that are actively managed). Is there any plan to align the boundaries? Otherwise, there needs to be an explicit recognition of the need to manage the OUV of the GBRWHA for those areas outside the GBRMP.
S7.7.4	As noted above, there are a number of recent or upcoming changes to Queensland's regulatory requirements, for example Nature Conservation Act, Vegetation Management Act, State Planning Policies and offsets policies. Were these changes taken into consideration when assessing the effectiveness of Queensland's planning controls in protecting MNES?
S7.7.4	Note also that broadscale clearing is allowed under the VM Act for a range of activities such as mining projects. The prohibition relates only to agriculture.
S7.7.4	In relation to port development, there is a commitment not to develop any additional ports for eight years. However, there is no assessment as to whether the current number of ports and the level of port related activity are sustainable.
S7.7.4.2	Has development to date been consistent with the conservation objectives of the regional plan? It would be good to have examples or a case study that illustrated the effectiveness of the regional plans in identifying and protecting MNES
S7.7.4.2	The Draft Cape York Regional Plan was recently released for comment. <ol style="list-style-type: none"> The draft plan mentions in the general description of the area that the area is adjacent to the GBRWHA Otherwise, there is no other mention of MNES. In particular, MNES are not mentioned in item 1 Protecting MNES is not mentioned as one of the outcomes sought for the plan In the section "Balance economic development with environmental conservation" there is no mention of MNES the Regional Plan does note that "The strategic assessment will ensure that best practice in managing a balance between growth and environment protection is achieved within this unique environment." However, this statement may need to be reviewed as the Draft Strategic Assessment, in its current form, does not provide any information on how growth and environmental protection can be better balanced.
Table 7.7.4.4	The table would appear to have the wrong heading.
Table 7.7.4.2	With reference to the statement "...do deliver some tangible outcomes for MNES", it would be more accurate to state that the regional plans and planning provide some protection for MNES where this coincides with State significant environmental values.
Table 7.7.4.2	Regional plans and many planning schemes are relatively broad in relation to avoiding impacts on areas of state environmental significance.
S7.7.4.2	Note that the 2013 version of the Coastal Management Plan does not provide a particularly strong framework for protection of MNES and is generally a lot less restrictive of development than previous versions of the coastal plan.
S7.7.4	The programs are generally found to be effective or partially effective, yet each section concludes that there is no explicit mention of MNES in the relevant program/policy/plan. It is not clear how the various state policies, plans and programs can be effective in protecting MNES when MNES are not explicitly mentioned in any of these documents.



Section/topic	Comment
Demonstration Case– Mt Peters	How many regional Councils in the GBR coastal catchments have developed total water cycle management plans under the EPP Water? Also, have any healthy waters management plans been prepared under the EPP Water?
Demonstration case – Andergrove	The demonstration case describes management arrangements and initiatives, but does not provide any evaluation or evidence in relation to the effectiveness of these in protecting MNES values.
S7.7.6	It would be appropriate to provide a case study for the declaration of the Curtis Island precinct of the Gladstone SDA as this precinct is located within the GBRWHA and would demonstrate the process with respect to MNES.
S7.7.6	In relation to designation of industrial land in planning schemes, it would be of interest to review whether there was likely to be an adequate amount of industrial land in each Local Government Area for anticipated future industrial development. Additionally, it would be of interest to know whether that land was appropriately located in terms of proximity to the GBRWHA and other MNES, and the suitability of the land in terms of access to and provision of infrastructure for wastewater, stormwater and transportation.
S7.7.6	In relation to the statement that “ <i>historically, development schemes for SDAs have considered MNES in a number of cases</i> ”, EIANZ notes that the development scheme for the Townsville SDA has clear and explicit objectives in relation to the GBRWHA. However, neither the Gladstone SDA nor Abbot Point SDA planning schemes mention the GBRWHA or other MNES, and define environment using the Queensland EP Act definition. It is suggested that revision of the Gladstone SDA and Abbot Point SDA development schemes to align with the Townsville SDA development scheme be included as a future commitment.
S7.7.7	<p>In relation to consideration of MNES in port land use plans:</p> <ol style="list-style-type: none"> a. The Mourilyan PLUP notes the need to avoid adverse impact on the Wet Tropics WHA but does not mention the GBRWHA b. The Mackay PLUP notes that the port is located in and adjacent to the GBRWHA and near the GBRMP, and the development guidelines note that development should not affect the ecological values of the GBRWHA. However, there is no reference to other values that might contribute to the OUV of the GBRWHA c. The Mackay PLUP also sets out a list of threatened species in the area, but does not specify if any of these are MNES d. The PLUPs for Mackay and Hay Point also incorrectly list the GBRMP/marine parks as a state interest e. The Abbot Point PLUP correctly identifies most of the MNES occurring at and near the port. It also refers to an environmental management plan. However this plan was not available on the website f. Development guidelines for Abbot Point and Hay Point do not mention GBRWHA at all g. DEOs for Hay Point identify the need to protect the GBRMP but not the GBRWHA. Otherwise, the DEOs in the PLUPs do not mention the need to protect any MNES, including threatened and migratory species h. The Hay Point PLUP does not mention GBRWHA i. For Gladstone Ports Corporation, the PLUP does not mention or acknowledge GBRWHA and the strategic or specific outcomes do not relate to protecting OUV of the GBRWHA, or other MNES values. There is indirect reference to habitat protection. j. For Cairns port, the focus of the DEOs in the PLUP is on community amenity and protection of heritage buildings. The environmental protection code identifies the



Section/topic	Comment
	<p>need to avoid negative impacts on threatened species, wetlands and waterways but does not mention GBRWHA, nor is it explicit as to whether species listed under the EPBC Act are to be considered. The heritage Conservation Code does not mention world heritage or natural heritage</p> <p>k. Development guidelines for port development do not contain any reference to any MNES matters, nor any requirement to address impacts on MNES in development approval applications</p> <p>l. Where there are EMPs for each port, MNES are generally appropriately identified. However, the MNESs are in relation to day to day management of the port and do not need to be addressed as part of the development approval process for development on port land.</p>
S7.7.7	<p>Given the sensitivity of the GBRWHA and coastal region generally, is it intended to amend the Transport Infrastructure Act to require more explicit consideration of environmental factors, including the OUV of the GBRWHA when designating new ports, expanding port areas or developing port land use plans? Amendments such as this would considerably strengthen the forward management</p>
Section 7.7.7	<p>It is noted that the Ports strategy commits to no further deepwater dredging outside the established port areas. However, it should also be noted that dredging in shallower waters may be equally or more harmful. There are two projects currently under EIS preparation (Wongai Coal Mine, and the Fitzroy Terminal), both of which may require dredging in shallow waters, as well as requiring port development. Table 7.7.7.2 words this commitment differently, “<i>the Queensland Government has committed to restrict any significant port development within and adjoining the GBRWHA to within existing port limits until 2022</i>”.</p>
Demonstration Case Snapshot Abbot Point	<p>Note that there is no longer a Waste policy under the EP Act.</p>
S7.8	<p>In the first paragraph there appears to be some confusion between avoiding impacts and mitigating impacts.</p>
S7.8	<p>It must be recognised that mitigation measures (whether imposed through conditions or undertaken as commitments by proponents) will have varying degrees of effectiveness in protecting MNES from adverse impacts.</p>
S7.8	<p>As noted above, EIANZ is aware that there is a lack of definitive information on the effectiveness of conditions typically imposed in the approvals process in actually minimising and mitigating impacts on MNES (or other environmental values). In order to be able to draw an evidenced base conclusion regarding the effectiveness of the Program in mitigating impacts on MNES, studies to validate the effectiveness of conditions and mitigation measures are required.</p>
S7.8	<p>The effectiveness of approval conditions in mitigating impacts on MNES depends on the level of compliance with these conditions. It would also be appropriate in this section to present a review of the extent of compliance with conditions of approval, particularly for major projects. Where compliance checks have not been routinely carried out, this should also be noted.</p>
S7.8	<p>This section does not seem to examine the effectiveness of the program for mitigating impacts from resource (mining and petroleum) and agricultural projects and activities</p>
S7.8	<p>There are a number of proposed activities, including most agricultural activities, that do not require development approval. Recent amendments to the EP Act also removed a</p>



	number of “environmentally relevant activities” from requiring approval. What measures are now in place to mitigate the impacts of these activities on MNES?
S7.8	Similarly, what measures are in place to mitigate impacts from existing activities?
S7.8.1	A large number of development projects do not undergo assessment through an EIS process. It is important in this section and elsewhere that consideration also be given to the effectiveness of the IDAS process under the SP Act in setting conditions to protect MNES and mitigate impacts on MNES. Note that the IDAS process is not covered by the assessment bilateral.
S7.8.1	The Ella Bay Resort appears to be a good example of how the EIS process can address impacts on MNES. It would be appropriate to have a case study of a project that has undergone assessment through the IDAS process as well.
S7.8.1	In guidelines, it should be noted that the GBRMP water quality guidelines do not actually set guidelines for discharges.
S7.8.2	Is there a protocol to guide SARA in raising MNES issues with proponents? Are SARA staff trained in identification of MNES?
S7.3.8.1	The conclusions regarding effectiveness would be strengthened by an analysis of whether fish stocks are stable.
S7.3.8.2	This section provides a good level of quantitative information to support the conclusions drawn regarding effectiveness. It would also be useful to provide information on near misses.
S7.8.3.3	How does the \$8 million funding provided for the joint field management program compare to funding for similar activities overseas? How many of the islands of the GBRWHA are managed through this program?
S7.8.3	It is relevant to also discuss the Water Act (environmental flow regimes), how water quality is managed, the total water cycle management requirements under the EPP(Water).
S7.9	EIANZ has noted that Queensland Government offsets policies are under review. Was the assessment of effectiveness based on existing policies or the proposed changes? Will the proposed changes enhance the effectiveness of offsets?
S7.9	Examples of successful delivery of offsets could be presented to strengthen this section.
Figures 7.9.2, 7.9.3	It is not clear what these figures are for.
Section 7.9 (and elsewhere throughout the SA)	<p>The strategic assessment places great reliance on offsets to mitigate negative impacts of development on biodiversity to ensure that biodiversity values are not just maintained but are indeed enhanced to achieve a net environmental gain. Yet, the strategic assessment provides no critical assessment of the ability of offsets to deliver such an outcome, particularly for the case studies being relied upon.</p> <p>Biodiversity offsetting is compensating for losses of biodiversity at an impact site by generating ecologically equivalent gains elsewhere, and Australian biodiversity offsetting policies place substantial faith in the ability of restoration to recover lost biodiversity. Biodiversity offsets may be achieved in two main ways: (1) via averted loss from ongoing or anticipated impacts (e.g. avoided deforestation or degradation) at a site through the removal of threatening processes that would have occurred in the absence of offsetting actions and without requiring offsets in their own right; or (2) by enhancement of a degraded site through restoration and rehabilitation (‘restoration offsets’) (Maron et al. 2012).</p>



Various recent reviews have identified that many of the expectations set by current offset policy for ecological restoration remain unsupported by evidence, and offsets alone are rarely adequate for achieving no net loss of biodiversity (Maron et al. 2012; Brown et al. 2013; Gardner et al. 2013; Quétier 2013). A review of restoration work in a variety of ecosystems worldwide found that where restoration was being used to help the recovery of a degraded system, between a third and a half of projects were successful, but success rates were even lower where restoration aimed to generate new habitat (Suding 2011). At least 63% of projects designed to offset fish habitat loss in Canada failed to achieve the stated target of no net loss of habitat productivity (Quigley & Harper 2006). An investigation of compliance with 245 conditions relating to ecological compensation across 81 case studies across New Zealand found that present tools and practice in New Zealand are not adequately securing the necessary benefits from ecological compensation requirements, with 35% of requirements not being achieved (Brown et al. 2013). Also, a recent review of the ‘no net loss’ policy through biodiversity offsetting in France concluded that the policy does not address the institutional arrangements and science base needed to reach the policy’s objective of no net loss (Quétier 2013). Consequently, the burden of designing and building adequate institutional arrangements is shifted down to local and regional permitting authorities, and even developers themselves, resulting in highly variable and often ineffective project by project approaches to offset supply, with minimal commitments (Quétier 2013). It can be argued that a similar situation pertains to Commonwealth and State offsetting policies in Australia.

The three main factors that limit the technical success of offsets are: (1) time lags between the impact occurring and the offset being successfully delivered; (2) uncertainty in the outcomes of restoration (some biodiversity values may be too difficult or risky, or even impossible to offset); and (3) measurability of the value being offset (Maron et al. 2012). A substantial literature on wetland restoration suggests that while some ecological indicators such as plant biomass and species richness often recover rapidly in restored wetlands, other important indicators, including species composition, soil physical and chemical properties, and ecosystem functions such as nutrient cycling may take at least several decades to recover to a pre-disturbance state (reviewed in Maron et al. 2013). The success of habitat offsets in cases where there is a significant lag between habitat loss and replacement of resources for a threatened species is likely to be low, because resource bottlenecks become a significant threat to the persistence of the species (Maron et al. 2010).

It is generally considered critical that biodiversity offsets be protected from risk of failure if they are to be effective in the long term, including through effective, long-term compliance monitoring and by specifying adaptive management frameworks and identifying actions that will be implemented in the event of initial failure (Quigley & Harper 2006; Brownlie et al. 2013; Gardner et al. 2013). A greater appreciation is also needed of the reality that for a habitat offset program to achieve no net loss can require much more extensive levels of habitat restoration than is generally conditioned in development approvals, with intensive monitoring to detect offset success (Pickett et al. 2013).

S7.10 and elsewhere

The programs identified are focussed more on reversing decline than “enhancement” of MNES. In particular, water quality improvements from agricultural development might be better classed as mitigation then enhancement. In considering whether an action is an enhancement, a clear baseline condition has to be set, against which an improvement can be measured. The term “recovery” may be more appropriate then



	“enhancement”.
Demonstration Case Snapshot – Dugong, as well as others	Many of the snapshots simply describe the management arrangements, without providing any evidence that the arrangements are effective. For example, the Dugong Demonstration Case Snapshot could provide evidence in the form of a review of dugong population trends.
S7.10.3.2	Halting broadscale clearing should not be classified as an enhancement of MNES. Impact of recent changes to the Vegetation Management Act on effectiveness in protecting MNES should be discussed.

2.6 Chapter 8 – Projected condition

Section/topic	Comment
General	The “management effectiveness” sections in Chapter 8 are very broad brush and not always consistent with Chapter 7. Given the importance of this aspect of the assessment of program effectiveness, a more detailed assessment would be appropriate.
Table 8.2.1 and associated text	The analysis presented in Chapter 8 is incomplete and insufficient to support the conclusions drawn in Table 8.7.1
Projected condition	<i>‘Projected Condition’</i> should include an outline on the expected pathway of pollutant loads for the life of the Program, i.e., the <i>‘performance trajectory’</i> . Note that by 2020 loads need to be ‘sustainable’ to meet the goal of the Reef Plan.
Table 8.1.1	<p>Does the assessment of projected condition take into account the effectiveness of recent changes to Queensland legislation and policies (vegetation clearing, offsets, coastal development), or is there an assumption that policies are fixed in time? This would then imply that there was a commitment not to soften legislative or policy requirements in relation to protection of MNES.</p> <p>From a methodological point of view, an assessment of projected condition should not consider measures that are proposed but have not yet been put in place (for example “the expected inclusion of MNES matters in Queensland mapping” and “a better approach to vegetation offsets”).</p> <p>Decline in water quality may also be affected by dredging, sea dumping and further coastal development, albeit with more localised impacts.</p> <p>The table notes limited resources for NRM programs in the GBR Coastal zone – this would appear to be inconsistent with Section 7 which found these to be effective</p> <p>Altered flow regimes – no mention of the Water Act in this regard. This was also noted in Section 7.</p>
Table 8.1.2	<p>The conclusion that the condition of the GBRWHA is deteriorating seems at odds with the assessment in Section 7 which concluded that the existing management programs were effective, or even very effective.</p> <p>Is there strong evidence that habitat for migratory species is improving? It would appear that habitat for migratory shorebirds, dolphins and dugong is declining (see for example statement in section 8.2.1).</p>
S8.1 and Table 8.1.2	The statement that the projected trend for the GBR coastal zone is very positive does not appear to be supported by Table 8.1.2.



S8.1 and Table 8.1.2	The statements in Section 8.1 and the findings in Table 8.1.2 are inconsistent with the later text in this section. The statement “is now expected to improve over time and into the future” requires strong supporting evidence.
Cumulative impacts	It should not be assumed that a better understanding of cumulative impacts will lead to better management. There are few international success stories in this regard. Also, the complexity of cumulative impacts may mean that cumulative impacts are never well understood, which may lead to further delay in taking action to address decline
Water quality	In relation to water quality improvement, (a) are the targets set in Reef Plan achievable (with or without the transformational change referred to by the Independent Science Panel) and (b) if these changes are achieved, will this provide sufficient improvement in water quality (and hence resilience of the reef) to counter adverse effects of climate change?
S8.2	There does not appear to be any Queensland legislation that is directly or indirectly relevant to World Heritage Criteria vii, viii and ix. This would appear to be a major gap in the program. This is also relevant to Section 7.

2.7 Chapter 9 – Adaptive management

Section/topic	Comment
Section 9.5	Given their importance, current compliance of agricultural activities with the ‘duty of care’ provisions of the <i>Environment Protection Act</i> should also be evaluated. Protection against environmental harm is not just about compliance with licence/approval conditions for ‘Environmentally Relevant Activities’.

2.8 Chapter 10 – Recommended changes and forward commitments

Section/topic	Comment
Section 10.1.2	An important knowledge gap is for better estimates of time lags regarding the water quality impact of changes to agricultural management practices. These time lags should be built into the Paddock to Reef modelling tool. (Meals et al., 2010).

3. Demonstration Case Studies

3.1 Abbot Point demonstration case

Section/topic	Comment
CIA	The Abbot Point demonstration case provides a good example of the identification and assessment of cumulative impacts within the Abbot Point State Development Area on terrestrial ecology MNES. Furthermore, the Joint Environmental Management Framework (JEMF) recommended by the Cumulative Impact Assessment (CIA) should prove effective in managing impacts of cumulative development at Abbot Point if fully implemented. In particular, the JEMF identifies a process and framework to: <ol style="list-style-type: none"> a. identify port-wide conservation objectives as a fundamental component of the CIA to maintain or enhance the environmental values at Abbot Point, and a



Section/topic	Comment
	<p>process to identify related performance targets that are measurable;</p> <ul style="list-style-type: none"> b. develop management plans that will include requirements to implement management and mitigation measures recommended by the CIA, collect additional information on environmental values where required, and monitor both cumulative impacts and environmental values, with scalable monitoring necessary to properly and adequately measure progress against the performance targets over time; and c. develop adaptive management processes so that management plans and performance targets can be modified in response to new information on environmental values and cumulative impacts, including measurable response triggers as key components of adaptive management. Response triggers include warning triggers (where monitoring identifies a trend towards not achieving a conservation objective or performance target) and impact triggers (where monitoring identifies that a conservation objective or performance target has not been achieved) d. a centrally coordinated approach to source and secure offsets and enhancements associated with direct and indirect residual cumulative impacts.
<p>MNES/wetlands</p>	<p>Page 2-17: The statement is made that “The majority of potentially impacted MNES at the Port are associated with the Caley Valley Wetlands (the wetland), and although the wetland itself is not identified as a MNES (it is not a Ramsar-listed wetland), it provides important habitat for a range of migratory birds and other threatened species”. The statement that the wetland itself is not identified as a MNES on the basis that it is not currently Ramsar-listed is technically correct, but overlooks that the specialist studies for the CIA identified that the wetland may meet several criteria for Ramsar recognition, including:</p> <ul style="list-style-type: none"> a. The wetland supports substantially more than 20,000 waterbirds when fully inundated <p>The wetland supports ≥1% per cent of the individuals in a population of a species or sub-species of waterbird, for three waterbird species, including the endangered Australian Painted Snipe (supporting 2.3% of the Australian population and a known breeding site).</p>
<p>CIA</p>	<p>The CIA provides a good example of how a focussed cumulative impact assessment was better able to more fully identify MNES values within the Abbot Point State Development Area (SDA) than the studies undertaken in support of multiple, project-specific Environmental Impact Assessments within the SDA.</p>
<p>Offsets</p>	<p>Page 2-27, Section 1.4.3 dealing with offsets. The statement “<i>The CIA recommended direct offsets to Semi-evergreen vine thicket to compensate for the expected losses over 19 to 22 hectares</i>” is a rather selective summary of the recommended offset requirements, and ignores that the CIA also recommended offsets to compensate for direct impacts of the loss of 56 to 70 hectares of wetland and additional indirect impacts to 313 to 349 hectares of wetland, identified as important habitat for migratory shorebirds and the endangered Australian Painted Snipe.</p>



3.2 Gladstone Harbour demonstration case

Section/topic	Comment
Migratory shorebirds	<p>As noted in Section 1.1 of the Gladstone Harbour demonstration case document, under the bilateral agreement between the Australian and Queensland Governments, the Coordinator-General EIS process is an accredited assessment process under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act); therefore it is required to adequately identify and protect the environmental values underpinning MNES. Migratory shorebirds are an identified MNES under the EPBC Act, and the Australian Government survey guidelines for migratory shorebirds (DEWHA 2009) stipulate that a minimum of four surveys be undertaken during the time that the majority of migratory shorebirds are in Australia (i.e. the summer months October to March) to adequately assess habitat values for migratory shorebirds. Under the EPBC Act guidelines (DEWHA 2009), the Port of Gladstone (also known as Port Curtis) has been identified as a nationally important site for migratory shorebirds, regularly supporting internationally significant numbers of Eastern Curlew (Clemens <i>et al.</i> 2008; Sandpiper Ecological Surveys 2012c). Past monitoring of shorebirds within the Port of Gladstone shorebird area has recorded 18 migratory shorebird species using the area, with a maximum recorded abundance of 4,900 migratory shorebirds (Clemens <i>et al.</i> 2008). The Port of Gladstone appears to be a particularly important area for Eastern Curlew and Whimbrel, with maximum recorded abundances of 515 (1.4% of the flyway population) and 450 (0.5% of the flyway population) respectively (Clemens <i>et al.</i> 2008).</p>
EIA assessment process	<p>The Gladstone Harbour demonstration case, focussed on the EIS process for the Western Basin Dredging and Disposal Project, highlights significant problems in the implementation of the EIS process, with specific reference to migratory shorebirds, as follows:</p> <ol style="list-style-type: none"> a. The assessment of the importance of the study area for migratory shorebirds was inadequate and did not follow Australian Government survey guidelines; consequently, the importance of the area was downplayed. The field survey for the Western Basin Dredging and Disposal Project EIS was undertaken over several days in June 2009, when the majority of migratory shorebirds are absent from Australia. Unsurprisingly, no migratory shorebirds were recorded in the project area, which includes large areas of intertidal mudflat and seagrass that may be utilised by migratory shorebirds as foraging habitat; however the desktop assessment identified ten migratory shorebird species as having been recorded from the Gladstone region that could utilise habitat in the study area (Gladstone Ports Corporation/GHD 2009). b. The public consultation process was ineffective in correcting deficiencies in the EIS process, despite these deficiencies being identified as part of the process. Public submissions to the EIS identified that the Gladstone region is of national significance to migratory shorebirds and included a request to delete a statement in the EIS assuming that the Gladstone region does not support significant numbers of migratory shorebirds; however no change to the description of the relative importance of the area for migratory shorebirds was made in the Supplementary EIS (Gladstone Ports Corporation/GHD 2010). <ol style="list-style-type: none"> 1. The importance of the Gladstone region for migratory shorebirds was subsequently confirmed (refer GHD 2011a,b,c,d; Sandpiper Ecological Surveys 2012a,b,c; Wildlife Unlimited 2012) only as a result of a condition of approval of the project by the Australian Government (SEWPAC 2010), which required that comprehensive baseline surveys of migratory shorebirds be undertaken in Port Curtis and Port Alma.



Section/topic	Comment
EIS assessment process	<p>Consequently, the following statements and information in the Gladstone Harbour demonstration case document are factually incorrect or misleading:</p> <ol style="list-style-type: none"> Section 1.2.1 Process to identify MNES: The statement “The EIS process for the project clearly identified the MNES potentially affected by the dredging in accordance with the TOR” is misleading – see point 2 below. Tables 1.2.1 and 1.2.2 identify Eastern Curlew and Whimbrel as the only migratory shorebird species identified as recorded within the study area during field surveys or considered likely to occur within the study area, the extent of which is shown in Figure 1.1.1 to include much of Gladstone Harbour. A number of other migratory shorebird species have been recorded within the study area depicted in Figure 1.1.1 (refer to APLNG 2011; QGC 2013; URS 2013; GHD 2011a,b,c,d; Sandpiper Ecological Surveys 2012a,b,c; Wildlife Unlimited 2012). Under Section 1.2.1, the statement “However, the Gladstone region is not recognised as an area of national or international significance for migratory shorebirds” is factually incorrect (refer Clemens et al. 2008 and Sandpiper Ecological Surveys 2012c in conjunction with DEWHA 2009). The Port of Gladstone alone has been identified as a nationally important site for migratory shorebirds, regularly supporting internationally significant numbers of Eastern Curlew (Clemens et al. 2008; Sandpiper Ecological Surveys 2012c).

Migratory shorebirds	<p>The question of whether the Port of Gladstone is nationally significant for migratory shorebirds or not has important implications for impact assessment and offsetting requirements; only if a site is identified as being nationally significant is habitat within the site utilized by migratory shorebirds identified as important habitat (refer to Figure 3 of DEWHA 2009), with unavoidable negative impacts on important habitat requiring offsets. Section 1.3 of the Gladstone Harbour demonstration case does not identify the direct and indirect impacts of the project (and cumulative impacts including multiple other projects in the harbour) on migratory shorebirds as a relevant MNES, and Section 1.4 does not outline how the offsets proposed for the project will achieve the Queensland Government Environmental Offset Policy (QGEOP) offset principles with respect to migratory shorebirds as a MNES under the EPBC Act or as special least concern species under the <i>Nature Conservation Act 1992</i>. These sections should be revised to either properly identify the impacts and offsets specific to migratory shorebirds as a relevant MNES, or identify the deficiencies in the implementation of the EIS process in respect of this case study.</p>
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3.3 Island Management Demonstration Case

Section/topic	Comment
	<p>Overall, it is of concern that this demonstration case only deals with those islands that come under formal management processes through the Queensland <i>Nature Conservation Act 1993</i> (NC Act) or Commonwealth <i>Great Barrier Reef Marine Park Act 1975</i> (GBRMP Act). More than half of the islands of the GBRWHA fall outside these categories. While it is understood that the focus for management must be on those islands with the highest conservation values, it is less clear whether the other islands also make a significant contribution to the OUV of the GBRWHA.</p>
	<p>It is EIANZ’s understanding that one of the key factors that precipitated UNESCO’s</p>



Section/topic	Comment
	expression of concern in relation to management of the GBRWHA was the declaration of a State Development Area over the southern part of Curtis Island and subsequent approval by both the Queensland and Australian government of large gas processing facilities in this area (see, for example http://whc.unesco.org/en/soc/317). This part of Curtis Island was not a national park, nor was it managed by GBRMPA. In the light of this, it would have been of significantly more value to the strategic assessment if the demonstration case explored the effectiveness of management arrangements for those islands not captured under the management arrangements of the NC Act and GBRMP Act, and the extent to which these arrangements focus on management of conservation values or the contribution that these islands make to the OUV of the GBRWHA.
	Section 1.3.1.1 and 1.4.7 point to the use of, and effectiveness of permits for commercial tourism activities within the GBRMP and island national parks. However, these permits do not extend to independent visitors to islands that are not designated national parks or special management areas under the GBRMP Act.
Cover page	the Queensland marine parks legislation should also be listed
Overall effectiveness	a separate assessment of effectiveness should be made for those islands not managed by GBRMPA and QPWS
Section 1.3.1.1 and 1.4.7	These sections point to the use of, and effectiveness of permits for commercial tourism activities within the GBRMP and island national parks. However, these permits do not extend to independent visitors to islands that are not designated national parks or special management areas under the GBRMP Act.
Section 1.4.10	In relation to offsets, given that Queensland offsets policies were introduced in 2008, it is too early to say whether this measure has been effective in maintaining biodiversity. The Gladstone Offsets demonstration case is simply a case study of the theory behind offsets. The success of the case study in maintaining biodiversity remains to be seen
Section 1.5	the focus here is on restoration of past damage (mostly anthropogenic) rather than enhancing values over and above the natural condition
Section 1.5.1	Note that the management measures (fencing etc) are incorrectly referred to as adaptive management techniques. Adaptive management is a term used to describe an approach to management that involves setting of targets and thresholds for protection, monitoring progress against these targets and adapting the overall activity and management actions where the targets and thresholds are not being achieved.

3.4 Water Quality Demonstration Case

Section/topic	Comment
Reef Plan 2013	The conclusion from the 2008 Consensus Statement that <i>'current management interventions are not effectively solving the problem'</i> was stated to have <i>now decisively changed with the improved focus of Reef Plan (P1-11)</i> There seems to be little evidence for this statement. The major significant change from Reef Plan 2009 to Reef Plan 2013 was a relaxation in the scope and timeframe of the targets, thus making it <u>less</u> likely that the overall goal of the Reef Plan would be achieved by 2020.
Reef water quality	Some of the analysis of the case study could be misleading. In particular, the projections on the health of the Reef (Sn 1.9) were based on an <u>assumption</u> that GBR water quality guidelines will be achieved. Evidence for this view needs to be provided. For example,



Section/topic	Comment
	give estimates of performance trajectory of key pollutants from now until 2020, based on the current Water Quality Improvement Plan.



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Environment
Institute of
Australia and
New Zealand

Great Barrier Reef Strategic Assessment – Detailed Comments on Marine Component

January 2014



Table of Contents

1.	Draft Program Report	1
1.1	General Comments	1
1.2	Section 1 - Introduction	1
1.3	Section 4 – Foundational Management.....	1
1.4	Section 5 – Strengthening Management	1
1.5	Section 6 – Forward Commitments	2
1.6	Appendices.....	2
2.	Strategic Assessment Report	2
2.1	General Comments	2
2.2	Chapter 1 – Introduction.....	3
2.3	Chapter 2 – Assessment Approach	3
2.4	Chapter 3 – Current Management.....	4
2.5	Chapter 4 – Matters of National Environmental Significance in the Great Barrier Reef Region 5	
2.6	Chapter 5 – Drivers and Activities.....	5
2.7	Chapter 6 – Impacts on the Values	7
2.8	Chapter 7 – Condition and Trend.....	12
2.9	Chapter 8 – Management Effectiveness – An Independent Assessment.....	12
2.10	Chapter 9 – Demonstration Case Studies	14
2.11	Chapter 10 – Resilience and Risk	15
2.12	Chapter 11 – Projected Condition.....	15
2.13	Chapter 12 – Recommended Changes to Management.....	15



1. Draft Program Report

1.1 General Comments

- The title of the report is misleading as a program traditionally identifies priorities, timeframes and defines measurable goals (the Oxford dictionary lists “schedule”, “agenda” and “timetable” as synonyms); this report does not provide these parameters.
- The lifetime of the Program is anticipated to be 25 years – if, as described in the 2009 Outlook Report, the Great Barrier Reef (GBR) was already “at a crossroads” then it is currently in decline and this timeframe appears to be too long. The timeframe for the Program should be reconsidered. Alternatively, milestones should be set at intermediate intervals (e.g., every 5 years) and clear contingencies be put in place as required.
- Note that comments have not been provided on every section due to time constraints.

1.2 Section 1 - Introduction

- Under the heading “Two complementary strategic assessments” it is stated that the “comprehensive strategic assessment analyses impacts affecting the WHA from activities on the land and on the water” but this is misleading as the Marine Strategic Assessment (hereby referred to as the Marine SA) only looks at the parts of the reef that fall into the jurisdiction of the Great Barrier Reef Marine Park Authority (GBRMPA), i.e. the Marine Park, and focusses almost entirely on the ecological values (world heritage criteria x), and not on world heritage criteria vii, viii and ix
- Note also that there are considerable inconsistencies between the Coastal SA and Marine SA, from the methodology used, coverage of issued (the Coastal SA covers all MNES) and in the conclusions drawn.

1.3 Section 4 – Foundational Management

- Under the bullet point “knowledge, integration and innovation” there is no mention of compiling survey or monitoring information from individual project Environmental Impact Statements (EISs) into a central database that would be publicly accessible. This should be added as a recommendation.

1.4 Section 5 – Strengthening Management

- Section 5.1 is a fair assessment of the Marine SA findings. The tables of Desired Outcomes are comprehensive, but the separation of condition and trend outcomes showing more or less the same conclusions (adding unnecessarily to the length of the Marine SA document), is indicative of a process-driven assessment, rather than an outcomes-driven assessment.
- Table 5 shows preliminary targets for 2019 without showing the process for defining definitive targets. Logically, any list of targets would need to include targets related to management arrangements (which are not provided in Table 5). There is, otherwise, no clear indication on how targets would be achieved. The targets listed imply a great many other intermediate targets (e.g., in relation to water quality, sedimentation). However, this is not explicit.
- Section 5.2.4 – the policy sounds more like a guideline, which is needed and which needs to be implemented. But who will do the cumulative impact assessments (CIAs)?



1.5 Section 6 – Forward Commitments

- Much faith is placed in the “long-term Sustainability Plan” for improved management of the GBR. The Program report contains very little information about how this plan is going to be developed. Will there be a single plan, or will there again be separate marine and coastal plans? Who will prepare this plan? Section 6.1 presents high-level statements in relation to standards, thresholds, no-go zones, etc., but to what level of detail will the Sustainability Plan be developed? The term “sustainability plan” can have many different meanings. More detail should be provided on the intended content, matters covered and also how the plan will be developed so that stakeholders can better understand what might be expected from the plan.
- Table 7 (Implementation of measures) provides a good list of initiatives, but provides only limited explanation of indicated time lines (see comment above). Why would it take 5 years to develop an integrated monitoring program or to develop regulations with regionally-based standards for ecosystem health? Whereas the 2009 Outlook Report notes that the reef was on a “crossroads”, the Marine SA indicates that the reef is declining. Five years from now may be too long for developing a monitoring program.

1.6 Appendices

- Appendix 2 List of recommendations needs to be prioritised.

2. Strategic Assessment Report

2.1 General Comments

- Note that comments have not been provided on every section due to time constraints.
- Nowhere in the document is there a simple statement of purpose of the Marine SA.
- Note some of the requirements expected of environmental impact assessment (EIA) practitioners when preparing project-specific EIS are not followed here, which the EIANZ suggests would be good practice. For example, there is no list of authors / contributors and their qualifications and relevant experience. Such a list should also indicate membership of professional organisations such as EIANZ and professional certifications such as Certified Environmental Practitioners (CEnvP).
- There is no cross reference to the terms of reference (ToR) for the Marine SA, unlike the cross-reference table that was included for the Coastal SA. A cross reference to UNESCO’s requirements for the strategic assessment would also benefit the readers.
- The rationale for preparing two separate strategic assessments, one for coastal and one for marine, remains unclear. It is apparent that the key criteria for the division between coastal and marine is to allow assessment of those matters managed by GBRMPA in one report, and those managed by Queensland government in another. However, this is itself a concern of the EIANZ as effective management of the GBRWHA and GBR region requires a high level of cooperation between the Australian and Queensland governments.
- As the GBRWHA extends beyond the GBRMP and includes islands, there is a jurisdictional gap when it comes to protection and management of the Outstanding Universal Value (OUV) of the GBRWHA on those islands not managed by GBRMPA, and in the thirteen coastal areas that are within the GBRWHA but not the Great Barrier Reef Marine Park (GBRMP). The Coastal SA asserts that Queensland legislation and policies are adequate to identify, protect and manage the contribution that islands and other areas within the GBRWHA but outside the GBRMP make to the OUV of the GBRWHA. However, this is not supported by evidence (see also comments on Section 7 of the Coastal SA).



- There remains considerable confusion as to the exact geographic boundary between the Coastal and Marine SAs. The Coastal SA geographic extent is described in Section 1.4 of the Coastal SA as including Queensland's coastal waters, islands and adjacent inland areas. Section 3.3 of the Coastal SA states that "this report primarily focuses on the land component of the GBR coastal zone and only includes marine Matters of National Environmental Significance (MNES) where the MNES also utilise terrestrial habitat", which is a confusing statement (examples could be given as clarification). Section 7 of the Coastal SA assesses the effectiveness of programs relating to both terrestrial and marine/aquatic habitats, including in relation to waters within port limits. A number of the demonstration cases and case studies relate to non-land based components, examples being the fish habitat areas, offsets in Gladstone Harbour, Bowling Green Bay Ramsar Wetland site, dugong and shipping. Conversely, the Marine SA apparently covers the "Great Barrier Reef region" which includes 70 commonwealth islands and all waters of the GBRWHA below the low water mark, except for Queensland internal waters. It is not clear whether waters of trading ports and Pioneer Bay are included in the Marine SA. The Marine SA also includes a demonstration case on Queensland managed islands and covers Bowling Green Bay Ramsar Wetland, even though no part of this wetland is within the Great Barrier Reef region as defined in the Marine SA. EIANZ is particularly concerned about this apparent confusion as it appears that the lack of clarity in jurisdiction of the GBRWHA has underpinned the issues that led to UNESCO requesting a strategic assessment in the first instance. It is EIANZ's view that protection and sustainable management of the OUV of the GBRWHA depends on clear management jurisdictions, roles and responsibilities such that there are neither gaps nor overlaps.

2.2 Chapter 1 – Introduction

- Section 1.1.2, last paragraph – traditional owners may not be the only people for which the criterion of "interaction between man [sic] and his [sic] natural environment" is relevant.
- Section 1.1.5 – although it is explained later, it is more useful at this point in the document to point out that the boundaries of the GBRMP and GBRWHA are not identical and that there are areas within the GBRWHA that are outside the GBRMP.
- Section 1.2 is misleading. The purpose of the SA according to the ToR was to identify impacts and assess GBRMPA's management arrangements to deal with this only. The implied relationship/equivalence with EIA (S 1.2.1) is tenuous – the SA does not provide solutions/mitigation as such, except through good intentions to improve management arrangements.
- Section 1.2.3 – the fourth paragraph identifies that Australia was requested to identify "planned and potential developments that could impact on the OUV of the World Heritage Area". This was not achieved for the Marine SA.
- The Marine SA has not included the long term plan for sustainable development that was requested by UNESCO, which is a plan that is urgently required.
- Section 1.2.3 lists the expectations of UNESCO against Recommendation R5. It would be appropriate to provide an assessment of the extent to which the Coastal and Marine SAs have met this expectation.

2.3 Chapter 2 – Assessment Approach

- Section 2.7.1 - the diagram does not seem to match the Driving Forces-Pressures-State of Environment-Impacts-Responses (DPSIR) approach to assessing and managing environmental issues.



- Section 2.7.3 – there is a limited basis for the decision to model (Bayesian) only coral and seagrass habitats and dugong populations. EIANZ seeks clarification of why these attributes were selected over the many other candidates, and how the list of chosen attributes might influence the conclusions reached in the SAs.
- Section 2.11.1 – it would be useful to list the membership of the advisory committees, either here or in an appendix.
- Section 2.11.2 – a list of all of the stakeholders/stakeholder groups consulted should be included.
- The document does not contain any information on the study team, authors and specialists who prepared the strategic assessment. This is important in establishing the credibility of the assessment. Note that EISs under the EPBC Act are required to list the study team’s names, qualifications and years of experience.

2.4 Chapter 3 – Current Management

- Section 3.3, last paragraph - has GBRMPA recommended, drafted or implemented any regulations in relation to activities outside the GBRMP that might impact on water quality? Is this planned as part of the forward program? It would be useful to describe a few examples.
- Section 3.4.1 notes that GBRMPA can delegate authority to the Queensland Government. Are any such delegations in place? It would be useful to provide a few examples.
- Section 3.5 should probably include the following Queensland legislation:
 - *Aboriginal Cultural Heritage Act 2003*
 - *Torres Strait Islander Cultural Heritage Act 2003*
 - *Queensland Heritage Act 1992*
 - *Land Act 1994*
 - *Mineral Resources Act 1989*
- Sections 3.6, 3.7 and 3.8 – although mentioned later in Section 3.11, it would be appropriate in these sections to discuss GBRMPA’s role in assessment and approval of development projects inside and outside of the GBRMP/GBRWhA, including projects undergoing assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *State Development and Public Works Organisation Act 1971* (SDPWO Act), and *Sustainable Planning Act 2009* (SP Act).
- This section should also clarify GBRMPA’s role and the role of the Commonwealth Department of the Environment (DoE) in management of the OUV of the GBRWhA, particularly for those aspects of the OUV that are not clearly captured in the GBRMP.
- Section 3.8 should note the following:
 - Queensland Department of National Parks, Recreation, Sport and Racing (DNPRSR) also undertakes scientific research
 - Queensland Department of Environment and Heritage Protection (DEHP) is also responsible for cultural heritage protection and management
 - DEHP is responsible for authorising certain activities (environmentally relevant activities) that may cause harmful discharges to air, water and land, and noise emissions
 - DEHP also has responsibility for waste management
 - Queensland Department of State Development, Infrastructure and Planning (DSDIP) is also responsible for coordination of the EIS process for certain major projects, and coordination of development approval process under the SP Act.



- Section 3.11.5 discusses the financial resources available for management of the GBRMP and associated values. It would be useful to provide an analysis of how this compares to other international benchmarks for expenditure on management of highly significant environmental values. It would also be beneficial to examine the proportion of this expenditure that contributes specifically to protection of the OUV of the GBRWHA.
- The discussion on management in this section appears to be focussed on management of biodiversity generally, habitat protection and management of individual species of conservation significance. Further information should be provided on management arrangements for protecting the OUV in relation to criterion vii, viii and ix.
- Section 3.13 – should the Bowling Green Bay Ramsar Wetland also be mentioned?

2.5 Chapter 4 – Matters of National Environmental Significance in the Great Barrier Reef Region

- In the discussion on the inscription of the GBRWHA, it may be worth noting that, at the time of inscription, there was no consideration of existing uses such as existing port development when setting the declared boundaries. Lucas, *et al* (1997) raised the issue of the arbitrary nature of the boundary (see Section 3 of the reference in particular) and recommended that consideration be given to aligning the boundaries of the GBRWHA and GBRMP to simplify management arrangements. We suggest that this option be considered to streamline the management of the GBRWHA.
- The box in Section 4.2 identifies the aesthetic values. However, in the management recommendations, there is no focus on aesthetics or natural beauty, although these are core values of the GBRWHA.
- Section 4.3.1 – technically, the beaches are not in the GBRMP as the GBRMP boundary is to the low water mark.
- The level of detail given to describing the values that contribute to the OUV of the GBRWHA is considerably less than that given to the GBRMP.

2.6 Chapter 5 – Drivers and Activities

- Throughout this chapter, impacts of the drivers and activities are discussed in very generic terms. There is an urgent need to gain a more quantitative understanding of the actual significance of impacts of activities if management actions are to be better targeted.
- Section 5.3.1 - immediately after the discussion about Agriculture and how the *Vegetation Management Act 1993* (the VMA) has reduced land clearing the statement is made that “Recently, the Queensland Government proposed a suite of changes to the VMA which includes repealing regulations that apply to clearing high value regrowth on freehold land and Indigenous lands, and promoting self-assessment of areas that contain remnant or high value regrowth.” EIANZ suggests that GBRMPA explain what this comment means for water quality in the reef region.
- The last paragraph of Section 5.3.1 notes that improved land and agricultural management practices are proven to reduce run-off of suspended sediments, nutrients, and pesticides at the paddock scale (Brodie *et al*, 2013). While this potentially may reduce future impacts on the Region’s ecosystems, this remains to be seen (i.e., the Reef Plan has not been implemented long enough to gauge its effectiveness in the long term and at a more regional scale).
- Section 5.4.4 under “Impacts” notes that survival rates of fish captured and released during recreational fishing varies. This statement is speculative without providing data to support the statement. Are the data available and, if so, why has it not been presented?



- Sections 5.2 and 5.3 again highlight the awkwardness of conducting separate marine and coastal strategic assessments as many of the drivers are land based.
- Section 5.2.5 – it is also worth noting that there have been considerable improvements in wastewater treatment and reuse as well as stormwater attenuation and treatment systems. With the technology and methods now available, new urban and resort developments should be able to be operated on a closed cycle basis for water and wastewater, and also manage stormwater so that there is no change in quality and quantity of runoff. Likewise, industrial wastewater can now generally be treated to allow reuse. Linkage with local government agencies responsible for enforcing these changes should be further drawn out in this section.
- Section 5.3.1 – it would be useful to know the value of agriculture within the GBR catchment as this sets some context for the costs and benefits of managing runoff from agriculture.
- Section 5.3.1 – given the importance of agriculture runoff, further analysis of contaminant loads should be examined, including examination of modelled results (mitigated and unmitigated).
- Section 5.3.3 – it may be that as smaller communities expand, a critical mass will be reached whereby centralised wastewater treatment systems become reasonable. Note also (and in Section 5.2.5) that there have been considerable developments in small scale wastewater treatment plants and that cost per household of centralised treatment may be reduced further over time.
- Section 5.3.3 – it is not clear what is meant by visual disturbance.
- Section 5.3.3 – should also mention reductions in nutrient and other contaminant loads from stormwater due to improvements in stormwater management systems (WSUD). In Brisbane, the initiative to require dog owners to collect dog waste has also apparently significantly reduced phosphorus loads into the Brisbane River and Moreton Bay. Are such initiatives in place in the GBR catchment areas?
- Section 5.3.4 – industrial development also increases the demand for shipping.
- Section 5.3.4 – clarify whether mining and petroleum extraction is included in industrial development. A heading “Industrial Development and Resource Extraction” might be more appropriate. The section gives the impression that only minor mining activities occur in the catchment, when in fact there are a number of significant mining areas.
- Table 5.2 does not seem to correlate with the regions defined in Table 1.2.
- Section 5.3.5 Impact – the first sentence of this sub-section states that dredging and port-related construction is affecting habitats and species. The two references that support this statement are from 2006 and 2007. A significant body of additional data on how the dredging effects seagrass and coral habitats is available from monitoring and reviews of the effects of the Western Basin Dredging and Disposal Project, notwithstanding that the data is confounded by severe weather events that occurred during the dredging program. However, this data should also be considered, or at least referenced, when drawing conclusions regarding the impacts of dredging and port infrastructure. As impacts of port development on GBRWHA and GBRMP values were one of the key concerns that led to the UNESCO request for a strategic assessment, and is a key concern of community stakeholders, significant additional rigour should be applied to determining the actual impacts of these activities, rather than simply re-stating the generic impacts.
- Section 5.4.5 – prefer use of non-gender specific language – boaters or yachters rather than yachtsmen
- Section 5.4.5 – the issue of the impacts of boat strikes on turtles and dugong has been raised during EIS processes for developments in and adjacent to the GBRWHA/GBRMP as a potentially significant issue. However, there is little definitive information on the potential significance of this issue in relation to the OUV of the GBRWHA. Therefore, it would be appropriate to explore this issue in more detail.



- Section 5.4.5 – the impact of disturbance to avifauna roosting, foraging and nesting behaviours from recreational activities requires more discussion.
- Section 5.4.6 – the Coastal SA reports a downward trend in shipping incidents while the Marine SA states that there is no trend. This discrepancy requires further investigation.

2.7 Chapter 6 – Impacts on the Values

- Throughout this section, cross references should be provided to the Coastal SA as there is considerable overlap.
- A number of sections describe impacts very generically. There is emerging concern about a number of impacts, particularly impacts relating to port activities and development, and a great deal of conjecture about the potential significance of these impacts. It would, therefore, be beneficial to provide more detailed reviews of recent studies and monitoring programs so that public and professional debate could become more focussed and accurate. EIANZ is concerned that many of the assigned grades might be under represented.
- Section 6.1.3 - the division of impacts into direct and indirect can be problematic due to the complex cause and effect relationships between some types of impacts. This is particularly the case with water quality impacts.
- Section 6.2 – there are no data or assessments provided with respect to the scale of the impact. For example, loss of wetland habitats (e.g., seagrass or mangroves) has an immediate direct impact, but also a broader indirect impact given that fish migrate among a range of habitats for breeding, shelter and feeding.
- Section 6.2.1 third paragraph – the receptor categories for the impact assessment (biodiversity, geomorphological features, heritage and community benefits (including aesthetics) do not necessarily represent the full range of values that make up the OUV of the GBRWHA. In particular, the categories do not represent Criterion ix (outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals). The superlative natural phenomena of Criterion vii also seem to have been overlooked.
- Section 6.2.1 states that the focus of the impact assessment is on the ecological system as it is biodiversity values that underpin the MNES of the region. However, this would not seem to take into account all of the features and characteristics that contribute to the OUV of the GBRWHA. There appears to be a disconnect between the management of the GBRMP, which is managed largely for its ecological values, and management of the full range of features and components, both within and outside the GBRMP that contribute to the OUV of the GBRWHA. It remains of significant concern that there is no Australian or Queensland government agency charged with management of the OUV of the GBRWHA. Note DoE is charged with protection of the GBRWHA from impacts of development proposals, but not with ongoing management.
- Table 6.1 – in relation to acid sulphate soils, the impact should be stated as “Exposure and subsequent oxidation of potential acid sulphate soils”
- Table 6.1 – the use of the term “Regional” to describe scale of impact is confusing given that the assessment focuses on the Great Barrier Reef region. Presumably regional in the context of scale of impact does not refer to impacts across the entire GBR region.
- Table 6.1 – where the scale is noted as “reef-wide” does this also encompass non-reef ecosystems such as mangroves, seagrasses, and intertidal habitats?
- Table 6.1 cyclone activity – the impact may be better described as “damage to benthic and coastal habitats from wind and waves”.



- Table 6.1 dredging – the impact may be better described as “destruction of benthic habitats and suspension of sediments in a dredge plume”.
- Table 6.1 increased freshwater flow – the impact may be better described as “increased freshwater flow due to higher intensity rain events and/or reduced retention of rainfall in the catchment”. Also, are there any concerns about reduced freshwater inflow as a result of harvesting of water for human use?
- Table 6.1 – should marine debris include litter?
- Table 6.1 – Noise pollution should be divided into above and below water, since the mechanisms for impacts are quite different.
- Section 6.4.1 – are other non-coral reef ecosystems also vulnerable to the various climate change effects? There is a sense throughout this assessment that the focus is on coral reef ecosystems.
- Section 6.4.2 Nutrients in Catchment Runoff, second to last paragraph: “...recent monitoring and modelling show current initiatives are successfully reducing nutrient concentrations in catchment runoff” (2011 reference)”. While the modelling results indicate this outcome, the details of the modelling should be provided along with the assumptions included in the modelling, and the degree of certainty in the modelling (model confidence limits). If this is the same evidence as that used in Section 5.3.1 (using 2013 reference) then it is only at the paddock level, not at the catchment level and, hence, may be a premature statement. It seems to contradict Section 5.3.1 which uses a later reference.
- Section 6.4.2 notes the role of small scale metaliferous mines in causing contaminated catchment run-off. However, there are no data or discussions on the cumulative impacts of many small scale activities. There is also no mention of the impacts of other mining activities on run-off except to say that mines can be affected by flooding, causing a release of wastewater. What does this wastewater do to the environment? Is this a significant pressure or driver?
- Section 6.4.2 catchment runoff – it would be helpful to preface this section with the comment that freshwater inflows are a natural process that contribute nutrients and sediment, which are critical to inshore coastal environments. The impact is due to changes in catchment runoff characteristics and land use practices and, hence, changes in volumes of flows and levels of sediment, nutrients and other contaminants.
- Section 6.4.2 – are there any concerns regarding nutrients and pesticides from golf courses? If so, how will the Marine SA specifically address this matter?
- Section 6.4.2 pesticides from catchment runoff – the last paragraph of this sub-section provides a good summary of the potential risk (impact) to the GBR. Notwithstanding that a summary impact grading table is provided at the end of this section, similar statements would also be useful in other sections to provide perspective as to the relative significance of the various impacts discussed.
- Section 6.4.2 – are decreased flows, either due to climate change (which predicts more intense storms, but lower average rainfall) or extraction of water for human uses, also an issue for ecosystems? For example, some migratory fish will not move upstream for breeding purposes if sufficient flows do not occur.
- Section 6.4.2 urban and industrial discharge – further information could be provided in this section, for example the number of authorised discharges (authorised under the *Environmental Protection Act 1994*), and whether there are any particular locations where a high proportion of point source discharges occur. Discussion could also be provided on stormwater runoff. While it is true that in older urban areas, stormwater does not receive runoff, best practice urban drainage design now requires that water sensitive urban design principles be followed. It would be appropriate to examine whether new urban developments in the GBR catchment are employing these techniques, and the effectiveness of water sensitive urban design (WSUD) in reducing sediment and nutrient loads in stormwater.



- Section 6.4.2 urban and industrial discharge – replace “impurities” with “contaminants”
- Section 6.4.2 urban and industrial discharge – potential impacts on water quality from large mines are not discussed. There is significant mining development in the Burdekin and Fitzroy basins.
- Section 6.4.3 – the mechanism by which potential acid sulphate soil related impacts arise could be better expressed. When potential acid sulphate soils are exposed to oxidising conditions, sulphuric acid can be produced. As pH drops, this can increase the solubility of metal contaminants resulting in release of metals to the environment as well as acidic water. Note that potential acid sulphate soils have to be exposed to air for oxidation to occur. It should also be noted that the Queensland Acid Sulfate Soils Investigation Team (QASSIT) produced a comprehensive soil technical manual setting out methods for testing and managing acid sulfate soils (<http://www.nrm.qld.gov.au/land/ass/products.html>). Where developments have followed these guidelines, there has been little, if any, impact from oxidation of acid sulphate soils.
- Section 6.4.3 – release from dams occur under the requirements of a statutory Water Resource Plan. This usually specifies the quality and quantity of water that must be released to maintain environmental flows. Individual dams and weirs are operated under licences that also specify environmental flow requirements. Many dams and weirs in Queensland have release structures to ensure that poorer quality water is not released. If this is an important impact, more factual information should be provided on how releases are made and managed. In addition, where releases are made in the dry season, these are usually extracted further downstream for water supply purposes rather than flowing out of the mouth of the river.
- Section 6.4.3 artificial barriers to riverine and estuarine flow – are there examples of where water extraction and barriers to flow have changed salinity of seawater in bays along the GBR coast, or altered ocean currents? What are the consequences and mechanism in place/necessary to mitigate these effects?
- Section 6.4.3 artificial barriers to riverine and estuarine flow – a number of dams and weirs in Queensland are fitted with fish passage devices. An analysis of the number of dams with such devices in place, and the effectiveness of these devices, would be useful to support the statement that marine and estuarine fish can be affected by artificial barriers.
- Section 6.4.3 atmospheric pollution can be a significant issue for the region’s environment as it can affect human populations. It would be more appropriate to say that atmospheric pollution is not presently a major issue for biodiversity or other attributes that contribute to the OUV of the GBRWHA.
- Section 6.4.3 coastal reclamation – it is useful that the total area that has been reclaimed is quantified. It would also be useful to know whether this was within the GBRWHA. As with a number of other sections, it would be appropriate to provide more specific details on the actual effects of coastal reclamation projects. For example, did the coastal reclamation at Gladstone or Townsville result in reduced biodiversity? Coastal reclamation may also be a tool to modify habitats to suit certain biodiversity groups, for example, by creating wetland habitat for wading and migratory bird species. Queensland Fisheries undertook a study of the impact of a marina development, including land reclamation on fisheries resources at Airlie Beach (Gribble, 2010, Port of Airlie Marina Development Project : fisheries resources monitoring in Boathaven Bay, Department of Employment, Economic Development and Innovation, Brisbane, Qld).
- Section 6.4.3 coastal reclamation – note that coastal reclamation may also be used as a means of dredge spoil disposal. This approach was endorsed by the Federal Minister for the Environment (<http://www.environment.gov.au/minister/hunt/2013/pubs/mr20131210.pdf>).
- Section 6.4.3 modifying and supporting terrestrial habitats - it would be useful to know how many beaches (or kilometres of beach) are accessible for four-wheel-driving.
- Section 6.4.4 dredging – there has been considerable stakeholder concern in recent times regarding the effects of dredging on the GBR. It is possible that some of this concern has been overstated. It



would be useful if this section drew on monitoring data and related information from recent dredging projects, such as at Hay Point and in the Port of Gladstone, to provide a more thorough assessment of the geographic extent of dredging related impacts, and also the severity and duration of these impacts on coral, seagrass and other marine ecosystems.

- Section 6.4.4 dumping and re-suspension of dredge material – it would be appropriate to also mention that some dredge material may be potential acid sulphate soils (although this is only an issue where the dredge material is exposed to oxygen) and may also contain contaminants from land runoff.
- Section 6.4.4 dumping and re-suspension of dredge material – further care is required when interpreting the results in Figure 6.19, particularly as the scales of the modelled versus actual pictures are not provided, nor are geographic reference points that would allow easier comparison of the pictures. As the “actual” pictures are at a smaller scale, the plume appears much larger. Also, the modelled output represents the cumulative modelled concentration of suspended sediment over a 31 day period, whereas the “actual” images are snapshots and may not represent the same time frame, dredging rates or dredge method as was used in the model.
- Section 6.4.4 dumping and re-suspension of dredge material – although modelling has shortcomings, it is still a useful predictive tool, and should not be disregarded. However, as noted in the text, significant opportunities exist to improve the quality of predictive modelling. It may be possible to “re-calibrate” the models used for the Western Basin dredging project using actual monitoring data to improve accuracy of the models for this area. This in turn may lead to improved modelling accuracy at other locations.
- Section 6.4.4 fish spawning – might fish spawns also be considered as “spectacular natural phenomena” as per Criterion xii of the world heritage listing?
- Section 6.4.4 extraction – herbivores, fourth paragraph – a statement could be made here as to whether there was an overall decline or increase in seagrass beds. Also, removal of herbivorous fish is known to increase algal growth. What is the likely trophic cascade effect for the reef and its ecosystems?
- Section 6.4.4 marine debris – prefer non-gender specific language (anthropogenic rather than man-made). For this to be effective, regular maintenance and cleaning is necessary. This needs to be highlighted in this section.
- Section 6.4.4 marine debris – to what extent are litter traps effective in removing litter from stormwater runoff?
- Section 6.4.4 noise pollution – as this is another emerging issue of concern, about which there is considerable conjecture, it would be useful to expand on the statement “effects to marine life range from detection with no adverse impacts to significant behavioural changes, to hearing loss, physical injury and mortality”. Underwater noise measurements have been undertaken for the Western Basin Dredging and Disposal project and a review of this issue was also presented in the Abbot Point Cumulative Impact Assessment.
- Section 6.4.4 large chemical spill – it should be possible to identify most of the bulk chemicals transported through the GBRWHA from an understanding of chemical production facilities and large industrial facilities that require chemical inputs.
- Section 6.4.4 large chemical spill – it would be useful in this section to provide some context in terms of global risk of chemical spill. For example, IMP publishes data on incidents involving “hazardous and noxious substances”
<http://www.imo.org/KnowledgeCentre/ShipsAndShippingFactsAndFigures/Statisticalresources/MarinePollution/HazardousandNoxiousSubstancesHNS/Pages/default.aspx>



- Section 6.4.4 large oil spills – further information on the long term effects of areas affected by reported large oil spills would be useful. Information on effectiveness of spill response and measures in place to respond to oil spills would also be useful.
- Section 6.4.4 small spills – are there issues associated with discharges from outboard motors? Has water quality monitoring indicated increased levels of TPH in areas used by recreational boats and/or areas such as marinas where boats refuel?
- Figure 6.26 – it would be useful to know whether this covers all spills of any size, or whether there is a size threshold.
- Section 6.4.4 vessel strike on wildlife - recently approved projects involving boating activity (for example LNG plants on Curtis Island, the Great Keppel Island revitalisation project) have been given conditions restricting boat speed to 6 knots in areas where dugong and turtle might be present. Is there any information on the effectiveness of this mitigation measure?
- Table 6.6 – Are there trends that show acid sulphate soils and urban/industrial discharge are increasing given the effectiveness of current good practice management approaches?
- Section 6.4.5 presents Table 6.6 showing severity ratings for various types of impacts on the reef. It would be good to put a discussion of this table in this paragraph. What does GBRMPA think of these results? It is clear that climate change and catchment runoff are the most significant impacts, yet the management of these is largely beyond the jurisdiction of GBRMPA.
- Section 6.4.5 – are management approaches and mitigation measures for various impacts taken into consideration when the significance of the effect is assessed?
- In Tables 6.6 and 6.7, the white no effect category is defined as “no interaction; the interaction is insignificant or unknown”. Many of the activities listed have a white grading allocation. However, it is not clear which part of the definition applies – “insignificant” or “unknown”. Both these terms are polar opposite- insignificant relates to a low grading or minimal risk, while unknown relates to insufficient data or information available to allocate a grading. How can a no effect grading be allocated when the effect is unknown? This category needs to be separated as “insignificant” and “unknown”.
- Section 6.5 – while it is agreed the geomorphology and ecology of the GBR are closely linked (this is recognised by listing under Criterion ix), it is not appropriate to use biodiversity values as a proxy for geomorphological values. This section should explore in more detail the values that contribute to Criterion viii and ix, as these are distinct and important values in themselves, not just features that support the biodiversity values.
- Section 6.5 – increased intensity of cyclones may be a threat to geomorphological values. However, cyclones are also a driving force in formation of coastal geomorphology.
- Section 6.5 – paleochannels are at risk from dredging and other port activities.
- Section 6.8 – the cumulative impact assessment modelling is valuable. Insufficient time was available to review the supporting report. However, it would be appreciated if it were possible to submit comments at a later date.
- Section 6.8.2 water quality – could the model for suspended solids also be used to examine dredge plumes and re-suspension of dumped dredge material?
- Section 6.8.3 – the finding that there is a very high water quality risk at Gladstone is not consistent with the findings of PCIMP <http://www.pcimp.com.au/> or the Gladstone Healthy Harbour Partnership <http://www.ehp.qld.gov.au/gladstone/water-quality.html>. An explanation for this discrepancy is required.
- Section 6.8.3 – it is not clear exactly what is meant by water quality risk.
- Section 6.8.3 6th paragraph – it should be possible to provide more definitive statements on the duration of dredge plumes.



- Section 6.8.3 – is there a forward research program addressing toxicity for coral, fish, epifauna or plants?
- Section 6.9.1 – it would have been expected that there would be a significantly larger emphasis on evaluating impacts on the OUV of the GBRWHA, particularly given that it was concern about impacts on OUV that led UNESCO to request a Strategic Assessment.
- Section 6.9.1 – a much more detailed analysis of impacts on integrity would be appropriate here, as this is a difficult concept to convey, and requires authorities responsible for managing the GBRWHA to be more definitive in terms of acceptable and unacceptable impacts on integrity.
- Section 6.9.1 ecological and biological processes – a key aspect of this criterion is the demonstration of evidence of ongoing evolutionary processes.
- Section 6.9.2 – the reference to support the statement that impacts are greatest in the southern GBRMP is in relation to coral reef ecosystems only. It is important that the Marine SA considers all of the important habitats, and the connectivity within, the GBRMP.
- Section 6.9.5 – is this section consistent with Table 6.7? It appears to present a different message.
- Section 6.10.4 – a better discussion of how the community values the GBRWHA and the environment in general, is necessary.
- Section 6.10.5 – in relation to cumulative impacts, a framework for assessment of cumulative impacts of development projects and activities would be an important output from the strategic assessment as this would assist proponents in preparing more meaningful cumulative impact assessments.
- Section 6.11 – this section needs to link to the findings of the Coastal SA.
- Section 6.11 – the statement that the effects of dredge disposal can be widespread is inconsistent with earlier findings that this is a local issue.

2.8 Chapter 7 – Condition and Trend

- This section was not reviewed in detail due to a lack of time. However, it seems to repeat much of what has been previously stated. EIANZ suggests this section could be revised to focus on trends and forward trends under various hypothetical scenarios.

2.9 Chapter 8 – Management Effectiveness – An Independent Assessment

- Section 8.2 just above Table 8.1: assessment of management effectiveness was intended to consider whether the Authority’s management arrangements provide certainty regarding where uses may occur, type of activities allowed, and circumstances where impacts are likely to be unacceptable. This is reiterated in the ToR under the heading Context: “Once complete, the comprehensive strategic assessment will strengthen the protection of the GBR and guide its management by providing greater certainty on where sustainable uses can occur, the type of activities that will be allowed and the conditions under which activities may proceed”. This has not been achieved by the Marine SA.
- Section 8.2 - the assessment of management effectiveness was intended to “take more explicit account of MNES including the OUV of the GBRWHA...”. However, the values that were assessed only included biodiversity, Indigenous and non-Indigenous heritage, and community benefits. The GBRWHA was listed for four natural environmental criteria, of which “habitats for biodiversity conservation” is only one. The other three criteria (ecological and biological processes, natural beauty and phenomena, and major stages in evolution) are not assessed at all for management effectiveness, and the justification for including “community benefits” is not provided.
- Section 8.2 notes that the assessment framework (Hockings, *et al.* 2006) has been used widely around the world. Therefore, it would be good to provide examples. The problem here is that the



assessment framework has been bolted on to a ToR which has asked for different things than what the framework was designed to accomplish. Chapter 8 appears to follow a pre-ordained course of discussion with the ToR required discussion trailing as an after-thought. The chapter is very process oriented, repetitive, and difficult to follow in terms of the overall Marine SA context. For example, why is outstanding universal value (World Heritage) not a value under the list of values in S 8.2.1? Surely, it is a key value for this SA (as requested in the ToR)?

- Table 8.2 Comparison of scale and complexity of management topics – what do minor, major, moderate mean and how are they determined? How does this table fit into the overall discussion provided in the chapter?
- Section 8.2.2 calculation of grades - “individual grades were added and then scaled”. How was this done? Why were two grades assigned, one for outcomes related to biodiversity, the other for all outcomes (biological, social, economic, management objectives)?
- Section 8.3.1 to Section 8.5.8 - Why is management effectiveness for Biodiversity Protection mostly effective for “Overall” outcome, but not for “Biodiversity” outcome? It is hard to understand to what the difference relates. While the discussion provided is quite clear, it is not clear how it relates to the table and vice versa. The tables suggest a level of rigour that is not realised by the reader without showing the actual workings/calculations. It would have been better to provide text without the tables, and refer to the calculations and tables in a separate specialist report, if at all. Do the tables and calculations really need to be included to arrive at the conclusions? Couldn’t the conclusions have been more simply argued in words? Use of sub-headings (context, planning, inputs, etc.) as was used in Chapter 9, could have helped present the information.
- Section 8.4.2 (and Section 8.4.3) first paragraph notes that GBRMPA has the lead role for management within the GBRMP (the Park) and an advisory or partnership role outside. This fails to say that under Marine Parks Act, GBRMPA also has power to regulate or prohibit actions outside the Park that pollute water within the Park. It would have been good to discuss the experience with invoking this power. For what kind of issues has it been invoked? Could it be invoked for others? Has it been invoked sufficiently often and have regulations/powers been sufficiently appropriate from a protection point of view?
- Eighth paragraph in Section 8.4.2 notes financial spending amounts of Commonwealth and Queensland governments. How does that related to effectiveness?
- Section 8.4.3 sixth paragraph - notes that Queensland Government has replaced the Coastal Protection State Planning Policy with a draft Regulatory Provision, potentially changing the level of protection afforded. How does this bode for future cooperation with Queensland Government to protect the reef in partnership?
- Section 8.5.6 reports that the need for improved pilotage, bilge and ballast water management, marine debris and other impacts from “parked” ships, exclusion of other users in high shipping areas and management response to groundings are outside the jurisdiction of GBRMP but does not explain why or state under whose jurisdiction these activities lie.
- Section 8.6 - This section actually addresses the ToR directly, but because the Hockings et al. (2006) framework was evaluated first, much of the text in Section 8.6 is repeat text, adding bulk to the Marine SA without providing new information.
- Table 8.22 lists as an indicator “There is a planning system in place that effectively addresses {uncertainty and risk} and gives a grade of mostly effective”. Insufficient evidence is provided to back up this grade. Regarding indicator 4.1.1(f), it lists strengths as zoning plan and plans of management, thereby giving an overall grade of “partially effective”. Given that zoning does not cover all activities, and plans of management only exist for a small proportion (~8% of the Park) of the World Heritage Area (WHA) and are out of date, an “ineffective” grade may be more appropriate.



- Figure 8-10 illustrates dredge spoil disposal grounds but doesn't indicate whether these are just within the GBRMP or not. If it is meant to include all spoil grounds with the GBR Region, then at least one is noted to be missing.
- Table 8.26 - partnerships are listed as both strength and weakness, with insufficient explanation.
- Section 8.6.6 - In relation to integrating with government programs, this section notes that “the impacts of changes to Queensland’s Coastal Plan on downstream effects from land-based water quality is not known at this stage”. Is it not possible for inferences to be made, as was done in Section 8.4.3 in relation to the changes to the Queensland Coastal Protection State Planning Policy?
- Section 8.7 - There appears to be little if any difference in the material covered here compared to that covered in earlier sections. Indeed, this section opens with “This section contains an assessment of the effectiveness of the Authority’s current management arrangements to protect the Region’s values”. This is a slight reordering of the words used in the opening sentence for Section 8.3: “This section provides a summary of the effectiveness of the Authority’s current management arrangements to protect the values of the Region”.
- Section 8.7 assesses whether the relevant MNES have been identified, including OUV, and whether their current condition and trends are understood. However, once again, only the GBRMP area is assessed so the areas of the WHA that are not within the Park are ignored. This may seem a minor issue as it relates only to a small proportion of the property, but these areas are the ones that are under the most pressure from coastal development. So, if it is not known how they are managed (let alone how well), how will it be known whether alarm bells should be ringing?
- Section 8.7.1 - it is acknowledged in this section that the Agency’s knowledge regarding aesthetic value, geological and geomorphological features of OUV is poor. However, a grade of “mostly effective” is then provided in Table 8.29. EIANZ questions how this rating could be made.
- In a number of tables (e.g. 8.27, 8.28, 8.30) there is a criterion “relevant standards are identified and being met” which is consistently graded “mostly effective” but there is nothing to substantiate this grade and little explanation as to what it is actually referring.
- Table 8.31 - effectiveness of the Authority’s management arrangements to protect each MNES - WHA, GBRMP, Commonwealth Marine Area (CMA) are all graded together. However, it appears that this assessment has only considered the Park, since parts of the WHA and CMA are outside the Agency’s jurisdiction.
- There are repeated references throughout Section 8 (including the conclusion in Section 8.9) that “the Authority’s ability to address *consequential and cumulative impacts*, apply socio-economic and Indigenous knowledge, and set targets to benchmark performance was assessed as problematic for most management topics”. If the lack of understanding (and hence effective management) of consequential and cumulative impacts is an acknowledged weakness, please explain the rationale behind the decision in Section 9.1.1 to omit a case study on ports as port activity was considered in the UNESCO Mission Statement to be contributing to cumulative impacts on the property.

2.10 Chapter 9 – Demonstration Case Studies

- This chapter appears to function as an illustration, without adding significant new information.
- Section 9.1.1 refers to a report “Environmental best practice port development: an analysis of international approaches”, without providing a reference.
- Opening paragraph to Section 9 states “The purpose of the case studies is to assess in finer detail the effectiveness of current management arrangements to protect and manage the relevant matters of national environmental significance, including outstanding universal value, and to guide improvements to management arrangements”. The case study on Keppel Bay could have been used



to assess management effectiveness in relation to some of the OUV, other than biodiversity values. For example, for geomorphological processes, the Fitzroy Estuary with its multiple intertidal islands and braided waterways, is an excellent example of these processes in action in an area not currently well managed (being part of the GBRWHA but not the GBRMP, and hence outside the jurisdiction of the GBRMPA).

2.11 Chapter 10 – Resilience and Risk

- Section 10.1 – understanding synergistic impacts will also be important.
- Section 10.1 – it was hoped that this strategic assessment would have advanced understanding of the resilience of the GBR Region. How will the strategic assessment specifically address/achieve resilience? What is the framework, and what contingency plans are available, to modify and adapt to change?
- Section 10.6 – note that the AS/NZS ISO 31000 standard was developed to examine risk associated with hazard events, that is, events such as explosions and spills. While it is commonly used for examining the impacts of a hazard event on the environment, it is not ideal for impact assessment.
- Section 10.6 – given that the risk assessment is intended to evaluate the outlook for the various values over a 25 year period, it does not make sense for the likelihood descriptors to be defined in terms of annual recurrence intervals.
- Section 10.6 – in evaluating the threats, was the effectiveness of existing management approaches and mitigation measures taken into account? For example, well established and demonstrably effective management approaches exist for acid sulphate soils.
- Section 10.8 – risk to geomorphological features from crown of thorns starfish could be higher if crown of thorns halt reef growth, as this is one of the geomorphological processes that is referred to in the statement of OUV.
- Table 10.7 – the implications for the GBRWHA are different to those for the GBRMP as the GBRWHA encompasses a broader area and much broader range of values than the GBRMP. For example, the GBRWHA includes islands and is declared in relation to a range of values, not just coral reef ecosystems and other biodiversity values.

2.12 Chapter 11 – Projected Condition

- This chapter was not reviewed in detail due to time constraints. However, it appears to have been written to satisfy a process/method driven imperative, rather than to add significant new substance.
- It is unclear upon what numbers in Figure 11.1 and 11.2 are based.

2.13 Chapter 12 – Recommended Changes to Management

- This chapter focuses on the improvements of GBRMPA's management arrangements only. It should also, and primarily, focus on the management arrangements for the GBRWHA.
- It seems unusual that although assessment of consequential and cumulative impacts is acknowledged as a weakness, there is no reference in this Section to the recently released "A framework for understanding cumulative impacts, supporting environmental decisions and informing resilience-based management of the GBRWHA", of which GBRMPA was a contributing author.
- We suggest that REC10 in relation to plans of management is broadened to include areas within the WHA that are not within the Park where these are potentially high-growth areas.



- Table 12.1: what are the relative priorities of these recommendations? In relation to REC35, to whom would implications of climate change need to be communicated?
- Table 12.2: it is noteworthy that there are no recommendations provided by the Queensland Government on one of the greatest threats to the reef, i.e., climate change.
- This section will likely require significant review once comments on earlier sections have been processed.
- Comments on the Program Report are also relevant here.