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BARRAMUNDI GROUP

ENVIRONMENTAL COMPLIANCE REPORT 2018-2019



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Environmental Monitoring and Management Plan

Barramundi Group operate under an environmental monitoring and management plan (EMMP) for the Kimberley Aquaculture Development Zone (KADZ).

The overarching objectives of this EMMP are to meet the environmental quality objectives (EQOs) that relate to benthic communities and habitat, marine environmental quality, and marine fauna. These are:

- To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.
- To maintain the quality of water, sediment, and biota so that the environmental values, both ecological and social, are protected; and,
- To maintain the diversity, geographic distribution, and viability of fauna at the species and population levels.

Specifically, this EMMP will ensure that the environmental value of ecosystem health is met during the operation of the Zone project by describing:

- the indicators to be measured and monitoring protocols.
- the areas of ecological protection and their corresponding thresholds.
- mitigation and management measures to be employed in the event of thresholds being exceeded.
- an adaptive monitoring and management approach (including a feedback loop); and,
- a reporting structures

MPAFF currently conducts all environmental monitoring and management activities in accordance with an EPA approved EMMP, pursuant to KADZ Ministerial Statement 966. This environmental compliance report has been prepared by MPAFF in response to the proponent's commitment under KADZ Ministerial Statement 966 and is designed to address each element of an audit program submitted to the EPA.

Environmental Quality Criteria

Environmental quality is assessed and managed by establishing environmental benchmarks known as environmental quality criteria (EQC). The types of measurements for which EQC have been developed is based on the key stressors and includes nutrient-related effects, contaminant levels in water and sediments and biological indicators of these stressors.

Each criterion consists of:

- a Guideline (EQG), used as an initial assessment of environmental quality, which if exceeded will trigger a more detailed assessment against an environmental quality standard; and
- a Standard (EQS), used to assess whether an environmental quality objective has been achieved, which if exceeded will trigger a management response

Monitoring is conducted against these criteria, and when an EQG is exceeded, this prompts additional monitoring under the EQS. If this is exceeded, then adaptive management processes are put in place to reduce the impacts of the operation. This tiered approach allows the EQG to act as an early warning sign for operations.

Monitoring

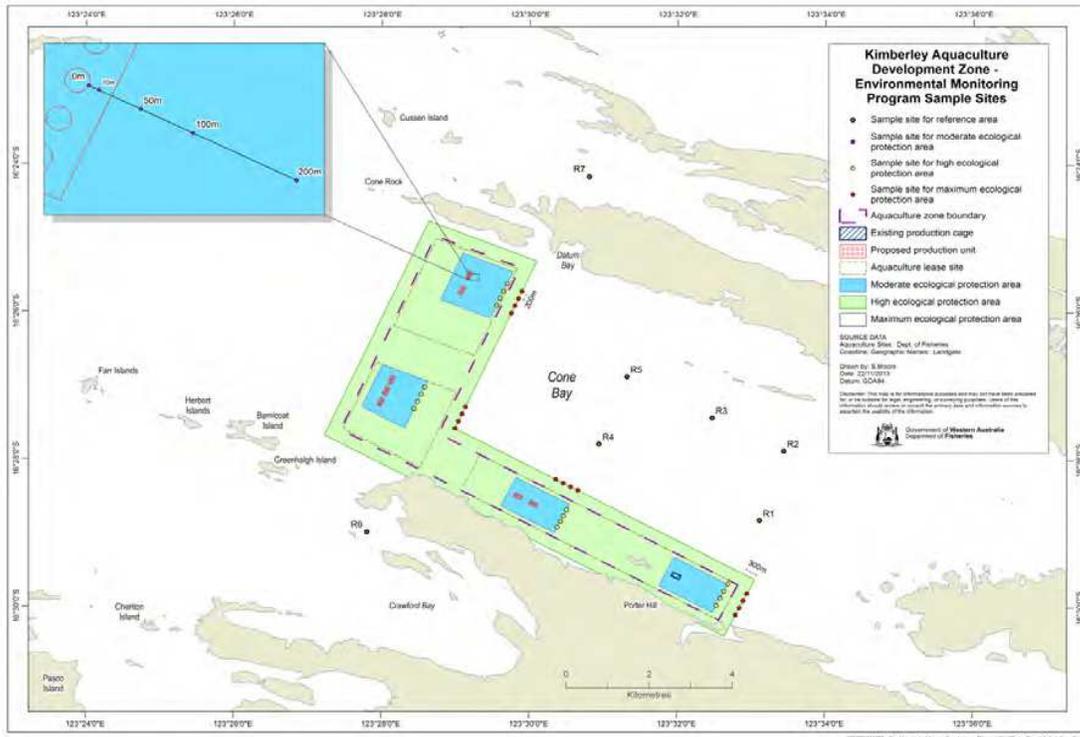
The monitoring program in this EMMP addresses:

- water quality
- sediment quality
- sediment in-fauna community monitoring and
- marine fauna interactions.

Water quality sampling is conducted during incoming neap tides eight times a year: monthly between June and September to capture the dry season; then monthly between December and March to capture the wet season.

In July 2018, the sediment sample could not be obtained because the line of the sampling tool snapped, and the tool was lost. Organizing a new sampling tool took 4-5 weeks, meaning that the sediment data for that month could not be collected anymore. This report contains 7 (4 wet, 3 dry) sampling occasions. Water and sediment samples were collected at 13 compliance sites (5 sites at the Mepa, and 4 sites in both the Hepa and MaxEpa) and 5 reference sites. Mepa site samples were collected along a drogue transect on the incoming tide at 0-200m from a single cage. The reference sites assigned for this current EMMP (in place since 2014) are different from those in MPA's previous EMMPs. The current sites were chosen due to their relative centrality to the entire 2,000-hectare zone: unfortunately, as the DoF samples have previously shown, there can be a gradient of sediment and water quality measurements from the west to east of bay due to different depths, currents, and sediment grain size. As MPA has noted in previous years, this remains a problem in that the central bay reference samples are producing results inconsistent with the results in the eastern reference samples, and the MPA HEPA and MAXEPA sites. Furthermore, the MPA HEPA and MAXEPA sampling sites are located near the outlet of a creek which, next to their already relatively shallow water

depths, results in an influx of nutrients and organic carbon which is not related to the farm operations. This is something MPAFF would like considered carefully in relation to our current results and would welcome the opportunity to further discuss with the OEPA.



Specific methods are provided in the EMMP for sample collection and analyses to ensure that data integrity and QA/QC are considered.

Assessment year	2018-2019
Production for assessment year	2032T
License biomass cap	2000MT
Audit Date	N/A
EMMP version	2014 (amended with new reference sites)

Results – report on exceedances

At the start of 2019 we experienced a large-scale algal bloom which resulted in a substantial number of mortalities. This algal bloom was recorded not exclusively in Cone Bay but also in other parts of the Kimberley (DHI Water & Environment, 2019). The algal bloom has influenced the water quality which were visible on water quality exceedances.

Type of sample	Parameter monitored	Exceedances to EQS values	Comment
Water	Total suspended solids	Nil	
Water	Dissolved oxygen	Nil	
Water	Chlorophyll-A	Nil	Results showed two spikes in the first two months of the wet season coinciding with a large algal bloom that occurred in the dry season. This caused spikes, but did not reach the EQS trigger levels for adaptive management action
Water	Dissolved inorganic nitrogen	Nil	The results across all months and sample sites are well below the EQG trigger values, as in all previous years. There is variation seen in DIN, which is largely due to seasonality rather than caused by farm activities. In the wet season there is a spike visible in the DIN value during the algal bloom.
Sediment	Total phosphorous	Nil	<p>In the Mepa it is visible that there are a couple of spikes in the median phosphorous that reach to above the EQG values. These values should have been reported to the OEPA but unfortunately due the turbulent time during the changeover in our management this has not happened.</p> <p>Adaptive management changes:</p> <ul style="list-style-type: none"> - Stocking density reduction - Switched from sinking to floating feed <p>The improvements of these measures will be mostly visible in the next year's report.</p>

Sediment	Total organic carbon	Nil	Similar findings to previous reports 2016, 2017 and 2018 Suggest that the reference sites are refined further so appropriate comparisons can be made to background levels.
Sediment	Copper	Nil	
Sediment	Zinc	Nil	
Sediment	Cadmium	Nil	
Sediment	Core characteristics and redox layer	Nil	



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Audit results

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M1.1	Derived Proposals	Proposals referred to the EPA and declared to be derived proposals shall not exceed the specifications and characteristics provided for in Schedule 2. Note: It may be that more than one proponent implements the Proposal identified in Schedule 2.	Project will be implemented in accordance with the specifications and characteristics of this statement	Compliance Assessment Report	Overall	Life of Proposal - Yearly	Completed
966:M2.1	Contact Details	The proponent shall notify the Chief Executive Officer (CEO) of any change of its name, physical address, or postal address for the serving of notices or other correspondence within 28 days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.	Notify the CEO of any change to contact name and address	Compliance Assessment Report	Overall	Within 28 days of such change	Compliant
966:M3.1	Time Limit for Proposal Implementation	The proponent must ensure that the Proposal is substantially commenced within five years of the date of the section 45A Notice.	Commence proposal within 5 years of June 28, 2014	Compliance Assessment Report	Overall	25 June 2019	Completed
966:M3.2	Time Limit for Proposal Implementation	The proponent shall provide the CEO with written evidence which demonstrates that the Proposal has substantially commenced on or before the expiration of five years from the date of the section 45A Notice.	Provide written advice to CEO demonstrating the commencement of the Proposal	Compliance Assessment Report	Overall	25 June 2019	Completed
966:M4.1	Compliance Reporting	The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the CEO.	Submit Compliance Assessment Plan to CEO	Compliance Assessment Plan	Overall	Six months prior to first compliance assessment	Compliant

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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M4.2	Compliance Reporting	<p>The proponent shall submit to the CEO the compliance assessment plan required by Condition 4-1 at least six months prior to the first compliance assessment report required by Condition 4-6, or prior to implementation, whichever is sooner.</p> <p>The compliance assessment plan shall indicate:</p> <ol style="list-style-type: none"> (1) the frequency of compliance reporting. (2) the approach and timing of compliance assessments. (3) the retention of compliance assessments. (4) the method of reporting of potential non-compliances and corrective actions taken. (5) the table of contents of compliance assessment reports; and (6) public availability of compliance assessment reports. 	Submit Compliance Assessment Plan to CEO	Compliance Assessment Plan	Overall	Six months prior to first compliance assessment	Completed
966:M4.3	Compliance Reporting	The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by Condition 4-1.	Assess compliance in accordance with the Compliance Assessment Plan	Compliance Assessment Report	Overall	Annually	Completed
966:M4.4	Compliance Reporting	The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by Condition 4-1 and shall make those reports available when requested by the CEO.	Retain digital copies of Compliance Assessment Reports	CARs available by direct enquiry to MPA	Overall	Annually and continued	Compliant
966:M4.5	Compliance Reporting	The proponent shall advise the CEO of any potential non-compliance within seven days of that non-compliance being known.	Notify CEO (and compliance branch of OEPA) by email of any potential non-compliance	Notification and yearly CAR	Overall	Within 7 days of potential non-compliance being identified	Compliant

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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M4.6	Compliance Reporting	<p>The proponent shall submit to the CEO and the Department of Fisheries the first compliance assessment report 15 months from the date of issue of this Statement addressing the 12-month period from the date of issue of this Statement and then annually from the date of submission of the first compliance assessment report.</p> <p>The compliance assessment report shall:</p> <ol style="list-style-type: none"> (1) be endorsed by the proponent’s Chief Executive Officer or a person delegated on the Chief Executive Officer’s behalf. (2) include a statement as to whether the proponent has complied with the conditions. (3) identify all potential non-compliances and describe corrective and preventative actions taken. (4) be made publicly available in accordance with the approved compliance assessment plan; and (5) indicate any proposed changes to the compliance assessment plan required by Condition 4-1. 	Prepare and submit CAR to CEO annually	Annual Compliance Assessment Reports	Overall	15 months from date statement issued	Compliant
966:M5.1	Public Availability of Data	Subject to Condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the Proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g., maps)) relevant to the assessment of this Proposal and implementation of this Statement.	Make data publicly available	Annual CARs available by directly contacting MPA	Overall	Within a reasonable time period approved by the CEO	Not requested – compliant

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M5.2	Public Availability of Data	<p>If any data referred to in Condition 5-1 contains particulars of:</p> <ul style="list-style-type: none"> (1) a secret formula or process; or (2) confidential commercially sensitive information. <p>the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.</p>	Submit request to CEO	Submitted request to CEO with explanation	Overall	As required	Not requested- compliant
966:M6.1	Benthic Communities and Marine Environmental Quality	The proponent shall ensure that implementation of the Proposal causes no irreversible loss of benthic communities and achieves the levels of ecological protection for each of the ecological protection areas as specified in Table 1 of Schedule 3 and referred to in the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO.	Assess health of environment by assessing compliance in accordance with KADZ EMMP	Compliance Assessment Report	Overall	Annually	No exceedances-compliant
966:M6.2	Benthic Communities and Marine Environmental Quality	The proponent shall implement the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO, and continue implementation until otherwise agreed by the CEO.	Implement EMMP	Compliance Assessment Report	Overall	Annually	No exceedances-compliant

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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M6.3	Benthic Communities and Marine Environmental Quality	<p>In the event that monitoring required by the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO, indicates the levels of ecological protection as specified in Table 1 of Schedule 3, environmental quality guidelines or environmental quality standards as specified in the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO, are not being met, the proponent shall:</p> <ol style="list-style-type: none"> (1) report such findings to the CEO within two working days of the exceedance(s) being identified. (2) investigate to determine the likely cause(s) of the exceedance(s) of the criteria defined in the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO. (3) if the exceedance(s) is determined by the CEO to be a result of implementation of the Proposal, the proponent shall immediately implement the mitigation measures identified in the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO; and (4) continue implementing the mitigation measures required by Condition 6-3(3) until the criteria defined in the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or its revisions as approved by the CEO, are no longer being exceeded, or until advised otherwise by the CEO. 	<p>Notify the CEO within two working days Investigate the likely cause of exceedance Implement mitigation measures if determined necessary Continue implementing as required</p>	Notification to CEO	Overall	Within two working days of exceedance(s) being identified	No exceedances-compliant

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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status
966:M6.4	Benthic Communities and Marine Environmental Quality	<p>The proponent shall submit to the CEO and the Department of Fisheries annual compliance assessment reports in accordance with Condition 4-6 and which includes:</p> <ul style="list-style-type: none"> (1) the monitoring results required by the Kimberley Aquaculture Development Zone Environmental Monitoring and Management Plan (Version 1, January 2014), or subsequent approved revisions, under Condition 6-1. (2) an assessment of the effectiveness of the management and contingency measures implemented to ensure compliance with the requirements of Conditions 6-1 and 6-2; and (3) evidence that the Moderate Ecological Protection Area defined in Table 1 of Schedule 3 comprises no more than 33 per cent of the proponent's Aquaculture Lease Area. 	Submit CAR to CEO	Compliance Assessment Report	Overall	Annually	No exceedances and no CAR reports to submit-compliant

- Phases that apply in this table = Pre-Construction, Construction, Operation, Decommissioning, overall (several phases).
- This audit table is a summary and timetable of conditions and commitments applying to this project. Refer to the Minister's Statement for full detail/precise wording of individual elements.
- Code prefixes: M = Minister's condition, P = Proponent's commitment.
- Acronyms list: CEO = Chief Executive Officer of OEPA; DEC = Department of Environment and Conservation; DIA = Department of Indigenous Affairs; DMP = Department of Mining and Petroleum; EPA = Environmental Protection Authority; DoH = Department of Health; DoW = Department of Water, Minister for Env = Minister for the Environment; OEPA = Office of the Environmental Protection Authority.
- Compliance Status: C = Compliant, CLD = Completed, NA = Not Audited, NC = Non – compliant, NR = Not Required at this stage. Please note the terms VR = Verification Required and IP = In Process are only for OEPA use.

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References

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10. Oceanica Consulting Pty Ltd 2013, Kimberley Aquaculture Zone Strategic Assessment- Baseline Water and Sediment Quality Analysis; Prepared for: DHI Water & Environment Pty Ltd. Report No. 961_006/1