

Ocean Barramundi Expansion Project - Environmental Monitoring and Management Plan





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Acronyms

BCH	Benthic Communities and Habitats
Chl-a	Chlorophyll-a
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DIN	Dissolved inorganic nitrogen
DO	Dissolved oxygen
DoF	Department of Fisheries
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DTA	Direct toxicity assessment
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EMMP	Environmental Monitoring and Management Plan
EQC	Environmental Quality Criteria
EQG	Environmental Quality Guidelines
EQMF	Environmental Quality Management Framework
EQO	Environmental Quality Objective
EQS	Environmental Quality Standards
EV	Environmental Values
HEPA	High Ecological Protection Area
KADZ	Kimberley Aquaculture Development Zone
LEP	Levels of Ecological Protection
MPA	Marine Produce Australia
MEPA	Moderate Ecological Protection Area
MEQ	Marine Environmental Quality
NH ₄	Ammonia
OEPA	Office of the Environmental Protection Authority
PBC	Prescribed Body Corporate
TP	Total phosphorous
TOC	Total organic carbon
VSS	Volatile suspended solids



WET	Whole effluent toxicity
ZoHI	Zone of High Impact
Zol	Zone of Influence
ZoMI	Zone of Moderate Influence



Executive Summary

Table 1. Executive Summary

Proposal name	Ocean Barramundi Expansion Project		
Proponent name	Tassal Operations Pty Ltd		
Ministerial statement number	NA		
Purpose of the EMMP	Provide monitoring actions for marine environmental quality in accordance with the Proposal supporting documentation (BMT 2024a).		
Key environmental factor/s, outcome/s and/or objectives	The environmental objectives for marine environmental quality are: • Maintain marine water quality in the high ecological		
	protection area through the monitoring of dissolved oxygen, ammonia, chlorophyll-a and volatile suspended solids (VSS) concentrations		
	 Maintain marine sediment quality in the high ecological protection area through the monitoring of nutrient and heavy metal concentrations 		
	The environmental objectives for benthic communities and habitats are:		
	 Maintain light conditions in vegetated areas where shading impacts associated with sea-pen operations are possible (i.e. via algal blooms), to ensure the health of BCH 		
	 Maintain the health of coral communities at fringing reefs in proximity to the sea-pen operations 		
	The environmental objectives for marine fauna are:		
	 Ensure no proposal related adverse direct or indirect impacts to marine fauna in the vicinity of the Proposal area 		
	The environmental objectives for aesthetics are:		
	 Maintain the aesthetic quality of the marine environment in the vicinity of the Proposal area 		
	The environmental objective for social surroundings:		
	 Protect social surroundings from significant harm 		
Condition clauses (if applicable)	No condition clauses are applicable		
Key components in the EMMP	See Section 3		
Proposed construction date	01/25		
EMMP required pre-construction	No		



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1 Context, scope and rationale

1.1 Proposal background

Marine Produce Australia ("MPA") has operated in the Kimberley Aquaculture Development Zone (KADZ) in Cone Bay, Western Australia, since 2004 (Licence No. 1465). Because of the anticipated demand for premium barramundi in both the state and national markets, MPA proposed to expand from its Cone Bay operations beyond the boundary of the KADZ (the Proposal) to 13 sites spread across the Buccaneer Archipelago. To support this expansion, MPA referred the Proposal under Section 38 of the *Environmental Protection Act 1986* (EP Act) and the *Environment Protection and Biodiversity Act 1999* (EPBC Act). Under the EP Act, MPA had to demonstrate that the Proposal met the EPA's key environmental factors and objectives. The referral was submitted under the EP Act on the 4/05/2022. The EPA published their assessment decision, which was to assess based on referral information with additional information requested under Section 40(2)(a) of the EP Act, on the 13/06/2022.

On 31/07/2023, Tassal Operations Pty Ltd ACN 106 324 127 ("TOPL") [a wholly owned subsidiary of Tassal Group (hereinafter referred to as "Tassal")] acquired MPA Fish Farms Pty Ltd and MPA Marketing Pty Ltd and are now the sole operators of the current lease in the KADZ, as well as the proponents for the Ocean Barramundi Project.

Tassal propose to expand from its Cone Bay operations in the KADZ to seven sites, with the purpose of improving production volumes and meeting current market demand (Figure 1.1). This expansion plan shifts operations to deeper, protected, offshore waters where current speeds are lower than in Cone Bay. Tassal plans to produce up to 17,500 tonnes of barramundi per annum across the seven new sites, with a maximum of ~4,500 tonnes per individual site before harvesting. Tassal furthermore plans to cease using the current Cone Bay lease once enough of the proposed sites are operational.

1.2 Purpose / legislative context

Unless exempt under S.92A(4), the provisions of S.92A of the Western Australian (WA) *Fish Resources Management Act 1994* (FRMA) require all applications for an aquaculture licence to be accompanied by a Management and Environmental Monitoring Plan (MEMP). Most proposals referred to the Western Australian Environmental Protection Authority (EPA) require an Environmental Monitoring and Management Plan (EMMP) to detail monitoring requirements associated with the Proposal once it is commissioned.

This plan details the environmental monitoring requirements necessary to meet the obligations under both the FRMA and the EP Act, and follows the general format for an EMMP. A separate MEMP has been developed to meet other obligations under the FRMA (under DPIRD's jurisdiction), with reference to this plan where necessary (BMT 2024d).

Specifically, this EMMP applies to the operational activities of the Proposal that have the potential to impact marine environmental quality, benthic communities and habitats, marine fauna and social surroundings (including Aboriginal Cultural Heritage), as protected under the EP Act. All relevant monitoring associated with the Proposal was included in this single EMMP because each of the key environmental factors and their values are inherently linked. Protection of one factor/value will subsequently protect another. Further details on this synergy are provided in Section 1.4 and 1.5.

The objectives and outcomes of this EMMP are separate to requirements under different acts or legislation. Specifically, the Proposal's Development Envelope is contained entirely within the Mayala



Marine Park which has its own management plan with several Key Performance Indicator's (KPI's; DBCA 2023), as well as the Mayala Country Plan which is the instrument for managing the Mayala Indigenous Protected Area (IPA), which covers the entirety of Mayala's Native Title Determination Area. These KPIs are separate to the components of this EMMP. Furthermore, the EPA states that the EP Act complements the *Aboriginal Heritage Act 1972* (AHA Act; WA) to preserve Aboriginal heritage sites, particularly when 'actual physical protection of the environment is required to protect sites of heritage addressed in this EMMP satisfy the requirements for management of social surroundings under the EP Act, but do not address requirements under the AHA Act.

1.3 Overview

1.3.1 Species and quantity of fish

Barramundi (*Lates calcarifer*) are the sole species to be grown under this Proposal. Barramundi have been grown at the current Cone Bay site since 2004; and are a key finfish aquaculture species in Australia with total production second only to Atlantic salmon (*Salmo salar*). Barramundi is also a keenly sought after target for recreational fishers across the north of Australia.

Barramundi live in both freshwater and saltwater, and grow up to 200 cm in length and 60 kgs. They are distributed throughout coastal areas from the Persian Gulf to China and southern Japan, south to Papua New Guinea and northern Australia. With a significant tolerance for a wide range of environmental conditions as well as a broad diet they make an idyllic species for aquaculture production.

1.3.2 Location

The proposed sea-pen operations are spread throughout the Buccaneer Archipelago (Figure 1.1) in seven separate proposed sites.





Figure 1.1 Proposed development envelope/footprint of the 7 sites under 1 aquaculture lease

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1.3.3 Farming methods and aquaculture gear

Sea-pen Infrastructure

Tassal will deploy large sea-pens developed for use in extreme weather conditions and remote locations (Figure 1.2). These pens and their associated anchorage/mooring systems have been specifically designed for use in high energy exposed sites, which frequently receive storm swells and gale force winds. The use of similar, albeit smaller, pens in Cone Bay indicates that they are sufficiently capable of tolerating cyclone force winds and the high current speeds induced by the extreme tidal exchange in the Kimberley region.

Design features of the proposed sea-pens include:

- Either
 - A double net system that contains fish stock within the inner net and an outer anti-predator net that protects stock from marine predators like sharks and crocodiles.
 - Two kinds of inner net would be used, one for fingerlings and one for the grow out of adult barramundi. All net types are made from either monofilament or polyline high density polyethylene (HDPE).
 - The inner net for the fingerlings has a minimum breaking strain of 260 kg on the knot (the breaking strain is greater on the mesh then directly on the knot), the inner net for grow out has a breaking strain of 260 kg, and the outer predator net a breaking strain of 600 kg. The predator nets to be used have a far superior breaking strain capacity then those previously used in Cone Bay, and will be sufficient to prevent damage from predators known to be present in the area (e.g. crocodiles, tawny nurse sharks)
 - The mesh sizes for each net type also vary. The mesh 'gap' (i.e. size of the gap in the netting as measured on the 'bar' of the netting i.e. sides of a single mesh square) for the grow-out range from 10-35 mm and for the predator outer net it ranges from 80-150 mm.
 - The break between the inner and outer predator netting has also increased significantly between operations at Cone Bay and the operations planned for the expansion
 - OR
 - A single net system with a minimum breaking strain of 600 kg. The advantage of a single net system is reduced infrastructure in the water as well as better current flow through the sea-pens, which will assist in maintaining concentrations of dissolved oxygen within the sea-pens and subsequently maintaining fish health and reducing overall environmental impacts
- Surface netting with support poles which prevent access to fish stock or feed within the pens from seabirds.
- Covered walkway with handrails and staff access/egress points to allow staff to access the pens safely without coming into contact with predators (Figure 1.2).



These pen specifications are detailed in a Fish Containment Plan (Tassal 2024).

The pens to be used by Tassal will range in size from 80 to 120 m in circumference, with net depths ranging between 5 to 25 m for the nets. The extra depth and circumference of the pens allows a lower stocking density and increased dissolved oxygen concentrations within the pen compared to current operations in Cone Bay. The larger nets also lessen total farm infrastructure by reducing the required number of pens and moorings in comparison to current operations in Cone Bay. Low-profile anchors will be used to anchor sea-pens / barges in soft sediments and no drilling or pile driving is required.



Source: Cheng et al (2021)

Figure 1.2 Indicative sea-pen configuration and anchoring

Sea-pen installation, operation and decommissioning activities

Table 1.1 provides detail on the proposed activities associated with the installation and operation of the Project.

Table 1.1 Installation, Operation and Decommissioning activities

Activity	Description	Time frame
Sea-pen installation	 Towed to site without netting in place. 12 x 120 m (or 20 x 80 m) sea-pens will be secured together per site. Anchored by low-profile anchors in soft sediments. Testing will confirm pens are secure. Netting will be installed after securement. Safety and navigation lighting will be installed once pens in place in accordance with Australian Maritime Safety regulations. 	Installation for 3-5 days for all 12 sea-pens.
Sea-pen Operations – Centralised barge system / operational vessels	• Each site will generally be controlled from a centralised barge system containing a feed system, accommodation, ablution facilities as well as mortality storage for any dead stock. Some feeding by hand or feed boats may occur in certain situations.	Ongoing throughout operations
@ DMT 2025		



Activity	Description	Time frame
	 Barges will be approximately 30-50 m long, with power for operations provided via a generator installed on the vessel Lighting required on site will be minimal, with navigational lighting (flashing LEDs) on moorings in accordance with Australian Maritime Safety Authority regulations. Some lighting for accommodation will be present on the barge, however black-out curtains will prevent that light from being emitted beyond the barge. Sullage will be stored in tanks that are pumped out for disposal when the vessel is in port. Other wastes such as garbage generated on the site will include empty feed bags, staff domestic waste, old ropes and net mesh. All non-perishable garbage will be packed into appropriate, secured containers and brought back to Derby for disposal. Perishable garbage will be stored in sealed containers and stored for disposal in Derby. The operation will generate a small quantity of used oil from engine servicing at each site, which will be stored in a 44-gallon drum and returned to Derby for disposal. The fish mortality management options will be freezing to landfill disposal (current method) and moving towards silage or drying, though other potential methods may be explored in the future. Fish feeding will be automatic, from the central barge for each site. There will be multiple working vessels across 7 sites, to transport staff, equipment etc. 	
Sea-pen operations – anti-fouling	 Only non-toxic anti-foulants will be used where necessary Sea-pens will be cleaned regularly to remove any build of fouling material. 	As required Pens and netting will be cleaned regularly (weekly) and inspected daily as part of ongoing operations
Sea-pen operations – disease management	 Therapeutants (e.g. anti-biotics and anti-parasitics) may be used when clinically significant disease is present, to protect animal welfare. A vaccination program is currently in place for Tassal barramundi stock. To limit risk of disease transfer Tassal are required to follow DPIRD's regulations for translocation of barramundi, which includes restrictions on the following: The numbers of fish stocked into each pen The numbers of fish culled and removed from the pens The numbers of fish removed from the pens at the time of harvesting 	As required



Activity	Description	Time frame
	 Barramundi sourced from interstate must be sourced from licensed hatcheries only and meet the health testing requirements set by the Senior Fish Pathologist at DPIRD Testing standards shall meet with a 95% degree of confidence that the imported population is free of 'nominated' diseases ('nominated' refers to those relevant 'notifiable' diseases as listed under the <i>Enzootic Disease Regulations 1970</i>, and any other diseases nominated by the Senior Fish Pathologist at DPIRD for the particular populations to be imported) 	
Sea-pen operations – broodstock	 Fingerlings will be grown out to a size of approximately ~110 g at Tassal's nursery operations at their Broome Tropical Aquaculture Park (BTAP) site. The monitoring associated with this facility is currently included within a separate MEMP and licence application. These fingerlings will be sourced originally from Mainstream Aquaculture Hatchery in Melbourne, Victoria, for which the proponent already has translocation approval, or other hatcheries per business requirements for which translocation approval will be acquired. 	As required
Sea-pen operations – decommissioning	 All sea-pens and anchors will be removed from the sites and towed away to land No materials or infrastructure will remain 	Within 6 months of operations ceasing

1.4 Key environmental factors

The preliminary key environmental factors associated with this EMMP are detailed in Table 1.2.

Table 1.2 Environmental factors, objectives and values associated with the Proposal

Environmental Factor	Environmental Objective	Values of the Environmental factor in relation to the Proposal	Proposal activities that may affect the factor
Marine Environmental Quality	To maintain the quality of water, sediment and biota so that environmental values are protected.	The marine water quality and sediment quality of the Buccaneer Archipelago is generally in pristine condition with negligible impact from current anthropogenic uses.	Nutrient enrichment associated with finfish and uneaten feed wastes may result in changes to the marine water and sediment quality.
Benthic Communities and Habitats	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.	Fringing coral reefs are found in the vicinity of the proposed sites throughout the Archipelago. These are generally in pristine condition with no impacts from current anthropogenic uses.	Particulate excretions by finfish and uneaten feed wastes may deposit on BCH, resulting in smothering. Changes to marine environmental quality may subsequently affect the health and condition of BCH.



Environmental Factor	Environmental Objective	Values of the Environmental factor in relation to the Proposal	Proposal activities that may affect the factor
Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained.	Migratory and threatened marine fauna, including cetaceans, dugongs, sea turtles, sharks, rays and seabirds all inhabit or move through the vicinity of the proposed sites.	Vessels used in operations may strike marine fauna; noise pollution may inhibit communications between individuals or cause physical harm; changes to MEQ and BCH may subsequently impact the habitats or food sources of marine fauna
Social Surroundings	To protect social surroundings from significant harm.	 Aboriginal heritage and culture The West Kimberley National Heritage Place includes the entirety of the Proposal development envelope. The Mayala Inninalang Aboriginal Corporation RNTBC (MIAC) have exclusive Native Title Determination including the entirety of the Proposal development envelope, including a defined Indigenous Protected Area managed under the Mayala Country Plan. Specific values include the aesthetics (pristine water quality), ecological diversity and social use of the area by Traditional Owners. Natural and historical heritage Not applicable for this Proposal Amenity / economic surrounds Recreational and commercial fishers, as well as tourism operators, frequent the waters surrounding the Proposal's Development Envelope 	Changes to MEQ may impact BCH and marine fauna, the majority of which hold special cultural value to the Mayala and other Traditional Owners in the region. Increased vessel traffic, in association with introduction of sea-pen infrastructure, may impact the visual aesthetics of the area which also holds special cultural value. Changes to MEQ may change the aesthetics of the waters in the vicinity of the sites (e.g. algal blooms).

1.5 Condition requirements

This EMMP is submitted in support of an application to construct and operate the Ocean Barramundi Project pursuant to the provisions of Section 38 of the EP Act.

1.6 Rationale and approach

1.6.1 Risk assessment

The Environmental Quality Criteria (EQC) for this EMMP were selected based on an understanding of the cause-effect response pathways relevant to ocean-based fish farming (Figure 1.3). The objective for this assessment was to identify the key stressors and risks based on the modelling described in the section below and use this understanding to identify a sub-set of measurable indicators suitable as the EQC.



Notes:

1. Those in light blue are included in this EMMP

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Figure 1.3 Hierarchical stressor model showing the cause-effect pathways of most concern and the receptors potentially impacted by aquaculture



1.6.2 Survey and study findings

The potential impact of the Proposal on the quality of the marine environment was evaluated using an integrated hydrodynamic, water quality, particle tracking and fish waste model (BMT 2024c, d). Impacts were assessed in relation to the environmental factors listed in Table 1.2, with a focus on risks to marine environmental quality and benthic communities and habitats (primarily corals and infauna). Risks to marine fauna were evaluated separately via a desktop assessment (see also BMT 2024a). Risks to social surroundings, including aboriginal cultural heritage, were evaluated based on the results of the modelling assessment as well as via consultation outcomes with relevant stakeholders (see Section 6).

Marine environmental quality / benthic communities and habitats

The key changes to marine environmental quality were associated with the potential increases in dissolved inorganic nitrogen (DIN) and chlorophyll-a as a result of nutrient enrichment from dissolved wastes from farmed finfish. Modelling results indicated that DIN may be elevated above background concentrations near the sea-pens, particularly in areas where there is low hydrodynamic flushing. These elevations however were generally limited to within the development envelope (i.e. proposed extent of the sites). Chlorophyll-a concentrations were projected to be higher in nearshore areas of Strickland Bay and Cone Bay than near the sea-pens themselves. Again, this likely reflects the hydrodynamics of the area and natural contribution of nutrients in nearshore areas from riverine inputs. Earlier modelling, baseline and long term operational monitoring data also found a strong naturally occurring chlorophyll-a gradient from the east to west of Cone Bay (Oceanica 2013a,b, Stantec 2022). Chlorophyll-a was generally not projected to be elevated in the vicinity of the sea-pens. As such, it is recommended that monitoring for chlorophyll-a occurs in nearshore areas where the modelling projected elevated concentrations.

Modelling indicated that even in areas of elevated chlorophyll-a the potential for shading on benthic communities and habitats (BCH) was limited, with the change in chlorophyll-a not expected to be of a magnitude that would reduce BCH health. Most of the modelled region and the areas where the sea-pens are proposed is in deep waters where the amount of natural light reaching the bottom is already limited, and BCH abundance is low. In shallow areas such as Strickland Bay and Cone Bay, modelled chlorophyll-a was elevated but not expected to generate significant shading on BCH.

Modelling for potential impacts to sediments projected areas of high impact would be limited primarily to the development envelope of the sites. Some changes to sediment quality were projected to occur beyond the site boundaries in highly energetic areas where feed and particulate wastes were distributed across a broad area before being deposited on the sea-bed. These areas however are limited to substrates of sand and/or silt, with few other BCH types impacted. A small percentage of fringing coral reefs in the immediate vicinity of the sites were projected to fall within the deposition footprint of particulate wastes from the sea-pens. However, this is not projected to result in major changes to the health of coral communities across the Archipelago. Particulate wastes were not projected to intersect with pearl oyster beds in the vicinity of Aveling Island.



Marine fauna

The Atlas of Living Australia DBCA's Threatened & Priority Fauna List, and DCCEEW's Protected Matters Search Tool indicated that a number of threatened or protected marine fauna may occur in the vicinity of the sites, including cetaceans (humpback whales – *Megaptera novaengliae*, dugongs – *Dugong dugon*), reptiles (six species of sea turtle, crocodiles), elasmobranchs (three species of sawfish, one species of shark) and seabirds (predominantly migratory species). For a full list, see BMT (2024a).

The most likely impacts of the Proposal on marine fauna are from vessel strikes, entanglement or the attraction of marine fauna to the sea-pens changing their normal behaviour. Vessels will operate in the sites at very slow speeds, and outside the sites pose no greater risk to marine fauna than the recreational or commercial fishing vessels already operating in the area (BMT 2024a). Furthermore, only 2 more vessels than are already in use will be used for transiting between the sites, Derby and the nursery at the Broome Tropical Aquaculture Park. As such, the introduction of the Proposal is not expected to significantly increase the risk of vessel strikes on marine fauna within the region.

The potential for entanglement and attraction of marine fauna resulting in changes to their normal behaviour will be managed through the infrastructure. The anchorage lines for the sea-pens will be too taut for marine fauna entanglement. Anti-predator nets will be used to prevent access to the sea-pens by sharks and crocodiles and sea-birds. Details on the management of this infrastructure are given in Section 3.6.

Social surroundings

Social surroundings, in particular Aboriginal cultural heritage, have been assessed following the EPA's Technical Guidance: Environmental Impact Assessment of Social Surroundings – Aboriginal Cultural Heritage (EPA 2023). In accordance with this guidance, both direct and indirect impacts to ACH were assessed, including the extent to which the *Aboriginal Heritage Act 1972* (AH Act 1972) processes would mitigate any significant impacts to ACH.

The Proposal's development envelope falls entirely within the Native Title Determination Area for the Mayala Inninalang Aboriginal Corporation RNTBC (MIAC), which is an IPA managed directly under the Mayala Country Plan, as well as the Mayala Marine Park, which is jointly managed by MIAC and DBCA. As such, most impacts to ACH were assessed in the context of MIACs values, including but not limited to those which are specifically listed within the Mayala Marine Park Management Plan (DBCA 2022a). However, as the Proposal is in close proximity to the Lalang-gaddam Marine Park, which falls within the country of the Dambimangari People, impacts to the values listed in the Lalang-gaddam Marine Park Management Plan (DBCA 2022b) were also considered. A summary of potential impacts were assessed as follows:

- Direct disturbance to places of ACH (e.g. via unsupervised/unapproved visitation, vessel movements)
- Direct disturbance to visual amenity, which has value associated with ACH and more generally for other users within the development envelope (e.g. sea-pens, accommodation barges)
- Indirect disturbance to places of ACH (e.g. via impacts to marine environmental quality, benthic communities and habitats or marine fauna; increased visitation to the region; reduced ability to conduct cultural activities within the development envelope of the Proposal)
- Indirect disturbance to visual amenity (e.g. via impacts to marine environmental quality)



To assist in informing this impact assessment, a cultural heritage survey was conducted by Tassal in conjunction with MIAC in April 2024 (MIAC 2024). A summary of the reports key conclusions are as follows:

- No impacts to existing ACH places (including registered, lodged and historical places) listed on the Department of Planning, Land and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS; as of 27/05/2024) are expected from the Proposal
- Potential for impacts to pearl oyster shell beds (and other culturally associated marine species) along the southern coast of Aveling Island from particulate feed waste from the proposed sites at Cecelia Island and Edeline Island North.
- Potential for impacts to shorelines of the mainland and islands that are in close proximity to the sites from particulate feed waste or changes in marine environmental quality
- Potential for impacts to the aesthetic value of Mayala sea country, particularly the service barges which are to be in place adjacent to the sea-pens within each site
- Potential for impacts to access to Mayala land and sea, with an acknowledgement that most of the proposed sites are either in areas rarely visited or would be a negligible restriction on sea country
- Request to re-route proposed vessel corridor between Edeline Island South and Edeline Island North sites to avoid the Mayala Marine Park Gaarroogoorrood Special Purpose Zone (cultural protection), with the revised route shown in Figure 1.4.
- Potential overarching concerns of the proposal to Mayala land and sea country were as follows:
 - Contamination from feed and fish waste materials
 - Sea-pens may disturb the ecological balance near the pens by luring in other species of fish
 - Cyclonic weather events may damage aquaculture infrastructure and subsequently the environment (i.e fish escapes)
 - More activities on Mayala country will have a cumulative impact and that any potential damage to Mayala land and sea country is long lasting
- Potential concerns associated with the management of any environmental impacts on land and sea country as follows
 - How Tassal manages any environmental impacts on Mayala land and sea country such as those from service barges and feed waste from sea-pens
 - Further, whether the requisite monitoring of potential impacts to ecological surrounds as requested by the ACH survey team will be undertaken
- To ensure Tassal will be respectful of Mayala people and culture, the following to be a requirement of operations
 - Tassal staff and contractors undergo cultural awareness training to facilitate cultural competency of its workers



- Findings:
 - That Tassal workers or contractors going ashore land or islands within the Mayala Native Title Determination Area is cleared with conditions, being that the purpose is for aquaculture activities-related purposes
 - That monitoring to determine the health of reefs, shorelines proximate to the seven proposed aquaculture sites and the identified pearl shell beds near Aveling Island will be undertaken annually.
 - That the proposed sites are all cleared with conditions, being the two findings listed above

As such, the extent to which the AH Act 1972 would apply to the Proposal is limited, noting the Act only applies to direct impacts to existing places or artefacts of significance. Therefore, the processes under the EP Act for protection of the Social Surroundings factor are necessary in the case of this Proposal. Subsequently, this EMMP sets out monitoring requirements to ensure that any direct or indirect impacts, including but not limited to those listed in the findings above, to Social Surroundings are managed appropriately, further ensuring that the EPA's objective for Social Surroundings is met.





Figure 1.4 Indicative vessel route between proposed sites

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1.6.3 Key assumptions and uncertainties

Factor-specific descriptions of environmental impact assessment findings and associated assumptions/uncertainties are outlined in the Section 38 Supporting Document (BMT 2024).

1.7 Outcome/objective-based management framework

This EMMP is primarily an outcome-based plan as per the guidance in EPA (2024). Outcome-based provisions are performance-based and may be used where the environment is capable of objective measurement and reporting. Following a hierarchical approach, outcome-based provisions use appropriate indicators, trigger and threshold criteria and response actions, for use in the event of an exceedance. The outcome-based approach is commensurate with the EPA's Environmental Quality Management Framework (EQMF) (EPA 2016) and is the most appropriate approach for managing the potential impacts of ocean-based finfish aquaculture.

Some aspects of this EMMP are however objective-based, specifically those addressing management of marine fauna and social surroundings. This is necessary noting that triggers and thresholds are not practicable for the management of the particular values for marine fauna and social surroundings. The management approach contained herein is appropriate given the nature of the potential impacts.

1.8 Rationale for choice of indicators and/or management actions

1.8.1 Summary

The indicators chosen in this EMMP have primarily been selected based on potential for impacts on MEQ and BCH. Each of these indicators have been applied in previous EMMP's for sea-pen aquaculture in Western Australia, other than that for corals and pearl oyster beds. The indicators used in this EMMP are for the most part aligned with the current EMMP in place for Tassal's Cone Bay operations (DoF 2014) and the EMMP designed for finfish aquaculture in the Mid-West Aquaculture Development Zone (MWADZ; DoF 2017).

For marine fauna, management actions have been selected to avoid having direct or indirect negative impacts associated with vessel strikes or entanglement. For social surroundings, particularly Aboriginal cultural heritage (ACH), most of the potential impacts are directly associated with changes to marine environmental quality and subsequent impacts to benthic communities and habitats or marine fauna. For example, degradation in MEQ may impact coral habitats, which are of key cultural value and are specifically protected under the Mayala Marine Park Management Plan. As such, maintenance of MEQ, BCH and marine fauna will also protect cultural values associated with social surroundings. There are however other cultural values, such as access or interaction with protected areas which are not directly protected by the protection of MEQ, BCH or marine fauna. As such, other indicators which allow for the protection of these values have also been included within this EMMP. Further details are provided in Section 3.

Table 1.3 summarises the rationale for the choice of each individual indicator, with the information listed as required in EPA (2024).

1.8.2 Effects of issues external to the proposal

The potential effects of sea-pen aquaculture, particularly due to nutrient enrichment and subsequent increases in algal biomass, are likely to be greatest during the wet season when high rainfall naturally increases nutrients in the nearshore areas of the Buccaneer Archipelago. However, the potential for change in chlorophyll-a attributable to sea-pen aquaculture is likely to be best during the dry season, when chlorophyll-a concentrations are naturally at their lowest. For this reason, chlorophyll-a is the best indicator of whether the sea-pen aquaculture is increasing algal biomass. Nevertheless,



monitoring during the dry season when there is a low risk of natural nutrient enrichment from rainfall events will also be conducted. The majority of the other impacts of the sea-pen operations are not affected significantly by contributions external to the Proposal.



Table 1.3 Rationale for choice of indicators

Indicator	Associated impact	Intensity	Duration	Magnitude	Env. Change	Mitigation		
EPA Factors - Marine	EPA Factors - Marine Environmental Quality / Benthic Communities and Habitats (MEQ / BCH)							
Ammonia	Toxicity and nutrient enrichment/increased algal biomass	Moderate	Throughout operations	Limited (within sites)	Toxic effects of ammonia on marine organisms / potential for increased algal growth potential due to nutrient enrichment	Reduction of feed inputs / de-stocking immediately reduces the pressure of the sea-pen operations on MEQ and BCH.		
Total Phosphorous	Nutrient	Low	Throughout	Limited (within sites)	Change to sediment	Fallowing of sites		
Total Nitrogen	enrichment/increased algal biomass		operations		quality / benthic communities and habitats (e.g. infauna)	long-term recovery of sediment quality and water quality		
Chlorophyll-a	Nutrient enrichment/increased algal biomass	Moderate	Throughout operations	Broad (nearshore areas beyond sites)	Increased algal biomasses may enhance shading effects on BCH or lead to eutrophication / harmful algal blooms			
Dissolved Oxygen	Deoxygenation	Moderate	Throughout	Limited (within sites)	Change to sediment			
Total Organic Carbon		operations		quality / benthic communities and				
Spontaneous outgassing of Hydrogen Sulphide, <i>Beggiatoa</i> spp. mats	3		habitats (e.g. infauna)					



Indicator	Associated impact	Intensity	Duration	Magnitude	Env. Change	Mitigation
EPA Factors - Marine	Environmental Quality /	Benthic Communities a	nd Habitats (MEQ / BCI	H)		
Infauna	Deoxygenation / nutrient enrichment					
Coral health	Smothering / shading	Moderate	Throughout operations	Moderate (beyond borders of sites)	Reduction in % cover / increase in mortality of corals	
Pearl oyster beds	Smothering / nutrient enrichment	Moderate	Throughout operations	Moderate (beyond borders of sites)	Reduction in % cover / population structure of pearl oysters	



2 Management approach

2.1 Marine Environmental Quality

The overarching management approach for ensuring that the EPA's objective for Marine Environmental Quality (MEQ) is met is consistent with the EPA (2016) Environmental Quality Management Framework (EQMF), as discussed as follows.

2.1.1 Values and objectives

The objective of the EQMF is to ensure the marine environment is managed to achieve the relevant Environmental Quality Objectives (EQOs) and maintain Environmental Values (EVs) (Government of Western Australia 2004; Table 2.1). EVs (with associated EQOs) relate to a particular value or use of the marine environment that are important for maintaining a healthy ecosystem or for public benefit, welfare, safety or health, and which requires protection from the effects of pollution, environmental harm, waste discharges and deposits. The EQOs are high-level management objectives required to protect the EVs (EPA 2015; Figure 2.1). The relevant EVs for this EMMP are the EV for Ecosystem Health (with the EQO for the Maintenance of Ecosystem Integrity) and the EV for Cultural and Spiritual Values (with the EQO for the Maintenance of Cultural and Spiritual Values), which relates directly to the EPA factor for Social Surroundings (discussed in Section 2.3 below).



1. Modified from Figure 1 (page 7) of EPA (2017)

2. EQC are environmental quality criteria (see Section 3)

Figure 2.1 Conceptual overview of the environmental quality management framework applied to Western Australia's marine environment

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Table 2.1 Environmental values and environmental quality objectives relative to this project

Environmental Values	Environmental Quality Objectives
Ecosystem health	 Maintain ecosystem integrity at a maximum level of ecological protection Maintain ecosystem integrity at a high level of ecological protection Maintain ecosystem integrity at a moderate level of ecological protection This means maintaining the structure (e.g. the variety and quantity of life forms) and functions (e.g. the food chains and nutrient cycles) of marine ecosystems to an appropriate level
Cultural and spiritual	Cultural and spiritual values of the marine environment are protected.

2.1.2 Levels of ecological protection

The framework allows for the competing environmental, societal and industrial uses of the marine environment, and allows for small, localised effects while aiming to maintain overall environmental integrity (EPA 2017). The EV for ecosystem health recognises that some areas subject to disturbance cannot achieve (or retain) high to maximum levels of ecosystem protection, and these areas are assigned either a moderate or low ecological protection status (EPA 2017) with corresponding limits of acceptable change. This is important in the context of this EMMP, which includes strategies to manage the expected reduction in environmental quality beneath and immediately adjacent to the sea-pens, while maintaining broader regional environmental quality.

Modelling was used to derive an Environmental Quality Plan (EQP) consisting of an Moderate Ecological Protection Area (MEPA) in the immediate vicinity of the sea-pens surrounded by a High Ecological Protection Areas (HEPA) (Figure 2.2). A Maximum Ecological Protection Area (MaxEPA) was applied to those sites that are within or on the boundary of marine park protected areas. The monitoring outlined in this EMMP is designed such that the limits of acceptable change within the HEPA are not exceeded, with management actions required before any potential impacts within these areas.





Figure 2.2 Designated Environmental Quality Plan (EQP) for the Ocean Barramundi Project, with proposed and existing levels of ecological protection (LEPs)

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2.1.3 Environmental quality criteria

The extent to which the EQOs have been achieved will be assessed against agreed environmental quality criteria (EQC). The EQC provide the benchmarks against which environmental quality is measured (EPA 2017). The EQC are based on cause-effect-response relationships relating to the potential impacts (pressures) of the proposed activity, and to the specific environmental systems (response) where the activity will occur (EPA 2017).

The EQC define the limits of acceptable change in environmental quality. If the EQC are met, then it is assumed that the EQOs have been achieved. There are two levels of EQC:

- Environmental Quality Guidelines (EQGs) are threshold numerical values or narrative statements which if met indicate there is a high degree of certainty that the associated environmental quality objective has been achieved. If the guideline is not met then there is uncertainty as to whether the associated environmental quality objective has been achieved and a more detailed assessment against an environmental quality standard is prompted.
- Environmental Quality Standards (EQSs) are threshold numerical values or narrative statements that indicate a level which if not met indicates there is a significant risk that the associated environmental quality objective has not been achieved and a management response is prompted.



The conceptual framework for applying the EQC is illustrated in Figure 2.3.

Notes:

1. Adapted from Figure 3 (page 14) of EPA (2017)

Figure 2.3 Conceptual framework for applying the environmental quality guidelines and standards Each of the relevant EQC and their associated indicators are detailed in Section 3.



2.2 Benthic communities and habitats

The management approach for benthic communities and habitats aims to ensure that there is no change from the baseline cover and composition of coral, pearl oyster bed and infauna communities outside of the authorised Development Envelope (see Figure 1.1).

All operational activities will be managed to ensure that impacts to benthic habitats and communities are confined to within the Development Envelope. This will occur through the Marine Environmental Quality management framework described in Section 2.1.

2.3 Social surroundings

Social surroundings are protected both as an EV under the EQMF as well as directly as an EPA factor. Many values associated with social surroundings, particularly in relation to Aboriginal Cultural Heritage, are intrinsic values associated with other aspects of the marine environment (including marine environmental quality, benthic communities and habitats and marine fauna). A monitoring and management-based approach is proposed to minimise the risk of impacts to values associated with social surroundings that are not already protected by monitoring for impacts to marine environmental quality, benthic communities and habitats and marine fauna.

2.4 Marine fauna

A monitoring and management-based approach is proposed to minimise the risk of impacts to marine fauna.



3 EMMP Components

This EMMP has been prepared to align with EPA (2020) *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*, including the following

- Outcome-based provisions focus on monitoring and evaluating specific measurable outcomes and are typically driven by trigger and threshold criteria
- Objective-based provisions relate to monitoring and management actions, where specific trigger or threshold criteria may not be appropriate for the circumstances

3.1 Outcome-based provisions – Marine Environmental Quality

The monitoring proposed to protect marine environmental quality is described in Table 3.1. Detailed methods are provided in Section 3.2.

The EQS's for the indicators dissolved oxygen, volatile suspended solids, total phosphorous, total organic carbon and total nitrogen refer directly to monitoring of benthic communities and habitats described in Section 3.3.

Information on chemical therapeutant usage approach is provided in Section 3.2, though a specific monitoring program is not prescribed currently noting the usage of these therapeutants does not form part of regular operations.



Table 3.1 EMMP Components for Marine Environmental Quality - EQGs

EPA Factors and Objectives: Marine Environmental Quality

Dutcomes: Meeting of EPA's objectives for the relevant EPA Factors Key Environmental Values: Maintenance of water and sediment quality							
Indicator	LEP	Trigger criteria	Trigger level actions	Monitoring (see Figure 3.1 for sites and Annex A for waypoints)	Timing / Frequency	Reporting	
DO	High Protection Moderate Protection	Median DO concentrations in bottom waters at any of the HEPA locations, calculated using pooled temporal data for each sampling period (wet and dry), is less than 90% saturation Median DO concentrations in bottom waters at any of MEPA locations (0, 10, 50, 100, 200 and 400 m) calculated using pooled temporal data for each sampling period (wet and dry), is less than 80% saturation	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known, and initiate investigations against the EQS. The EQS for DO are DO, sediment appearance and infauna.	Collection method – DO will be measured approximately 50 cm from the bottom using a calibrated sensor. Analysis method – Calculate the median values at the end of the wet season and the end of the dry season, based on n=3 data points, for each individual monitoring location (i.e. 3 x MEPA 0 m, 3 x MEPA 10 m, 3 x MEPA 50 m, 3 x MEPA 100 m, 3 x MEPA 200 m, 3 x MEPA 400 m, 3 x MEPA/HEPA boundary, 3 x HEPA 300 m both up and down current of the sea-pens, 3 x all reference locations). Compare the resulting median values for each location against the relevant EQGs.	Three times in the wet and three times in the dry season	All records associated with the marine environmental quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report. Any exceedance events, as well as their associated actions, will be included within annual reporting.	
VSS	High Protection	Median VSS values at any of the HEPA locations calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 80 th percentile of Reference location data	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known, Collection method – VSS will be measured ~50 cm the surface of the water column and ~50 cm from the of the water column, being careful not to disturb the during sampling. Standard sampling and laboratory				
	Moderate Protection	Median VSS values at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m) calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 95 th percentile of Reference location data	and initiate investigations against the EQS. The EQS for VSS are sediment appearance, infauna and coral health (and pearl shell counts for locations at Aveling Island only).	procedures will be employed and all laboratory analyses undertaken according to NATA-accredited methods. Analysis method – Calculate the median values at the end of the wet season and the end of the dry season, based on n=3 data points, for each individual location (i.e $3 \times MEPA 0 m, 3 \times$ MEPA 10 m, $3 \times MEPA 50 m, 3 \times MEPA 100 m, 3 \times MEPA$ 200 m, $3 \times MEPA 400 m, 3 \times MEPA/HEPA$ boundary and $3 \times$ HEPA 300 m both up and down current of the sea-pens). Compare the resulting values for each location against the relevant EQG derived from the pooled Reference location data ⁵ , over the same period (n=3x3=9 in the wet season, and n=3x3=9 in the dry season).	x		
ТР	High Protection	Median TP concentrations at any of the HEPA locations, calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 80 th percentile of Reference location data	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known,	Collection method – A composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses undertaken according to NATA-accredited methods.			



	Moderate Protection	Median TP concentrations at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m) calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 95 th percentile of Reference location data	and initiate investigations against the EQS. The EQS for TP are DO, sediment appearance and infauna	Analysis method – Calculate the median values at the end of the wet season and the end of the dry season, based on n=3 data points, for each individual location (i.e. $3 \times MEPA 0 m, 3$ $\times MEPA 10 m, 3 \times MEPA 50 m, 3 \times MEPA 100 m, 3 \times MEPA$ 200 m, $3 \times MEPA 400 m, 3 \times MEPA/HEPA$ boundary and $3 \times$ HEPA 300 m both up and down current of the sea-pens). Compare the resulting values for each location against the relevant EQG derived from the pooled Reference location data ⁵ , over the same period (n=3x3=9 in the wet season, and n=3x3=9 in the dry season).
тос	High Protection	Median TOC concentrations at any of the HEPA locations, calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 80 th percentile of Reference location data	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known,	Collection method – A composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses undertaken according to NATA-accredited methods.
	Moderate Protection	Median TOC concentrations at any of the MEPA sites (0, 10, 50, 100, 200 and 400 m) calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 95 th percentile of Reference location data	and initiate investigations against the EQS. The EQS for TOC are DO, sediment appearance and infauna	Analysis method – Calculate the median values at the end of the wet season and the end of the dry season, based on n=3 data points, for each individual location (i.e. $3 \times MEPA 0 m, 3$ $\times MEPA 10 m, 3 \times MEPA 50 m, 3 \times MEPA 100 m, 3 \times MEPA$ 200 m, $3 \times MEPA 400 m, 3 \times MEPA/HEPA$ boundary and $3 \times$ HEPA 300 m both up and down current of the sea-pens). Compare the resulting values for each location against the relevant EQG derived from the pooled Reference location data ⁵ , over the same period (n=3x3=9 in the wet season, and n=3x3=9 in the dry season).
TN	High Protection	Median TN concentrations at any of the HEPA locations, calculated using pooled temporal data for each sampling period (wet and dry), are greater than the 80th percentile of Reference location data	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known,	Collection method – a composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses undertaken according to NATA accredited methods.
	Moderate Protection	Median TN concentrations at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m) calculated using pooled temporal data for each sampling period (wet and dry), are greater than the 95th percentile of Reference location data	and initiate investigations against the EQS. The EQS for TN are DO, sediment appearance and infauna.	Analysis method – Calculate the median values at the end of the wet season and the end of the dry season, based on n=3 data points, for each individual location (i.e. $3 \times MEPA 0 m, 3$ $\times MEPA 10 m, 3 \times MEPA 50 m, 3 \times MEPA 100 m, 3 \times MEPA$ 200 m, $3 \times MEPA 400 m, 3 \times MEPA/HEPA$ boundary and $3 \times$ HEPA 300 m both up and down current of the sea-pens). Compare the resulting values for each location against the relevant EQG derived from the pooled Reference location data ⁵ , over the same period (n=3x3=9 in the wet season, and n=3x3=9 in the dry season).
Zinc	Moderate ¹ Protection	Zinc concentrations at any MEPA or HEPA location exceed 200 mg/kg	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known,	Collection method – samples from a composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses undertaken according to NATA-accredited methods. Analysis method – Concentrations are compared to the EQG.

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Copper	Moderate ¹ Protection	Copper concentrations at any MEPA or HEPA location exceed 65 mg/kg	and initiate investigations against the EQS.	Collection method – samples from a composite of the upper cm of sediments from n=5 sediment cores. Standard sampli and laboratory analytical procedures will be employed and a	
			The EQS for Zinc and Copper is sediment toxicity	analyses undertaken according to NATA-accredited methods. Analysis method – Concentrations are compared to the EQG.	
Ammonia	High ¹ Protection	Ammonia concentrations at any HEPA or MaxEPA locations exceed 500 µg/L	In the event an EQG is exceeded, the proponent will	Collection method – Sampled 0.5 m below the sea-surface. Standard laboratory sampling and analytical procedures will	
	Moderate Protection	Ammonia concentrations at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m) exceed 1200 $\mu g/L$	report the matter to OEPA within seven days of it being known, and initiate investigations against the EQS. The EQS for NH₃ is whole effluent toxicity (WET) testing	be employed and all analyses undertaken according to NATA-accredited methods. Analysis method – Concentrations are compared to the EQG.	
Chl-a	Maximum Protection	Median chlorophyll-a concentrations at any of the MaxEPA locations, calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 70 th percentile of Reference location data AND 1 ug/L in the wet season or 0.7 ug/L in the dry season. Values cannot exceed the criterion	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known, and initiate investigations against the EQS.	Collection method – Sampled 0.5 m below the sea-surface. Analysis method – Calculate the median values at the end of the dry season (non river-flow period), based on n = 3 data points (i.e. 3 x MEPA 0 m, 3 x MEPA 10 m, 3 x MEPA 50 m, 3 x MEPA 100 m, 3 x MEPA 200 m, 3 x MEPA 400 m, 3 x MEPA/HEPA boundary and 3 x HEPA 300 m both up and	
	High Protection	Median chlorophyll-a concentrations at any of the HEPA sites, calculated using pooled temporal data for each sampling period (wet and dry), is greater than the 80 th percentile of Reference location data AND 1 ug/L in the wet season or 0.7 ug/L in the dry season.	The EQS for Chl-a is Chl-a.	down current of the sea-pens, 3 x all MaxEPA locations, 3 x all chlorophyll-a locations). Compare resulting values against EQGs from the pooled reference location data ⁵ over same period baseline EQG AND fixed value EQG.	
	Moderate Protection	Median chlorophyll-a concentrations at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m and additional sites) calculated using pooled temporal data for each sampling period (wet and dry), is greater than 95 th percentile of Reference location data AND 1 ug/L			

Notes:

1. Values are provided for multiple LEP as defined in EPA (2017)

2. EQG = environmental quality guideline; EQS = Environmental Quality Standard; TP = Total Phosphorous, TOC = Total Organic Carbon, TN = Total Nitrogen, VSS = volatile suspended solids; LAC = light attenuation coefficient; DO = dissolved oxygen, OEPA = Office of the Environmental Protection Authority

3. Assessed at Zone boundary (High Ecological Protected Area – HEPA; Moderate Ecological Protected Area - MEPA) compliance locations

4. Assessed at the MEPA location 100 m from sea-pens as a surrogate assessment against the high protection criteria

5. Reference data is only pooled within the relevant region, not across all reference locations, as per Table 3.3

in the wet season or 0.7 ug/L in the dry season.



Table 3.2 EMMP components for Marine Environmental Quality - EQSs

EPA Factors and Objectives: Marine Environmental Quality; Benthic Communities and Habitats

Outcomes: Restriction of impacts to regions of high and moderate ecological protection

Key Environmental Values: Maintenance of water and sediment quality; corals and pearl oyster beds Key impacts and risks: Finfish and feed wastes resulting in nutrient enrichment, low dissolved oxygen, increases to algal biomasses and trophic cascade effects on benthic communities and habitats								
Indicator	LEP	Threshold criteria	Threshold contingencies	Monitoring (see Figure 3.1 for sites and Annex A for waypoints)	Timing / Frequency	Reporting		
DO	High ¹ Protection	The median dissolved oxygen concentration in bottom waters at any of the MEPA/HEPA locations, calculated over a period of no more than one week, is less than 60% saturation AND No deaths of marine organisms resulting from deoxygenation.	In the event that an EQS is exceeded, the operator will report the matter to OEPA within one working day and will commence management to: (i) reduce the effect and/or, mitigate the source of the contaminants; and (ii) restore environmental quality within the specified level of ecological protection. During the management phase, the operator will continue to monitor the impacted locations to measure the status of the recovery process. Management procedures will include, but are not limited to; cessation of feeding at relevant sites, harvesting of finfish from pens, fallowing of affected locations or the review of feeding and stock biomass loading over the course of an entire production cycle followed by the development of precautionary procedures	In the event that an EQS is exceeded, the operator will report the matter to OEPA within one working day and will commence management to: (i) reduce the effect and/or, mitigate the source of the contaminants; and (ii) restore environmental quality	In the event that an EQS is exceeded, the operator will report the matter to OEPA within one working day and will commence management to: (i) reduce the effect and/or, mitigate the source of the contaminants; and (ii) restore environmental quality	Collection method – Same as in Table 3.1 Analysis method – Calculate the median value and compare against the EQS.	As soon as possible after an EQG exceedance is recorded.	All records associated with the water quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report.
Sediment appearance	High ¹ Protection	Video surveys at HEPA and MEPA locations record the presence of bacterial mats (<i>Beggiatoa</i> spp.) or spontaneous outgassing of hydrogen sulphide.		Collection method – Monitoring via towed video or submersible drop camera systems. Footage to be collected beginning at the sea-pens before extending along a transect through the MEPA and HEPA locations. Analysis method – Semi-quantitative analysis based on counts and/or observations of the bacterial mats (<i>Beggiatoa</i> spp.) or spontaneous outgassing of hydrogen sulphide.	As soon as possible after an EQG exceedance is recorded.	Any exceedance events, as well as their associated actions, will be included within annual reporting. The level of recovery following an exceedance also be included in the Annual Compliance Report.		
Zinc (sediment toxicity)	High Protection	Sediment toxicity tests at any HEPA location result in a statistically significant effect (P < 0.05) on sublethal chronic or lethal acute endpoints for any species, compared to a matched reference sediment.		pens, fallowing of affected locations or the review of feeding and stock biomass loading over the course of an entire production cycle followed by the development of precautionary procedures	 continue of an ected locations or the review of feeding and stock biomass loading over the course of an entire production cycle followed by the development of precautionary procedures Collection method – a composite cm of sediments from n=5 sedime Standard sampling and laboratory procedures will be employed and undertaken according to NATA-according 	Collection method – a composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses undertaken according to NATA-accredited	As soon as possible after an EQG exceedance is recorded.	
	Moderate Protection	Sediment toxicity tests at any MEPA location result in a statistically significant effect (P < 0.05) on lethal acute endpoints, or of greater than 50% on sublethal chronic endpoints for any species, compared to a matched reference sediment.		methods. Analysis method – Ecotoxicity testing is carried out by a NATA-accredited laboratory (where accreditation is available) on all samples where sediment contamination above the EQG was detected, in comparison to results from the respective reference locations for each site, with statistical analysis conducted to verify if the EQS has been met				
Copper (sediment toxicity)	High Protection	Sediment toxicity tests at any HEPA location result in a statistically significant effect (P < 0.05) on sublethal chronic or lethal acute endpoints for any species, compared to a matched reference sediment.		Collection method – a composite of the upper 2 cm of sediments from n=5 sediment cores. Standard sampling and laboratory analytical procedures will be employed and all analyses	As soon as possible after an EQG exceedance is recorded.			


EPA Factors and Obje	ectives: Marine Enviror	nmental Quality; Benthic Communities and Habita	its	
	Moderate Protection	Sediment toxicity tests at any MEPA location result in a statistically significant effect ($P < 0.05$) on lethal acute endpoints, or of greater than 50% on sublethal chronic endpoints for any species, compared to a		undertaken according to NATA-accredited methods. Analysis method – Ecotoxicity testing is carried out by a NATA-accredited laboratory (where accreditation is available) on all samples where
		matched reference sediment.		sediment contamination above the EQG was detected, in comparison to results from the respective reference locations for each site, with statistical analysis conducted to verify if the EQS has been met
Ammonia (water toxicity)	High Protection	Water toxicity (direct toxicity assessment; DTA) tests at any HEPA location tested result in a statistically significant effect (P < 0.05) on lethal acute or sublethal chronic endpoints for any species, compared to the reference water OR the dilution of ambient water at the boundary of the HEPA should be protective of at least 99% of species calculated using the statistical distribution methodology on the results of DTA using sublethal chronic endpoints on five species (minimum four taxonomic groups). Samples are collected only at locations where the EQG was exceeded. Water toxicity tests at any MEPA location		Collection method – Sampled 0.5 m below the sea-surface. Standard sampling and laboratory analytical procedures will be employed throughout and all analyses undertaken according to NATA-accredited methods. Analysis method – Ecotoxicity testing is carried out by a NATA-accredited laboratory (where accreditation is available) on all samples where water contamination above the EQG was detected, in comparison to results from the respective reference locations for each site, wi statistical analysis conducted to verify if the EC has been met. Species selection must be bas on ANZG (2018) recommendations of a suite o at least five test organisms, representing at leas three trophic levels: a primary producer, herbivore and vertebrate predator and four taxonomic groups.
	Protection	tested result in a statistically significant effect (P < 0.05) on lethal acute endpoints, or of greater than 50% on sublethal chronic endpoints, for any species, compared to the reference water OR the dilution of ambient water at the within the MEPA should be protective of at least 90% of species calculated using the statistical distribution methodology on the results of DTA using sublethal chronic endpoints on five species (minimum four taxonomic groups). Samples are collected only at locations where the EQG was exceeded.		taxonomie groups.
Chl-a	Maximum Protection	Mean chlorophyll-a concentrations at any of the MaxEPA locations must not exceed the long term upper 95% confidence interval for		Collection method – Sampled 0.5m below the sea-surface.

As soon as possible after an EQG exceedance is recorded.



EPA Factors and Object	tives: Marine Enviror	nmental Quality; Benthic Communities and Habita	ats		
		that location in three consecutive dryAnalysisseasons, using a control charting procedure.the end of	alysis method – Calculate the mean values at e end of the dry season, based on $n = 3$ data	Three tir and thre season.	
	High Protection	Mean chlorophyll-a concentrations at any of the HEPA locations must not exceed the long term- upper 95% confidence interval for that location in three consecutive dry seasons, using a control charting procedure.	points (i.e. 3 x MEPA 0 m, 3 x MEPA 10 m, 3 x MEPA 50 m, 3 x MEPA 100 m, 3 x MEPA 200 3 x MEPA 400 m, 3 x MEPA/HEPA boundary and 3 x HEPA 300 m both up and down curren of the sea-pens, 3 x all MaxEPA locations). Compare resulting values against the EQS		
	Moderate Protection	Mean chlorophyll-a concentrations at any of the MEPA locations (0, 10, 50, 100, 200 and 400 m) must not exceed the long-term upper 95% confidence interval for that location in three consecutive dry seasons, using a control charting procedure			

Notes:

1. Values are provided for multiple LEP as defined in EPA (2017)

2. EQG = environmental quality guideline; EQS = Environmental Quality Standard; VSS = volatile suspended solids; LAC = light attenuation coefficient; DO = dissolved oxygen, OEPA = Office of the Environmental Protection Authority

3. Assessed at Zone boundary (High Ecologically Protected Area – HEPA; Moderate Ecologically Protected Area - MEPA) compliance locations

4. Assessed at the MEPA location 100m from sea-pens as a surrogate assessment against the high protection criteria

ee times in the wet three times in the dry



3.2 Detailed methods – Marine Environmental Quality

3.2.1 Monitoring locations

Samples will be collected at fixed distances either side of the sea-pens along a single transect (centre of pen cluster, then 25, 50 and 100 m from the edge of the sea-pens; Figure 3.1). These locations are the MEPA locations. Sampling will be undertaken both up current and down current of the sea-pens in the direction of the prevailing current as projected by modelling, and verified using *in-situ* measurements. In the event of an exceedance of the criteria at these locations, sampling will be expanded to include locations 200 m and 400 m from the edge of the sea-pens along the same transect. 400 m locations are only included where the site boundaries are more than 500 m from the centre of the sea-pens. Sampling at these additional locations (considered independently for each site) will cease once median concentrations at the end of each respective season for the relevant indicator no longer exceed the MEPA EQG.

Three locations will be positioned at the MEPA/HEPA boundary of the respective site (both up current and down current) and at a further location 300 m from the site boundary along the original transect. These locations are the HEPA locations, as the areas beyond the respective site boundaries will maintain a high level of ecological protection.

A further six MaxEPA locations will be monitored within the boundaries of sanctuary zones and special purpose zones for the marine parks in the region to determine whether the water quality of these zones is maintained as required under the respective management plans (DBCA 2022a, b). These locations must achieve a maximum LEP.

To enable comparisons with background levels, sampling will be undertaken at proximal and representative reference locations for each of the sites. The suitability of these reference locations has been confirmed in the baseline sampling program.

Location coordinates are provided in Annex A. Note that exact coordinates for the transects will need to be adjusted once commissioning of the sea-pens is complete, so that the transect directly aligns through the centre of the sea-pen cluster.

MaxEPA chlorophyll-a monitoring

Due to a lag between uptake and growth, chlorophyll-a accumulation is unlikely to be detectable near the sea-pens. In addition to samples at the MEPA and HEPA locations, sampling will be undertaken at the MaxEPA locations within sanctuary zones and special purpose zones of the Mayala Marine Park and Lalang-gaddam Marine Park, where modelling indicated chlorophyll-a levels may increase because of sea-pen operations. EQG criteria for chlorophyll-a are subsequently two-fold, based on a comparison against the 70th percentile of both the original baseline data for these locations as well as against the designated reference locations. EQS criteria are based on a control-charting procedure, which assesses the long-term mean chlorophyll-a concentrations at each specific location in the dry season (which is unimpacted by natural perturbations from rainfall events) to determine whether there is a continual increase in chlorophyll-a concentrations that cannot be associated with natural events. See Stantec (2022) for further details on control-charting with reference to chlorophyll-a for the Kimberley region, or ANZECC ARMCANZ (2000) for a broader overview.

The reasoning for this secondary testing criteria is because nearshore areas of Strickland Bay and Cone Bay have naturally higher concentrations of chlorophyll-a than the site and designated reference locations and a two-fold criteria is more appropriate to determine whether any elevations in chlorophylla are due to project activities or a natural perturbation. To enable comparison with background levels,



sampling for chlorophyll-a will also be undertaken at the respective reference locations across the Archipelago.

Only chlorophyll-a monitoring will be required to be undertaken at the MaxEPA locations, noting these areas were the only ones which were projected to have elevated chlorophyll-a concentrations, and no other indicators (e.g. elevated DIN, particulate wastes) were projected to be relevant for these areas.

Sediment monitoring

Total phosphorous, total nitrogen and total organic carbon will be monitored at the MEPA, HEPA and reference locations. Sampling for trace metals zinc and copper will only be conducted at the MEPA and HEPA locations and compared with the EPA's criteria defined in EPA (2017) (200 and 65 mg/kg respectively). If any criteria are exceeded, sampling will also be conducted at the reference locations appropriate for the respective sites.

Sediment appearance will be monitored prior to stocking of the sea-pens. Images of the seafloor out to 10 m from the edge of the sea-pen will be collected along the MEPA transect to provide baseline data if the EQG for TSS (LOI) or ammonia toxicity EQC is exceeded.

Relation of monitoring locations to sites

MEPA and HEPA monitoring locations are specific to each site. An exceedance of an EQG at the MEPA and HEPA monitoring locations only triggers monitoring of the EQS at those same locations, and (if necessary) management actions are applied to the site where the exceedance occurred. MaxEPA monitoring locations in Strickland Bay and near to the Bayliss Islands are potentially impacted by a pair or group of sites. An exceedance of an EQS at the MaxEPA locations would trigger a management action at both sites.

Table 3.3 Sampling locations at each sample area

Sampling area	Monitoring locations
Cone Bay	Razor Island MEPA, HEPA Cone Bay MaxEPA Cone Bay Reference
Strickland Bay	Edeline Island North, Edeline Island South and Cecelia Island MEPA, HEPA Strickland Bay MaxEPA Strickland Bay Reference
Bayliss Islands	Bayliss Islands, Bayliss Islands Extra MEPA and HEPA Bayliss Islands MaxEPA Bayliss Islands Reference
Dorothy Island	Dorothy Island MEPA and HEPA Dorothy Island Reference

3.2.2 Methods

See Table 3.1 and Table 3.2.



3.2.3 Timing – additional baseline data collection

For timing of the compliance monitoring program, see Table 3.1.

A baseline monitoring program for water and sediment quality has been conducted to inform the environmental impact assessment of the Proposal (see BMT 2024a). As the Proposal is staged with commencement of operations at each site over several years, additional baseline data may be required to update the original baseline dataset and ensure the data is representative of environmental conditions immediately prior to Proposal operations commencing. It is recommended that additional baseline data is collected beginning 12 months prior to the commencement of operations for each individual site. Six water quality sampling events should be conducted, three in the wet and three in the dry, matching the proposed sampling regime described in Table 3.1. Sampling will only be conducted at the locations relevant to the site that operations are set to commence, as described in Table 3.3. For sites that sit within a broader sampling area (i.e. Strickland Bay and Bayliss Islands), sampling for the updated baseline should be limited to the MEPA / HEPA locations specific to the site, as well as the reference and MaxEPA sites. Additional baseline data for sediment quality will be collected at the relevant sediment sampling locations in the 12 months prior to the commencement of operations for each individual site once in the wet season and once in the dry season.

3.2.4 Therapeutants

Therapeutants will only be used on an ad-hoc basis as and when necessary. Prior to therapeutants being used, the Proponent must provide DPIRD and DWER with a notice of the proposed treatment, which includes a copy of the Medication Authority (MA) or Veterinary Authority (VA) relating to the proposed therapeutant medication event issued by the prescribing veterinary surgeon. The MA/VA will detail:

- The date of issue of the MA or VA
- Marine finfish farm site or permit name and number on which the therapeutant will be administered
- Type of disease diagnosed or suspected
- Number of pens to be medicated, including pen bay identification
- Estimated number and biomass of fish to be treated
- Treatment period: anticipated commencement date and duration
- Name of therapeutant to be utilised
- Dose rate (milligram active ingredient per kilogram of biomass)
- Total amount of active ingredient to be utilised
- Total amount of medicated feed to be utilised
- Application method
- Prescribed withdrawal method



After receiving and evaluating the notice, DPIRD will indicate whether the therapeutant is approved for usage. A specific, detailed monitoring program is not prescribed in this case as:

- All therapeutants to be used must not only be approved by the veterinarian, but also be on a list of approved therapeutants regulated by the Australian Pesticides and Veterinary Medicines Authority (APVMA). All therapeutants registered by APVMA have been assessed to ensure;
 - The product is safe for the environment
 - The product is of appropriate quality and is manufactured to appropriate standards
 - The product is efficacious
 - The product is safe to use in target animals and food safety risks for its residues can be effectively managed (and will not pose a risk to international trade in target animals and their products)
 - The product is safe to use for humans during preparation, application and storage

3.2.5 Reporting

All records associated with the environmental quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report. Any exceedances of the EQS shall be reported to the DWER Compliance Branch (compliance@dwer.wa.gov.au) within 7 days of first detecting the exceedance.

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Figure 3.1 Monitoring location layout – marine environmental quality. Transects are aligned in direction of the prevailing current (white arrows)



3.3 Outcome-based provisions – Benthic communities and habitats

The monitoring proposed to protect benthic communities and habitats is described in Table 3.4 and Table 3.5. Detailed methods are provided in Section 3.4.



Table 3.4 EMMP Components for Benthic Communities and Habitats - EQGs

EPA Factors and Objectives: Benthic communities and habitats

Outcomes: Meeting of EPA's objectives for the relevant EPA Factors

Key Environmental Values: Maintenance of benthic communities and habitats

Key impacts and risks: Finfish and feed wastes resulting in nutrient enrichment, low dissolved oxygen, increases to algal biomasses and trophic cascade effects on benthic communities and habit

Indicator	LEP	Trigger criteria	Trigger level actions	Monitoring (see Figure 3.1 for sites and Annex A for waypoints)	Timing / Frequency
Pearl oyster bed condition	High ¹ protection	 EQG 1: - A 20% or greater and statistically significant (P < 0.05) decline in mean pearl oyster density across transects (3) at the pearl locations (Pearl 1-3) in the defined area EQG 2: - A 20% or greater and statistically significant (P < 0.05) decline in mean pearl shell size across transects at the pearl locations (Pearl 1-3) in the defined area. 	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known, and initiate investigations against the EQS. The EQS for pearl oyster bed condition is pearl oyster bed condition.	 Collection method – Monitoring via towed video or submersible drop camera systems. Footage to be collected beginning at the start point of the transect and extending to the end point of the transect at each location. Analysis method – ten randomised quadrats (1 m x 1 m) will be analysed by projecting 30 randomly positioned points onto the quadrat area and classifying the substrate beneath into appropriate categories. Mean % cover for each category on each transect will be calculated, pooled at the location level, and then compared to the respective EQG Mean pearl shell size, sorted into size category for each transect using the same randomised quadrats above, pooled at the location level, and then compared to the respective EQG 	Once a year during wet seaso (when nutrient levels are high Sampling in approximately the same month each year to con for the effects of natural temp variation.
Shoreline / reef condition	High ¹ Protection	Video surveys undertaken along transects across the coral impact and reference locations record a reduction in overall coral cover AND/OR presence of bacterial mats (<i>Beggiatoa</i> spp.) or spontaneous outgassing of hydrogen sulphide	In the event an EQG is exceeded, the proponent will report the matter to OEPA within seven days of it being known, and initiate investigations against the EQS. The EQS for shoreline / reef condition is coral.	Collection method – Monitoring via towed video or submersible drop camera systems. Footage to be collected beginning at the start point of the transect and extending to the end point of the transect. Analysis method – Semi-quantitative analysis based on counts and/or observations of the bacterial mats (<i>Beggiatoa</i> spp.) or spontaneous outgassing of hydrogen sulphide.	Once a year during wet seaso (when nutrient levels are high Sampling in approximately the same month each year to con for the effects of natural temp variation.

Notes:

1. Values are provided for multiple LEP as defined in EPA (2017)

2. EQG = environmental quality guideline; EQS = Environmental Quality Standard

tats	
	Reporting
n est). rol oral	All records associated with the marine environmental quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report.
	Any exceedance events, as well as their associated actions, will be included within annual reporting.
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ntrol oral



Table 3.5 EMMP components for Benthic Communities and Habitats - EQSs

EPA Factors and Objectives: Benthic Communities and Habitats

Kov Environ		Acis to regions of high and moderate e				
Key impacts	and risks: Finfis	hand feed wastes resulting in nutrient	enrichment low dissolved oxygen increases to alg	al hinmasses and tranhic cascade effects on henthic	communities and habitats	
Indicator	LEP	Threshold criteria	Threshold contingencies	Monitoring (see Figure 3.1 for sites and Annex A for waypoints)	Timing / Frequency	Reporting
Infauna	High ¹ Protection	 The Shannon-Weiner Diversity Index at any of the HEPA locations is less than 80% of the Index calculated for reference location data. OR Total abundance of any individual taxonomic family at any of the HEPA locations is 20 times abundance at the reference locations OR Total annelid abundance at any of the HEPA locations is greater than 50 times the abundance at reference locations OR The number of families is 50% than at the reference locations 	In the event that an EQS is exceeded, the operator will report the matter to OEPA within one working day and will commence management to: (i) reduce the effect and/ or, mitigate the source of the contaminants; and (ii) restore environmental quality within the specified level of ecological protection. During the management phase, the operator will continue to monitor the impacted locations to measure the status of the recovery process. Management procedures will include, but are not limited to; cessation of feeding at relevant sites, harvesting of finfish from pens, fallowing of affected sites or the review of feeding and stock biomass loading over the course of an entire production cycle followed by the development of precautionary procedures.	Collection method – Infauna to be sieved (0.2 μ m mesh size) from a composite of the upper 2 cm of sediments from n=5 Van Veen grabs Analysis method – The infauna abundance and community assemblage data will be used to determine the Shannon-Wiener Diversity Index value and Infaunal Trophic Index (ITI) value for each site and the relative species composition (defined as the relative contribution of each species in terms of abundance to the total abundance) for that location.	As soon as possible after an EQG exceedance is recorded.	All records associated with the monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report. Any exceedance events, as well as their associated actions, will be included within annual reporting. The level of recovery following an exceedance also be included in the Annual Compliance Report.
	Moderate Protection	 The Shannon-Weiner Diversity Index at any of the MEPA sites is less than 50% (or half) of the Index calculated for reference site data. OR The Infaunal Trophic Index (ITI) at any of the MEPA sites is less than 50% (or half) of the Index calculated for reference site data 				
Pearl oyster bed condition	High ¹ protection	 EQS 1: In any two consecutive years – A 20% or greater and statistically significant (P < 0.05) decline in mean pearl oyster density across transects (3) at the pearl locations (Pearl 1-3) in the defined area EQS 2: In any two consecutive years – A 20% or greater and statistically significant (P < 		 Collection method – Monitoring via towed video or submersible drop camera systems. Footage to be collected beginning at the start point of the transect and extending to the end point of the transect at each site. Analysis method – ten randomised quadrats (1 m x 1 m) will be analysed by projecting 30 randomly positioned points onto the quadrat area and classifying the substrate beneath into appropriate categories. Mean % cover for each category on each transect will be calculated, pooled at the 	Once a year during wet season (when nutrient levels are highest). Sampling each year must occur as close to the same month each year to control for the effects of natural temporal variation.	



Notes:

24 February 2025

^{1.} Values are provided for multiple LEP as defined in EPA (2017)



EQG = environmental quality guideline; EQS = Environmental Quality Standard 2.

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3.4 Detailed methods – Benthic Communities and Habitats

3.4.1 Monitoring locations

Infauna

Infauna will be monitored at the MEPA / HEPA locations where an exceedance of the EQG under the marine environmental quality program has been recorded for the following indicators:

- DO
- VSS
- TP
- TOC
- TN

See Figure 3.1 for monitoring locations.

Pearl oyster beds

The health and condition of pearl oyster beds will be monitored at three locations on the western side of Aveling Island, noting this is the primary area of concern identified by MIAC during the heritage survey. A further three reference locations will be monitored on the eastern side of Aveling Island, so as to confirm whether impacts to pearl oyster beds are a result of natural perturbations or from project impacts.

Corals

The health and condition of coral reefs will be monitored at sub-tidal near-shore reefs in proximity to the sea-pens (impact locations) and at comparable reefs outside of the predicted area of influence (reference locations).

3.4.2 Methods

Infauna See Table 3.5.

Pearl oyster beds

Measures will include:

- percent cover;
- pearl shell size (i.e. population structure); and
- qualitative indices of health (e.g. evidence of polychaetes, predation, burial).

At each location, five 50 m video transects will be run across the location, spaced 200 m apart (or at a minimum distance to ensure sampling is independent). These video transects will be collected using towed video cameras. 10 randomised 1 m² quadrats will be selected post-collection from each transect for analysis.



The use of remote operated vehicles (ROVs) to capture the required information can be explored to determine the efficacy of this particular method.

Coral

Measures will include:

- percent cover;
- coral colony health (mortality); and
- qualitative indices of health (e.g. evidence of turfing algae, grazing, bleaching, mucous, burial).

At each reef (location), 15 replicate 1 m^2 quadrats, spaced ~50 m apart (or at a minimum distance to ensure sampling is independent), will be established. Replicate quadrats will be fixed to allow for repeated measures analysis, and as such will need to be marked (e.g. with a star picket and steel reinforcing bar which is resistant to fouling).

Determining percent cover at each location will involve photographing each replicate 1 m² quadrat of reef substrate, where the quadrat is fixed between the star picket in one corner and the reinforcing bar in the opposite corner. Each quadrat will be photographed in quarters from directly overhead and percent cover determined using a desktop-based analysis (coral point count analysis).

To determine coral colony health, individual coral colonies will be assessed for mortality (percent area showing mortality). Sampling of coral colonies will be collected using photographs, taken from approximately 50–70 cm above the coral surface. A minimum of 15 colonies will be required at each quadrat, with the same colonies to be photographed in every survey (the selection of colonies will ensure a representative cross-section of the genera present at each location).

Logistically, the implementation of the coral monitoring program may be difficult, particularly noting the excessive turbidity within the region. As such, if the initial monitoring program methods are not able to implemented, an alternative program (i.e. using drones / remote operated vehicles (ROVs), acoustic surveying) to capture the required information can be explored to determine the efficacy of this particular method.

3.4.3 Timing

Infauna See Table 3.5.

Pearl oyster beds See Table 3.4 and Table 3.5.

Corals

A baseline monitoring program for coral will be conducted prior to sea-pens being installed, which will be statistically tested to ensure reference locations are comparable to impact locations. Each impact location must have at least one comparable reference location in terms of depth, coral cover and species present. This will allow the program to follow a Before-After Control-Impact (BACI) design. Verification of the statistical power of the design will be required during the baseline program to confirm that there is sufficient replication to detect a 20% difference statistically.

The below summarises the timing of the coral monitoring program post baseline:



- The detailed coral monitoring program (other than baseline, separate to the shoreline condition monitoring program) will only commence if the EQG for volatile suspended sediments is exceeded, with monitoring to be undertaken at the coral impact/reference locations directly related to where the EQG exceedance occurred (Table 3.3).
- Initial monitoring will commence in the wet season as soon as possible after the EQG exceedance. Post the initial exceedance, all monitoring will target the wet season when suspended solids are likely at their highest due to freshwater flows from riverine inputs.
- Monitoring will be conducted annually for 5 years after the initial exceedance. Monitoring will cease only if, after 5 years, there has been no subsequent impact to coral health as determined via the EQS.

3.4.4 Reporting

All records associated with the environmental quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report. Any exceedances of the EQS shall be reported to the Office of the Environmental Protection Authority (OEPA) within 7 days of first detecting the exceedance.





Figure 3.2 Monitoring location layout – benthic communities and habitats

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3.5 Outcome-based provisions – Social Surroundings (visual amenity)

Monitoring for visual aesthetics will be conducted at the same monitoring locations as the marine environmental quality sampling program (see Section 3.2).

Aesthetic quality will be assessed against the EQG and EQS using qualitative assessments (Table 3.6). Though the EQGs vary, the EQS for all aesthetics indicators is the same, stating that there cannot be any overall decrease in the aesthetic water quality values, using direct measures of the community's perception of aesthetic value. If there is a decrease in the aesthetic values of the Buccaneer Archipelago marine environment as determined using direct measures of the community's perception of aesthetic values (the EQS), the Proponent will consult with OEPA to determine an appropriate management response.

The Proponent will provide community users of the Buccaneer Archipelago and other relevant stakeholders with an open invitation to comment on any depreciation of the aesthetic values that may be attributable to the aquaculture within the proposed locations. The DPIRD website at www.fish.wa.gov.au will provide a mechanism by which the community and stakeholders can submit comments. Any decreases in aesthetic water quality values will be measured as an increase in the number of complaints or a distinct change in the perception of the community. Instances of complaints will be recorded and documented in the Annual Report. All records associated with the monitoring, need to be included in the Annual Compliance Report.

Further objective-based provisions for protection of Social Surroundings (Aboriginal Cultural Heritage) are provided in Section 3.6.



Table 3.6 EMMP Components for Aesthetics – EQGs and EQS

EPA Factors and Objectives: Social surroundings

Outcomes: Maintain visual aesthetics in the Buccaneer Archipelago region

Key Environmental Values: Water clarity, absence of odours, surface films, debris

Key impacts and risks: Finfish and feed wastes resulting in changes to the visual aesthetics, including changes to water clarity, presence of algal blooms

Indicator	LEP	Trigger criteria	Trigger level actions	Monitoring	Timing / Frequency
EQGs					
Nuisance organisms	Moderate Protection	Macrophytes, phytoplankton scums, filamentous algal mats, blue-green algae and sewage fungus must not be present to a harmful degree	Upon an exceedance of the EQG, the Proponent will investigate the cause and the	Collection method – Aesthetic qualities to be	Three time the wet an
Faunal deaths	Moderate Protection	There must be no reported incidents of large-scale deaths of marine organisms relating from unnatural causes	source of the exceedance. An exceedance of the EQG will result in further assessment against the EQS.	marked off on a preprepared questionnaire	times in th season.
Surface films	Moderate Protection	Oil and petrochemicals must not be noticeable as a visible film on the water or detectable by odour.		Annual shoreline	
Surface debris	Moderate Protection	Water surfaces and shorelines must be free of floating debris and other objectionable matter, including substances that cause foaming.		inspection / Beach Cleaning	
Odour	Moderate Protection	There must be no objectionable odours.		Analysis method – NA	
EQSs					
Nuisance organisms Faunal deaths Water clarity Colour Surface films Surface debris	Moderate Protection	There should be no overall decrease in the aesthetic water quality values using direct measures of the community's perception of aesthetic values using the indicators noted. An increase in the number of complaints or a distinct change in the perception of the community, as captured on the website <u>www.fish.wa.gov.au</u> specific to the Project, will act as a direct measure of the community's perception.	 Visual check for source of contamination such as hydrocarbon leaks / spills Visual check of sea-pens for integrity and effectiveness / presence of debris Visual check for spilled feed, waste materials from vessels 	Collection method – Aesthetic qualities to be marked off on a pre-prepared fieldsheet. Perception to be assessed as per complaints captured on the Project website. Analysis method – NA	When trigg from an E0

	Reporting
s in d three e dry	All records associated with the water quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report. Any exceedance events, as well as their associated actions, will be included within annual reporting.
lered 2G	All records associated with the water quality monitoring program, including the results of statistical analyses and assessments against the EQC, shall be included in the Annual Compliance Report.
	Any exceedance events, as well as their associated actions, will be included within annual reporting.



3.6 Objective-based provisions – Social Surroundings (Aboriginal cultural heritage)

3.6.1 Objective

The EQO for Social Surroundings aims to protect social surroundings from significant harm. In the context of Aboriginal cultural heritage in this EMMP, this means ensuring that any negative interactions with places, species or other intangible cultural values are mitigated, and if an interaction does occur than it is responded to in a timely manner and reported appropriately.

The monitoring proposed to protect social surroundings (Aboriginal Cultural Heritage) is described in Table 3.7. Detailed management actions are provided in Section 3.6.2.



Table 3.7 EMMP Components for Social Surroundings (Aboriginal cultural heritage)

EPA Factors and Objectives: Social surroundings – Manage and mitigate impacts to social surroundings (Aboriginal cultural heritage) during operations Objectives: ensuring that any interactions with culturally significant areas or values are mitigated wherever feasible Key Environmental Values: Islands, places, song lines (stories) Key impacts and risks: Access to culturally significant areas; ability to conduct culturally activities on sea-country					
Management Targets	Management Actions	Monitoring	Timing / Frequency	Reporting	
<u>Management Target 1:</u> No unauthorised access to culturally significant areas by the Proponents staff/visitors	 Staff / contractors to undertake cultural awareness induction, providing information on: Cultural values of the area Culturally significant places (including exclusion zones) Acceptable behaviours in these areas Actions and reporting requirements in the event of access to these areas 	Training and induction	Prior to staff commencing work on site	Induction records Annual compliance report	
	Exclusion zones around culturally significant areas defined as per discussion and agreement with Traditional Owners, with reference to the defined special purpose zones of the Mayala Marine Park and Lalang-gaddam Marine Park (DBCA 2022a, b). The Proponent will maintain records on all vessels of designated exclusion zones to avoid culturally significant areas. The Proponent will provide information annually to verify vessels have not interacted with any designated exclusion zones.	Reporting Visual surveillance	Throughout operations	Annual compliance report	
	The Proponent to abide by the commercial operator licence conditions.	Reporting	Throughout operations	Annual compliance report	



EPA Factors and Objectives: Social su Objectives: ensuring that any interaction Key Environmental Values: Islands, pl Key impacts and risks: Access to culture	urroundings – Manage and mitigate impacts to social surroundings (Abol ons with culturally significant areas or values are mitigated wherever fea aces, song lines (stories) urally significant areas; ability to conduct culturally activities on sea-coun	riginal cultural h sible try	eritage) during ope	erations
Management Target 2: No impact to Traditional Owners practicing and maintaining culture, including fishing and hunting, or other examples of traditional sea resource management practices	 Staff / contractors to undertake cultural awareness induction, providing information on: Cultural values of the area Culturally significant places (including exclusion zones) Acceptable behaviours in these areas Actions and reporting requirements in the event of access to these areas 	Training and induction	Prior to staff commencing work on site	Induction records Annual compliance report
	Traditional owners to be able to conduct activities within the sites, though not to transit between or directly adjacent to the sea-pens. Traditional owners to also provide notification to the Proponent before conducting activities within sites, and to take part in a safety briefing. The Proponent to maintain record of interactions within sites as evidence to verify that no prevention of cultural activities has occurred.	Reporting	Throughout operations	Annual compliance report



3.6.2 Management actions

Training

All staff and/or contractors working on-site shall receive a site induction which includes culturally appropriate information regarding the Mayala People, their country, law and culture.

Any permanent on-site staff and/or contractors employed by the Proponent on-site for more than 6 months shall undertake cultural awareness training run by appropriate representatives from the MIAC or other Traditional Owners to ensure they have a comprehensive understanding of the cultural values of the area in which the Proposal is situated and how to mitigate any potential actions which may impact on these cultural values.

Procedures

On-site staff will record any interaction between staff/visitors and an area or specific item of cultural significance, using a standard template. In the event of an emergency, whereby passage through or access to an island or area of cultural significance cannot be avoided, these interactions will be recorded using a standard template. Clear vessel routes between sites will be designated such that no passage through protected or significant areas is allowed for under normal operating circumstances. GPS tracklogs will be kept for all the Proponent's vessels to be reported on annually as evidence for no interaction with protected or culturally significant areas.

Exclusion zones

Clear exclusion zones around protected or significant areas will be designated in agreement with the MIAC and other Traditional Owners to minimise potential for negative interactions with protected areas. Where the exact location of these areas cannot be designated due to protection of cultural values or for other reasons, buffer zones around them will be provided to ensure no unauthorised access.

3.6.3 Management Targets

Details on management targets are provided in Table 3.7.

3.6.4 Monitoring

Details on monitoring are provided in Table 3.7

3.6.5 Reporting

Details on interactions with culturally significant areas or values will be included within the Annual Compliance Report.

3.7 Objective-based provisions – Marine Fauna

3.7.1 Objective

The EQO for marine fauna aims to protect marine fauna so that biological diversity and ecological integrity are maintained. In the context of this management plan, this means ensuring that any interactions with marine fauna are mitigated as much as possible, and if an interaction does occur then it is responded to in a timely manner and reported appropriately. Interactions are defined as per Table 3.8.



Table 3.8 Definition of interaction categories

Interaction	Definition	Reporting
Sighting	Sightings occur when fauna are noted within 50 metres of aquaculture gear.	Sightings are not a reportable incident
Close pass	Close passes occur when fauna comes within one metre of the aquaculture gear without making contact. Includes fauna that show an interest in gear, the stock contained within it, or the opportunity to consume waste feeds.	Close passes are not a reportable incident
Physical contact	Physical contact occurs when fauna come into contact with aquaculture gear either inadvertently (as in a vessel strike) or deliberately while attempting to prey on aquaculture stock. Physical contact does not include entanglements, but does include breaches of the aquaculture gear including where an animal becomes trapped inside a sea-pen.	Physical contact should be recorded in the MFO log and Annual compliance report; but are non-reportable to DBCA (except for vessel strikes or breaches of the sea-pen).
Entanglement	Entanglement results when an animal initially makes physical contact, then subsequently becomes entangled in the netting, lines or other components of the aquaculture gear. Entanglement is differentiated from physical contact by the duration: a contact greater than 30 seconds constitutes an entanglement.	Entanglements are immediately reportable to DBCA, as well as recorded in the MFO log and Annual compliance report.
Mortality	Mortality refers to the death of an animal as a direct result of aquaculture operations, either by vessel strike, stress or prolonged entanglement.	Mortalities are immediately reportable to DBCA, as well as recorded in the MFO log and Annual compliance report.

Though the Proposal does not sit within the Kimberley Aquaculture Development Zone, in which Tassal currently operate a derived project, for the purposes of managing interactions with marine fauna Tassal will adhere to the Kimberley Aquaculture Development Zone Management Policy (DoF 2015). Furthermore, the Proponent must monitor and report any interactions with protected species, as per the training, procedures and the mitigation strategies outlined below and in Table 3.8.

The monitoring proposed to protect marine fauna is described in Table 3.9. Detailed management actions are provided in Section 3.7.2.





Table 3.9 EMMP Components for Marine Fauna

EPA Factors and Objectives: Marine Fauna – Manage and mitigate impacts to marine fauna from Proposal activities Objectives: ensuring that any interactions with marine fauna are mitigated wherever feasible Key Environmental Values: Marine mammals (migratory and/or threatened), sea turtles, crocodiles, sharks, seabirds Key impacts and risks: Vessel strike, entanglement in sea-pen netting/anchorage lines, attraction of predators				
Management Targets	Management Actions	Monitoring	Timing / Frequency	Reporting
<u>Management Target 1:</u> No injury or death of marine fauna as a result of vessel strike	 Staff / contractors to undertake environmental induction, providing information on: Potential impacts to marine fauna Marine fauna awareness Marine fauna behaviour Actions and reporting requirements in the event of a marine fauna injury or mortality 	Training and induction	Prior to staff commencing work on site	Induction records Annual compliance report
	A marine fauna observer will be appointed while transiting to ensure the safety of staff and avoid collisions. An MFO observation log will be updated to report on any reportable interactions with fauna while transiting between sites or sea- pens.	Visual surveillance	Throughout operations	Annual compliance report Daily MFO observation Log
	 In the event of vessel strike the following response procedures will take place: Immediately report any vessel strikes to the DBCA Wildcare Helpline on (08) 9474 9055 (24-hour emergency number), the DBCA Derby Ranger on (08) 9193 1411 and the Broome DBCA District Office on (08) 9195 5500. DBCA will report these interactions directly to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). 	Visual surveillance	Throughout operations	Annual compliance report Daily MFO observation Log





EPA Factors and Objectives:	Marine Fauna - Manage and mitigate impacts to marine fauna from Proposal act	tivities		
Objectives: ensuring that any	interactions with marine fauna are mitigated wherever feasible			
Key Environmental Values: M	larine mammals (migratory and/or threatened), sea turtles, crocodiles, sharks, se	abirds		
Key impacts and risks: Vesse	I strike, entanglement in sea-pen netting/anchorage lines, attraction of predators			
	 An investigation into the cause of the vessel strike will follow, including recommendations for management actions to be undertaken to reduce the risk of these events occurring in future 			Incident notification reports
	Vessel operations within the sites must be limited to less than 8 knots.	Visual surveillance	Throughout operations	Annual compliance report
	Vessel activities should be limited as much as practicable, particularly at night when visibility is reduced.	Visual surveillance	Throughout operations	Annual compliance report
	Vessels must avoid making sudden or repeated changes in direction, or generating excessive noise, particularly near marine fauna	Visual surveillance	Throughout operations	Annual compliance report
	Establish preferred routes and ensure skippers adhere to them (as per Figure 1.4).	Visual surveillance Vessel tracklogs	Throughout operations	Annual compliance report
	Upon observing marine fauna, reduce vessel speeds and maintain visual contact with the animal(s) until safe to pass; in accordance the Australian National Guidelines for Whale and Dolphin Watching 2017 and the Wildlife Conservation Act 1950.	Visual surveillance	Throughout operations	Annual compliance report
Management Target 2:	Sea-pen nets will be inspected daily to ensure net integrity has not been compromised, kept taut and free from debris and maintained to a standard that will mitigate entanglement.	Inspections and audits	Daily	Annual compliance report



EPA Factors and Objectives: Marine Fauna – Manage and mitigate impacts to marine fauna from Proposal activities Objectives: ensuring that any interactions with marine fauna are mitigated wherever feasible Key Environmental Values: Marine mammals (migratory and/or threatened), sea turtles, crocodiles, sharks, seabirds Key impacts and risks: Vessel strike, entanglement in sea-pen netting/anchorage lines, attraction of predators				
No injury or death of marine fauna via entanglement	A MFO observation log (example provided in Annex B) will be updated daily by Proponent staff on-site at the sea-pens to report on any fauna that have become entangled in the sea-pens or other infrastructure across the day's activities.	Visual surveillance	Throughout operations	Annual compliance report Daily MFO observation Log
	 In the event of an entanglement, the following response procedures will take place: Immediately report any entanglements to the DBCA Wildcare Helpline on (08) 9474 9055 (24-hour emergency number), the DBCA Derby Ranger on (08) 9193 1411 and the Broome DBCA District Office on (08) 9195 5500. DBCA will report these interactions directly to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). An investigation into the cause of the entanglement, including recommendations for management actions to be undertaken to reduce the risk of these events occurring in future 	Visual surveillance	Throughout operations	Annual compliance report Daily MFO observation Log Incident notification reports
Management Target 3: Predators if attracted to operations are not able to interact with/enter into the sea-pens	 Mandatory inclusion of predator exclusion systems on sea-pens, including sub-surface nets to avoid predation by sharks (particularly sleepy sharks), crocodiles and dolphins; and appropriate bird exclusion mechanisms (e.g. taut overhead bird netting to prevent access to stock and feed) Predator nets designed to have a breaking strain of 600 kg, i.e. greater than the strain likely to be delivered by sharks / crocodiles. Internal nets (if used) to have a breaking strain of 240 kg. Sea-pen nets will be inspected daily to ensure net integrity has not been compromised 	Inspections and audits	Daily	Annual compliance report





EPA Factors and Objectives: Marine Fauna – Manage and mitigate impacts to marine fauna from Proposal activities Objectives: ensuring that any interactions with marine fauna are mitigated wherever feasible Key Environmental Values: Marine mammals (migratory and/or threatened), sea turtles, crocodiles, sharks, seabirds Key impacts and risks: Vessel strike, entanglement in sea-pen netting/anchorage lines, attraction of predators					
	Dead fish will be removed from sea-pens daily and stored in enclosed containers until disposed of appropriately to discourage scavenging by other marine fauna.	Inspections and audits	Daily	Annual compliance report	
	 Feeding will follow the below protocols: Minimise feed wasteage by use of high quality and appropriate pelletised feeds All pelletised feeds used must be produced by a manufacturer that complies with AS/NZS ISO 9001:2008 standards (or equivalent); contemporary feeding technologies and practices will be used to minimise feed wastage to the surrounding environment Pellet food will primarily be stored on site in bulk feed hoppers and any loose bags of feed will be stored in either the below-deck compartments or on-deck covered by heavy duty PVC tarpaulin or similar Aquaculture staff and visitors prevented from feeding, touching or swimming with marine fauna within the sites 	Inspections and audits	Daily	Annual compliance report	
	 Lighting will follow the below protocols Lighting present will be limited to that required for navigational safety purposes on the buoys that surround the sea-pens. Avoid the use of bright white lights (e.g. mercury vapour, metal halide, halogen and fluorescent light) on aquaculture gear. Orange lights, red lights and low-pressure sodium lights are to be used where practicable. Light spill to be reduced by shielding lights, pointing lights directly at the work area (directional alignment), reducing the amount of light shining directly onto water and covering service vessel windows with tinting or drapes to reduce light emissions 	Inspections and audits	Daily	Annual compliance report	





EPA Factors and Objectives: Marine Fauna – Manage and mitigate impacts to marine fauna from Proposal activities				
Objectives: ensuring that any	interactions with marine fauna are mitigated wherever feasible			
Key Environmental Values: Ma	arine mammals (migratory and/or threatened), sea turtles, crocodiles, sharks, sea	abirds		
Key impacts and risks: Vessel	strike, entanglement in sea-pen netting/anchorage lines, attraction of predators			
	 Reduce horizon glow using downward-facing luminaries, avoiding reflecting surfaces and reducing the intensity of indoor lighting used in vessels without compromising worker safety Lighting to follow Environmental Assessment Guideline No. 5 (EPA 2010) and National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (DoEE 2020) 			
	A MFO observation log will be updated by Proponent staff on-site at the sea- pens for reportable marine fauna interactions with the sea-pens or other infrastructure across the day's activities.	Visual surveillance	Daily	Annual compliance report
	 In the event of physical contact (as defined in Table 3.8), the following response procedures will take place: Immediately report any physical contact to the DBCA Wildcare Helpline on (08) 9474 9055 (24-hour emergency number), the DBCA Derby Ranger on (08) 9193 1411 and the Broome DBCA District Office on (08) 9195 5500. DBCA will report these interactions directly to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). An investigation into the cause of the interaction will follow, including recommendations for management actions to be undertaken to reduce the risk of these events occurring in future 	Visual surveillance	Throughout operations	Annual compliance report Daily MFO observation Log Incident notification reports



3.7.2 Management actions

Training

Any on-site staff and/or contractors employed by the Proponent shall undertake training to ensure consistency in identification and reporting of protected and threatened species, crocodile management and safety, incident procedures and reporting documentation. Adequate training in correct vessel handling, marine safety procedures and relevant maritime regulations is mandatory.

Procedures

On-site staff will record interactions between fauna and aquaculture infrastructure (including vessels) and staff, using a standard template. Protected species include crocodiles, marine turtles, marine mammals and seabirds. The Proponent must immediately report any physical contact, entanglements or mortalities (as defined in Table 3.8), to the Department of Biodiversity, Conservation and Attractions (DBCA) Wildcare Helpline on (08) 9474 9055 (24-hour emergency number), the DBCA Derby Ranger on (08) 9193 1411 and the Broome DBCA District Office on (08) 9193 8600. DBCA will report any instances directly to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Tassal currently have a Dangerous Fauna Licence (No. L012447) for managing nuisance crocodiles at their Cone Bay operations. In the future all 'nuisance' crocodiles will be managed by qualified Rangers, rather than by Tassal staff or personnel. These agreements will be finalised with the relevant Rangers for each proposed site and this section of the EMMP will be updated to include reference to these agreements when they are in place. It is intended that where 'nuisance' crocodiles are identified, the relevant Rangers will be contacted and they will deal directly with the animal on site.

In terms of entanglement risks, staff will be present at the sea-pens at all times. As noted above, DBCA will be immediately contacted should any marine fauna become entangled.

Specific procedures for dealing with lighting are outlined in Environmental Assessment Guideline No. 5 (EPA 2010) and *National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds* (DoEE 2020).

3.7.3 Management Targets

Management targets are provided in Table 3.9.

3.7.4 Monitoring

Monitoring requirements are provided in Table 3.9.

3.7.5 Reporting

Details on marine fauna interactions will be included within the Annual Compliance Report. Any interactions with marine fauna will be reported (as per Table 3.8 and Table 3.9). Detailed investigations of any interactions with marine fauna, particularly entanglements or vessel strikes, will be required to identify the cause of these incidents. The Proponent has a commitment to modify operations and infrastructure design of the operation where required to help reduce the risk of interactions with marine fauna, as identified in these investigations.



4 Auditing

4.1 Internal Auditing Process

Internal auditing procedures will be undertaken against the record keeping commitments outlined in Section 3. The proponent will also be certified under Best Aquaculture Practices, an international third-party certification body for aquaculture developments, for the sea-pen operations.



5 Adaptive Management and review of the EMMP

5.1 EMMP implementation

The Proponent will submit an Annual Compliance Report summarising the results of the monitoring to the CEO of the Office Environmental Protection Australia (OEPA) and DWER Compliance Branch annually.

Annual Compliance Reports will need to include as a minimum:

- An executive summary summarising the results of the program
- A methods statement
- A description of the results of the program, including the appropriate use of Tables and Figures to summarise the outcomes of:
 - Water and sediment monitoring and analyses
 - Benthic video surveys and analyses
 - Farm operational data, including any correlations with environmental data
 - Campaign monitoring, if undertaken during the reporting period
 - Any additional analyses i.e. multivariate or control charting analyses
 - Appropriate appendices, providing farm operational data and results of any reviews / risks assessments
 - Assessment of any unforeseen impacts beyond those captured in the EMMP, and a draft approach to assessing these impacts
 - Unforeseen impacts could be impacts to other aspects of the marine environment as a result of the Proposal that are not captured under monitoring included as part of this EMMP.

5.2 Program evolution

The Proponent will implement an adaptive management system to provide a robust management plan, which effectively meets the environmental objectives. To achieve this, the EMMP will be reviewed regularly (at least every two years) by the Proponent and DWER Compliance Branch to ensure that the plan takes into consideration

- Any revision or change to the Proposal approved under the EP act
- Outcomes of additional baseline monitoring undertaken prior to each site commencing operations
- Outcomes of compliance assessment reporting (particularly the implementation of the coral monitoring program)
- Outcomes of ongoing consultation with DWER, DPIRD, MIAC and other traditional owners regarding the results of the monitoring
- Continuous improvement
- Changes in regulatory or corporate requirements

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• Changes associated with assessment of unforeseen impacts, such that these impacts are adequately addressed in a revised management plan

If revised, a copy of the revised EMMP will be provided to the CEO for approval prior to implementation.



6 Stakeholder Consultation

The key objectives of stakeholder engagement have been to consult key stakeholders of the proposed expansion plan and ensure that the final proposed project successfully integrates Traditional Owner, community and government considerations while also meeting Tassal's project requirements. Tassal has facilitated stakeholder consultation through its established networks across the West Kimberley region and State from its existing Cone Bay operations. Tassal has also looked to expand its stakeholder consultation through a broadened stakeholder analysis process considering its footprint will expand across a broad area of the Buccaneer Archipelago which multiple stakeholders operate within.

Tassal has been a participant in the design and development of the creation of the marine parks in the Buccaneer Archipelago, comprised of the proposed Mayala Marine Park, Bardi Jawi Gaarra Marine Park and Lalang-gaddam Marine Park. The plan includes recognition that aquaculture projects will be permitted within the General Use zone areas of the Marine Parks. The formulation of the marine parks has included extensive consultation managed by the Department of Biodiversity, Conservation and Attractions (DBCA) including co-design workshops with Traditional Owners and targeted consultation with different community and industry groups. The plans have also incorporated extensive broader public consultation processes which note the anticipated expansion of aquaculture operations within the marine parks given the exceptional conditions for aquaculture operations. Tassal has been an active participant in the Marine Park development and consultation processes, making presentations and providing updates on multiple occasions to the broader stakeholder group coordinated by DBCA.

Tassal has adopted key principles of stakeholder consultation focused on open, honest and transparent communication during the development of the proposal and subsequently into its development. These key principles are:

- **Communication** Communication must be open, accessible, clearly defined, two-way and appropriate.
- **Transparency** The process and outcomes of community and stakeholder engagement should, wherever possible, be made open and transparent, agreed upon and documented.
- **Collaboration** A co-operative and collaborative approach to seek mutually beneficial outcomes is considered key to effective engagement.
- **Inclusiveness** Inclusiveness involves identifying and involving communities and stakeholders early and throughout the process, in an appropriate manner.
- Integrity Community and stakeholder engagement should establish and foster mutual trust and respect.

6.1 Key stakeholders

Key stakeholders identified in relation to the Proposal by Tassal are summarised in Table 6.1. All these stakeholders have been engaged by Tassal throughout the Proposal planning phase to ensure any key stakeholder concerns have been addressed in a manner approved by all parties.



Table 6.1 Key stakeholders identified and engaged with by Tassal, following the IAPP2 public participation spectrum

Stakeholder	Stakeholder Type	Level of engagement
DWER	State Government	Consult
DPIRD	State Government	Involve
DBCA	State Government	Consult
DPLH	State Government	Consult
DCCEEW	Commonwealth Government	Consult
Kimberley Ports Authority	State Government	Consult
Kimberley Development Commission	State Government	Consult
Shire of Derby-West Kimberley	Local Government	Consult
Shire of Broome	Local Government	Consult
Kimberley Development Commission	Regional Development Corporation	Consult
Bardi Jawi Niimidiman Aboriginal Corporation	Registered Native Title Body Corporate	Consult
Dambimangari (Dambeemangarddee) Aboriginal Corporation	Registered Native Title Body Corporate	Consult
Mayala Inninalang Aboriginal Corporation RNTBC (MIAC)	Registered Native Title Body Corporate	Consult
Nyul Nyul PBC Aboriginal Corporation	Registered Native Title Body Corporate	Consult
Nyamba Buru Yawuru LTD	Registered Native Title Body Corporate	Consult
Ardyaloon Aboriginal Community	Aboriginal Community Organisation	Consult
Djarindjin Aboriginal Community	Aboriginal Community Organisation	Consult
Kimberley Land Council	Aboriginal Representative Organisation	Consult
Environs Kimberley	Environmental Advocacy Group	Inform
PEW Charitable Trust	Environmental Advocacy Group	Inform
Conservation Countil of WA	Environmental Advocacy Group	Inform
Cygnet Bay Pearls	Private Business	Inform
Arrow Pearling Base	Private Business	Consult
Mary Island Fishing Club	Community Group	Inform



Stakeholder	Stakeholder Type	Level of engagement
Broome Chamber of Commerce and Industry	Industry Group	Inform
Derby Chamber of Commerce and Industry	Industry Group	Inform

6.2 Stakeholder engagement process

The project location falls within the Native Title Determination boundaries for the MIAC, and lies adjacent to the Native Title Determination for the Dambimangari Aboriginal Corporation. Tassal has focused on developing a strong relationship with both these groups (amongst others) with the signing of an Indigenous Land Use Agreement (ILUA) with the MIAC. Engagement with representative bodies has been a particular focus for consultation throughout the lifetime of the proposal so far, considering the proximity of areas of cultural significance to some aspects of the proposal and the potential employment benefits to members of local Aboriginal communities.

The general strategy for engagement with the three key stakeholder categories is summarised below:

- Marine Park Consultation Groups: active participation in providing information and input into the design and development of the Buccaneer Marine Parks including open presentations and Q&A sessions with the broader stakeholder reference groups established by DBCA (when the Proposal was managed by MPA prior to Tassal's acquisition of the Proposal)
- Government agencies: discuss requirements and approvals as indicated by government agencies, following relevant legislation (EP Act 2020 for State, EPBC Act for Commonwealth).
- Native Title Groups: consult throughout development and commissioning phase of the project
 - involve Traditional Owners in the project
 - discuss and explore employment opportunities
 - share environmental impact findings
 - understand heritage values and potential impacts to them
 - adjust zoning of development envelope if key values intersect
 - keep native title groups updated with project progress.
- Community and Industry groups: Share project plans and progress and be available to listen to any questions or concerns.

The step-by-step process Tassal followed in engaging with stakeholders involved the following actions:

- Initial video presentation of project overview to key groups;
- Delivery of brochure of project overview for stakeholders reference;
- Face-to-face or online stakeholder meetings;
 - Pre-referral meetings with DWER;
 - Pre-referral meetings with DCCEEW;
 - Attending Aboriginal Prescribed Body Corporate board meetings, as well as organising scope specific meetings with PBCs to discuss the Proposal;
 - Organising on country site visits with representatives from the MIAC; and



- Meetings with TOs, DBCA and DPIRD regarding the proposed marine parks in the Buccaneer Archipelago
- Written communication and distribution of project updates;
- Telephone discussions; and
- Organising tours of the project area

6.3 Stakeholder consultation outcomes

Table 6.2 summarises engagement undertaken and the key outcomes through the consultation. A major outcome of the consultation process with the refinement of the proposed site locations in response to the cultural associations and value particular locations have to the Traditional Owners. A number of sites were moved or relocated entirely to avoid these areas, with the revised locations being generally supported by Traditional Owners through revised consultation. Other key themes which emerged through the consultation include:

- Ensuring ongoing communication as the project progresses through the approvals process
- Emphasising engagement and consultation with Traditional Owners
- Developing opportunities to maximise local employment and business procurement opportunities


Table 6.2 Stakeholder consultation outcomes

Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
DWER	26-05-2020 22-03-2022	Pre-referral meetings	General project summary Application process	The initial meeting identified the technical studies likely required to support Tassal's (then MPA) application for the original Proposal. The follow-up meeting described the results of these technical studies.	DWER recommended several technical studies to be completed to support the proposals application. These included a modelling study, benthic habitat mapping study, and assessment of interactions with marine fauna. DWER recommended some changes to the delivery / analysis conducted in the technical studies prior to final submission. These have been followed within the original document submission.
	June 2022- January 2023	Official letter Email Virtual meetings	Assessment pathway Request for Additional Information	The Proposals likely assessment pathway with the information provided	After initial assessment of the referral, DWER informed Tassal (then MPA) that the Proposal would be assessed by the EPA. Subsequently, to support the assessment, DWER provided a notice Requiring Information for Assessment under Section 40(2)(a) of the EP Act to Tassal (then MPA), dated the 6/10/22. Tassal subsequently engaged with DWER to confirm the type and delivery of the additional information. In consultation with DCCEEW, it was determined that, though the Proposal could not be assessed under the bilateral pathway, the timing of the assessments could be

Stakeholder group	Date	Type of consultation	Topic	Key concern / issue	Outcomes
					aligned as much as possible to assist in keeping it as an efficient process.
	2023-present	Post-referral meetings to discuss revised application, requests for additional information	Revised application post proponent change	Upon acquiring MPA in July 2023, Tassal needed to submit a Section 43a to reflect a new amended Proposal with them as the proponent	After discussions with DWER, DPIRD and DCCEEW, it was confirmed that the nurseries originally included within the Proposal could likely be removed, considering that they could be managed directly by DPIRD under the FRMA.
					Subsequent discussions were held in late 2023 to confirm the passing of the Proposal from MPA to Tassal, as well as the removal of 6 of the 13 sites originally proposed.
					When Tassal became the Proponents of the project, further discussions were had to inform DWER of the change including change in contact details.
					Tassal submitted a Section 43(a) Form to amend the Proposal as noted above. This amendment was accepted on 13 th June 2024.
					Tassal then held a revised referral meeting with DWER to discuss the updated Proposal on the 14/08/2024; and a final pre-lodgement meeting with DWER on the 03/12/2024.
DPIRD	2020-2022	Ministerial meetings	General discussion of the proposal and its feasibility	Tassal (as MPA) have engaged with DPIRD throughout the lifetime of the Proposal to discuss the Proposals feasibility, its major components as well as any assistance	The state government recognises the significance of the Proposal and DPIRD is appreciative of the continued approach.



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
				which DPIRD could provide.	DPIRD provided a series of actions with regards to the Proposal initially, which were followed through by Tassal (then MPA).
	2023-present	Site visits Meetings Email	Revised proposal	Post referral, and the change in Proponent to Tassal, discussions have continued regarding the revised Proposal	After discussions with DWER, DPIRD and DCCEEW, it was confirmed that the nurseries originally included within the Proposal could likely be removed, considering that they could be managed directly by DPIRD under the FRMA. DPIRD will continue to provide guidance as to the Proposal, particularly its application under the FRMA and the provision of an aquaculture licence for approval of the Proposal. Tassal has continuously liaised and engaged with DPIRD regarding the Proposal, particularly elements of the Proposal which have changed since the original submission by MPA. This engagement has been managed via phone calls, face-to-face and online meetings, and email. DPIRD continue to provide Tassal with the requisite regulatory information to assist in the referral of the
DCCEEW	10-08-2020 23-03-2022	Pre-referral meetings Email Virtual meetings	General project summary Assessment pathway	The initial meeting identified the technical studies likely required to support Tassal's (than as MPA) application for the original Proposal.	Similarly to DWER, DCCEEW recommended a number of technical studies/aspects which must be covered off within the technical studies. These included MNES such as the West Kimberley National Heritage Place among others. The technical studies



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
				The follow-up meeting described the results of these technical studies	recommended were similar/same as those recommended by DWER.
	June 2022- January 2023	Email Virtual meetings	Assessment pathway	DCCEEW's assessment decision and how that would align with DWER's assessment.	On 16/08/22, DCCEEW informed Tassal (then MPA) that the Proposal would be assessed following the provision of a Public Environment Report. On 31/10/2022, DCCEEW released the draft PER Guidelines for review. In consultation with DWER, it was determined that, though the Proposal could not be assessed under the bilateral pathway, the timing of the assessments could be aligned as much as possible to aid in efficiency of the assessment.
	2023-present	Email Virtual meetings	Assessment process Revised proposal	Post referral, and the change in Proponent to Tassal, discussions have continued regarding the revised Proposal, including the assessment pathway	After discussions with DWER, DPIRD and DCCEEW, it was confirmed that the nurseries originally included within the Proposal could likely be removed, considering that there were no MNES of relevance for the BTAP facility. An amended variation of the Proposal was accepted by DCCEEW on 05/07/2024 under Section 156a of the EPBC Act.
DBCA	2020-2022	Marine park design workshops Meetings	Proposal intersection with the marine parks in the Buccaneer Archipelago	Consultation centred on the draft zoning for the marine parks and aquaculture and fishing	There were two sites, Irvine Island and Bathurst Island, that were located in areas proposed to be designated as special purpose zones for cultural protection in the



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
				industry use within the marine parks	 (then) future marine park. Traditional Owners expressed concern regarding their location. During the second round of consultation with the DBCA and traditional owners, Tassal (then MPA) were advised that the special purpose zone for cultural protection in Strickland Bay expanded to Edeline Island, in proximity to or covering the proposed Edeline Island North and East sites. The locations of the respective sites have been reassessed, with the removal of Irvine Island, Bathurst Island and Edeline Island East. These sites were replaced with three new sites, Bayliss Island Extra, Conilurus Island Extra and Crocodile Creek Extra and the slight re-arrangement of Edeline Island North to not impinge on the special purpose zone in Strickland Bay.
	June 2022- January 2023	Official review/letters	Draft management plan for the ocean- based sites	Review of the draft management plan, with several comments on the monitoring recommended	DBCA provided several comments on the draft MEMP as required under the FRMA. These comments have subsequently been addressed within this revised EMMP as well as the MEMP (BMT 2024).
	August 2023- Present	Meetings, emails	Tassal acquisition of Proposal, revised Proposal, ongoing engagement with MIAC	Provision of update Proposal information to DBCA including how the Proposal would be limited to the Mayala Marine Park	Tassal presented to DBCA representatives alongside MIAC at the recent MIAC Family roadshows held in July 2024. This included a detailed description of the revised project scope, monitoring and sampling program and methodology, post-approval implementation and growth/staging proposal.



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
					A final pre-lodgement meeting was held with DBCA on the 03/12/2024 to discuss the revised proposal and provide DBCA opportunity to comment. DBCA indicated they will provide formal comment through the referral process.
Kimberley Ports Authority	2020-2022 2023	Meetings	Discussion of sites and their intersection with Port boundaries (current and proposed)	Some of the proposed sites intersected with the Kimberley Port Authority waters in Yampi Sound	Confirmation sites are acceptable and appropriate tenure can be granted for the proposed sites partially located in the proposed Port boundaries. Upon acceptance of the revised proposal, KPA were informed that the proposed sites would no longer intersect with Port boundaries
	2024	Meetings	Revised Proposal and new Proponent	Intersection of Proposal with KPA waters	Tassal held a meeting with KPA on the 9/07/2024 confirming the approved change in Proposal Scope, outlining that the proposed sites no longer intersect with KPA waters. Tassal attended a KPA board meeting on the 25/10/2024 to provide a further Proposal update.
Kimberley Development Commission	2020-2022	Email	Project Briefing and Project Update	Noted	Requested to be informed on project progress.
	2024	Meetings	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal has held several meetings in 2024 with the Kimberley Development Commission regarding the revised Proposal, as well as exploring potential initiatives regarding mortality utilisation and circular economy opportunities



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
Shire of Derby-West Kimberley	2020-2022	Meetings	General project summary	Community consultation, linkages with other significant projects in the region	General support from the Shire, who encouraged ongoing communication which can facilitate broader community consultation as the primary source of information for much of the community
					Encouraged engagement and participation with Traditional Owners
					Noted the importance of other significant projects in the Archipelago such as the Cockatoo Island Multi-user Supply Base
	2024	Meetings	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal held a meeting with the Shire President in May 2024 to discuss the changes to the Proposal.
Shire of Broome	2020-2022	Meetings	General project summary	Employment and housing challenges present in Broome currently which may be exacerbated by the Proposal	General support from the Shire, who like the Shire of Derby-West Kimberley encouraged continued communications to aid in community consultation. Noted that the Proposal may result in cumulative increase on employment and housing demand challenges currently being experienced in Broome.
	2024	Meetings	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal held a meeting with the Shire President in July 2024 to discuss the changes to the Proposal.
Bardi Jawi Niimidiman Aboriginal Corporation	2020-2023	Marine park design workshops	General project summary, particularly focused on proposed Ardyaloon nursery via	The siting of the Ardyaloon nursery and the potential interactions with the local community	The Corporation noted that Tassal (then MPA) would need to approach the council to present the final nursery siting plan for the Ardyaloon nursery once complete.



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
		Board meetings	marine park design workshops and board meetings		Discussed the potential for employment and training opportunities where Traditional Owners are able to work and live on country
	November 2023-present	Emails Virtual meetings	Revised Proposal and new Proponent	Discussion of the revised Proposal, noting the proposed removal of the Ardyaloon nursery	Bardi Jawi were informed by Tassal of the plans to remove the Ardyaloon nursery from the Proposal. However, reaffirmed that Bardi Jawi remain regional stakeholders and as such any opportunities for future projects should be explored. MIAC have further met with Bardi Jawi to express their support for the Proposal, and to hear of any concerns from Bardi Jawi.
Dambimangari (Dambeemangarddee) Aboriginal Corporation	19-10-2021 2022-2023	Marine park design workshops Board meetings Email	Consultation and information sharing for 13 ocean-based aquaculture sites (5 sites are located in Dambimangari non- exclusive native title).	The siting of the proposed sites and any interactions with Traditional Owner activities.	The Corporation noted the final preferred changes to the siting of the proposed sites and had no objections. Sought clarification on freedom of navigation within the sites, where Tassal advised that access to any areas within the proposed sites will not be hindered. Noted that the Corporation is seeking to increase the number of permanent and visiting destinations on Country including Yalloon, Silvergull Creek, Coppermine Creek and Koolan Island. Opportunities for employment in the expanded operations and enhanced cooperation between Tassal and the Corporation could enable more people to more regularly return to or permanently reside on Country.



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Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
					Ongoing engagement in the Proposal and continuous consultation through the approvals process was encouraged, including on cultural associations, employment and economic opportunities.
	November 2023 – August 2024	Emails Virtual meetings	Revised Proposal and new Proponent	Discussion of the revised Proposal, noting the proposed removal of the sites within Dambimangari Native Title Determination, and subsequently the ending of the move towards a negotiation protocol, ILUA, heritage agreement at this time.	Dambimangari were informed by Tassal of the plans to remove those sites which lay within Dambimangari Native Title Determination from the Proposal. However, Tassal reaffirmed that Dambimangari remain regional stakeholders and as such any opportunities for future projects should be explored. Tassal further provided invitation to attend surveys on country, as well as an invite to visit operations of other Tassal facilities in Tasmania/Queensland. DAC confirmed that they would still like to visit Tassal operations elsewhere and participate in surveys on country. MIAC have further met with DAC to discuss the Proposal (23/08/24), and to hear of any concerns from DAC. As a result of that meeting, DAC have requested a negotiation workshop with Tassal and the opportunity to engage the advice of MIAC's independent environmental consultant.
	August 2024 - present	Face-to-face meetings	DAC engagement within Proposal	Discussion with DAC regarding the potential for	Tassal attended the DAC board meetings on the 23/10/2024 and 04/12/2024.



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
				their engagement with the Proposal.	Tassal proposed several initiatives to address DAC concerns including a visit for the DAC Board to Tasmania to inspect salmon operations, an ongoing contract with the DAC Rangers to assist with shoreline clean-ups, and ongoing information sharing regarding monitoring and management starting with a workshop to review and understand the EMMP provisions for maintaining marine environmental quality particularly in the sanctuary and special purpose zones of the marine park.
Mayala Inninalang Aboriginal Corporation RNTBC (MIAC)	2020-2022	Marine park design workshops Meetings	Proposal intersection with the marine parks in the Buccaneer Archipelago (with reference to Mayala Sea Country)	Consultation centred on the draft zoning for the marine parks and aquaculture and fishing industry use within the marine parks	There were two sites, Irvine Island and Bathurst Island, that were located in areas proposed to be designated as special purpose zones for cultural protection in the (then) future marine park. Traditional Owners expressed concern regarding their location. During the second round of consultation with the DBCA and traditional owners, Tassal (then MPA) were advised that the special purpose zone for cultural protection in Strickland Bay expanded to Edeline Island, in proximity to or covering the proposed Edeline Island North and East sites. The locations of the respective sites have been reassessed, with the removal of Irvine Island, Bathurst Island and Edeline Island East. These sites were replaced with three new sites, Bayliss Island Extra, Conilurus Island Extra and Crocodile Creek Extra and



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
					the slight re-arrangement of Edeline Island North to not impinge on the special purpose zone in Strickland Bay.
	12-05-2021 19-08-2021 Ongoing consultation in 2022	Marine park design workshops Board meetings Email	Consultation and information sharing for 13 ocean-based aquaculture sites (8 sites fall within Mayala Sea Country).	During the first consultation it was not clear to the MIAC what the size and layout of the sites would be. MIAC sought further information on the size and layout of the sites	The information, such as an example farm layout and size including rough pen designs to give an idea of what it would look like when a site is in production has been shared. The Corporation noted the final preferred changes to the proposed sites with no objections raised. The Corporation noted the importance of maintaining communication on the referral and approvals process including notification on public consultation period. Encouraged Tassal to seek opportunities to progress social, economic and employment outcomes.
	November 2023	Emails Virtual meetings	Revised Proposal and new Proponent	Discussion of the revised Proposal, noting the remaining sites are all still within Mayala Native Title, and hence negotiations are necessary	Tassal informed Mayala of the change in proponent from MPA to Tassal; while confirming that the revised proposal would still remain within Mayala Native Title and hence there would be a need to finalise negotiations
	Ongoing consultation in 2024-2025	Emails Virtual and face- to-face meetings	Heritage agreements, ILUAs, negotiation protocols, on site surveys	Organisation of the requisite heritage agreements and negotiation protocols with a move towards an ILUA,	Tassal has finalised a negotiation protocol with Mayala Inninalang Aboriginal Corporation RNTBC, as of November 2023, and Heritage Agreement as of March 2024.



Stakeholder group	Date	Type of consultation	Topic Key concern / issue		Outcomes
		On country site visits		including requirement for on country site surveys	On country surveys were carried out in May 2024.
					An environmental workshop was conducted alongside MIAC on the 1-3/07/2024.
					Family meetings with MIAC were conducted post the environmental workshop.
					Scheduled meeting to for negotiation of the ILUA to be held on 6/09/24. Aim to reach agreement on Drafting for an October Annual General Meeting and Authorisation Meeting.
					ILUA has been authorised by the MIAC as of the 20/11/2024. ILUA has been submitted for registration with the Native Title Tribunal as of February 2025.
Nyul Nyul PBC	2020	Board meeting	General project summary	Awareness of the cultural significance associated with barramundi and naming	The Corporation noted there is a lack of knowledge/awareness surrounding cultural significance associated with barramundi and the naming of such.
Ardyaloon Aboriginal 2020-2022 Meetings General pr Community Emails Lease neg for the nur Ardyaloon		General project summary Lease negotiations for the nursery at Ardyaloon	Siting and arrangements surrounding the Ardyaloon nursery	The Ardyaloon Council and Community are supportive of the proposal to construct a nursery facility in the community and wish to progress with construction. Noted the potential to establish a site on land located within the community's aquaculture zone already present. Lease discussions will continue to progress as the project moves through the approvals process.	
	2024	Meetings	Revised Proposal and new Proponent	Discussion of the revised Proposal, noting the	Tassal informed Ardyaloon of the change in proponent from MPA to Tassal; while



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
				nurseries were removed from the Proposal, and hence the negotiations were no longer necessary for operations at Ardyaloon.	 confirming that the revised proposal would no longer contain the nursery at Ardyaloon. However, reaffirmed that Ardyaloon remain regional stakeholders and as such any opportunities for future projects should be explored. Tassal regularly hold meetings with the CEO of the Ardyaloon community regarding project updates.
Djarindjin Aboriginal Community	2022	Meeting Email	General project summary	Employment opportunities	The Djarindjin Community noted they are supportive of the Proposal and encourage further engagement on employment and business opportunities
Environs Kimberley	2022	Phone conversations Email	General project summary, with a particular focus on environmental outcomes	Results of the environmental technical studies	Noted the results of the technical studies, and that these will be considered through the EPA referral process. Requested that ongoing communication/consultation occur, and that transparency is given regarding the Proposal Encouraged consultation with Traditional Owners
PEW Charitable Trust	2022	Phone conversations Email	General project summary, with a particular focus on environmental outcomes	Results of the environmental technical studies	Noted that the results of the technical studies will be considered through the formal referral process. Encouraged engagement with Traditional Owners



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
Conservation Council of WA	2022	Phone conversations Email	General project summary, with a particular focus on environmental outcomes	Results of the environmental technical studies	Noted that the results of the technical studies will be considered through the formal referral process. Encouraged engagement with Traditional Owners
Cygnet Bay Pearls	2020-2022	Meetings Email Phone conversations	General project summary	Noted	Generally supportive of the Proposal
	2024	Meetings Email Phone conversations	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal have held regular meetings with Cygnet Bay Pearls regarding details on the revised Proposal. Cygnet Bay Pearls have reiterated they are supportive of the Proposal.
Maxima Pearls	2024	Meetings Email Phone conversations	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal have informed Maxima Pearls on the revised Proposal and new Proponent.
Kimberley Land Council	2022	Meetings Phone conversations	General project summary Engagement regarding Native Title Representative support	Effective engagement with Traditional Owners	Encourage ongoing engagement and transparency with Traditional Owners and opportunities to strengthen relationships and partnerships.
	2024	Meetings Phone conversations	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal have engaged with KLC to discuss the changes to the Proposal and particularly it's



Stakeholder group	Date	Type of consultation	Topic	Key concern / issue	Outcomes
					reduction such that it remains only within MIAC Native Title. KLC have also been provided the opportunity to comment on the MIAC ILUA.
Arrow Pearling Base	2020-2022	Meetings Email Phone conversations	General project summary, siting of the proposed nursery adjacent to the Arrow Pearling Base	Siting of the nursery adjacent to the Arrow Pearling Base	Supportive of the Proposal. A lease agreement for the proposed nursery has been executed.
	2024	Meetings	General project update	Discussion of the revised Proposal, noting the nurseries were removed from the Proposal, and hence the negotiations were no longer necessary for operations at Arrow Pearling.	Tassal informed Arrow Pearling of the change in proponent from MPA to Tassal; while confirming that the revised proposal would no longer contain the nursery at Arrow Pearling.
Mary Island Fishing Club	2020-2022	Informal meetings Phone conversation	General project summary	Location of the sites	Encouraged ongoing engagement with the Club and requested a meeting with the Club committee.
	2024	Informal meetings Phone conversation	Revised Proposal and new Proponent	Revised Proposal Development Opportunities	Tassal have briefed the President of the Mary Island Fishing Club on the revised Proposal. The Club have requested Tassal attend a committee meeting to provide further updates. Tassal are awaiting a proposed date for attendance



Stakeholder group	Date	Type of consultation	Торіс	Key concern / issue	Outcomes
Broome Chamber of Commerce and Industry	2022	Phone conversation Emails	General project summary	Nil	Supportive of the Proposal. Encouraged ongoing engagement with the business community regarding procurement opportunities
	2024	Phone conversation Emails	Tassal acquisition of Proposal, revised Proposal	Revised Proposal Development Opportunities	Tassal have held several discussions with the Chamber of Commerce to discuss the revised Proposal, as well as planning for a Chamber networking function to be held on Tassal premises.
Derby Chamber of Commerce and Industry	2022	Phone conversation Emails	General project summary	Nil	Supportive of the Proposal. Encouraged ongoing engagement with the business community regarding procurement opportunities
	2024	Phone conversation Emails	Tassal acquisition of Proposal, revised Proposal	Revised Proposal Development Opportunities	Tassal have held several discussions with the Chamber of Commerce to discuss the revised Proposal, as well as planning for a Chamber networking function to be held on Tassal premises.



6.4 Ongoing consultation

Tassal is committed to ongoing consultation with relevant stakeholders including Traditional Owners, DBCA, other government agencies, local communities, interested parties and organisations throughout the progression and implementation of the Proposal. Tassal has developed a plan for ongoing engagement and communication moving forward (Table 6.3). In summary the following ongoing consultation will be undertaken during the approvals and operations:

- Regular updates and briefings to relevant Native Title Groups
- Continue to liaise with relevant state and local government authorities
- Notify key stakeholders of any public consultation associated with the Proposal approvals, commencement, and completion of operations

Table 6.3 Summary of ongoing consultation to be undertaken throughout the lifetime of the Proposal

Stakeholder Group	Objective	Method	Timeframe
MIAC	Ensure on-going consultation with MIAC inline with the ILUA Ensure all concerns are identified and addressed during the environmental approvals process	Meetings Briefings Notifications of any public consultation associated with the Proposal	Move to ongoing consultation and negotiation following the signed ILUA.
Traditional Owners	To ensure on-going consultation with Native Title groups are in place in accordance with legislative requirements All concerns are identified and addressed during the environmental approvals process	Meetings Briefings Notifications of any public consultation associated with the Proposal	Regular update – progress on environmental approval process Project preparation, operations and completion notifications under relevant legislative requirements. Further engagement under MOU agreements where appropriate or as required
State and Local Government Agencies	To ensure consistent periodic communication with State and Local Government.	Meetings, Briefings Notifications	Periodic update - progress on environmental approval process. Notification of commencement (start date) of the Project activities - two weeks prior to the first mobilisation to the site. Notification within two weeks of the demobilisation from site. Periodic update - results and plan forward.
Community and Industry Groups,	To ensure the local community is informed	Meetings	Periodic update - progress on environmental approval process is



Stakeholder Group	Objective	Method	Timeframe
Aboriginal Communities, Environmental Advocacy Organisations and	on the project activities.	Presentations Notifications	reported on the Proponent's website to ensure transparency for all stakeholders including regional communities.



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Annex A Monitoring Location Waypoints



Table A.1. Monitoring Location waypoints

Location	Туре	SRS	Easting	Northing	Longitude – DMS	Latitude – DMS
Bayliss Island Coral Control	Coral	UTM51_GDA94	551655	8206805	123° 28' 59.95" E	16° 13' 7.55" S
Bayliss Island Coral Impact	Coral	UTM51_GDA94	553930.9	8204026	123° 30' 16.84" E	16° 14' 37.82" S
Bayliss Island Extra Coral Impact	Coral	UTM51_GDA94	554992.6	8203577	123° 30' 52.65" E	16° 14' 52.33" S
Dorothy Island Coral Control	Coral	UTM51_GDA94	554238.7	8214230	123° 30' 26.36" E	16° 9' 5.71" S
Dorothy Island Coral Impact	Coral	UTM51_GDA94	557010	8214324	123° 31' 59.67" E	16° 9' 2.43" S
Edeline Island North Coral Impact	Coral	UTM51_GDA94	560551.3	8194224	123° 34' 0.78" E	16° 19' 56.24" S
Edeline Island North Coral Impact	Coral	UTM51_GDA94	562723.6	8191893	123° 35' 14.22" E	16° 21' 11.89" S
Edeline Island South Coral Impact	Coral	UTM51_GDA94	562683.2	8190508	123° 35' 12.99" E	16° 21' 56.98" S
Razor Island Coral Control	Coral	UTM51_GDA94	557176.4	8181871	123° 32' 8.14" E	16° 26' 38.55" S
Razor Island Coral Impact	Coral	UTM51_GDA94	559414.9	8181240	123° 33' 23.68" E	16° 26' 58.86" S
Strickland Bay Coral Control 1	Coral	UTM51_GDA94	559616.3	8192732	123° 33' 29.41" E	16° 20' 44.88" S
Strickland Bay Coral Control 2	Coral	UTM51_GDA94	558568.6	8194645	123° 32' 53.92" E	16° 19' 42.72" S
Aveling Island Pearl 1	Pearl oyster	UTM51_GDA94	564091.5	8193880	123° 36' 0.12" E	16° 20' 7.11" S
Aveling Island Pearl 2	Pearl oyster	UTM51_GDA94	564927.3	8192737	123° 36' 28.41" E	16° 20' 44.22" S
Aveling Island Pearl 3	Pearl oyster	UTM51_GDA94	566204.8	8191757	123° 37' 11.56" E	16° 21' 15.98" S
Aveling Island Pearl Reference 1	Pearl oyster	UTM51_GDA94	564986	8194698	123° 36' 30.19" E	16° 19' 40.38" S
Aveling Island Pearl Reference 2	Pearl oyster	UTM51_GDA94	565966.9	8193771	123° 37' 3.34" E	16° 20' 10.45" S
Aveling Island Pearl Reference 3	Pearl oyster	UTM51_GDA94	567099.3	8192576	123° 37' 41.63" E	16° 20' 49.26" S
MaxEPA Cone Bay	MaxEPA	UTM51_GDA94	562272.4	8174271	123° 35' 0.72" E	16° 30' 45.41" S
MaxEPA Strickland Bay 1	MaxEPA	UTM51_GDA94	565587.1	8195175	123° 36' 50.40" E	16° 19' 24.81" S
MaxEPA Strickland Bay 2	MaxEPA	UTM51_GDA94	568676.9	8192610	123° 38' 34.80" E	16° 20' 47.97" S
MaxEPA Strickland Bay 3	MaxEPA	UTM51_GDA94	566413.2	8185859	123° 37' 19.20" E	16° 24' 27.90" S
MaxEPA Bayliss Islands	MaxEPA	UTM51_GDA94	556863.5	8202120	123° 31' 55.80" E	16° 15' 39.59" S
Bayliss Island Extra HEPA DC 1	HEPA / MEPA	UTM51_GDA94	555857.2	8203874	123° 31' 21.75" E	16° 14' 42.60" S
Bayliss Island Extra HEPA DC 2	HEPA / MEPA	UTM51_GDA94	555568.4	8203955	123° 31' 12.01" E	16° 14' 39.98" S
Bayliss Island Extra HEPA UC 1	HEPA / MEPA	UTM51_GDA94	554452.1	8204299	123° 30' 34.38" E	16° 14' 28.88" S
Bayliss Island Extra MEPA DC 0m	HEPA / MEPA	UTM51_GDA94	555183.6	8204061	123° 30' 59.04" E	16° 14' 36.57" S
Bayliss Island Extra MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	555279.8	8204034	123° 31' 2.28" E	16° 14' 37.44" S
Bayliss Island Extra MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	555375.9	8204006	123° 31' 5.52" E	16° 14' 38.33" S
Bayliss Island Extra MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	555232.3	8204049	123° 31' 0.68" E	16° 14' 36.95" S
Bayliss Island Extra MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	555088.7	8204093	123° 30' 55.84" E	16° 14' 35.55" S
Bayliss Island Extra MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	554994.0	8204125	123° 30' 52.64" E	16° 14' 34.51" S



Location	Туре	SRS	Easting	Northing	Longitude – DMS	Latitude – DMS
Bayliss Island Extra MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	555160.2	8204070	123° 30' 58.25" E	16° 14' 36.28" S
Bayliss Island Extra MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	555136.5	8204078	123° 30' 57.45" E	16° 14' 36.02" S
Bayliss Island Extra MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	555857.2	8203874	123° 31' 21.75" E	16° 14' 42.60" S
Bayliss Island HEPA DC 1	HEPA / MEPA	UTM51_GDA94	553952.7	8204160	123° 30' 17.56" E	16° 14' 33.45" S
Bayliss Island HEPA UC 1	HEPA / MEPA	UTM51_GDA94	552946.9	8204978	123° 29' 43.61" E	16° 14' 6.92" S
Bayliss Island HEPA UC 2	HEPA / MEPA	UTM51_GDA94	552740.6	8205197	123° 29' 36.65" E	16° 13' 59.80" S
Bayliss Island MEPA 0m	HEPA / MEPA	UTM51_GDA94	553415	8204570	123° 29' 59.42" E	16° 14' 20.15" S
Bayliss Island MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	553495.1	8204510	123° 30' 2.12" E	16° 14' 22.09" S
Bayliss Island MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	553575.1	8204450	123° 30' 4.82" E	16° 14' 24.04" S
Bayliss Island MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	553435.8	8204556	123° 30' 0.12" E	16° 14' 20.60" S
Bayliss Island MEPA DC 400m	HEPA / MEPA	UTM51_GDA94	553730.9	8204323	123° 30' 10.08" E	16° 14' 28.16" S
Bayliss Island MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	553456.3	8204542	123° 30' 0.81" E	16° 14' 21.07" S
Bayliss Island MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	553337.7	8204634	123° 29' 56.81" E	16° 14' 18.09" S
Bayliss Island MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	553260.7	8204697	123° 29' 54.21" E	16° 14' 16.02" S
Bayliss Island MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	553396.3	8204587	123° 29' 58.79" E	16° 14' 19.61" S
Bayliss Island MEPA UC 400m	HEPA / MEPA	UTM51_GDA94	553116.1	8204824	123° 29' 49.33" E	16° 14' 11.91" S
Bayliss Island MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	553377.1	8204603	123° 29' 58.14" E	16° 14' 19.09" S
Cecelia Island MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	560963.9	8194486	123° 34' 14.66" E	16° 19' 47.67" S
Cecelia Island MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	560897.7	8194561	123° 34' 12.42" E	16° 19' 45.24" S
Cecelia Island North HEPA DC 1	HEPA / MEPA	UTM51_GDA94	561501.9	8193877	123° 34' 32.85" E	16° 20' 7.45" S
Cecelia Island North HEPA DC 2	HEPA / MEPA	UTM51_GDA94	561300.1	8194103	123° 34' 26.03" E	16° 20' 0.10" S
Cecelia Island North HEPA UC 1	HEPA / MEPA	UTM51_GDA94	560569.2	8194953	123° 34' 1.32" E	16° 19' 32.52" S
Cecelia Island North HEPA UC 2	HEPA / MEPA	UTM51_GDA94	560382.6	8195188	123° 33' 55.00" E	16° 19' 24.89" S
Cecelia Island North MEPA 0m	HEPA / MEPA	UTM51_GDA94	560928.7	8194522	123° 34' 13.47" E	16° 19' 46.51" S
Cecelia Island North MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	560996.1	8194448	123° 34' 15.75" E	16° 19' 48.91" S
Cecelia Island North MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	561063.1	8194374	123° 34' 18.01" E	16° 19' 51.32" S
Cecelia Island North MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	560946.5	8194504	123° 34' 14.07" E	16° 19' 47.09" S
Cecelia Island North MEPA DC 400m	HEPA / MEPA	UTM51_GDA94	561191.9	8194219	123° 34' 22.37" E	16° 19' 56.34" S
Cecelia Island North MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	560864.9	8194599	123° 34' 11.31" E	16° 19' 44.01" S
Cecelia Island North MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	560801.4	8194676	123° 34' 9.17" E	16° 19' 41.51" S
Cecelia Island North MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	560913.6	8194542	123° 34' 12.96" E	16° 19' 45.87" S
Cecelia Island North MEPA UC 400m	HEPA / MEPA	UTM51_GDA94	560683.6	8194828	123° 34' 5.18" E	16° 19' 36.57" S
Dorothy Island HEPA DC 1	HEPA / MEPA	UTM51_GDA94	557935.6	8213922	123° 32' 30.87" E	16° 9' 15.44" S

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Location	Туре	SRS	Easting	Northing	Longitude – DMS	Latitude – DMS
Dorothy Island HEPA DC 2	HEPA / MEPA	UTM51_GDA94	557723	8214135	123° 32' 23.69" E	16° 9' 8.53" S
Dorothy Island HEPA UC 1	HEPA / MEPA	UTM51_GDA94	556847	8215042	123° 31' 54.11" E	16° 8' 39.07" S
Dorothy Island HEPA UC 2	HEPA / MEPA	UTM51_GDA94	556635.4	8215254	123° 31' 46.97" E	16° 8' 32.20" S
Dorothy Island MEPA 0m	HEPA / MEPA	UTM51_GDA94	557275.5	8214593	123° 32' 8.58" E	16° 8' 53.66" S
Dorothy Island MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	557347.1	8214523	123° 32' 11.00" E	16° 8' 55.93" S
Dorothy Island MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	557418.4	8214453	123° 32' 13.41" E	16° 8' 58.21" S
Dorothy Island MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	557294.3	8214576	123° 32' 9.22" E	16° 8' 54.20" S
Dorothy Island MEPA DC 400m	HEPA / MEPA	UTM51_GDA94	557556.1	8214306	123° 32' 18.06" E	16° 9' 2.97" S
Dorothy Island MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	557312.7	8214559	123° 32' 9.84" E	16° 8' 54.75" S
Dorothy Island MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	557207.2	8214666	123° 32' 6.28" E	16° 8' 51.29" S
Dorothy Island MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	557139.3	8214739	123° 32' 3.98" E	16° 8' 48.91" S
Dorothy Island MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	557259.2	8214612	123° 32' 8.03" E	16° 8' 53.05" S
Dorothy Island MEPA UC 400m	HEPA / MEPA	UTM51_GDA94	557012.7	8214884	123° 31' 59.71" E	16° 8' 44.22" S
Dorothy Island MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	557242.2	8214630	123° 32' 7.46" E	16° 8' 52.45" S
Edeline Island North HEPA DC 1	HEPA / MEPA	UTM51_GDA94	563487.6	8192053	123° 35' 39.95" E	16° 21' 6.60" S
Edeline Island North HEPA DC 2	HEPA / MEPA	UTM51_GDA94	563708.3	8191907	123° 35' 47.40" E	16° 21' 11.35" S
Edeline Island North HEPA UC 1	HEPA / MEPA	UTM51_GDA94	562758.1	8192585	123° 35' 15.31" E	16° 20' 49.38" S
Edeline Island North HEPA UC 2	HEPA / MEPA	UTM51_GDA94	562982.9	8192411	123° 35' 22.91" E	16° 20' 55.01" S
Edeline Island North MEPA 0m	HEPA / MEPA	UTM51_GDA94	563197.2	8192255	123° 35' 30.14" E	16° 21' 0.06" S
Edeline Island North MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	563278.7	8192196	123° 35' 32.90" E	16° 21' 1.98" S
Edeline Island North MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	563362.1	8192139	123° 35' 35.71" E	16° 21' 3.81" S
Edeline Island North MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	563218.5	8192240	123° 35' 30.86" E	16° 21' 0.54" S
Edeline Island North MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	563238.8	8192225	123° 35' 31.55" E	16° 21' 1.04" S
Edeline Island North MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	563114.1	8192312	123° 35' 27.34" E	16° 20' 58.23" S
Edeline Island North MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	563033.1	8192369	123° 35' 24.60" E	16° 20' 56.38" S
Edeline Island North MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	563176.0	8192269	123° 35' 29.43" E	16° 20' 59.62" S
Edeline Island North MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	563155.3	8192283	123° 35' 28.73" E	16° 20' 59.16" S
Edeline Island South HEPA DC 2	HEPA / MEPA	UTM51_GDA94	562718.4	8189231	123° 35' 14.30" E	16° 22' 38.52" S
Edeline Island South HEPA DC 2	HEPA / MEPA	UTM51_GDA94	562962.1	8189062	123° 35' 22.53" E	16° 22' 43.99" S
Edeline Island South HEPA UC 1	HEPA / MEPA	UTM51_GDA94	560925.3	8190475	123° 34' 13.74" E	16° 21' 58.20" S
Edeline Island South HEPA UC 2	HEPA / MEPA	UTM51_GDA94	560708.2	8190646	123° 34' 6.40" E	16° 21' 52.65" S
Edeline Island South MEPA 0m	HEPA / MEPA	UTM51_GDA94	561703.1	8189900	123° 34' 40.01" E	16° 22' 16.84" S
Edeline Island South MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	561787.9	8189847	123° 34' 42.87" E	16° 22' 18.56" S



Location	Туре	SRS	Easting	Northing	Longitude – DMS	Latitude – DMS
Edeline Island South MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	561872.5	8189794	123° 34' 45.73" E	16° 22' 20.29" S
Edeline Island South MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	561725	8189888	123° 34' 40.75" E	16° 22' 17.24" S
Edeline Island South MEPA DC 400m	HEPA / MEPA	UTM51_GDA94	562038.2	8189680	123° 34' 51.33" E	16° 22' 23.98" S
Edeline Island South MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	561746.6	8189875	123° 34' 41.48" E	16° 22' 17.65" S
Edeline Island South MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	561620.9	8189957	123° 34' 37.23" E	16° 22' 15.00" S
Edeline Island South MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	561538.9	8190014	123° 34' 34.46" E	16° 22' 13.14" S
Edeline Island South MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	561683.2	8189915	123° 34' 39.34" E	16° 22' 16.35" S
Edeline Island South MEPA UC 400m	HEPA / MEPA	UTM51_GDA94	561384.4	8190129	123° 34' 29.25" E	16° 22' 9.43" S
Edeline Island South MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	561662.6	8189929	123° 34' 38.64" E	16° 22' 15.89" S
Razor Island HEPA DC 1	HEPA / MEPA	UTM51_GDA94	560056.6	8181408	123° 33' 45.30" E	16° 26' 53.36" S
Razor Island HEPA DC 2	HEPA / MEPA	UTM51_GDA94	560360.4	8181339	123° 33' 55.55" E	16° 26' 55.57" S
Razor Island HEPA UC 1	HEPA / MEPA	UTM51_GDA94	558911.9	8181746	123° 33' 6.67" E	16° 26' 42.44" S
Razor Island HEPA UC 2	HEPA / MEPA	UTM51_GDA94	559202.5	8181656	123° 33' 16.48" E	16° 26' 45.35" S
Razor Island MEPA 0m	HEPA / MEPA	UTM51_GDA94	559605.1	8181532	123° 33' 30.07" E	16° 26' 49.36" S
Razor Island MEPA DC 100m	HEPA / MEPA	UTM51_GDA94	559702.3	8181508	123° 33' 33.35" E	16° 26' 50.11" S
Razor Island MEPA DC 200m	HEPA / MEPA	UTM51_GDA94	559799.5	8181485	123° 33' 36.63" E	16° 26' 50.87" S
Razor Island MEPA DC 25m	HEPA / MEPA	UTM51_GDA94	559629.7	8181527	123° 33' 30.90" E	16° 26' 49.51" S
Razor Island MEPA DC 50m	HEPA / MEPA	UTM51_GDA94	559654.2	8181522	123° 33' 31.72" E	16° 26' 49.67" S
Razor Island MEPA UC 100m	HEPA / MEPA	UTM51_GDA94	559509	8181559	123° 33' 26.82" E	16° 26' 48.47" S
Razor Island MEPA UC 200m	HEPA / MEPA	UTM51_GDA94	559413	8181587	123° 33' 23.58" E	16° 26' 47.57" S
Razor Island MEPA UC 25m	HEPA / MEPA	UTM51_GDA94	559581.3	8181540	123° 33' 29.26" E	16° 26' 49.11" S
Razor Island MEPA UC 50m	HEPA / MEPA	UTM51_GDA94	559557.3	8181547	123° 33' 28.45" E	16° 26' 48.88" S
Razor Island Reference 1	Reference	UTM51_GDA94	559498.1	8179584	123° 33' 26.64" E	16° 27' 52.74" S
Razor Island Reference 2	Reference	UTM51_GDA94	556498	8182058	123° 31' 45.24" E	16° 26' 32.52" S
Strickland Bay Reference 1	Reference	UTM51_GDA94	559959.9	8190688	123° 33' 41.18" E	16° 21' 51.37" S
Strickland Bay Reference 2	Reference	UTM51_GDA94	561976	8193148	123° 34' 48.90" E	16° 20' 31.11" S
Strickland Bay Reference 3	Reference	UTM51_GDA94	559937.4	8195639	123° 33' 39.96" E	16° 19' 10.24" S
Bayliss Islands Reference 1	Reference	UTM51_GDA94	555239.3	8204944	123° 31' 0.84" E	16° 14' 7.84" S
Bayliss Islands Reference 2	Reference	UTM51_GDA94	552624.1	8205715	123° 29' 32.68" E	16° 13' 42.95" S
Bayliss Islands Reference 3	Reference	UTM51_GDA94	556915.7	8203301	123° 31' 57.45" E	16° 15' 1.16" S
Dorothy Island Reference 1	Reference	UTM51_GDA94	556330.4	8215903	123° 31' 36.65" E	16° 8' 11.09" S
Dorothy Island Reference 2	Reference	UTM51_GDA94	558076.6	8215533	123° 32' 35.47" E	16° 8' 23.00" S

-	Environmental	Monitoring	and	Management Plan

Ocean Barramundi Expansion Project - Environmental Monitoring and Management Plan





BMT is a leading design, engineering, science and management consultancy with a reputation for engineering excellence. We are driven by a belief that things can always be better, safer, faster and more efficient. BMT is an independent organisation held in trust for its employees.



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