ATTACHMENT 5: STAKEHOLDER CONSULTATION OUTCOMES REGISTER

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
18/04/2023 01/06/2023	**DCCEEW** Email correspondence via 'Sea Dumping Inbox'	Clarify requirements for surveys.	Seeking advice regarding survey requirements.	DCCEEW requested a meeting.
02/11/2023	**DCCEEW (Sea Dumping Branch)** Meeting	Discussion of proposed sea dumping before submitting sea dumping permit application	• Proposed sea dumping at existing Spoil Ground E near Barrow Island, forecast timeframes and dredge footprint/disposal locations. • DCCEEW suggested this needs to align with the referral of the Optimised Mardie Project (EPBC 2022/9169) (which states land disposal of dredge spoil) and confirm its dredging strategy.	DCCEEW emphasised that Mardie Minerals needs to provide evidence of adequate stakeholder consultation, e.g. Port of Ashburton TACC (and possibly Community Consultation Committee).
02/05/2024	**DCCEEW (Assessments West)** Email correspondence	Initial comments on approvals required (Sea Dumping Permit) and potential impacts on MNES which will require separate referral of the activity under the EPBC Act.	• To dump controlled materials within waters regulated by the Sea Dumping Act, Mardie Minerals must apply for a permit. • If the offshore disposal has the potential to have significant impacts to MNES, Mardie Minerals will need to refer the activity separately under the EPBC Act. As previously flagged, offshore disposal was not part of the approval of the Mardie Project (EPBC 2018/8236), nor included in the Optimised Mardie Project (under assessment at the date of consultation) (EPBC 2022/9169). Options to consider may include: o submitting a variation request to the current assessment. The Minister must make a decision on whether to accept the variation request within 20 business days of receipt. When making this decision, consideration is given to whether the action as varied retains the same character as originally proposed, whether the impacts on MNES	• Noted. Mardie Minerals will submit an application for a Sea Dumping Permit to DCCEEW for assessment. • Noted. Mardie Minerals has considered its options, and given that EPBC 2022/9169 was granted on 9 September 2024, now submit this new referral for the proposed offshore disposal to DCCEEW.

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			are the same or less than as originally referred, and whether the proposed change can be accommodated within the assessment process given we are at the end stages of the assessment process. Post the 20-day timeframe, if the variation is accepted our team would need to assess the potential impacts of the action on MNES to include with the Approved Proposal assessment decision. o Alternatively, Mardie Minerals could consider submitting a new referral for the offshore disposal.	
03/05/2024	**DCCEEW (Sea Dumping Branch)** Meeting	Initial meeting to introduce proposal for offshore disposal at Spoil Ground E.	• Mardie Minerals presented its proposal to dispose of dredge spoil to an existing spoil ground, Spoil Ground E which is approximately 70 NM from the Approved Proposal in Commonwealth waters. • Stakeholder consultation required to support and inform the application for a sea dumping permit. • DCCEEW sought clarification from Mardie Minerals why a change from land disposal, as per referral of the Optimised Mardie Project (EPBC 2022/9169), to sea disposal is being proposed, after Mardie Minerals advised in December 2023 that it no longer proposed sea dumping. • DCCEEW sought clarification if a sediment sampling and analysis plan (SAP) for Spoil Ground E was provided to DCCEEW by Mardie Minerals. • DCCEEW sought clarification if the SAP is based on the National assessment guidelines for dredging.	• DCCEEW strongly recommends Mardie Minerals completes stakeholder engagement prior to submission of the application for a sea dumping permit. • Mardie Minerals advised that following engagement with dredging contractors, it was found that onshore disposal would be technically challenging, due to the shallow water depths inshore and the associated long slurry pumping distance. None of the dredging contractors approached to tender for the dredging works were supportive of the proposed onshore disposal approach. • Mardie Minerals has not provided a SAP to DCCEEW. Mardie Minerals decided that a sediment SAP was not required based on the extensive sediment studies that had already been completed (dredge footprint and proposed Spoil Ground E). Mardie Minerals' consultant put together a Mardie Sediment Quality Assessment to demonstrate the studies already undertaken, and the plan is to attach this to the sea dumping permit application. In the event the proposed spoil ground location changes, then additional sediment studies would be required in the new area. • In assessing a permit application under the Sea Dumping Act, the Determining Authority must also consider advice from the Commonwealth Environment Minister, if the action is likely to have a significant impact on the environment,

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				including an impact within state or territory waters. In practice, an EPBC Act assessment is usually required for such actions, and the granting of a sea dumping permit is based on that assessment and any recommendations following from it. Where assessment is required under both the Sea Dumping Act and the EPBC Act, the assessment processes will be coordinated as much as possible.
24/05/2024	**TACC** Meeting	High-level introduction of possible offshore disposal options being investigated	• Assessment of the referral for the Optimised Mardie Project (EPBC 2022/9169) still in progress (at the time of consultation). The referral states that dredge spoil will be disposed on land on the Approved Proposal site, but Mardie Minerals is investigating possible offshore locations for sea dumping. • Mardie Minerals advised that, based on the outcome of its investigations into possible offshore disposal sites, it may submit an application for a sea dumping permit after assessment of EPBC 2022/9169 has been completed and will engage further with stakeholders on such application in due course.	TACC noted the update provided by Mardie Minerals.
17/09/2024 07/02/2025 18/02/2025 19/02/2025 07/03/2025	**DBCA** Email correspondence Phone call	Organise meeting to introduce proposal for offshore disposal (DMPA4)	Email sent to DBCA to provide update from TACC meeting (24/05/2024) and organise meeting with DBCA to discuss the Revised Proposal. Mardie Minerals provided background on the status of approvals for the Optimised Mardie Project, and the rationale for proposing to change from land disposal of dredge spoil to sea disposal at DMPA4. Key findings of the field survey and the disposal plume modelling findings were presented, as well as the proposed management measures to avoid / mitigate potential direct and indirect impacts on the receiving environment.	Received no response, followed up with DBCA via email 07/02/2025. DBCA advised Mardie Minerals via email correspondence on 7 March 2025 the Department would be consulted via the regulatory process of the s45C application Mardie Minerals submitted to the EPA/DWER. Mardie Minerals will endeavour to follow up with DBCA with regards to the withdrawal of the s45C application, as per EPA advice and provide notification of the S40AA submission. DBCA advised that they would typically provide advice to the regulator rather than the proponent, to ensure a consolidated government response to proponents.
17/09/2024	**Chevron**	Request to initiate a meeting to	No issues raised.	Mardie Minerals confirmed that it is engaging with Pilbara Ports on its proposal for sea dumping.

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	Email correspondence	introduce proposal for offshore disposal (DMPA4)	The dredging campaign for the Port of Ashburton comes under Pilbara Ports, clarified if Mardie Minerals is meeting with Pilbara Ports.	
24/09/2024	**EPA Services / DWER** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	Has Mardie Minerals undertaken stakeholder consultation with DPIRD regarding proposed sea dumping?	• Mardie Minerals initiated consultation with DPIRD on 13 November 2024, and DPIRD has identified its concerns regarding Bluespotted Emperor. • Mardie Minerals will continue to engage with DPIRD during assessment of the referral to address any concerns/issues raised in relation to the Revised Proposal.
24/09/2024	**DCCEEW (Sea Dumping Branch)** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Has Mardie Minerals undertaken sediment sampling to support the Sea Dumping Permit application? • Currently the EPBC 2018/8236 and EPBC 2022/9169 approvals only permit disposal of dredge material to an onshore location. Mardie Minerals will not only require a Sea Dumping Permit, but the current approvals will also need to be varied to allow for offshore disposal of the dredge materials.	• Mardie Minerals has undertaken sediment sampling of the DMPA4 location, as provided in Appendix A of the BCH Report (O2 Marine, 2024; Attachment 2). • Noted. Mardie Minerals will submit a referral to DCCEEW for the proposed offshore disposal of dredge material to determine if it is considered a Controlled Action. Mardie Minerals has also been in consultation with the DCCEEW Post Assessment Branch regarding the proposed variation of the EPBC 2018/8236 and EPBC 2022/9169 approvals.
25/09/2024	**Pilbara Ports** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Clarification to be provided if proposed DMPA4 is located within the PP port boundary. • Suggest the proposed DMPA4 area needs to have a buffer (minimum of 50 m and up to 100 m) to ensure the material being dumped stays within the boundaries of DMPA4. • Mardie Minerals need to undertake a hydrographic survey of the proposed transport route for the vessels transporting the material for disposal, as this will be needed for the PP-issued dredge licence. • With the reduction in the volume of material to be dredged, the use of a backhoe dredge (BHD) is preferable over a cutter suction dredge (CSD), as the BHD would generate a smaller sediment plume and lower the risk of marine fauna interactions.	• A portion of the transport route for the vessels going out to DMPA4 is located within the PP port boundary, however, the DMPA4 location is outside and to the west of PP port boundary. • Mardie Minerals will take this into consideration as the DMPA4 area is indicative, and subject to assessment by the DMAs. In addition, Mardie Minerals proposes to use satellite-based vessel monitoring systems on the dredge vessel and transport barges to ensure no disposal of dredge spoil occurs outside of the approved disturbance area. • Mardie Minerals will engage further with PP regarding this requirement. • Noted. Mardie Minerals is yet to appoint a dredge contractor.

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			• Mardie Minerals is to consider a cyclone readiness and response plan, given the location of the Approved Proposal and likelihood of tropical cyclones over the Pilbara coast and encourages Mardie Minerals to engage with the DBCA in this regard. • Consideration of lighting for the vessels traveling to the disposal location and potential impacts for marine turtles on the offshore islands.	• Noted. Mardie Minerals has developed a cyclone readiness and response plan. • Noted. Operations will only be conducted during daylight hours, therefore, the operations will not result in any lighting impact to the marine turtles on the offshore islands. As per the current environmental approvals, Mardie Minerals is required to undertaking annual monitoring under the approved Marine Turtle Monitoring Program.
25/09/2024	**Department of Jobs, Tourism, Science and Innovation** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	No concerns were raised.	N/A
01/10/2024	**DPLH** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	Has Mardie Minerals undertaken any Aboriginal heritage surveys of the proposed disposal area?	• Mardie Minerals has undertaken a desktop review of the Aboriginal Cultural Heritage Inquiry System which indicates there are no registered or other Aboriginal Cultural Heritage sites in the vicinity of the proposed DMPA4. • Based on legal advice obtained by Mardie Minerals, Native Title does not exist over the proposed DMPA4 area, as there is no evidence of connection to the marine environment and the Native Title Determination excluded any buffers around islands and the low water mark. • Mardie Minerals has an established and ongoing relationship with the Traditional Owners (Mardudhunera and Yaburara people) and will continue to engage with the Traditional Owners during the construction and operations phases of the Approved Proposal and Revised Proposal.
02/10/2024	**Mineral Resources Limited** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Background on the status of approvals for the Approved Proposal, and the rationale for proposing to change from land disposal of dredge spoil to sea disposal at DMPA4. • Key findings of the field survey conducted and disposal plume modelling findings were presented, as well as the proposed management measures to avoid / mitigate	No concerns were raised by Mineral Resources Limited regarding the proposed sea dumping.

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			potential direct and indirect impacts on the receiving environment.	
07/11/2024	**DCCEEW (Post Approvals Branch, Assessments West, Sea Dumping Branch)** Meeting	Pre-referral Meeting under the EPBC Act.	• Referral of the proposed offshore disposal should only address the capital dredge campaign, and Mardie Minerals would need to submit a separate application for future maintenance dredge works. • Mardie Minerals is to give consideration to all other disposal options (including landside) with clear discussion and justification for the preferred location to be included.	• Noted. The current referral is for the capital dredge campaign and based on the operational requirements and frequency of tropical cyclones within the Approved Proposal, at this stage Mardie Minerals can only estimate the maintenance dredge requirements to be once every 5 – 7 years. Mardie Minerals will apply for a Sea Dumping Permit for the maintenance dredge campaign in future and prepare a long-term DSDMP for assessment by DMAs, once the Approved Proposal is operational. • Noted. The consideration of all other disposal options and justification for the DMPA4 location are provided in the s.45C Application Supporting Document (*this has since been withdrawn, and is instead being referred as a S40AA Referral*).
13/11/2024	**DPIRD** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Proximity of DMPA4 to the Sholl Island and Stewart Island which is considered important habitat for the Bluespotted Emperor. • What would be the frequency of the maintenance dredging disposal?	• Mardie Minerals has considered a number of alternative disposal locations. DMPA4 was identified as the preferred location, based on the distance from the Approved Proposal and the modelled ZoHI and ZoMI. DMPA4 is located approximately 10.5 km (5.7 NM) from Sholl Island and 10 km (5.3 NM) from Stewart Island. Ongoing consultation will continue with DPIRD and commercial fisheries to resolve any issues raised regarding proposed offshore disposal of dredge spoil. The Revised Proposal will require the direct impact of 30.26 ha of BCH, which forms a small part of the total nursery area of the Bluespotted Emperor. The relatively low cover and limited diversity of BCH within the area for the Revised Proposal compared to the BCH surrounding the nearshore islands and extending further offshore, suggests that the DMPA4 area is of low value to support fisheries production and biodiversity. Furthermore, impacts from offshore disposal are expected to have negligible effect on fisheries production and biodiversity in the region.

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				• The current application is for the capital dredge campaign and based on the operational requirements and frequency of tropical cyclones within the Approved Proposal, at this stage Mardie Minerals can only estimate the maintenance dredge requirements to be once every 5 – 7 years. Mardie Minerals will apply for a Sea Dumping Permit for the maintenance dredge campaign in future and prepare a long-term DSDMP for assessment by DMAs, once the Approved Proposal is operational.
14/11/2024 18/11/2024	**Recfishwest** Email correspondence	Provision of background material via email (14/11/2024). Recfishwest Response (18/11/2024)	• The general area is commonly accessed by recreational fishers from Karratha and Onslow, with the nearby islands and habitats of the Great Sandy Island Nature Reserve providing unique wilderness fishing experiences. In this regard, Recfishwest are interested in understanding any risk assessments that have been undertaken on those important islands and habitats. • In addition, while threatened and migratory species have been cited as being potentially affected by reduced marine environmental quality, have impacts on fish assemblages been considered as part of this? • It is noted that disposal of the dredged materials was originally intended to occur on land. Request for Mardie Minerals to clarify why there has been a change to dumping at sea. • Does environmental monitoring continue after 12 months for a longer term? • Will more dredging campaigns be required in future to maintain the depth of the berth pocket and shipping channel?	• Mardie Minerals conducted disposal plume modelling at two possible spoil grounds, i.e. DMPA1 and DMPA4; DMPA1 is in proximity to DMPA4 but closer to the nearshore islands. Based on the modelling results for DMPA1, potential impacts on environmental values at the nearshore islands were predicted, hence Mardie Minerals does not consider DMPA1 to be a suitable site for sea dumping and eliminated it as a potential disposal site. The modelling results for DMPA4 did not predict potential impacts on environmental values at the nearshore islands. • The Revised Proposal will require the direct impact of 30.26 ha of BCH, which forms a small part of the total nursery area of the Bluespotted Emperor. The relatively low cover and limited diversity of BCH within DMPA4 compared to the BCH surrounding the nearshore islands and extending further offshore, suggests that DMPA4 is of low value to support fisheries production and biodiversity. Furthermore, impacts from offshore disposal are expected to have negligible effect on fisheries production and biodiversity in the region. • After dredging / disposal has been completed, Mardie Minerals proposes to continue monitoring of marine environmental water quality for at least 30 days. In addition, Mardie Minerals proposes to monitor replicate quadrats of BCH at DMPA4 within six months after dredging / disposal has been completed, which quadrats will be assessed for percent cover, relative abundance and composition and

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				compared to baseline information collected prior to the commencement of disposal activities. In the event that the management targets for BCH, to be set by DMAs in its assessment of the application for approvals were not met, then Mardie Minerals proposes to continue monitoring until the management targets are met, or until impacted BCH as a result of disposal in the Zone of Impact are considered to have recovered to baseline conditions based on the DMAs review of the outcomes of the monitoring program. • Maintenance dredging is expected to be undertaken to ensure the berth pocket and navigation channel remain at operating depths for the Approved Proposal. It is proposed to dispose of dredge spoil from maintenance dredging at DMPA4, and a long term DSDMP will be submitted for assessment by DMAs in due course.
18/11/2024	**DPIRD** Email correspondence	Follow up queries from 13/11/2024 meeting.	• What consideration has been given to the level of development already undertaken on land as part of the Mardie development and alternative land-based dump sites away from the species of Minnie daisy (*Minuria tridens*) under current approvals. Based on the information provided, the footprint of 700 m by 430 m, in relation to the size of the land-based tenement is relatively small, has genuine consideration been given to finding a land-based site away from the Minnie Daisy to fit within the scope of the existing approvals for the dumping of dredged materials? And is there evidence of Minnie daisy in pond 0 and the evaporation ponds footprint? • As previously discussed in the meeting, DPIRD have concerns in relation to moving the dumping of capital and maintenance dredged materials from land to the ocean. This relates to potential negative impacts on fish and fish resources (including habitats) if dumping was moved to an ocean location. As highlighted in the meeting, impacts when dumping at sea are within a three-dimensional environment, not limited to seafloor related habitats but also including the	• The optimised design for the Approved Proposal will result in limited vacant land within the approved development envelope that could be used for land disposal of dredge spoil. Possible locations closest to the dredging area are within the intertidal coastal zone and will be filled with seawater during 2025 as part of the evaporation ponds for the Approved Proposal before the dredging campaign is forecast to commence on 1 April 2026. Minnie daisy has been recorded in Pond 1, but not in Pond 0. Pond 0 is already filled with seawater in accordance with the approved GMMP. Based on the spatial constraints within the approved development envelope and the technical challenges of pumping the dredge spoil on land and then having to double handle it to another location, the land-based disposal option is considered financially non-viable by Mardie Minerals. • Dredging may only be undertaken from 1 April to 30 September in accordance with current approvals granted by DWER and DCCEEW. Mardie Minerals forecasts that dredging may be completed between 1 April 2026 and early September 2026; based on the reduced volume of estimated

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			water column (important habitat for egg and larvae of fish (a vulnerable stage)). A key species of concern with respect to potential significant impacts regarding the probable change to sea-based dumping of dredge spoil is Bluespotted Emperor, a species that is endemic to WA and is the most valuable single species for the Pilbara demersal scalefish resource. This species has pelagic eggs and larvae that settle and recruit exclusively in the nearshore sargassum, and thus are highly susceptible to disturbance during these early life stages when they are most vulnerable. Looking at Mardie Minerals' request further, DPIRD notes that the Approved Proposal assessment report have identified the Minnie daisy under the environmental management plan and monitoring. With this in mind, its recommended that further consideration be given to further investigate the option for alternative land-based dump locations.	dredge material and the preferred dredging methodology, the greatest period of productivity for dredging and disposal is expected to be from April 2026 to August 2026, which is before the spawning period of Bluespotted Emperor, i.e. from September (refer to Newman *et al*. 2002). • Mardie Minerals therefore considers it is unlikely that dredging / disposal activities would adversely impact the recruitment of the Bluespotted Emperor. Mardie Minerals will submit the DSDMP for assessment by DMAs, that includes specific management and monitoring activities to ensure the disposal plume does not extend beyond the area approved for sea dumping and to avoid / minimise potential impacts on Bluespotted Emperor. • Based on information from the Fisheries Research and Development Corporation (FRDC, 2023): o "*Recreational and charter catch are relatively low compared to the commercial catch, in the past 10 years where reliable catch estimates are available, the proportion of the total catch has averaged < 1%. Catch rates of Bluespotted Emperor are determined from the commercial trawl fishery. These catch rates have remained relatively stable from 2015 to 2020 but have declined in the last two years. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.*" • According to Babcock et al. (2017), juvenile individuals of Bluespotted Emperor, under 200 mm in length, were shown to be strongly associated with shallow depths with no individuals found in water of 10 m or greater depth. Individuals of 200-275 mm in length showed dispersal across all depths while larger individuals were strongly associated with greater depths. Information based solely on abundance or biomass estimates, as typically provided by studies using stereo-baited remote underwater video

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				(BRUV), did not provide clear evidence of ontogenetic shifts with abundance not influenced by depth, however greater biomass was seen in deep waters suggesting that larger individuals had been recorded. This suggests that the preservation of shallow, low variance habitat, including macroalgal dominated habitats through fisheries and conservation management, are a priority for the continued protection of nursery grounds for Bluespotted Emperor. Continued exclusion of fisheries from shallow waters in the region will ensure that juvenile populations of Bluespotted Emperor remain relatively undisturbed by fishing as well as conserving and maintaining recruitment of larger individuals into the adult population and active fishery zones. DMPA4 is located in waters with average depth of more than 16 m, and based on the field survey conducted during September 2024, it is not expected that juvenile Bluespotted Emperor would be strongly associated with water at depths of average 16 m.
29/11/2024	**TACC** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Background on the status of approvals for the Approved Proposal, and the rationale for proposing to change from land disposal of dredge spoil to sea disposal at DMPA4. • Key findings of the field survey conducted and disposal plume modelling findings were presented, as well as the proposed management measures to avoid / mitigate potential direct and indirect impacts on the receiving environment. • DPIRD clarified if Mardie Minerals received DPIRD's further comments / concerns on the Revised Proposal and requested its strong preference for disposal of dredge spoil to land be recorded and further considered by Mardie Minerals. DPIRD is concerned about the potential impact from sea dumping on endemic fish species.	• Mardie Minerals advised it was preparing its response to the comments and concerns received from DPIRD (refer to 18/11/2024 above). • Mardie Minerals undertook to review the proposed size of DMPA4 in view of PP comments.

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			• PP enquired whether Mardie Minerals considers the indicative size of DMPA4 to be adequate for the expected volume of dredge spoil as it appears too small.	
03/12/2024	**WAFIC** Meeting	Initial meeting to introduce proposal for offshore disposal (DMPA4)	• Background on the status of approvals for the Approved Proposal, and the rationale for proposing to change from land disposal of dredge spoil to sea disposal at DMPA4. • Key findings of the field survey conducted and disposal plume modelling findings were presented, as well as the proposed management measures to avoid / mitigate potential direct and indirect impacts on the receiving environment. • WAFIC enquired what the expected sedimentation depth at DMPA4 is. • WAFIC enquired if Mardie Minerals has engaged with any commercial fisheries regarding the Revised Proposal. • WAFIC enquired whether Mardie Minerals has considered potential impact from sea dumping on prawn fisheries. • WAFIC suggested that there appeared to be endangered coral communities within the berth pocket and that salvage of the coral by a third party prior to dredging should be considered. • Has Mardie Minerals conducted sampling of sediment for contaminants in the berth pocket and navigation channel, and if so, were any contaminants identified? • WAFIC requested its concern of potential impacts from sea dumping at DMPA4 on fisheries activities be recorded, and that it prefers that dredge spoil be dumped on land instead.	• The disposal plume modelling conducted by Mardie Minerals predicts that the sedimentation depth at DMPA4 could have a maximum height of 1.85 m after an assumed dredging campaign of 98 days. • Mardie Minerals has not engaged directly with commercial fisheries operators regarding the Revised Proposal. • Based on the field survey conducted, the relatively low cover and limited diversity of BCH within DMPA4 compared to the BCH surrounding the nearshore islands and extending further offshore, suggests that DMPA4 is of low value to support prawn fisheries production. • As per Assessment Report No 1740 (EPA, 2023), prepared by the EPA, the coral communities mapped in the study area for the Approved Proposal were generally of low diversity and abundance, representing less than 2% of the mapped BCH in the study area. No subtidal BCH in the study area (for dredging) is considered to be locally or regionally significant. Mardie Minerals considers that the issue raised by DPIRD applies to dredging at the berth pocket and navigation channel, and not at the proposed disposal site. • Mardie Minerals conducted detailed site investigation of the berth pocket and navigation channel between December 2018 and February 2019 (O2 Marine, 2019). Key findings made during the investigation include: o The 95% UCL of metal concentrations were below the ANZG default guideline level (DGV)-low level screening guidelines for all CoPCs with exception of Nickel and Arsenic. However, these were deemed to be lithographically occurring exceedances supported by previous marine

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				sediment sampling in the Pilbara and normalisation to Aluminium; o Organics including organotins (TBT etc.), TRH, TPH, and BTEXN contaminant concentrations were all below ANZG DGVs (if available) and the vast majority of organic analytes were non-detections below the laboratory Limit of Reporting; o All analytes in Organochlorine Pesticides and Phenoxyacetic Acid Herbicides suites were at non-detection levels below the Limits of Reporting. Herbicides were identified early as a CoPC due to their extensive use on Mardie Station. This investigation found no evidence of herbicides in the marine sediments sampled; and o None of the samples failed the acid sulphate soil (ASS) screening test and, as such, the sediments within the dredging area are considered to pose a low ASS / Potential ASS risk. • For DMPA4, Mardie Minerals conducted a site investigation (O2 Marine, 2024; Attachment 2) and the sample results recorded from the four sites at the DMPA4 Detailed Study Area generally reflect sediment characteristics expected from an offshore greenfield site in the Pilbara. The majority of the contaminants (metals, hydrocarbons, TBT and BTEXN) were either below the laboratory Limits of Reporting, below the NAGD (2009) ISQG-low screening levels, or comparable to concentrations along the Pilbara coast as documented in DEC (2006). These results are also comparable to the six dredge footprint sediment samples collected in 2023. Based on both the contaminant and PSD results, sediment characteristics between the dredge footprint and DMPA4 were found to be similar, and as such, it is unlikely that any biological impacts will result from placing dredge material at DMPA4.

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17/12/2024 24/01/2025	**DCCEEW (Assessments West)** Email correspondence	RFI on EPBC 2024/10054	DCCEEW reviewed the EPBC Referral and determined that it did not meet the requirements to be considered a valid referral under the EPBC Act. DCCEEW provided feedback via and RFI table to Mardie Minerals for incorporation into the EPBC Referral.	The EPBC Referral for offshore spoil disposal was revised and resubmitted to DCCEEW, and the response to the RFI was emailed to DCCEEW on 24/01/2025.
08/01/2025	**WAFIC** Email	Additional questions to Mardie Minerals re research of fisheries and status of approvals	• Has Mardie Minerals undertaken any research regarding the fisheries that will be impacted by the offshore dredge disposal? • Does Mardie Minerals have a timeline for the marine investigations that will be conducted (i.e. plume modelling)? • Further clarify the approval process for this proposed change, including the relevant regulator responsible for assessment and approval? • At what stage of the approval processes is Mardie Minerals currently at? • Regarding dredging impacts to coral, WAFIC notes that even though the coral communities represent less than 2% of mapped BCH, given the large scale of the project, the 2% correlates to 189 ha of coral, which is a significant amount. • Can Mardie Minerals confirm how the coral under the jetty structure is impacted. Is it removed completely? Are pylons driven through it, or is there some other way of securing the structure to the sea floor? • What is the estimated volume of coral being removed (in tonnes) as part of the (a) jetty construction and (b) the channel dredging, as well as what happens to the coral once it is removed?	• A fisheries assessment was completed for the Approved Proposal; please refer to Mardie Project - Fisheries and aquaculture impact study Final 210803.pdf More recently, O2 Marine (consultants) has completed Fish and Fisheries desktop assessment and impact assessments for other projects along the Pilbara coastline. These reports looked at fisheries that operate over a large scale, including the waters of and around DMPA4. A summary of this desktop assessment and other known fisheries research in the area is included as Appendix 1. • March 2025 to March 2026. • Referral under the EPBC Act was submitted to DCCEEW in mid-November 2024 – current status is validation of the referral. Application to amend MS1211 was submitted to DWER in mid-December 2024 – current status is under assessment. Application for a Sea Dumping Permit was submitted to DCCEEW in mid-December 2024 – current status is validation of the application. • Disturbance of the area for the jetty structure, berth pocket and navigation channel was approved in accordance with the clearing limitations set in MS1175 (superseded) and MS1211, and EPBC 2018/8236 and EPBC 2022/9169. • Coral under the jetty structure will be impacted in a restricted manner by piling activities; coral that forms part of piling spoil is side cast to the ZoHI within the approved Development Envelope for the Approved Proposal. The jetty structure is secured to the sea bed through piles.

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				• In accordance with MS1211, Mardie Minerals has been granted approval to directly disturb no more than 65 ha within the dredge development envelope. It is estimated that approximately 44 ha of coral/macroalgae may be directly disturbed during dredging. Disturbed coral will form part of dredge spoil material which is to be disposed by Mardie Minerals in accordance with the approvals granted by DWER and DCCEEW.
14/01/2025	**WAFIC** Email	Further information re dredging	Questions on behalf of a potentially impacted licence holder: • GPS coordinates for DMPA4. • What are the expected dredging start and finish dates? Are these different from the dates outlined in the dredging and disposal program? • What dredging method will be used? • Provide details on the transport of dredged material to the proposed disposal site, including the size of each dredge load. Are these quantities different from those in the dredging and disposal program? • Will there be any rock content in the sediment to be disposed of? If so, what is the predicted size of the rock material?	• Provided locality plan with coordinates on 24/01/2025. • The expected dredging dates are from 1 April 2026 to 30 September 2027; the period is to allow for availability of dredge equipment and any unforeseen delays/interruptions in the dredge schedule. Note that dredging is only allowed in accordance with the approvals for the Approved Proposal from 1 April to 30 September each year. • Conventional marine dredging plant and equipment, such as a BHD and a split hull hopper barge (to transport the material to DMPA4) will be used. • A split hopper barge will be used to transport dredged material to DMPA4; it is estimated there will be an average of 3 loads of 1,200 m^3 each per day being disposed. Due to the nature of the dredging and being in the vicinity of the already constructed jetty, dredge volumes may be reduced on certain days which may lead to different volume of dredge material to be transport to / disposed of at DMPA4. • Yes, based on geotechnical investigations undertaken there are sections of the dredging area that consist of a mixture of cohesive and non-cohesive material including gravel, cobble, and rock; the predicted size of the rock material to be disposed of is subject to Mardie MInerals engaging the dredging contractor and determining the suitably sized equipment to be used to perform the dredging work (inter alia looking at the necessary abrasion rates, production rates and material settlement rates).

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
06/02/2025	**WAFIC** Email	Formal objection to proposed change to disposal dredge spoil to sea	WAFIC has serious concerns regarding this proposal and following consultation with potentially impacted fishers, this submission highlights the key concerns that require significant attention.	Mardie Minerals acknowledged receipt of the letter of objection.
04/02/2025 15/04/2025	**DCCEEW (Sea Dumping Division)** Email	Request for Information (RFI) on Sea Dumping Permit Application.	RFI sent to Mardie Minerals on the Sea Dumping Application (SD2024/4074) to provide additional information. Requested information and recommendations included (but not limited to): • Provide reports referenced; • Consolidate all relevant sediment classification information; • provide additional context on other disposal grounds assessed; • options for beneficial reuse; • contamination; and • consultation details.	Mardie Minerals responded to DCCEEWs RFI on 15/04/2025, which included a letter and resubmission of the Sea Dumping Application (attached as Appendix 2).
07/02/2025	**DBCA** Email	Organise meeting to introduce proposal for offshore disposal (DMPA4)	Email sent to DBCA to follow up on request to organise meeting to discuss the Revised Proposal (14/09/2024).	Received no response, followed up with DBCA via phone call 18/02/2025.
17/02/2025	**Wirrawandi Aboriginal Corporation (WAC)** Meeting	Dredge disposal outside of Native Title boundary	Mardie Minerals acknowledged that there is not any formal approval needed from WAC / Chair for proposed disposal of dredge spoil outside of the Native Title boundary.	WAC requested that an info sheet is developed by Mardie Minerals to give to WAC.
18/02/2025 19/02/2025	**DBCA** Phone call / email correspondence	Organise meeting to introduce proposal for offshore disposal (DMPA4)	Called DBCA staff member to follow up on request to organise meeting to discuss the Revised Proposal (14/09/2024 and 07/02/2025).	Following the phone call on the 18/02/2025, Mardie Minerals sent an email on 19/02/2025 to DBCA with presentation detailing proposed change to the disposal of dredge material. Email response received from DBCA on 07/03/2025.

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
19/02/2025	**DWER (EPA Services)** Meeting	Meeting with EPA Chairman to discuss the s.45C Application.	Withdrawal of the application made under s45C of the *Environmental Protection Act 1986*, and submission of a new application under s40AA of the EP Act	The proposed amendment to the Optimised Mardie proposal to change from onshore to offshore dredge disposal is more appropriately considered through a significant amendment under s40AA of the *Environmental Protection Act 1986*. This will facilitate the proposed amendment being assessed in the context of the approved proposal (Mardie Project and Optimised Mardie Project) and have regard to the combined effect that the implementation of the approved proposals and the significant amendment might have on the environment. EPA Services has developed a draft *indicative* timeline for the consideration of this amendment under s40AA, as shown in the table below.
07/03/2025	**DWER (EPA Services)** Email	Follow up email from meeting on 21/02/2025.	• DWER advised that the proposed offshore dredge spoil disposal is significant, and therefore should be referred under S40AA of the EP Act, not s.45C. DWER advised to withdraw the current s.45C application and resubmit as a S40AA Referral. • Requested clarification on how the proposed change from onshore dredge disposal to offshore dredge disposal avoids or minimises impacts to *Minuria tridens*, which is reported to be an environmental driver for the proposed amendment • Requested that Mardie Minerals include a description of feasible alternatives to the proposed amendments, including a comparative description of the environmental impacts of each alternative, and enough detail to make it clear why any alternative is preferred to another. • It was also recommended that Mardie Minerals include groundwater abstraction within the S40AA Referral, noting that MS1211 conditions do not allow for this currently.	Noted. Mardie Minerals have withdrawn the s.45c Application and are resubmitting the proposed for offshore dredge spoil disposal / groundwater abstraction as a S40AA Referral. The S40AA Referral has been prepared to include additional clarification and descriptions on the proposed alternatives to DMPA4.
07/03/2025	**DBCA** Email	Response to previous request to organise meeting	• DBCA noted that the request for engagement seems to be based on comments received from DCCEEW related to the Sea Dumping Permit / EPBC Referral.	In progress

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
		on Revised Proposal.	• Noted that a s.45C application was submitted to DWER for the Revised Proposal (note: this has since been withdrawn). • DBCA advised that they would typically provide advice to the regulator rather than the proponent, to ensure a consolidated government response to proponents. • DBCA requested that if there are any specific technical questions on DBCA's legislative responsibilities (namely the *Conservation and Land Management Act 1984* (WA) and the BC Act) they can provide answers.	
07/03/2025 03/04/2025	**DCCEEW (Assessments West)** Email	RFI on EPBC 2024/10054	RFI sent to Mardie Minerals on the EPBC 2024/10054 referral to provide clarification on maintenance dredging requirements.	Mardie Minerals sent the response to the DCCEEW RFI on 03/04/2025. The focus of the RFI was on maintenance dredging. Mardie Minerals plan to undertaken maintenance dredging events (if annually) within DMPA4 for approximately 9 years after capital dredging, then if the sediment depth is increased beyond 2 m, DMPA4 can accommodate another 11 years of maintenance dredging events annually.
09/04/2025 10/04/2025	**DCCEEW (Assessments West)** Phone call / email correspondence	RFI on EPBC 2024/10054	DCCEEW requested further additional information regarding maintenance dredging volumes.	Mardie Minerals emailed DCCEEW on 10/04/2025 with a table, showing the estimated volume of maintenance dredging at DMPA4, and number of events, for various scenarios.
17/04/2025 20/06/2025	**WAFIC** Meeting and email	Option for disposal of dredge material and biodiversity offsets	For the beneficial re-use of dredge spoil, WAFIC proposes that Mardie Minerals considers creating an independent multi-user bund operation that will provide ongoing benefits for the local environment and local businesses. WAFIC is concerned that the footprint for the Optimised Mardie Project's jetty and shipping channel will require the removal of an estimated 60 hectares of coral and reef and therefore suggests that licensed marine aquarium/coral fishers be permitted to do a final sweep over the area to remove any high-value or endangered species. This activity would provide the greatest opportunity to ensure minimal loss of critical coral and other marine species.	Mardie Minerals advised WAFIC that it will continue to progress with the current application for sea disposal of dredge spoil in accordance with environmental regulations and assessments. Mardie Minerals believes that this method, supported by the implementation of the dredge and spoil disposal management plan, remains a viable option for the disposal and management of capital dredge spoil. Mardie Minerals is open to dialogue and collaboration on future re-use of maintenance dredge spoil and will continue to monitor our dredge management strategy in line with potential projects and partners. Regarding offsets related to potential coral impacts in the dredge area, Mardie Minerals' current approvals include a suite of

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
			WAFIC informed Mardie Minerals that two of WA's largest licensed coral operators have an allocation of unused coral quota and that Mardie Minerals could negotiate the purchase of the unused quota as an offset to the dredge damage.	intertidal and subtidal research offsets which are being implemented. The area of coral BCH that will be directly impacted by the Project footprint are present in low to moderate densities, represents marginal habitat and is unlikely to be a significant contributor to coral recruitment within the region. Rather, the high value, biologically diverse reefs with far denser colonisation surrounding the offshore islands, are considered to be the primary driver of long-term ecosystem health and sustainability of nearshore Pilbara coral communities in this area. As such, we are not currently pursuing additional offsets specifically related to coral impacts beyond the approved offsets.
30/04/2025	**DWER (EPA Services)** Email	Submission of application for a significant change to Ministerial Statement 1211l	Mardie Minerals submits the application for a significant change to Ministerial Statement 1211 in accordance with section 40AA of the *Environment Protection Act 1986* for assessment.	The application is advertised by DWER (EPA Services) for public comments from 08/05/2025 to 14/05/2025.
14/05/2025	**DCCEEW (Assessments West)** Letter	Notice on delegate's decision on EPBC 2024/10054	DCCEEW identified the key items in the issued RFI which need to inform the creation of the Preliminary Documentation by Mardie Minerals. DCCEEW provided an indicative assessment timeline and the various stages of assessment of the Preliminary Documentation.	DCCEEW confirmed that the public comment period on the Preliminary Documentation is led by the proponent. DCCEEW advised that it will not be directly supplying public comments from the referral stage, if the department requires clarity around any issues raised from these comments, it will be incorporated into the RFI request where needed.
16/05/2025	**DCCEEW (Sea Dumping Division)** Email	Notice on delegate's decision on EPBC 2024/10054	Mardie Minerals informed Sea Dumping Section of the Minister's Delegate's Decision on the referral EPBC 2024/10054, which is that sea dumping is a controlled action to be assessed via Preliminary Documentation	
19/05/2025 - 27/05/2025	**DWER (EPA Services)** Email	Public comments on the application for a significant change to Ministerial Statement 1211	DWER (EPA Services) received four comments during the 7-day public comment period on the application for a significant change to Ministerial Statement 1211.	Mardie Minerals submits its response to the public comments to DWER (EPA Services) as per Appendix 3.

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
30/05/2025	**Wirrawandi Aboriginal Corporation (WAC)** Meeting with Implementation Committee	Dredge disposal outside of Native Title boundary	Mardie Minerals did a presentation on the proposed dredge disposal which sits outside the Native Title boundary to the WAC Implementation Committee. Mardie Minerals explained that there are two options: land disposal (for which approval has been granted) or sea disposal (for which an application for approval has been submitted to regulators), with the latter being the preferred option.	WAC advised that Mardie Minerals needed to engage with WAC's heritage consultant and provide further information on potential impacts from the proposed dredging/disposal application. The heritage consultant, in turn, will provide a paper to the WAC board.
03/06/2025	**DCCEEW (Assessments West)** Meeting	Preliminary Document RFI on EPBC 2024/10054	DCCEEW identified the key items in the issued RFI which need to inform the creation of the Preliminary Documentation by Mardie Minerals. DCCEEW provided an indicative assessment timeline and the various stages of assessment of the Preliminary Documentation.	DCCEEW confirmed that the public comment period on the Preliminary Documentation is led by the proponent. DCCEEW advised that it will not be directly supplying public comments from the referral stage, if the department requires clarity around any issues raised from these comments, it will be incorporated into the RFI request where needed.
03/06/2025	**Environmental Protection Authority (WA)** Public record	Delegate's decision on the application for a significant change to Ministerial Statement 1211	The public record pursuant to section 39 of the *Environmental Protection Act 1986* states that potential significant effects f the revised proposal that there are potential impacts on: benthic communities and habitat and marine environmental quality from dredging and spoil disposal; and marine fauna from underwater noise and vessel movements. The preliminary key environmental factors to be assessed are benthic communities and habitat, marine environmental quality and marine fauna.	The Chair of the Environmental Protection Authority decides the level of assessment of the revised proposal is Referral Information, and explains the decision as follow: Several preliminary key environmental factors may be complex. Detailed assessment is required to determine the extent of the proposal's direct and indirect impacts, and whether the EPA environmental factor objectives can be met.
13/06/2025	**TACC** Meeting	Update on application for offshore disposal (DMPA4)	Mardie Minerals provided an update on the status of the applications submitted to State and Commonwealth regulators for proposed disposal of dredge spoil at DMPA 4, as well as further technical studies being undertaken at DMPA 4 since April 2025. The following studies are in progress: • An update to the 12-month baseline study for water quality at the dredge area; • A 12-month baseline study for water quality at DMPA 4;	DPIRD raised concerns that, to date, there does not appear to have been any assessment of the risks of dredge spoil disposal on land vs at sea. In addition, DPIRD raised concern that the proposal has the potential to significantly negatively impact fish resources and fisheries, and there does not appear to be adequate justification to change dumping of dredge spoil into the marine environment. Mardie Minerals informed the TACC meeting that the Preliminary Documentation will be made available for public comment in due course, after it has been approved as such by DCCEEW, and that

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
			• Additional Benthic Communities & Habitat study of dredge area and DMPA 4 after the significant weather events (Tropical Cyclones Sean and Zelia) and marine heatwaves; • Fish abundance study at DMPA 4; and • An update to sediment quality assessment of the dredge area for the revised dredge footprint and transhipment corridor	it will contain a risk assessment of land disposal of dredge spoil versus disposal in the marine environment.
25/06/2025	**Wirrawandi Aboriginal Corporation (WAC)** Meeting	Dredge disposal outside of Native Title boundary	Mardie Minerals provided more information on the application for disposal of dredge spoil at sea.	WAC advised that Mardie Minerals needed to engage with WAC's heritage consultant and provide further information on potential impacts from the proposed dredging/disposal application. The heritage consultant, in turn, will provide a paper to the WAC board.
25/06/2025	**Wirrawandi Aboriginal Corporation (WAC)** Email	Dredge disposal outside of Native Title boundary	Mardie Minerals provided more information to WAC's heritage consultant on the application for disposal of dredge spoil at sea: • The sea dumping site is 14 nautical miles offshore and in 18-20m deep water. • Mardie Minerals understands that Native Title does not exist seaward of the mean low water mark on the mainland coast in the vicinity of the proposed sea dumping site, as shown on the maps at Schedule Two of the determination provided via the following link: https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2018/2018fca110 . • A search of the Department of Planning Lands and Heritage's Aboriginal Cultural Heritage Inquiry system indicates there are no Registered or Lodged heritage sites in the vicinity of DMPA 4. • An environmental survey of the site has indicated that it is dominated by 'Sparse to Low level Cover' habitats which are not of any regional or conservation significance (also summarised in the attached)	Mardie Minerals and WAC to have a further discussion, or talk through any questions, at the upcoming WAC meeting in August 2025.

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			• In the unlikely event that unexpected or unknown Aboriginal cultural heritage values are encountered during the proposed activity, Mardie Minerals has processes in place to notify WAC and manage any findings appropriately - see Section 10.8 and Section 10.9 of BCI's Aboriginal Cultural Heritage Management Plan, which is publicly available on our website here: https://www.bciminerals.com.au/images/files/0000-LH-PLN-0001_1__Aboriginal_Cultural_Heritage_Management_Plan_Rev_3.pdf.	
25/06/2025	**Wirrawandi Aboriginal Corporation (WAC) / Simon Davis** Email	Dredge disposal outside of Native Title boundary	Mardie Minerals provided more information to WAC's heritage consultant on the application for disposal of dredge spoil at sea.	
03/07/2025 and 10/07/2025	**DCCEEW (Sea Dumping Section)** Email	Sea Dumping Permit Application	Sea Dumping Section advised that it will not be issuing a secondary RFI. Instead, the information provided in response to the initial RFI was deemed not adequate.	Mardie Minerals provided the outstanding *Mardie Project Dredge Channel Sediment Sampling and Analysis Plan Implementation Report, Rev 0, 9 July 2025* to Sea Dumping Section.
30/07/2025	**DCCEEW (Sea Dumping Section)** Email	Dredge & Spoil Disposal Management Plan	Mardie Minerals requests that Sea Dumping Section reviews a revised version of the Dredge and Spoil Disposal Management Plan to what was submitted in Dec 2024, which is the version being reviewed by the DCCEEW Assessments Division as part of its review of the Preliminary Documentation for referral EPBC 2024/10054	Sea Dumping Section subsequently sent a minor clarification to Mardie Minerals, on 29 Aug 2025; more comments on the revised Dredge and Spoil Disposal Management Plan may follow.
01/08/2025 12/08/2025 21/08/2025	**DCCEEW (Sea Dumping Section)** Email	Sea Dumping Permit Application: RFI	Sea Dumping Section identified aspects of the sea dumping permit application which require further clarification, and therefore the application is considered not duly made in accordance with section 18(3) the Sea Dumping Act. The statutory timeclock for a decision has not restarted. Mardie Minerals sought clarification on RFI item no. 12 re "*A comprehensive cumulative impacts assessment should be*	Sea Dumping Section advised that under the *Sea Dumping Act* the Section does not have a specific definition for cumulative impact assessment. However, for the proposed action it is suggested that Mardie Minerals takes the approach of defining cumulative impacts as being the total impacts on the environment of a proposal combined with one or more past, present or reasonably foreseeable future activities and pressures. A cumulative impact risk assessment should at minimum consider

Date	Stakeholder / Consultation type	Summary	Issues Raised	Outcomes
			undertaken that considers at minimum, cumulative impacts on fish, the environment, fisheries, and other users of the sea".	cumulative impacts on fish, the environment, fisheries, and other users of the sea, but if there are other impacts identified in the context of the proposed action they should also be taken into account.

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APPENDICES

Appendix 1: BCI – Fisheries summary and response to WAFIC comment

Appendix 2: Response to DCCEEW Request for further information (Letter and Response Table)

Appendix 3: Response to Public Comments on Section 40AA Referral

Appendix 1: BCI – Fisheries summary and response to WAFIC comment

BCI – Fisheries summary and response to WAFIC comment

BCI is currently undertaking stakeholder engagement activities to support its recent Sea Dumping Permit application. In response to this, WAFIC has enquired whether BCI Minerals have undertaken any research regarding the fisheries that will be impacted by the offshore dredge disposal.

A fisheries assessment was completed for the original BCI project: Mardie Project - Fisheries and aquaculture impact study Final 210803.pdf

More recently, O2M has completed Fish and Fisheries desktop assessment and impact assessments for other Projects along the Pilbara coastline. These reports looked at fisheries that operate over a large scale, including the waters of and around DMPA4. A summary of this desktop assessment and other known fisheries research in the area is presented below.

1. Summary of relevant or potentially relevant fisheries

1.1. Demersal Scalefish Resource

- Commercial fisheries: Northern Demersal Scalefish Managed Fishery (NDSMF) in the Kimberley subregion and the Pilbara Demersal Scalefish Fisheries (PDSF) in the Pilbara subregion. The Pilbara Demersal Scalefish Fisheries includes Pilbara Trap Managed Fishery (PTMF), Pilbara Fish Trawl (Interim) Managed Fishery (PFTIMF) and Pilbara Line Fishery (PLF) (Figure 3).
- DMPA4 is located within the Pilbara Inshore Closed Waters (Trap), no trap fishing or trawl fishing occurs in the waters around DMPA4.
- The PLF has had reported fishing effort in the waters adjacent to DMPA4, and commercial fishers may use the waters near DMPA4 however recent catch data has not been published.
- Indicator species for the PDSF include the bluespotted emperor, Rankin cod, and red emperor
    - Bluespotted emperor: juvenile phase is directly associated with inshore shallow macroalgal beds and may be vulnerable to their loss. Whereas adults are generally found in offshore waters (in waters up to 150 m) around coral reefs, rubble/sand substrate and seagrass beds.
    - Rankin cod: adults inhabit mid-shelf reefs, lagoons, and limestone sand/gravel habitats in depths up to 180 m. Commercial catch of this species in the Pilbara primarily occurs in offshore waters in the PFTIMF operational area, which does not overlap DMPA4 (Figure 3 Areas 1,2,4,5).
    - Red emperor: inhabits mid-shelf waters often found around reefs and limestone sand/gravel in depths up to 180 m. In the Pilbara, they are predominantly caught offshore around the north-west side of Barrow Island, around the Montebello Islands, and offshore from the Dampier Archipelago (Newman et al. 2024). Fishing within and around DMPA4 is unlikely.

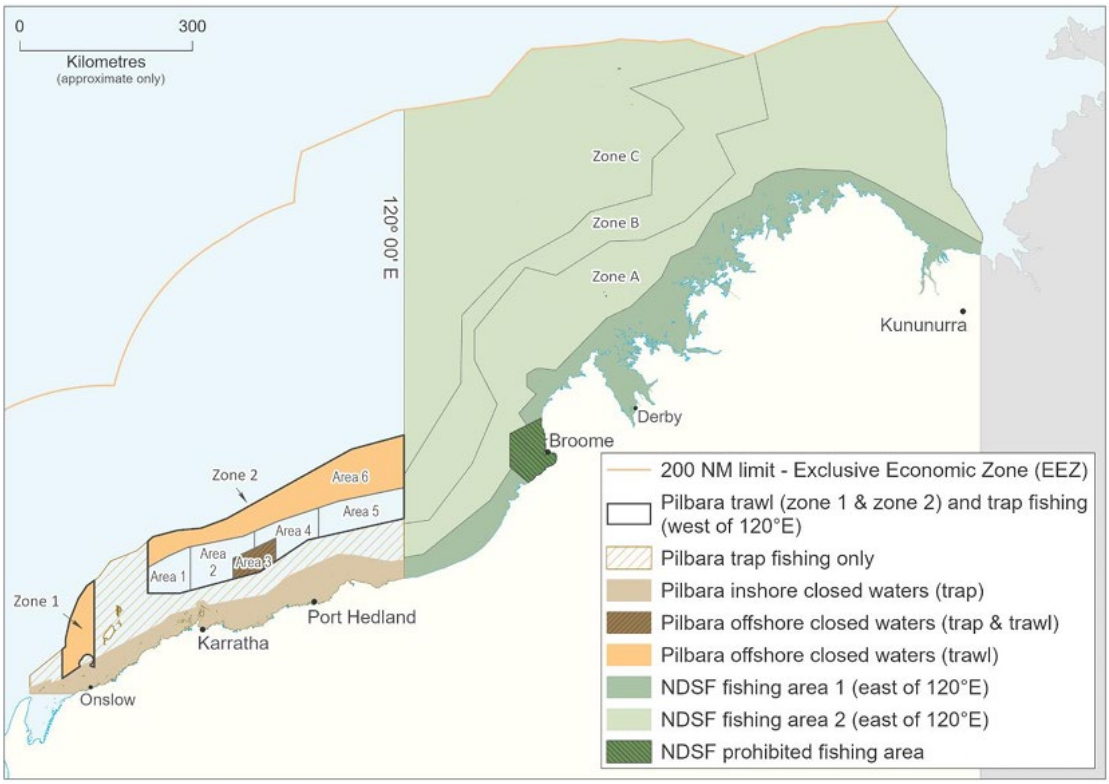

Figure 1: Demersal scalefish fisheries of the North Coast bioregion of WA. In the Pilbara subregion: Areas 1 to 6 refer to the management regions in Zone 2 of the trawl fishery. Zone 1 has been closed to trawling since 1998. In the Kimberley subregion: Zones A, B and C lie in Area 2 of the NDSMF (Newman et al. 2024).

1.2. Statewide Large Pelagic Finfish Resource

- Mackerel Managed Fishery (MMF): the commercial fishery is operational in the waters adjacent to the proposed DMPA4, with catch sporadically reports around the Great Sandy Island (DPIRD 2023), however catch in the region is generally concentrated around and offshore of Barrow Island and Cape Preston. Likely that commercial fishing in this area represent a small portion of the statewide operation. The primary fishing season for the MMF is May to November (Lewis and Rynvis 2024). The key species targeted by the MMF are the Spanish mackerel and grey mackerel, with Spanish mackerel being the most commonly caught species.
- Commercial (MMF) recorded in the vicinity of the Proposal. However, it is not restricted to the Proposal area with the resources utilised across the Pilbara and Kimberley.
- Adult Spanish mackerel utilise offshore waters often around coral reefs, shoals and headlands, critical habitat for the species are reef and island in the inshore and offshore pelagic zones (Lewis 2020). The waters of the DMPA4 is not expected to support commercial fishing for the Spanish Mackerel (Figure 1).
- Grey mackerel inhabit rocky headlands, reefs and muddy sandy substrates. Often found in turbid tropical and subtropical waters, and have a high tolerance (Lewis 2020)

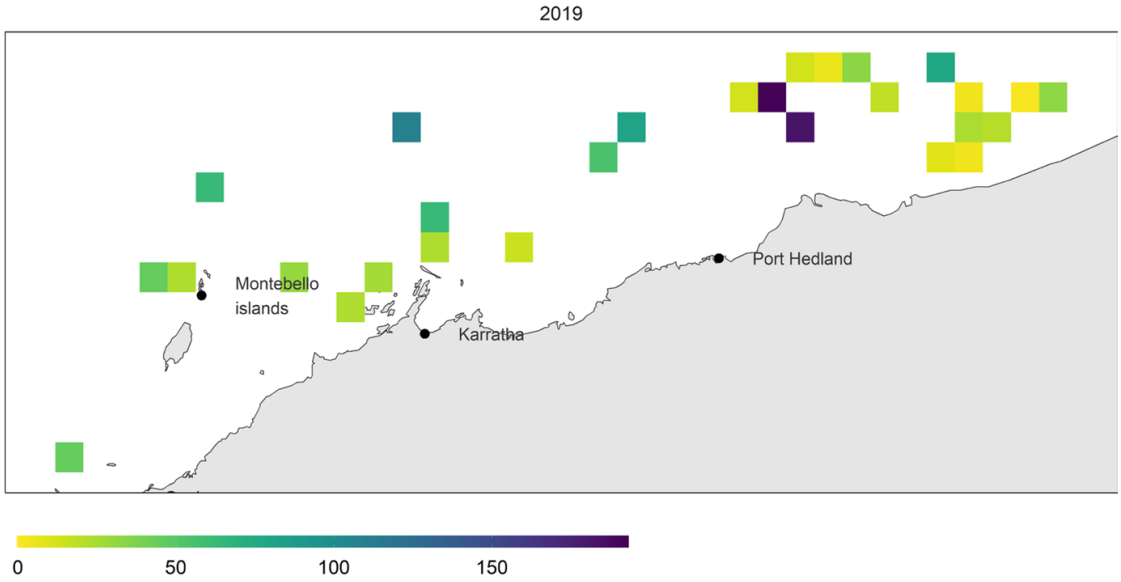

Figure 2: Maps showing distributions of catch by number (for fish measured) for Spanish Mackerel (*Scomberomorus commerson*) from Western Australian waters, from biological samples collected between 2018 and 2021. (Crisafulli et al. 2024)

1.3. North Coast Prawn Resource

- There are four commercial fisheries managed under the North Coast Prawn: the Onslow Prawn Managed Fishery (OPMF), the Nickol Bay Prawn Managed Fishery (NBPMF), the Broome Prawn Managed Fishery and Kimberley Prawn Managed Fishery. The NBPMF is the one relevant to the Proposal area
- The inshore aspects of the Proposal overlap with the NBPMF Size Management Fish Ground (SMFG)- the Fortescue SMFG, an area designated as a prawn recruitment and nursery area for the fishery. The disposal site and associated plume from disposal are not expected to enter this area closure.
- Historically (2021) catch by the OPMF has been recorded in the waters around the Great Sandy Islands which could include DMPA4 (DPIRD 2023)
- Commercial catch has not been recorded in the waters of or around DMPA4, with catch concentrated to Nickol Bay (Figure 2; Koefoed et al. 2024).

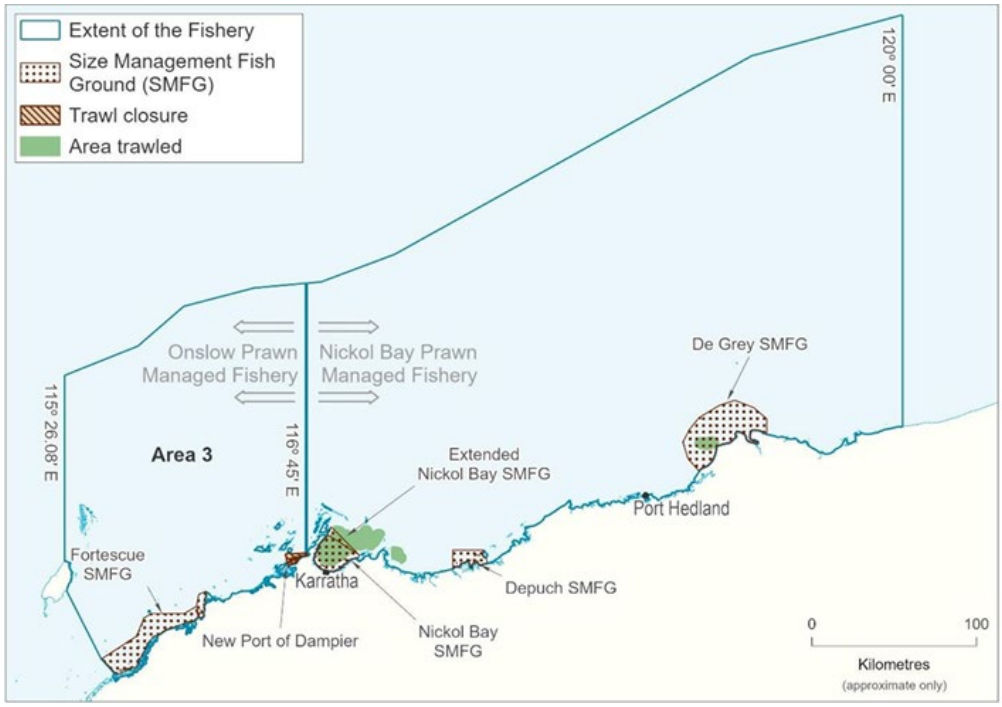

Figure 3: Boundaries of the Nickol Bay Prawn Managed Fishery and areas fished in 2023 (Koefoed et al. 2024)

1.4. North Coast Crab Resource

- There are two commercial fisheries which are managed within the North Coast Crab Resource, they are the Pilbara Crab Managed Fishery (PCMF) and the Kimberley Crab managed Fishery (KCMF). The PCMF is relevant to the Proposal area.
- PCMF generally operates from March to November, and represents ~5% of the statewide catch of blue swimmer crabs
- Blue swimmer crabs are generally found in shallow inshore waters, juveniles in shallow seagrass beds, and adults over seagrass beds, sandy, muddy or algal areas, normally in water depths <20 m but can be found in water depths up to max 50 m. Unlikely the area represents suitable area for blue swimmer crabs and no commercial fishing has been recorded in the waters of or adjacent to DMPA4.

2. Other fisheries

Fisheries such as the Western Australia Sea Cucumber Fishery (WASCF), Marine Aquarium Fish Managed Fishery (MAFMF), Specimen Shell Managed Fishery (SSMF), Pearl Oyster Wild stock Fishery and the Hermit Crab Fishery (HCF) are thought to be minor in the area, however Customary fishing may occur, particularly for silver-lipped pearl oyster

- The HCF targets a land-based species not relevant to DMPA4
- The MAFMF efforts are concentrated to Exmouth Gulf and around Dampier. The fishery targets a variety of species (fish, invertebrates, coral, live rock, algae, and seagrass) is active around islands of the Dampier Archipelago.
- WASCF catch has historically been recorded around the Barrow Island and the Montebello Islands, and the Dampier Archipelago. The fishery is unlikely to be active within or around DMPA4 as does not represent suitable habitat for the species

(seagrass beds, adjacent to mangroves, inner reefs and lagoons, reef flats, estuaries, lagoons, seagrass, rubble, depths <20 m)

- SSMF is concentrated to population centres such as Broome, Exmouth, Shark Bay, Geraldton, Perth, Mandurah, the Capes area, Albany, and Esperance.
- Pearl Oyster Wild stock Fishery not operational leases nearby, not relevant to DMPA4

The Statewide Abalone Resource has two fisheries that operate within WA waters: Abalone (Roe's) Managed Fishery and Abalone (Greenlip/Brownlip) Managed Fisheries. These fisheries extend across the entire waters of WA, with abalone mostly occurring in the West Coast Bioregion and the South Coast Bioregion (Hart et al. 2017). Area 4 (Busselton Jetty to NT/WA border) of the fishery. Management Area 4 has no quota allocated and does not form part of the functional fishery (Hart et al. 2017).

The South Coast and West Coast Crustacean Resource manage the West Coast Deep Sea Crustacean Managed Fishery, which operate off the west coast of WA. The fishery is operational on the seaward side of the 150 m isobath and extends out to the Australian Exclusive Economic Zone (200 nm boundary) (How et al. 2015). The fishery targets the crystal crab (deep-water species), occurring in water depths of 300 to 1200 m (How et al. 2015). This fishery does not operate within the vicinity of the Proposal.

3. Impact pathways

Disposal of dredge disposal can result in increased turbidity, elevated TTS, reduced light from dredging and loss of BCH, which in turn may lead to:

- Direct and indirect impacts to fish species
  - Injury or reduced fitness
  - Loss of BCH and associated fish habitat.

Direct effects of suspended solids on fishes and suspension-feeding organisms can occur through mechanical abrasion that physically damages the gills and reduces feeding rates (Lowe et al.2015) or clogs the filtering apparatus (Ayukai and Wolanski 1997). This can result in interfering with ingestion and respiration, with potentially adverse effects on growth, reproduction and/or mortality (Wilber and Clarke 2001; Fraser et al. 2017; Hess et al. 2017).

Predicted indirect impacts to BCH outside of the dredging footprint within the ZoMI, from increased turbidity, reduction in available light and localised increase in sedimentation, are all sub-lethal and recoverable. No permanent loss of any macroalgae or seagrass beds is expected due to dredge disposal at DMPA4. The lack of important habitat for important fisheries species within the ZoMI for the disposal site indicates it is unlikely that fisheries and their key target species will be impacted.

4. Fisheries publication

Recent work completed by DPIRD scientists in relations to species potentially found in the waters around DMPA4 are presented below in Table 1.

Table 1: Recent studies completed near DMPA4

Title	Study effort and location	Summary	Reference
Seascape effects on the nursery function of macroalgal habitats	13 sites shallow within the Dampier Archipelago were survey for juvenile bluespotted emperor abundance from January 2021 to 2023. In February 2021, juvenile bluespotted emperor were collected from shallow macroalgae beds using baited traps and small spearguns with pronged heads.	The study found that juvenile bluespotted emperor snappers abundance, biomass, productivity and size-at-age exhibited significant spatial variation, although each pattern was best explained by different factors. Juvenile bluespotted emperor was most abundant in macroalgae-rich seascapes. Biomass and productivity peaked at sites where macroalgal cover and water temperatures were high. The fish were found to have the greatest average daily growth at sites located near coral reefs. Overall, the results suggest that habitat and resource availability constrains bluespotted emperor abundance and productivity, while size-at-age is influenced by size-selective mortality and prey quality.	Moustaka M, WD Robbins, SK Wilson, C Wakefield, MVW Cuttler, MJ O'Leary and RD Evans (2024) Seascape effects on the nursery function of macroalgal habitats, *Marine Environmental Research,* 202(106767):1-13. doi: 10.1016/j.marenvres.2024.106767
Otolith growth chronologies reveal distinct environmental sensitivities between and within shallow- and deep-water snappers	Red emperor and Bowen's snapper (giant ruby snapper) long-term growth patterns were investigate using samples collected across the northwestern Australia's coastal shelf waters; red emperor 1950-2020, Bowen's snapper 1973-2013.	The results from annually-resolved otolith growth chronologies showed that there is a distinct environmental sensitivity present within (juveniles vs adults) and among (shallow- vs deep water habitats) species. Within species, juveniles and adults responded differently to shared environmental stimuli, highlighting the importance of understanding the impacts of environmental effects and sensitivities for different life-history stages. Red emperor results showed that variable growth appears to be tied to local climate signals such as sea surface temperature and rainfall. The results highlight potential vulnerabilities of shallow-water species to future environmental perturbations compared to species residing at depth, as they are likely to encounter more extreme climate variability under future oceanic conditions.	Widdrington JB, P Reis-Santos, JR Morrongiello, JI Mcdonald, CB Wakefield, SJ Newman, SJ Nicol and BM Gillanders (2024) Otolith growth chronologies reveal distinct environmental sensitivities between and within shallow- and deep-water snappers, *Review in Fish Biology and Fisheries,*. doi: 10.1007/s11160-024-09898-4
Population genomics informs the management of harvested snappers across north-western Australia	Sampling occurred on research and commercial fishing vessels between 2012 and 2018 across the north western and northern coastline from Shark bay to the Gulf of Carpentaria, including samples from red emperor at Cape Preston to explore the population structure of the red emperor, saddletail snapper and goldband snapper.	The results found similar pattern in genetic structure across the three species, despite the differences in the species biology and ecology. Low levels of genetic subdivision were reflected isolation by distance relationship where genetic connectivity increased with geographic proximity. This result shows extensive but not unlimited dispersal occurs across the north-western Australia shelf. The study shows that the species do not form multiple independent stocks as was previously thought.	Payet SD, J Underwood, O Berry, T Saunders, MJ Travers, CB Wakefield, K Miller and SJ Newman (2024) Population genomics informs the management of harvested snappers across north-western Australia, *Scientific Reports,* 14(26598):1-13. doi: 10.1038/s41598-024-77424-4

5. References

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Hess S, LJ Prescott, AS Hoey, SA McMahon, AS Wenger, and JL Rummer (2017) Species-specific impacts of suspended sediments on gill structure and function in coral reef fishes. *Proceedings of the Royal Society B: Biological Sciences* 284(1866). doi: 10.1098/rspb.2017.1279

How JR, FJ Webster, KL Travaille, K Nardi and AV Harry (2015) Western Australian Marine Stewardship Council Report Series No. 4: West Coast Deep Sea Crustacean Managed Fishery. Department of Fisheries, Western Australia. 172pp.

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Lewis P (2020) *Resource Assessment Report No. 19, Statewide Large Pelagic Resource in Western Australia*. Department of Primary Industries and Regional Development, Western Australia. pp. 11-21.

Lewis P and L Rynvis (2024) Statewide Large Pelagic Finfish Resource Status Report 2024. *In: State of the fisheries: Status reports of the fisheries and aquatic resources of Western Australia 2023/24* eds. Newman SJ, J Moore and DJ Gaughan Department of Primary Industries and Regional Development, Western Australia. pp. 283-290

Newman SJ, J Moore and DJ Gaughan (2024) State of the fisheries: Status reports of the fisheries and aquatic resources of Western Australia 2023/24. Department of Primary Industries and Regional Development, Western Australia, Perth. Book. https://library.dpird.wa.gov.au/an_sofar/17

Appendix 2: Response to DCCEEW Request for further information (Letter and Response Table)

Australian Government
Department of Climate Change, Energy, the Environment and Water

Our reference: SD2024-4074

Mr Snyman Van Straaten
Manager of Environmental Approvals and Compliance
BCI Minerals Ltd
Level 1, 1 Altona Street
WEST PERTH WA 6005

Dear Mr Van Straaten

Request for further information: Sea Dumping permit application for the Optimised Mardie Project

I refer to Mardie Minerals Pty Ltd's application for a permit under the *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act), received on 11 December 2024, for the dumping of capital dredge material derived from the Optimised Mardie Project, WA.

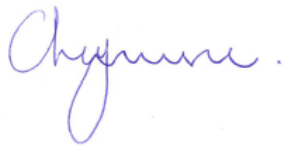
The department has reviewed your permit application and identified some areas that require further information or clarification. As a delegate of the Minister for the Environment and Water, I am therefore requesting further information in accordance with subsection 18(3) of the Sea Dumping Act to enable the assessment of the application. The department's comments are provided at Attachment A.

Please provide your responses in the table at Attachment A along with any additional documents to address the request. Note this information should be supplementary to your original application, and a new or updated sea dumping permit application form should not be submitted.

The statutory timeframe for issuing the permit is stopped as of the date of this letter. Once the additional information is provided and deemed to be sufficient, we will advise when the 90-day period outlined in subsection 19(2) of the Sea Dumping Act to grant or refuse to grant the permit commences.

If you have any further questions about this request for further information or the permit application process, please contact Douglas Wagstaffe by phone on 0484 247 527 or email at doug.wagstaffe@dcceew.gov.au (cc: seadumping@dcceew.gov.au).

Yours sincerely,



Alex Moore
Acting Director
Wildlife, Waste and Environmental Permits Branch / Sea Dumping Section
4 February 2025

Australian Government
Department of Climate Change, Energy, the Environment and Water

1 Request for Further Information

Table 1: Request for further information (RFI) for Sea Dumping Permit Application – Optimised Mardie Project – SD2024-4074 – received on 5 February 2025

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
1	Application form *– Page 11-16, Section 3.3 and 3.4* Sediment Quality Assessment 2023 (Att 2)	It is difficult to ascertain whether the sediment testing has been undertaken in accordance with the National Assessment Guidelines for Dredging 2009 (NAGD) or that the material is suitable for unconfined ocean disposal. For example: • the O2 Marine (2019a) and O2 Marine (2019b) reports were not attached to the application to provide context for the previous sampling/analysis undertaken. • Figure 2 (page 12) suggests that samples C1-C11, TB1-TB9 and O1-O3 from previous investigations are located outside the proposed dredge footprint, and therefore not relevant to the assessment. • the application (page 14-15) and the Sediment Quality Assessment 2023 (Attachment 2) only present the 6 sampling locations within the proposed dredge footprint. However, Table 6 of NAGD indicates that the minimum number of sampling locations for dredge projects 346 000 - 386 000 m^3 in size requires 25 sampling locations. • the application and Sediment Quality Assessment 2023 (Attachment 2) still references Spoil Ground E, although that site is no longer being utilised. • BCI have answered 'no' to the question "*are any of the chemical constituents listed in the previous question (that is, those above screening levels) above their*	Provide all referenced reports. All data relevant to the assessment of the sediments suitability for unconfined ocean disposal must be provided for the department's assessment. The department recommends consolidating all relevant sediment classification information into a single location/report, if possible, or providing an overview document which will assist the department in determining that NAGD requirements have been met.	Please refer to the following referenced reports as requested, as part of this response: • O2Marine (2019a): Attachment 8; and • O2Marine (2019b): Attachment 9. Previous sediment assessments were undertaken within the revised dredge channel footprints, in 2022/2023 (O2 Marine 2023), where sediments were classified as 'probably clean' under the National Assessment Guideline for Dredging (NAGD 2009). Whilst sediments in the general area have been thoroughly assessed (at historical dredge footprint options), additional proposed sampling to be undertaken by O2Marine in conjunction with the 2025/2026 Mardie Baseline Water Quality study will provide additional confidence and contemporary assessment of the chemical and physical composition of sediments within the current dredge footprint and will satisfy NAGD (2009) requirements for capital dredging projects. • Ten (10) additional samples will be collected within the updated dredge channel and will be tested for contaminants of potential concern. Further details of the proposed sediment quality assessment rationale can be found in the Sampling Analysis Plan (SAP) (O2Marine 2025) provided as Attachment 10. The results of these additional samples will be provided to DCCEEW Sea Dumping Section as soon as available. • Previous investigations (O2Marine 2019a (Attachment 8), 2019b (Attachment 9) and 2023 (Attachment 2 – previously provided as part of the Sea Dumping Permit application)) have noted that all metals apart from naturally occurring metals (Arsenic, Nickel, Aluminium, Iron and Vanadium) (DEC 2006) were below the NAGD screening levels. Those that are naturally occurring, but exceed the NAGD screening levels, are representative of ambient natural levels.

<table>
<tr><th>Ref</th><th>Document</th><th>DCCEEW Comment</th><th>Required Actions / Recommendations</th><th>Applicant response</th></tr>
<tr><td></td><td></td><td>ambient baseline concentrations for sediments of comparable grainsize in the vicinity of the disposal site?”. However, previous investigations (detailed on page 14) indicated several metal exceedances and the comparison to ambient baseline concentrations in the vicinity of the disposal site has not been discussed in detail.</td><td></td><td></td></tr>
<tr><td>2</td><td>Application form
– Page 16-17, Section 3.5.1</td><td>The site-specific environmental quality criteria, which were derived in the 2019 sediment campaign (O2 Marine 2019a) have not been provided.</td><td>See item 1 above.</td><td>The environmental quality criteria (EQCs) for the 2019 sediment campaign (O2Marine 2019a) are provided in the table below.
<table>
<tr><th>Analyte</th><th colspan="4">Level of Ecological Protection (LEP)</th></tr>
<tr><th></th><th>Max</th><th>High</th><th>Moderate</th><th>Low</th></tr>
<tr><td>Units</td><td>mg/kg</td><td>mg/kg</td><td>mg/kg</td><td>mg/kg</td></tr>
<tr><td>Aluminium</td><td>10,620</td><td>17,750</td><td>17,750</td><td>26,625</td></tr>
<tr><td>Antimony</td><td>0.5</td><td>2</td><td>2</td><td>25</td></tr>
<tr><td>Arsenic</td><td>30</td><td>36</td><td>36</td><td>54</td></tr>
<tr><td>Cadmium</td><td>0.1</td><td>1.5</td><td>1.5</td><td>10</td></tr>
<tr><td>Chromium</td><td>44.5</td><td>80</td><td>80</td><td>370</td></tr>
<tr><td>Cobalt</td><td>11.8</td><td>20.4</td><td>20.4</td><td>30.6</td></tr>
<tr><td>Copper</td><td>13.5</td><td>65</td><td>65</td><td>270</td></tr>
<tr><td>Iron</td><td>42,320</td><td>73, 700</td><td>73, 700</td><td>110,550</td></tr>
<tr><td>Manganese</td><td>415</td><td>565</td><td>565</td><td>847</td></tr>
<tr><td>Mercury</td><td><0.01</td><td>0.15</td><td>0.15</td><td>1</td></tr>
<tr><td>Nickel</td><td>22.3</td><td>35.8</td><td>35.8</td><td>52</td></tr>
<tr><td>Silver</td><td>0.1</td><td>1</td><td>1</td><td>3.7</td></tr>
<tr><td>Vanadium</td><td>59</td><td>104</td><td>104</td><td>157</td></tr>
<tr><td>Zinc</td><td>27.4</td><td>200</td><td>200</td><td>410</td></tr>
<tr><td>Total Nitrogen</td><td>392</td><td>660</td><td>660</td><td>990</td></tr>
<tr><td>Total Phosphorus</td><td>383</td><td>635</td><td>635</td><td>952</td></tr>
<tr><td>Nitrite and Nitrate</td><td>0.2</td><td>0.2</td><td>0.2</td><td>0.3</td></tr>
<tr><td>Reactive Phosphorus</td><td>0.2</td><td>0.4</td><td>0.4</td><td>0.6</td></tr>
</table></td></tr>
<tr><td>3</td><td>Application form
– Page 18, Section 3.6</td><td>The following reports referenced in the application have not been provided:
O2 Marine Benthic Communities and Habitat community surveys for the dredge site
O2 Marine (2022) Marine Pest Management Procedures.</td><td>Provide the reports for the department’s consideration.</td><td>The O2Marine Marine Benthic Communities and Habitat Community Survey (2020), which includes the dredge site, is provided in this response as Attachment 23.
The O2Marine (2022) Marine Pest Management Procedure is provided as Attachment 12a.</td></tr>
<tr><td>4</td><td>Application form
– Page 23, Section 4.1</td><td>Table 2 indicates that “[s]everal alternative offshore disposal sites were assessed”.</td><td>Provide further context on the other disposal grounds assessed, including location and sediment disposal plume modelling outputs.</td><td>Several offshore disposal sites were initially considered (refer to the figure provided in Attachment 12b), each of the options are discussed below:
Spoil Ground E, located approximately 65 nautical miles southwest from the Mardie Project site, offshore of Onslow, Western Australia. Spoil Ground E was previously used for the Chevron Wheatstone Project as a spoil disposal site (Chevron, 2016). It is unclear of the volume that was disposed within the spoil ground for the Wheatstone project, however a bathymetry survey of the site showed very little evidence of large volumes being present/retained, and only a slight variance in contours was evident. The BCH within and adjacent to this Spoil Ground E is comparable with</td></tr>
</table>

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
				DMPA4, and as such, no significant impact to BCH was expected from disposal activities at Spoil Ground E. However, the sailing distance of over 65 nautical miles between the dredge area and Spoil Ground E makes the costs for dredging works unnecessarily expensive during both the capital dredging and maintenance dredging phases. In addition, the long sailing distance will result in a longer capital dredging campaign, which also increases the risk of potential impact on marine fauna from vessel strike, vessel spills and vessel collision/s. The results from the chemical analysis undertaken of the sediment within the Spoil Ground E indicate the metal concentrations within the samples were all below the NAGD screening levels (ISQG-low). Aluminium concentrations ranged from 1900 mg/kg to 4700 mg/kg which were generally higher than the levels recorded within the 2022 samples from the dredge channel. Total Recoverable Hydrocarbons (TRH) were all below the detection limit using both 1999 NEPM fractions and 2013 NEPM fractions. All organotins were below the respective LoRs, and therefore Tributyltin (TBT) was also below the NAGD screening level (ISQG Low) of 9 µg/kg. This was also similar to the results within the dredge footprint, where sediments were also below the LoR. A summary of the dredge disposal modelling results revealed that: <u>For corals:</u> • The natural light reaching the BCH at the proposed spoil ground in 60 m of water depth is low and below the thresholds published by the EPA at which Moderate Impact (possible and probable) to corals are expected to occur. Therefore, no Project-specific ZoMI (possible or probable) for corals was identified. • The EPA requests the assessment of impacts to corals due to the combined effects of low benthic light and turbidity. Though these criteria for probable ZoMI were met inside a very small and localised region, the extent of the probable ZoMI did not intersect with any known coral habitat. • The EPA criteria for possible ZoMI due to the combined effects of low benthic light and elevated SSC was not met. • The thresholds associated with irreversible impacts to corals from the combined effects of reduced benthic light and elevated SSC were not met, hence no ZoHI (possible or probable) was defined. <u>For Sponges:</u> • Natural benthic light in the vicinity of the Spoil Ground E is low and below the thresholds at which Moderate Impact (possible and probable) to sponges are expected to occur. The area affected by natural low light availability encompasses the region where SSC due to the dredging disposal program is above 10 mg/L. Hence, no reversible impacts (possible or probable) to sponges can be associated to the dredge disposal program. • The possible and probable ZoHI based on thresholds derived for sponges are 94 and 163 ha and intersect with 52 and 99 ha, respectively of the Spoil Ground E. Additionally, 26 and 31 ha associated with a possible and probable ZoHI, respectively, are observed outside of the Spoil Ground E however they do not intersect with any known sponge habitat. 2. Spoil Grounds DMPA 1, 2 and 3 (located approximately 9, 12 and 12.4 nautical miles, respectively, from the dredge footprint) were also considered. However, DMPA 1, 2 and 3 were deemed unsuitable due to the benthic habitat present in proximity to Stewart, Fortescue, Scholl and Mardie Islands, and the likely impacts to the BCH based on the sediment plume modelling efforts for each of these spoil grounds (refer to Baird 2024- Attachment 13). Spoil ground disposal plume modelling for DMP4A predicted smaller impacts and on low density BCH, i.e. impacts are predicted to be restricted to sand with sparse filter feeder and mixed assemblage within DMPA4.
5	Application form *– Page 23, Section 4.1*	The 're-use' section in the summary of alternatives (Table 2) does not assess the sediments' capacity to be beneficially reused (e.g., land creation, beach nourishment, offshore berms, fill).	Include an assessment of the sediments' capacity/potential options for beneficial reuse.	Currently, there is limited demand for sediment from construction sites in the vicinity of the Mardie Project, and there are few suitable re-use projects in the area. Transportation costs can be substantial if suitable re-use sites are located far from the dredging site at Mardie; this includes costs for transporting the sediment via truck or barge. However, since mid-2024, BCI has been in exploratory discussions with an overseas stakeholder interested in the potential re-use of sediment. These discussions are still in the early stages, and several logistical and permitting challenges must be addressed. Notably, the stakeholder needs to be prepared to directly take sediment from BCI during the dredging campaign to minimise temporary storage and avoid double handling before loading it onto their vessel(s). BCI is still evaluating this opportunity for re-use, as the stakeholder has specific requirements regarding the physical properties of the sediment, such as grain size.

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
				Additionally, sediment treatment processes, including dewatering and washing, may be necessary to meet their re-use standards, all of which could increase overall costs. Also, there is a logistical challenge that stems from the shallow water depths inshore at the Mardie Project site which makes effective slurry transport of sediment from the dredge area to an onshore transfer location (for transport by road to a re-use location) challenging.
6	Application form *– Page 25, Section 4.2*	In accordance with the NAGD, the waste prevention audit should also identify opportunities for preventing or minimising any future sediment contamination and states that "*for dredged material, it should focus on identifying and managing controllable sources of sediment contamination, such as port loading and un-loading activities*" (NAGD, page 10).	Indicate the potential sources of future contamination and how this will be prevented.	After construction of the product loading jetty and the capital dredging campaign for the Mardie Project have been completed, there is the potential of future sediment contamination from product loading activities onto transhipment vessels. Potential sources of future contamination of sediment may include hydrocarbon spills from marine vessels during product loading to the marine environment, as well as during the sailing of the transhipment vessel from the product loading facility to the moorings for the ocean-going vessels located within the Cape Preston West Port boundary to the east of DMPA4. However, the risk of contamination is considered to be low based on management and mitigation measures to be implemented to prevent or minimise hydrocarbons spills, in accordance with Works Approvals and Environmental Licences granted by the State in accordance with Part V of the *Environmental Protection Act 1986 WA* (the EP Act). The Works Approvals and Environmental Licences under the EP Act regulate the material bulk loading facility at the jetty head for the Mardie Project, as well as the Project's landfill site and accommodation village wastewater treatment plant further inland (neither of which are located in close proximity to the marine environment). All dredging and other marine vessels (i.e. for the transhipment of product from the bulk materials loading facility on the jetty to the moorings for ocean-going vessels) associated with the Mardie Project are required to comply with the management measures and protocols associated with managing vessel bunkering, chemical storage and chemical spills, in order to minimise impacts to the marine environment, as outlined in Table 8 (Benthic Communities and Habitats), Table 9 (Marine Environmental Quality) and Table 10 (Marine Fauna) of the DSDMP (Attachment 11a).
7	Application form *– Page 32, Section 5.6*	The application form states that the "*Spoil Ground DMPA4 is located in water depths of approximately 16 m across the entire spoil ground.*" However, it does not state whether this is the depth recorded at Lowest Astronomical Tide (LAT).	Confirm the depth of DMPA4 at LAT.	As outlined in O2Marine 2024a, provided as Attachment 14 in this response, the spoil ground DMPA4 is located in water depths of approximately 16 m LAT (approximately 20m AHD - Mean Sea Level) across the entire spoil ground.
8		This section does not include information on whether the disposal site is expected to be dispersive or retentive.	Provide an assessment of whether the disposal site is expected to be retentive or dispersive.	The DMPA4 is expected to be retentive based on: • the depth of the DMPA4 (16m LAT), • the magnitude of the tidal currents at the seabed being very benign, and • the dredge spoil to be placed at the seabed inside the DMPA4 boundary will comprise sand (i.e. fine sand, coarse sand, gravel) and tidal currents are not expected to remobilise this. Potential remobilisation of dredge spoil sediment could only occur under a small range of circumstances (e.g., cyclonic or storm conditions), noting that the dredging and disposal program is scheduled to occur outside of the cyclone season (i.e. April to September (inclusive)).
9	Application form *– Page 33, Section 6.2*	When describing the dredging procedure, the application form states that "*[d]ue to the nature of the dredging and location within the vicinity of the already constructed jetty, other equipment may be required…*".	Elaborate on this statement further, including what other equipment may be required and what potential impacts they may have.	The majority of the dredging around the existing (already constructed) jetty structure is expected to be completed by the Backhoe Dredge (BHD). However, due to the sensitivity of these structures, the works may take longer, as operators will have to exercise extra caution to avoid impacting the surrounding jetty structure. Some minor adjustments to the final dredge slopes and design levels may be necessary, requiring specialised equipment, such as an eductor dredge, to conduct localised dredging and remove any residual material. This material dredged by the eductor will be disposed of within the ZoHI and later collected by the BHD. As these works are relatively minor compared to the BHD dredging and will be confined to within the ZoHI, no additional impacts within the dredging area are expected beyond those already modelled for the BHD.

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
10	Application form *– Page 35, Section 6.5*	The safety assurance/contingency measures should also include protocols for adverse weather conditions or other scenarios that may affect safely.	Outline the proposed procedures/contingency measures that will be implemented to ensure human safety during the action.	As per the dredging contract scope of work, the dredging contractor is required to develop several plans to ensure the works are completed safely and in compliance with BCI Minerals' safety requirements and the Pilbara Ports' guidelines. Before site access and commencement of the dredging works, the contractor must prepare and facilitate a Construction Risk Assessment Workshop (CRAW). This workshop must be attended by the contractor's supervisory team, BCI Minerals' team, and any other relevant third parties nominated by BCI Minerals and Pilbara Ports. The contractor must submit the following plans for approval by BCI Minerals and Pilbara Ports, before commencing dredging works: • Dredge Management Plan • Health, Safety, and Security Management Plan • Vessel and Plant Management Plan • Voyage Planning • Emergency Response Plan • Cyclone Management Plan It is important to note the dredge contractor is contractually obligated to demonstrate compliance with BCI Minerals' and Pilbara Ports' requirements and regulatory guidelines, in order for Pilbara Ports to issue a dredge licence to BCI Minerals.
11	Application form *– Page 37, Section 7.1*	The application form supplies numerous environmental investigations. Any reports that are relevant to or are used in support of an application under *the Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act) should be provided with the application.	Provide all relevant environmental investigations as attachments to your response to this RFI.	The following relevant additional environmental investigations are provided in this response: • Attachment 15 - Onslow Marine Support Base Stage 2 Capital Dredging: Sediment Quality Assessment. Report no. 1701010 (O2Marine 2017) • Attachment 16 - Mardie Project – Mardie BCH Baseline Investigations. Report Number R220270
12		This information presented does not include a description of the projected physical, chemical, and biological impacts from: • the long-term movement of disposed dredged material (based on whether the disposal site is considered retentive or dispersive) • changes in the concentration of nutrients, oxygen depletion, and any increased bioaccumulation of contaminants • other possible effects on the ecosystem and resource users of the area (e.g., indigenous communities, recreational or commercial fish fisheries interference, commercial shipping, other industries/recreation, etc.)	Provide a description of the projected physical, chemical, and biological impacts for the items listed, including an assessment of their likelihood.	• Long-term movement of disposed dredged material: Material to be disposed of at DMPA4 is expected to be retained in the vicinity of the spoil ground due to the (1) mild wave climate experienced in the area and (2) depth of DMPA4. Remobilisation of the sediment is only likely to occur under a small range of circumstances (e.g. cyclonic or storm conditions), noting that the dredging and disposal program is scheduled to occur outside of the cyclone season (i.e. April to September (inclusive)). In the event of oceanic currents and swells during storm events potentially resuspending fine material, over time, it is expected this material will become consolidated within sediments in the nearfield. Therefore, the DMPA4 site is considered to be retentive. Long-term movement of disposed dredged material is unlikely to negatively impact the marine environmental values of the region. • Changes in the concentration of nutrients, oxygen depletion, and any increased bioaccumulation of contaminants Apart from naturally occurring metals identified during sediment sampling investigations (refer to Section 3.4 on page 14 to 16 of the Application Form), the proposed sediment to be dredged is considered free of contaminants and suitable for unconfined ocean disposal. Therefore, it is highly unlikely bioaccumulation of contaminants, changes in nutrient concentration or oxygen depletion would occur as a result of the proposed dredging and disposal activities. • Other possible effects on the ecosystem and resource users of the area (e.g., indigenous communities, recreational or commercial fish fisheries interference, commercial shipping, other industries/recreation, etc.) No other possible effects on the ecosystem and resource users of the area from dredging and disposal activities have been identified as part of the impact assessment in the Mardie Project referral. Section 7 of the DSDMP (Attachment

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
		• potential effects of the waste material and its constituents on human health • the existence and cumulative impacts of other disposal activities at the site or other nearby disposal sites.		11a) provides details of the tiered monitoring and management framework, including management actions and targets, designed to mitigate impacts to all relevant environmental factors (benthic communities and habitat (BCH), marine environmental quality (MEQ) and marine fauna) for the Mardie Project. BCI engaged O2Marine (2025) to undertake a fish and fisheries desktop and impact assessments (Attachment 11b) for other Projects along the Pilbara coastline. The report looked at fisheries that operate over a large scale, including the waters of and around DMPA4. The findings from the desktop assessment (Attachment 11b) indicate the area of and surrounding DMPA4 is not utilised by indigenous, recreational or commercial fisheries. • Potential effects of the waste material and its constituents on human health Apart from naturally occurring metals identified during sediment sampling investigations (refer to Section 3.4 on page 14 to 16 of the Application Form), the proposed sediment to be dredged is considered clean and free of contaminants and is not expected to be disposed of onshore. Therefore, likelihood of the dredging and disposal activity having any effects on human health is considered to be low. • The existence and cumulative impacts of other disposal activities at the site or other nearby disposal sites. There are no cumulative impacts predicted on the marine environmental values of the Mardie area when considered in conjunction with other disposal activities based on the: o remote location of the proposed disposal ground, and o physical/chemical characteristics of the material that requires disposal.
13	Application form *– Page 32, Section 7.2*	The department notes that the generated Protected Matters Report (PMR) includes a "*20 km buffer surrounding the spoil ground DMPA4*" and that the DMPA4 is "*located approximately 25 km … north-northwest of the dredging location"* (DSDMP, Section 1.1, page 1). The Dredge and Spoil Disposal Management Plan (DSDMP; Attachment 5), section 2.6 (page 22) indicates that a likelihood of occurrence assessment for conservation significant marine fauna species has been undertaken within the vicinity of the dredging area. However, no further context has been provided.	Provide further evidence that protected matters in the dredge area have been adequately addressed.	The following sections and appendix of the *Optimised Mardie Project (EPBC 2022/9169) – Supplementary Report* (Preston Consulting, 2022) (refer to Attachment 32) details the likelihood of occurrence assessment for conservation significant marine fauna species within the vicinity of the dredge area: • Section 12.3.2: o Table 52 (Marine Mammals) on page 291; o Table 53 (Elasmobranch) on page 294; • Section 12.3.2: o Table 54 (Marine Reptiles) on page 296; and • Section 3.2 of Appendix 9.1 (*Mardie Project: Marine Fauna Review* (O2Marine, 2020) on page 26 (refer to Attachment 33). A PMR completed in October 2024 and included in referral Offshore Dredge Disposal (EPBC 2024/10054) is provided as Attachment 17 in this response.
14	Application form *– Page 32, Section 9*	Section 9 of the form requires that you summarise and attach the records of consultation to this application. No records of the consultation have been provided as an attachment to the application.	Attach the records of consultation to your RFI response. Information to satisfy this request must include: • consultation reference (e.g., phone call / email) • details on what was consulted on • date consulted • person or organisation consulted	Please refer to Attachment 18, which is an updated summary of the stakeholder engagement BCI has undertaken to date.

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
			• any feedback provided or concerns raised and • how feedback and concerns were addressed.	
15	Application form *– Page 32, Section 9*	The department notes that several consultation items are not finalised.	In your RFI response, provide evidence that each item has been closed out appropriately by indicating against each consultation item how the concerns have been taken into account.	Please refer to Attachment 18, which is an updated summary of the stakeholder engagement BCI has undertaken to date, the last column (Outcomes / BCI Response) details how BCI has or proposed to close out the issues raised. BCI is committed to ongoing engagement with the stakeholders. Certain issues raised by stakeholders are still being considered and discussed, in particular the issues raised by WAFIC. Please refer to Attachment 19, which contain the record of consultation to date between BCI and WAFIC.
16	Application form *– Page 46, Section 9.1*	The department notes that the WA Environmental Protection Authority (EPA) issued state government approval for the Mardie Salt Project (MS 1211) prior to pursuing the sea dumping option of disposal. No evidence of consultation with the WA EPA regarding the proposed change in scope has been provided.	Provide evidence of consultation with the WA EPA outlining the proposed change in scope.	Please refer to Attachment 20, which summarises the consultation with the WA EPA. In essence, the WA EPA has requested BCI to withdraw the Section 45C application made under the *Environmental Protection Act WA*, and to submit an application under Section 40AA of the Act instead, for assessment of the proposal to do sea dumping of dredge spoil.
17	Application form *– Page 42-52, Section 9.1*	Consultation with the WA Department of Biodiversity, Conservation and Attractions (DBCA) and Department of Transport (DoT) have not been included. The department considers both parties to be relevant stakeholders.	Provide evidence of consultation. Information to satisfy this request must include: • consultation reference (e.g., phone call / email) • details on what was consulted on • date consulted • person or organisation consulted • any feedback provided or concerns raised and • how feedback and concerns were addressed.	Please refer to Attachment 21a, which is the record of consultation with DBCA. Please note that despite BCI' approaches to DoT on 17 September 2024, 7 February 2025, and 25 March 2025 (Attachment 21b), and BCI seeking advice from TACC as to the appropriate representative with DoT to contact, BCI has not received any positive response from DoT for a meeting or any questions on the presentation material provided previously. BCI will continue with its effort to engage with DoT. Noting also that DoT will be approached by WA EPA when it seeks WA department / agency comments on the Section 40AA application referred to in Ref 16 above.
18	Application form *– Page 43, Section 9.1*	The outcome of consultation with DCCEEW (Environment Assessments West) indicated that a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) will be submitted for the proposed offshore disposal. Current approvals under the EPBC Act do not facilitate ocean disposal and consistency is required between authorisations to allow any ocean disposal activities to occur.	Provide the outcome of the EPBC Act referral decision (EPBC 2024/10054) for the sea dumping action.	Referral EPBC 2024/10054 was advertised for public comment by DCCEEW from 6 to 19 February 2025. DCCEEW issued a request for further information to BCI on 7 March 2025, to which a response was provided on 3 April 2025. The delegate's decision on referral EPBC 2024/10054 is expected in mid-May 2025.
19	Application form	The stakeholder row for 'TACC Meeting' (held on 24 May 2024) does	Provide a list of representatives and/or their organisation.	Please refer to Attachment 22a for a record of the minutes of the meeting held on 24 May 2024. The government, industries or community present included:

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
	– *Page 45-46, Section 9.1*	not indicate the government, industries or community that were present.		• Pilbara Ports • Department of Planning, Lands and Heritage • Department of Transport • Department of Biodiversity, Conservation and Attractions • Department of Climate Change, Energy, the Environment and Water • Department of Jobs, Tourism, Science and Innovation • Leichardt Industries • BCI Minerals Ltd • Onslow Salt
20	Application form – *Page 46-47, Section 9.1*	PPA "*Suggest the proposed DMPA4 area needs to have a buffer (minimum of 50 m and up to 100 m) to ensure the material being dumped stays within the boundaries of the DMPA.*" In any approval for the ocean disposal of dredged/excavated material, the department requires confirmation that no dredging or dumping has occurred outside approved boundaries. Any actions that occur close to an approved boundary may result in the action occurring in unapproved areas (via vessel drift, etc.,), which would require reporting to the department.	Confirm if PPA's comment has been considered in your dredge and disposal methodology. Provide justification for your decision.	BCI has considered PPA's comments by engaging further with its consultant, Baird, to clarify if DMPA4 size is adequate for the estimated volume of capital dredging spoil to be disposed of. As per the response to comment 8 above, DMPA4 is expected to be retentive based on: • the depth of the DMPA4 (16m LAT), • the magnitude of the tidal currents at the seabed being very benign, and • the dredge spoil to be placed at the seabed inside the DMPA4 boundary will comprise sand (i.e. fine sand, coarse sand, gravel) and tidal currents are not expected to remobilise this. The total capital dredge volume that was assumed by Baird is 355,000 m^3. At the completion of the offshore disposal campaign, the model is showing the volume of dredge spoil in DMPA4 as 207,500m^3. The sediment losses are associated with the dredge method at the point of removal (losses from the dredge head, bucket, overflow of hoppers) and at the placement site from the suspension of fines (silts and clays) in the water column when the hoppers release their loads. Based on the model outcomes, approximately 60% of the dredge spoil reaches the seabed of DMPA4. The sediment composition of the dredge spoil showed a high proportion of fines (i.e. silt and clay, 52%) in the sediment composition which is a key driver of the difference between dredged sediment volume and the volume that reaches the seabed at DMPA4 spoil ground. The fines go into suspension in the water column and are carried on the tidal currents, eventually falling out of suspension to the seabed at a distance from the DMPA4 location. The DMPA4 dimensions are 702m by 431m. In the analysis conducted by Baird, the upper limit height for placement of capital dredging spoil is assumed as 2m above the seabed which yields a total volume of 606,000m^3. The DMPA4 site is in a depth of approximately 20m, and the site can be generally considered to be retentive. Due to the depth, the magnitude of the tidal currents at the seabed are very benign. The dredge spoil that is placed at the seabed inside the DMPA4 boundary are not expected to remobilise this. Potential remobilisation of this sediment could only occur under a small range of circumstances (e.g., cyclonic or storm conditions). Noting that the dredging and disposal program is scheduled to occur outside of the cyclone season (i.e. April to September (inclusive)) in accordance with the WA Approval (Ministerial Statement 1211), BCI considers that against the above background and modelling done by its consultant, Baird, that the proposed size of DMPA4 includes an adequate buffer to prevent dumping to occur outside of the approved boundaries of DMPA4 as a whole.
21		In their consultation, PPA noted that "*[t]he Proponent need to undertake a hydrographic survey of the proposed transport route for the vessels transporting the material for disposal, as this will be needed for the PPA issued dredge licence.*"	Provide confirmation that the hydrographic surveys have been conducted to the satisfaction of PPA. Provide copies of hydrographic survey results. Indicate the status of the required PPA issued dredge licence.	The hydrographic surveys required by Pilbara Ports have not been undertaken as yet by BCI. Due to the prevalence of tropical cyclones in the Pilbara and their potential impacts on sedimentation and erosion, the surveys will be undertaken approximately 2 to 3 months before dredging is proposed to commence. As detailed in Attachment 24a, BCI engaged BlueSpatial Australia (BSA) to review the nautical charts for the proposed route of the hopper barge from the dredge area to the DMPA4 disposal area. BSA determined there is sufficient depth for a 1200m^3 split hopper barge to transit from the dredge area to DMPA4. BSA did identify a small area on the nautical charts that would require further assessment, as there is a low Zone of Confidence (ZOC) associated with the nautical chart and there is no current data to confirm either the presence of the sholl and the least depth. The recommendation for a pre-dredge hydrographic survey to be conducted in strict accordance with Pilbara Ports standards would ensure accuracy and consistency.

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
				The pre-dredge survey will encompass a buffer zone of no less than 100m across all surveyed areas, allowing for a thorough assessment of the channel and transit routes, and will identify any potential obstructions, seabed variations or depth restrictions. High-resolution multibeam sonar technology, supplemented with tide and motion corrections will be utilised to achieve the required accuracy. Upon completion of the capital dredging activities, a follow up hydrographic survey will be actioned in accordance with Pilbara Ports standards to assess the changes of the seabed profile and confirm there are no residual high spots or other navigational hazards that could potentially impact vessel movements. This post-dredge hydrographic survey will be delivered in a comprehensive report, including bathymetric charts, survey logs and a comparative analysis of pre- and post-dredge conditions. Attachment 24b provides confirmation from Pilbara Ports that the proposed approach recommended by BSA is adequate. BCI will provide copies of the hydrographic survey results to Pilbara Ports, and to DCCEEW Sea Dumping Division. Please note that Pilbara Ports will only issue the dredge licence prior to the commencement of the dredging and disposal activities, and after BCI has obtained approval for sea dumping from WA EPA and DCCEEW. BCI will work with Pilbara Ports during the award period of the dredging contract to ensure the preferred dredge contractor has a proven track record and that Pilbara Ports approve of the dredging methodology.
22		Consultation with PPA confirms that a cyclone readiness and response plan has been developed for the proposed dredge and ocean disposal.	Provide the cyclone readiness and response plan to supplement your response to item 10 above.	Please refer to: • the Cape Preston West Cyclone Avoidance Plan (included as Attachment 25 to this response); and • the Mardie Project Cyclone Response Procedure (included as Attachment 26 to this response). Please note that the dredge contractor will be required by BCI and Pilbara Ports to develop a cyclone readiness plan as part of its contract which plan has to be reviewed by BCI and Pilbara Ports prior to contract award.
23	Application form *– Page 48, Section 9.1*	Consultation with the Department of Planning, Lands and Heritage (DPLH) confirms that a desktop review of the Aboriginal Cultural Heritage Inquiry System and advice regarding Native Title has been obtained. However, this information was not provided in the assessment of potential impacts of the action.	This information should be provided in support of your response to RFI item 12 above and used to inform the likelihood of encountering underwater heritage.	Please refer to Attachment 27 for the ACHIS desktop review of the DMPA. The review indicates there are no Registered or Lodged heritage sites in the vicinity of DMPA 4, and the likelihood of encountering underwater heritage is considered to be low. However, BCI has a process in place to be followed in the event that unexpected or unknown Aboriginal cultural heritage values are encountered. Refer to Section 10.8 and Section 10.9 of BCI's Aboriginal Cultural Heritage Management Plan included as Attachment 28 to this response. BCI has sought external legal advice in relation to the extent of the Native Title determination area and been advised the determination expressly found that Native Title does not exist seaward of the mean low water mark on the mainland coast; with the "mean low water mark" meaning the line of the low water mark as depicted in Landgate's Spatial Cadastral Database dated 2 January 2018 and shown on the maps at Schedule Two of the determination provided via the following link: https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2018/2018fca1108
24	Application form *– Page 51-52, Section 9.1*	The stakeholder row for 'TACC Meeting' (held on 29 November 2024) does not indicate the government, industries or community that were present. The outcomes of the consultation include the following: • "*BCI advised it was preparing its response to the comments and concerns received from DPIRD (refer to 18 November 2024 above).*"	Please provide a list of representatives and/or their organisation. Provide more context in regard to the 2 outcome items including confirmation they have been appropriately considered and addressed. Attach evidence of relevant correspondence in support of your response.	Please refer to Attachment 22b included in this response for a record of the minutes of the meeting. The government, industries or community present included: • Pilbara Ports Authority; • Department of Primary Industries and Regional Development; • Department of Biodiversity, Conservation and Attractions; • Mackerel Islands; • Mineral Resources Ltd; • BCI Minerals Ltd; • Leichardt Salt; • Onslow Salt; • Department of Climate Change, Energy, the Environment and Water; and • Department of Planning, Lands and Heritage

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
		• "*BCI undertook to review the proposed size of DMPA4 in view of Pilbara Ports' comments.*"		BCI provided a response back to DPID on 13 December 2024 (Attachment 22c to this response) which addressed the following concerns raised: • Consideration of an alternative land disposal site away from the Minnie Daisy; and • Potential significant impacts on Blue-spotted emperor. As noted in the response to comment 20 above, BCI has reviewed and considered the proposed size of DMPA4.
25	Application form *– Page 51-52, Section 9.2*	Consultation with local indigenous groups, commercial fisheries operators or other relevant local groups has not been included. The department considers these to be relevant stakeholders.	Provide evidence of consultation. Information to satisfy this request must include: • consultation reference (e.g., phone call / email) • details on what was consulted on • date consulted • person or organisation consulted • any feedback provided or concerns raised and • how feedback and concerns were addressed.	BCI has raised the proposed offshore disposal of dredge material with the Wirrawandi Aboriginal Corporation (WAC) that manages the Native Title rights and interests for the Mardudhunera and Yaburara people in February 2025, with the intention of discussing it further at a future meeting with the WAC Board that was scheduled for mid-April 2025. Unfortunately, this scheduled meeting has been pushed back at the request of WAC, however, BCI is committed to ongoing consultation with WAC regarding the proposed offshore disposal of dredge material. As indicated in Attachment 18 and Attachment 19, BCI has been engaging with WAFIC on a regular basis; WAFIC represents numerous commercial fisheries operators.
26	Sediment Quality Assessment 2023 (Att 2) *– Appendix A*	Appendix A ('Technical note: Seabed sampling at Mardie – Channel Alignment') has not been provided.	Provide Appendix A.	The 'Appendix A ('Technical note: Seabed sampling at Mardie – Channel Alignment') is now provided in Attachment 31 (refer to page 23).
27	DSDMP (Att 5) *– Page 5, Section 1.3*	The acronym 'BCHMMP' has been used without previous context.	Include the expanded version of the acronym in the text or in the glossary table.	BCHMMP is the acronym for the Benthic Communities and Habitat Monitoring and Management Plan for the Mardie Project. Revision D of the BCHMMP was approved by DCCEEW for implementation for the Mardie Project, and is available for download from the link: Mardie Project
28	DSDMP (Att 5) *– Page 37, Section 5*	The DSDMP states that the management targets (MT) derived for proposed dredging have been identified to address the recommendations and requirements of the WA EPA, EPBC 2018/8236 (as varied) and EPBC 2022/9169. However, the department notes that a new referral (EPBC 2024/10054) has been submitted for the unconfined ocean disposal of the dredge material.	Confirm that MTs are still relevant in accordance with the new EPBC referral.	Please note that BCI's intention is that the DSDMP (Attachment 11a) will replace the Dredge Management Plan approved by DWER (in accordance with Ministerial Statement 1211) and DCCEEW (in accordance with EPBC 2018/8236 (as varied) and EPBC 2022/9169) – should offshore disposal of dredge spoil be approved by the various State and Commonwealth regulators. The MT detailed in the DSDMP (Attachment 11a) are slightly different to the existing Dredge Management Plan (Revision 7; O2Marine 2023a) for the Mardie Project to accommodate for the change to offshore disposal of the dredge material. However, the MT in the DSDMP (Attachment 11a) is in line with the information provided to support referral EPBC 2024/10054. More specifically, Table 7 in Attachment 11a: MT has been revised to now also relate to offshore disposal at DMPA4; the MT has also been revised as Potential Acid Sulfate Soil (PASS) need not be considered for offshore disposal (as is the case for onshore disposal).
29	DSDMP (Att 5) *– Page 37, Section 6*	The monitoring and management tables presented in section 6 do not include a column for 'Trigger Points' to inform when contingency measures apply.	Include a column for 'Trigger Points' in each monitoring and management table. If the trigger points are explained elsewhere in the DSDMP, include	'Trigger point' column is not considered necessary to include as the contingency column describes the non-compliance with an MT from an operation or process associated with the scope of works. Added as a footnote to Table 8 (page 41), Table 9 (page 46) and Table 10 (page 49) of the DSDMP (refer to Attachment 11a).

Ref	Document	DCCEEW Comment	Required Actions / Recommendations	Applicant response
			references to where they are located in the corresponding cell.	
30	DSDMP (Att 5)	The DSDMP does not include any unexpected finds procedures in the event of encountering European or First Nations of underwater cultural heritage (UCH).	Provide an assessment of the likelihood of UCH and include unexpected finds procedures in accordance with the *Underwater Cultural Heritage Act 2018*.	The likelihood of Underwater Cultural Heritage (UCH) to occur within the dredging and disposal areas is considered to be low, for the following reasons: • The PMR showed no National or World Heritage Areas within the project vicinity (refer to Attachment 17); • The Australasian Underwater Cultural Heritage Database (AUCHD) showed no significant underwater cultural heritage areas within the project vicinity; • Bathymetry Surveys conducted by O2Metocean (2024) (Attachment 29), which covered DMPA4, showed no evidence of any underwater artefacts (remains of vessels, submerged aircraft and other archaeological heritage located underwater); • As indicated in Attachment 30a, a review of the DPLH spatial database indicates there are no European heritage cultural values in the vicinity of DMPA4 (refer to link https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA) ; and • As indicated in Attachment 30b, a review of the WA State database 'Locate' indicates there are no shipwrecks or other European heritage values in the vicinity of the DMPA4 (refer to https://maps.slip.wa.gov.au/landgate/locate/). As per the draft DCCEEW *'guidelines for working in the near and offshore environment to protect Underwater Cultural Heritage'*, the above steps are considered reasonable to identify any UCH resources in the marine project area. As per Section 2 (Existing Environment) of the DSDMP (Attachment 11a), it is unlikely that cultural heritage areas exist within proximity of the dredging and/or disposal sites. BCI's Aboriginal Cultural Heritage Management Plan (Attachment 28) includes the process that will be followed in the event of unexpected finds of underwater European or First Nations cultural heritage material(s).

2 Attachments

Please list all attachments to your response (if applicable).

Attachment number	Name of document	Number of pages in document	Document type e.g., PDF, JPEG	Corresponding section(s) of the response it is relevant to
Please note the attachment numbers below follow on from the attachments previously provided to support the Sea Dumping Permit application, hence they start at 8.				
8	O2Marine (2019a). Mardie Project: Sediment Quality Assessment Report. Report prepared for BCI Minerals Ltd. Report No. R190033	192	PDF	1
9	O2Marine (2019b). Port of Dampier: Marine Environmental Quality Sampling and Analysis Plan. Report prepared for Pilbara Ports Authority. Report no. R1800118	80	PDF	1
10	O2Marine (2025.) Optimised Mardie Project Sediment Sampling and Analysis Plan Rev A. Report No. 25ENV-386/G250089	25	PDF	1
11a	O2Marine (2025). Dredge and Spoil Disposal Management Plan. Rev 1. Prepared for BCI Minerals Ltd	115	PDF	1, 6, 12, 28, 29 and 30.
11b	O2Marine (2025). BCI Fisheries summary and response to WAFIC Comment	8	PDF	12
12a	O2Marine (2022). Marine Pest Management Procedures. Reference 21WAU-0060-08/T210234	7	PDF	3
12b	Offshore Disposal Options 1, 2, 3, 4 and E – locality plan	1	PDF	4
13	Baird (2024). Mardie Dredge Plume Modelling – Model Results Summary. Reference #12979.406.M2.RevA, dated 20 September 2024.	12	PDF	4
14	O2Marine (2024a). DMPA4 – Benthic Communities and Habitats Report. Prepared for BCI Minerals Ltd. Report Number R240358	39	PDF	7
15	O2Marine (2017). Onslow Marine Support Base Stage 2 Capital Dredging: Sediment Quality Assessment. Report no. 1701010	229	PDF	11
16	02Marine (2023). Mardie Project – Mardie BCH Baseline Investigations. Report Number R220270, revision B	62	PDF	3, 11
17	EPBC Act Protected Matters Search Report	21	PDF	13
18	Updated Stakeholder Engagement Summary Table	12	PDF	14

19	Evidence of BCI's stakeholder correspondence with WAFIC	9	PDF	15
20	Evidence of BCI's stakeholder correspondence with WA EPA	2	PDF	16
21a	Evidence of BCI's stakeholder correspondence with DBCA	8	PDF	17
21b	Evidence of BCI's stakeholder correspondence with DoT	3	PDF	17
22a	Evidence of BCI's stakeholder correspondence with TACC on 24 May 2024	7	PDF	19
22b	Evidence of BCI's stakeholder correspondence with TACC on 29 November 2024	6	PDF	24
22c	Evidence of BCI's stakeholder consultation with DPIRD	5	PDF	24
23	O2Marine (2020). Marine Benthic Communities and Habitat Community Survey. Report No 190045	50	PDF	3
24a	Blue Spatial Australia (BSA) (2025). Technical Memo	2	PDF	21
24b	Response from Pilbara Ports in relation to proposed approach for hydrographic survey, dated 10 March 2025	2	PDF	21
25	CSL Australia, Cyclone Avoidance Plan (Draft)	6	PDF	22
26	Mardie Project Cyclone Response Procedure (Doc. No. 0000-HS-PRO-0010)	21	PDF	22
27	DPLH 2025 Aboriginal Cultural Heritage Inquiry System Search Results for Registered and Lodged Sites	2	PDF	23
28	Aboriginal Cultural Heritage Management Plan Rev 3, 2024	105	PDF	23
29	O2 Metocean (2024). DMPA4 Multibeam Survey Report. Prepared for BCI Mineral. Report no. R240372	19	PDF	30
30a	Review of the DPLH spatial database for European heritage values	1	PDF	30
30b	Review of the WA State database Locate for European heritage values	1	PDF	30

31	Appendix A ('Technical note: Seabed sampling at Mardie – Channel Alignment') Page of 30 O2Marine (2023) Sediment Quality Assessment. Prepared for BCI Minerals. Report no. R220345	100	PDF	26
32	BCI Optimised Mardie Project Supplementary Report Rev 1, dated 30 August 2022	416	PDF	13
33	Appendix 9.1 Mardie Project: Marine Fauna Review (O2Marine, 2020)	86	PDF	13

3 Information notice

Under the *Privacy Act 1988* (the Privacy Act), 'personal information' means information or an opinion about an identified individual, or an individual who is reasonably identifiable. 'Sensitive information' is a subset of personal information and includes any information or opinion about an individual's racial or ethnic origin, political opinion or association, religious beliefs or affiliations, philosophical beliefs, sexual preferences or practices, trade or professional associations and memberships, union membership, criminal record, health or genetic information and biometric information or templates. This form requests you provide personal information and may also request sensitive personal health information.

By completing and submitting this response, you consent to the department collecting, using, and disclosing all information, including all personal information and sensitive information, in this response and any attachments to the response (your response) for the purposes set out below and in accordance with the terms of this notice or as agreed in writing with the department. To the extent that this notice relates to personal information, it constitutes a notice for the purposes of the *Australian Privacy Principle 5*.

The department collects and will use and disclose the information, including personal information, in your response for the purpose of administering the Sea Dumping Act its associated regulations and other related purposes.

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Insert further rows to the table as required.

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4 Declaration

I declare that, to the best of my knowledge, the information I have given on, or attached to, this response is complete, current, and correct. I understand that giving false or misleading information is a serious offence.

Signed:

Name: Snyman Van Straaten, Manager Environmental Approvals and Compliance

Date: 23 April 2025

Appendix 3: Response to Public Comments on Section 40AA Referral

BCI RESPONSE TO PUBLIC COMMENTS (27 MAY 2025)

Item number	Public comment	BCI Response
2	…is concerned that the proposed Spoil Ground DMPA4 is too small for the proposed volume of dredged material. Specifically, DMPA4 does not appear to include appropriate buffer zones which mitigate risk of dumping outside the boundary, and there is potential for the material to not remain within the designated area following the completion of dumping activities (i.e. dispersion). The size of the Spoil Ground does also not appear to account for the need for ongoing maintenance dredging by Mardie. …would welcome the opportunity to review Mardie's proposal in more details.	The DMPA4 dimensions are 702 m by 431 m, or 302,562 m^2. BCI has consulted with its consultant, Baird, to clarify if DMPA4 size is adequate for the estimated volume of dredging spoil to be disposed of. DMPA4 is expected to be generally retentive based on: • the depth of DMPA4 (i.e. approximately 20m), • the magnitude of the tidal currents at the seabed being very benign, and • the dredge spoil to be placed at the seabed inside the DMPA4 boundary will comprise sand (i.e. fine sand, coarse sand, gravel) and tidal currents are not expected to remobilise this. Potential remobilisation of dredge spoil sediment could only occur under a small range of circumstances (e.g., cyclonic or storm conditions). However, noting that the dredging and disposal program is scheduled to occur outside of the cyclone season (i.e. April to September (inclusive)) in accordance with the conditions of approval in MS 1211, Mardie Minerals consider that the proposed size of DMPA4 includes an adequate buffer to prevent dumping to occur outside of the approved boundaries of DMPA4 as a whole. Provided that the disposal methodology does not change, it is considered unlikely that there will be dispersion of sediment beyond the DMPA4 boundaries. In the analysis conducted by Baird, the initial height for placement of capital dredging spoil is assumed as 2 m above the seabed which yields a total volume of 606,000 m^3 in DMPA4. The total capital dredge volume is assumed to be 355,000 m^3, based on the latest dredging design. At the completion of the capital dredging campaign, the Baird model is showing the volume of dredge spoil in DMPA4 as 207,500 m^3. The sediment losses (i.e. 355,000 m^3 less 207,500 m^3) are associated with the capital dredging method at the point of removal (i.e. losses from the dredge head, bucket, overflow of hoppers) and at DMPA4 from the suspension of fines (i.e. silts and clays) in the water column when the hoppers release their loads. Based on the model outcomes, approximately 60% of the dredge spoil reaches the seabed of DMPA4. From surveys conducted previously, the sediment composition of the dredge spoil showed a high proportion of fines (i.e. silt and clay at 52%) which is a key driver of the difference between dredged sediment volume and the volume that reaches the seabed at DMPA4. The fines go into suspension in the water column and are carried on the tidal currents, eventually falling out of suspension to the seabed at a distance from the DMPA4 location. **<u>Maintenance dredging:</u>** Baird consultants have estimated the annual maintenance dredging volumes for the latest dredge footprint to be on average 34,000 m^3 annually. As per the analysis undertaken of seabed samples and geotechnical borehole logs at the dredge footprint, the sediment composition of the maintenance dredge spoil is conservatively predicted to have a lower fines content (i.e. will have more sand) than that of the capital dredging spoil – the assumed loss rate of dredge spoil during maintenance dredging is therefore 20%. After applying the loss rate to the average sedimentation rate, Mardie Minerals anticipates the average volume of maintenance dredge spoil to be approximately 27,200 m^3 annually. The frequency of maintenance dredging will be determined from on-site surveys of the dredge footprint and influenced by the rate of sedimentation of seabed areas and the re-suspension of fines into the water column by wave action and tidal currents, which may also include severe weather events such as tropical cyclones. The dredging frequency will also be determined by dredging vessel size and availability. Therefore, it is not expected that maintenance dredging will need to be undertaken every year; rather it is expected that maintenance dredging will need to be undertaken every 2 years to 5 years, and be required for the life of the Mardie Project, i.e. up to 24 November 2084. The estimated maintenance dredging events have been summarised for three scenarios, i.e. annually, 2-yearly and 5-yearly, in the table below.

Item number	Public comment	BCI Response

Maintenance dredging at DMPA4	Scenario 1				Scenario 2				Scenario 3			
Frequency of event	Annually				2-yearly				5-yearly			
Estimated average volume per event	27,200m^3				54,400m^3				136,000m^3			
Average sediment depth (m)[(1)]	**Estimated Capacity (m^3) [(1)]**	**Year**	**Number of events**	**Volume (m^3)**	**Estimated Capacity (m^3) [(1)]**	**Year**	**Number of events**	**Volume (m^3)**	**Estimated Capacity (m^3) [(1)]**	**Year**	**Number of events**	**Volume (m^3)**
Up to 2	250,164[(2)]	1 to 9	9	244,800	250,164[(2)]	2 to 9	4	217,600	250,164[(2)]	5 to 9	1	136,000
Up to 2 2 – 3	5,364 + 302,562	10 to 20	11	299,200	32,654 + 302,562	10 to 21	6	326,400	114,164 + 302,562	10 to 24	3	408,000
2 – 3 3 – 4	8,726 + 302,562	21 to 31	11	299,200	8,726 + 302,562	22 to 31	5	272,200	8,726 + 302,562	25 to 34	2	272,000
3 – 4 4 – 5	12,088 + 302,562	32 to 42	11	299,200	39,288 + 302,562	32 to 43	6	326,400	39,288 + 302,562	35 to 44	2	272,000
4 – 5 5 – 6	15,450 + 302,562	43 to 53	11	299,200	15,450 + 302,562	44 to 53	5	272,200	302,562	45 to 54	2	272,000
5 – 6 6 – 6.3	18,812 + 100,884	54 to 57	4	108,800	46,012 + 100,884	54 to 57	3	136,000	100,412 + 100,884	55 to 57	2	190,400
Total			57	1,550,400			29	1,550,400			12	1,550,400

Notes:

(1) Subject to site survey of dredging and disposal sites after dredging event/s.

(2) Available capacity after disposal of capital dredging spoil.

Due to the planned over dredging during capital dredging, it is predicted that maintenance dredging year 1 will be in 2028; maintenance dredging year 57 is in 2084.

From review of the nautical charts for the surrounding area to DMPA4, there appears to be no limiting bathymetry to maintain an under keel clearance (UKC) of 1m on a vessel with a draft of 4.5m or less, to ensure sufficient navigable water is available for ships at sea.

An estimated average sediment depth of up to 6.3m at DMPA4 would provide an UKC of 11.7m given the water depths at surveyed sites range between 18 to 21m AHD mean sea level

Mardie Minerals will therefore manage the maintenance dredging effectively through implementation of a monitoring program to confirm available volume at DMPA4 after capital dredging, which includes regular survey and sediment sampling to characterise the sediment (i.e. silt and sand percentages).

Item number	Public comment	BCI Response
3	The current approval permits dredging up to 800,000m^3 This proposal seeks to move 355,000 m^3 of dredge spoil from land-based to sea-based dumping. Note: maintenance dredging requirements will likely be progressed separately. This change is significant, and not consistent with the current environmental approval. The amendment substantially increases risk to the aquatic environment including fish, fish resources, and aquatic habitats. … queries whether ground for this change are appropriate, it appears primarily driven by technical and cost-prohibitive consideration, with the vulnerable Minnie Daisy noted. However, conditions aimed at reducing impacts on the aquatic environment and fisheries also apply, and these require careful consideration. To date, there does not appear to have been any assessment of the risks of dredge spoil disposal on land vs at sea. The West Pilbara is experiencing an unprecedented level of development and the cumulative impacts of these development on fisheries and fish resources require significant investment in research and monitoring to improve our understanding of the consequence and to reduce the uncertainty for decision-making authorities. The impacts from individual projects with significant amendments, rise the question as to what level of amendments are appropriate to ensure environmental values are adequately protected into the future. The proposal has the potential to significantly negatively impact fish resources and fisheries. Impacts at sea should be considered within a three-dimensional environment framework, not limited to the seafloor related habitats, but give due consideration to the water column and its usage (an important vector for recruitment of fish resources (eggs and larvae at vulnerable life stages); nursery areas, food webs, species movement and migrations. A key species of concern is the endemic Bluespotted emperor (North Coast Demersal Finfish Resource (NCDFR) indicator species), which rely on sargassum habitats for recruitment. Impacts to these juvenile nursery areas are likely to have critical flow on effects to adult populations. The area important to Sawfish species; their nursery grounds, movements and migration; which are totally protected under the Fish Resources Management Act 1994. Note, that there are global concerns about the sustainability of Sawfish populations, which should be considered within mitigation measures. … recommends the effective application of the mitigation hierarchy to reduce risks to fish and fish resources. Consultation has not adequately addressed the concerns raised by … including the use of alternative land-based dredge spoil dumping locations. Consultation with WA peak fishing sector bodies (including WAFIC and Recfishwest) aimed at mitigating and minimizing negative	**<u>Risk to the aquatic environment including fish, fish resources and aquatic habitats:</u>** Mardie Minerals has given consideration to potential impacts from reduced marine environmental quality as a result of dredging on the following species: <u>Bluespotted emperor:</u> • Bluespotted emperor is one of the indicator species in the Pilbara management unit of the North Coast Bioregion of WA (Newman et al., 2018) and, as such, the stock status of Bluespotted emperor contributes to determining the risk-level for the biological sustainability of the demersal scalefish resources in the Pilbara management unit. The DPIRD State of the fisheries report (Newman, Santoro and Gaughan, 2023) determined that the stock status for the Pilbara region is Sustainable - Adequate, described below: *"reflects levels and structure of parental biomass for a stock where annual variability in recruitment of new individuals (recruits) to the stock is considered to be mostly a function of environmental effects on recruit survival, not the level of the egg production."* • Spawning and nursery areas of the Bluespotted emperor are thought to be restricted to the west Pilbara, being the area from which the species disperse more widely from (Newman et al., 2020). The juvenile phase for the Bluespotted emperors is directly associated with inshore macroalgae beds, often in water depths less than 10 m (DPIRD Draft Report, unpublished). • Adult Bluespotted Emperors in the western Pilbara have high abundance in the continental shelf waters adjacent to large expanses of inshore macroalgae beds. The adults are also found in coral reef or lagoon habitats, over hard coral, gravel, or rubble substrates (DPIRD Draft Report, unpublished; Harvey et al., 2021). • This evidence suggests that Bluespotted emperor juveniles may be present within the dredging area, though less likely to be in the deeper waters of the disposal site as the average depth at DMPA4 is 16 meters; DMPA4 is more likely to be visited by the adult individuals. • The proposal to dispose of dredge spoil at DMPA4 will require the potential direct impact of 30.26 ha of Benthic Communities and Habitat (BCH), which forms a small part of the total nursery area of the Bluespotted emperor. • The relatively low cover and limited diversity of BCH within DMPA4 compared to the BCH surrounding the nearshore islands and extending further offshore, suggests that DMPA4 is of low value to support fisheries production and biodiversity. <u>Western king prawns:</u> • Western king prawns are distributed throughout the temperate, subtropical, and tropical waters of Australia, including the Mardie Project area. • Spawning occurs in offshore waters, with post-larval and juvenile Western king prawns occupying shallow waters, often in shallow tidal flats with sand or mud substrate. They are often associated with mangrove habitats and seagrass beds. Juveniles can inhabit areas with higher salinity like those of the dredging area. Juvenile western king prawns spend about three to six months in the nursery grounds before they reach maturity and migrate offshore, entering the trawl fishing grounds (Penn and Stalker 1979). This migration takes place in April/May of each year and spawning occurs from August to May, with juveniles present in shallow embayments from September to April, with peak abundance in January. Therefore, spawning may occur within the area of DMPA4, though during summer when dredging and disposal activities will not be occurring as dredging is only allowed from 1 April to 30 September. <u>Brown tiger prawns:</u> • Brown tiger prawns are found in tropical and subtropical waters (Ward et al. 2006), and spawn in offshore waters, and post-larval brown tiger prawns occupy shallow seagrass and algal communities, generally in water less than 2 m deep (Ovenden et al. 2007). • Juvenile brown tiger prawns are generally found in dense patches of seagrass, with higher densities of juveniles found in seagrass beds that are in close proximity to mangroves. Tiger prawn recruitment and landings are significantly correlated with macroalgae and seagrass bed cover (Loneragan et al. 2013). Larger juveniles and adult brown tiger prawns are less dependent on seagrass and macroalgal beds, with larger juveniles moving further offshore into deeper waters, and adults often being found over mud or sand substrates in waters less than 30 m depth. • Most spawning females are found in water 13 to 20 m deep (Kangas and Sporer 2015). • Spawning females may be present within the spoil ground area DMPA4. Potential impacts from dredge spoil disposal are expected to have negligible effect on fisheries production and biodiversity in the region.

Item number	Public comment	BCI Response
	impacts to fish resources, aquatic habitats, and fisheries is recommended. There does not appear to be adequate justification to change dumping of dredge spoil into the marine environment. …does not share the proponent's view regarding the level of risk from the proposal and recommend the original decision with land-based dumping of dredge spoil be maintained.	The projected physical, chemical and biological impacts from disposal at DMPA4 and an assessment of the likelihood are summarised below: • Long-term movement of disposed dredged material: Material to be disposed of at DMPA4 is expected to be retained in the vicinity of the spoil ground due to the (1) mild wave climate experienced in the area and (2) depth of DMPA4. Remobilisation of the sediment is only likely to occur under a small range of circumstances (e.g. cyclonic or storm conditions), noting that the dredging and disposal program is scheduled to occur outside of the cyclone season (i.e. April to September (inclusive)). In the event of oceanic currents and swells during storm events potentially resuspending fine material, over time, it is expected this material will become consolidated within sediments in the nearfield. Therefore, the DMPA4 site is considered to be retentive. Long-term movement of disposed dredged material is unlikely to negatively impact the marine environmental values of the region. • Changes in the concentration of nutrients, oxygen depletion, and any increased bioaccumulation of contaminants: Apart from naturally occurring metals identified during sediment sampling investigations, the proposed sediment to be dredged is considered free of contaminants and suitable for unconfined ocean disposal. Therefore, it is highly unlikely that bioaccumulation of contaminants, changes in nutrient concentration or oxygen depletion would occur as a result of the proposed dredging and disposal activities. • Turbidity and sedimentation: Potential impacts from dredging include increased turbidity and sedimentation, which could affect fish and habitat, but these are expected to be temporary and localised, with no permanent habitat loss anticipated. **Fisheries assessment:** A fisheries assessment was completed of the potential impacts from dredging for the Mardie Project Proposal on commercial fishing and aquaculture in 2021 by Fishwell Consulting (available for download at Mardie Project - Fisheries and aquaculture impact study Final 210803.pdf.). More recently, O2 Marine (consultant) completed a Fish and Fisheries desktop assessment and impact assessments for other projects along the Pilbara coastline. These reports looked at fisheries that operate over a large scale, including the waters of and around DMPA4. A summary of the desktop assessment and other known fisheries research in the area is provided in **Attachment 1** to this response. It should be noted that in April 2025, Mardie Minerals engaged O2 Marine to commence a study to establish baseline conditions of fish abundance of bluespotted emperor at/near DMPA4. Demersal fish assemblage surveys are being conducted using Stereo BRUVs at 6 sites in the project area; given the bluespotted emperor's juvenile phase is directly associated with macroalgae beds, monitoring locations have been selected following Benthic Communities and Habitat surveys to identify suitable Sargassum dominated macroalgal habitats. Adult bluespotted emperor are likely to be in the waters adjacent to DMPA4, with previous BRUVs studies completed along the Pilbara coastline which found that adults were found to be particularly abundant between Cape Preston and Dampier An assessment of fisheries management areas that overlap with DMPA4 and the route between the dredge area and disposal site can be undertaken, if so required. The assessment will be based on available commercial catch and effort information for the fisheries who have reported information to the Fisheries Branch of the Department of Primary Industries and Regional Development (DPIRD). **Risk assessment of dredge spoil disposal on land vs at sea:** • Onshore disposal was the previously considered option, however, the dredging equipment required, the associated long slurry pumping distance (i.e. over approximately 5 kms from the dredging area to a land disposal site), and the potential impacts of the return water make disposal on land not feasible. Also, the dredge equipment required if onshore disposal was to be an option to be implemented, would not be able to dredge within the shallow inshore depths at the jetty head / berth pocket. • Disposal of dredged material to land may also require double / triple handling of the material increasing costs, fuel usage, dredging time and risks of a spill / bund wall failure incident. The material would need to be pumped through a pipeline to a bunded area where the material may then need to be treated. There will be the generation of a large amount of turbid water. In order to pump this material, it must be less than 20% solids; this would require at least four times as much water as dredged material and this water would need to be treated to avoid harm to the receiving environment and before discharged back into the sea.

Item number	Public comment	BCI Response
		<u>Ongoing monitoring</u>: It should be noted that Mardie Minerals will continue to implement a marine water quality monitoring program to ensure the Environmental Protection Outcomes (EPOs) for Benthic Community Habitats (BCH), Marine Environmental Quality (MEQ) and Marine Fauna are met during dredging. The BCH survey conducted for DMPA4 has shown that there were no significant communities or habitats near DMPA4, with sparse to moderate filter feeders and the very occasional coral. It is predicted by the modelling consultant (Baird) that the disposal plume will extend in a general northeast-southwest direction out from DMPA4, and monitoring locations will be concentrated along this axis. There will also be an early warning monitoring location within the Zone of High Impact (ZoHI) closer to DMPA4. Replicate quadrats of BCH will be monitored and BCH contained within each quadrat will be assessed for percent cover, relative abundance and composition, and then compared to baseline information collected prior to the commencement of dredge spoil disposal activities. A post-dredging / disposal survey will be undertaken within six months following completion of capital dredging / disposal to evaluate status of EPOs within the Zone Medium Impact (ZoMI) and the Zone of Impact (ZoI). In the event that EPOs are not met, then Mardie Minerals proposes that post-completion BCH surveys will continue, on at least an annual basis, until management targets and/or EPOs are met, or until impacted BCH as a result of disposal (i.e. in the ZOMI) are considered to have recovered to baseline conditions based on regulators' review of the outcomes of the monitoring program. **<u>Engagement with WA peak fishing sector bodies (including WAFIC and Recfishwest):</u>** As detailed in Attachment 5 of the Section 40AA Referral, Mardie Minerals have engaged and will continue to engage with WAFIC and RecFishWest in relation to the proposal. Mardie Minerals has not engaged directly with commercial fisheries operators regarding proposed sea dumping, this is because it is Mardie Minerals' understanding that WAFIC is the peak industry body representing professional fishing, pearling and aquaculture businesses in WA. **<u>Cumulative impacts on fisheries and the broader marine environment:</u>** Mardie Minerals has conducted an assessment of the potential and residual environmental impacts for each Key Environmental Factor relevant to the proposed disposal of dredge spoil to sea. Refer to Section 10.2 of the Section 40AA Referral Supporting Document.
4	Thank you for the opportunity to comments on the Optimised Mardie Project – Revised Proposal. … and the commercial fishing industry retain legitimate concerns regarding the proposal as it will have significant direct and cumulative impacts to benthic communities and habitats, coastal processes, marine environmental quality, marine fauna and the social surroundings. … retains significant concerns regarding BCI Minerals proposed change to disposal dredge spoil material to sea (DMPA4) due to its potential adverse impacts on the marine environment, the viability of commercial fisheries in the region and overall seafood security in WA. …is disappointed that BCI Minerals is once again proposing to increase the disturbance footprint, further jeopardizing the marine environment along the Pilbara coastline. Had this proposal been made transparent from the outset of the Optimised Mardie Project's environmental review process, it would have allowed for a more thorough assessment of the project's cumulative impacts and ensured genuine consultation with impacted stakeholders. The Pilbara coastline supports vital nursery and juvenile habitats for key fisheries and endangered species such as the blue-spotted emperor, green sawfish, and prawn species – many of which are essential to commercial fisheries that serve the Australian public. The characteristics of the water quality, habitat loss and disruption to existing sediment dynamics and coastal processes need to be	Mardie Minerals consider the comments / concerns raised per public comment number 4 to in essence relate to the same comments / concerns as those in public comment number 3. Please refer to the response above provided to public comment number 3.

Item number	Public comment	BCI Response
	further investigated as part of the environmental impact assessment to fully understand the proposal scope of impacts. BCI Minerals proposal to monitoring impacts after they occur is not an effective way to mitigate and manage potential damage, given the irreversible consequence of disposing spoil at sea. Funding research into the destruction caused by this proposal is not an acceptable substitute for preserving the habitat in the first place. Additionally, … is concerned that the cumulative impacts on fisheries and the broader marine environment have not been considered. The Pilbara region is already facing significant cumulative pressure from various coastal projects, oil and gas activities, and clime change. So it is particularly concerning that proponents are proposing similar activities in close proximity without considering each other's impacts in a cumulative assessment. The recent fish kills along the Pilbara Coast, near the Mardie development, serves as a clear example of the consequence of these unaddressed cumulative impacts. While DPIRD scientists have attributed the fish kills to a marine heatwave, it is no coincidence that this occurred in one of the most heavily industrialised areas on the Northwest coast. A resilient marine environment is essential in the face of climate change. Healthy benthic communities and habitats surrounding DMPA4 are crucial for rebuilding fish stocks following heatwaves and other climate events. Given the importance of these ecosystems in supporting marine life and ensuring sustainable fisheries, it is critical that no additional pressure be imposed on this already vulnerable environment. After conducting consultation with potentially impacted fishers, the feedback … received overwhelmingly opposed the proposed offshore dredge spoil disposal. Commercial fisher continue to be frustrated and disappointed that the fishing industry is left to bear the consequence of the impacts of these projects. As ecosystems struggle to regenerate from the impacts, fishers are forced to scale back their efforts to march the reduced productivity of these environments. WA's Pilbara fisheries are a significant food resource that is already under pressure and fishers are feeling this growing pressure as they are forced to adapt to an increasingly compromised marine environment. In summary, … strongly objects the proposal to disposal dredge spoil material offshore and urges BCI Minerals to further explore land disposal options. We request this proposed be assessed by the EPA through a Public Environmental Review. This process would ensure that the assessment upholds the highest standards of credulity and accountability, thoroughly evaluating and addressing all potential impacts.	

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O2 Marine has completed Fish and Fisheries desktop assessment and impact assessments for other projects along the Pilbara coastline. These reports looked at fisheries that operate over a large scale, including the waters of and around DMPA4. A summary of this desktop assessment and other known fisheries research in the area is presented below.

1. Summary of relevant or potentially relevant fisheries

1.1. Demersal Scalefish Resource

- Commercial fisheries: Northern Demersal Scalefish Managed Fishery (NDSMF) in the Kimberley subregion and the Pilbara Demersal Scalefish Fisheries (PDSF) in the Pilbara subregion. The Pilbara Demersal Scalefish Fisheries includes Pilbara Trap Managed Fishery (PTMF), Pilbara Fish Trawl (Interim) Managed Fishery (PFTIMF) and Pilbara Line Fishery (PLF) (Figure 1).
- DMPA4 is located within the Pilbara Inshore Closed Waters (Trap), no trap fishing or trawl fishing occurs in the waters around DMPA4.
- The PLF has had reported fishing effort in the waters adjacent to DMPA4, and commercial fishers may use the waters near DMPA4 however recent catch data has not been published.
- Indicator species for the PDSF include the bluespotted emperor, Rankin cod, and red emperor
    - Bluespotted emperor: juvenile phase is directly associated with inshore shallow macroalgal beds and may be vulnerable to their loss. Whereas adults are generally found in offshore waters (in waters up to 150 m) around coral reefs, rubble/sand substrate and seagrass beds.
    - Rankin cod: adults inhabit mid-shelf reefs, lagoons, and limestone sand/gravel habitats in depths up to 180 m. Commercial catch of this species in the Pilbara primarily occurs in offshore waters in the PFTIMF operational area, which does not overlap DMPA4 (Figure 1 Areas 1,2,4,5).
    - Red emperor: inhabits mid-shelf waters often found around reefs and limestone sand/gravel in depths up to 180 m. In the Pilbara, they are predominantly caught offshore around the north-west side of Barrow Island, around the Montebello Islands, and offshore from the Dampier Archipelago (Newman et al. 2024). Fishing within and around DMPA4 is unlikely.

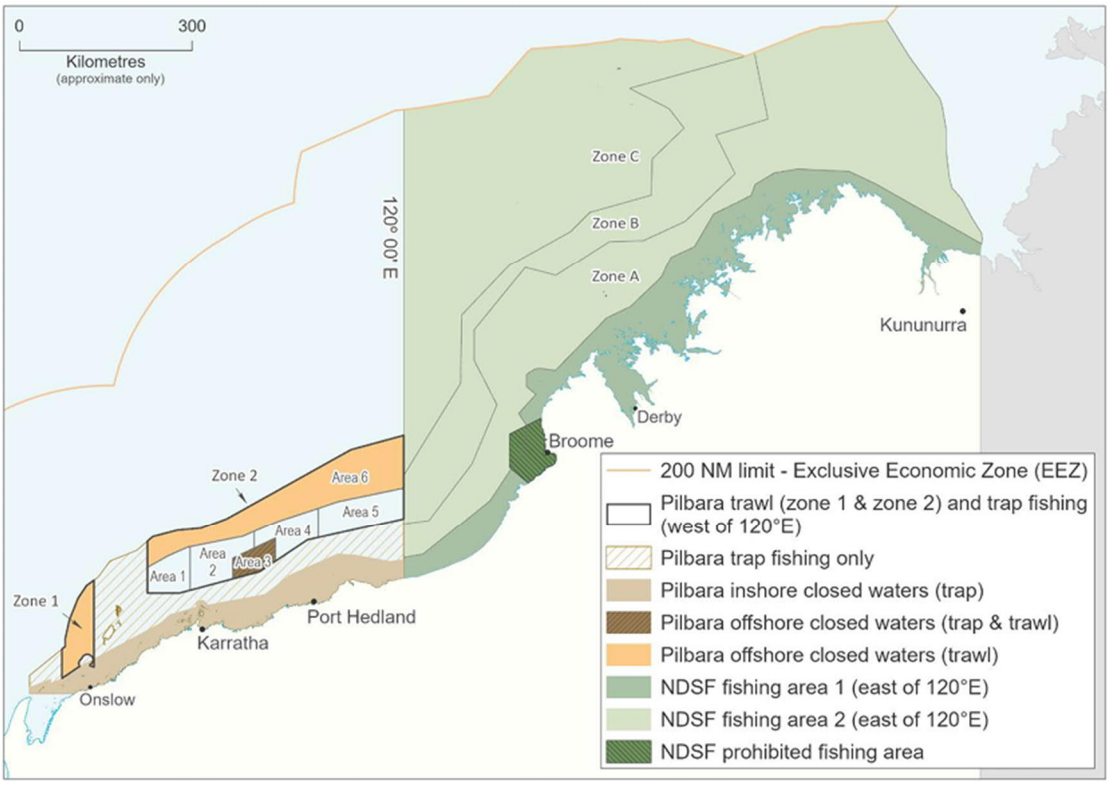

Figure 1: Demersal scalefish fisheries of the North Coast bioregion of WA. In the Pilbara subregion: Areas 1 to 6 refer to the management regions in Zone 2 of the trawl fishery. Zone 1 has been closed to trawling since 1998. In the Kimberley subregion: Zones A, B and C lie in Area 2 of the NDSMF (Newman et al. 2024).

1.2. Statewide Large Pelagic Finfish Resource

- Mackerel Managed Fishery (MMF): the commercial fishery is operational in the waters adjacent to the proposed DMPA4, with catch sporadically reports around the Great Sandy Island (DPIRD 2023), however catch in the region is generally concentrated around and offshore of Barrow Island and Cape Preston. Likely that commercial fishing in this area represent a small portion of the statewide operation. The primary fishing season for the MMF is May to November (Lewis and Rynvis 2024). The key species targeted by the MMF are the Spanish mackerel and grey mackerel, with Spanish mackerel being the most commonly caught species.
- Commercial (MMF) recorded in the vicinity of the Proposal. However, it is not restricted to the Proposal area with the resources utilised across the Pilbara and Kimberley.
- Adult Spanish mackerel utilise offshore waters often around coral reefs, shoals and headlands, critical habitat for the species are reef and island in the inshore and offshore pelagic zones (Lewis 2020). The waters of the DMPA4 is not expected to support commercial fishing for the Spanish Mackerel (Figure 2).
- Grey mackerel inhabit rocky headlands, reefs and muddy sandy substrates. Often found in turbid tropical and subtropical waters, and have a high tolerance (Lewis 2020)

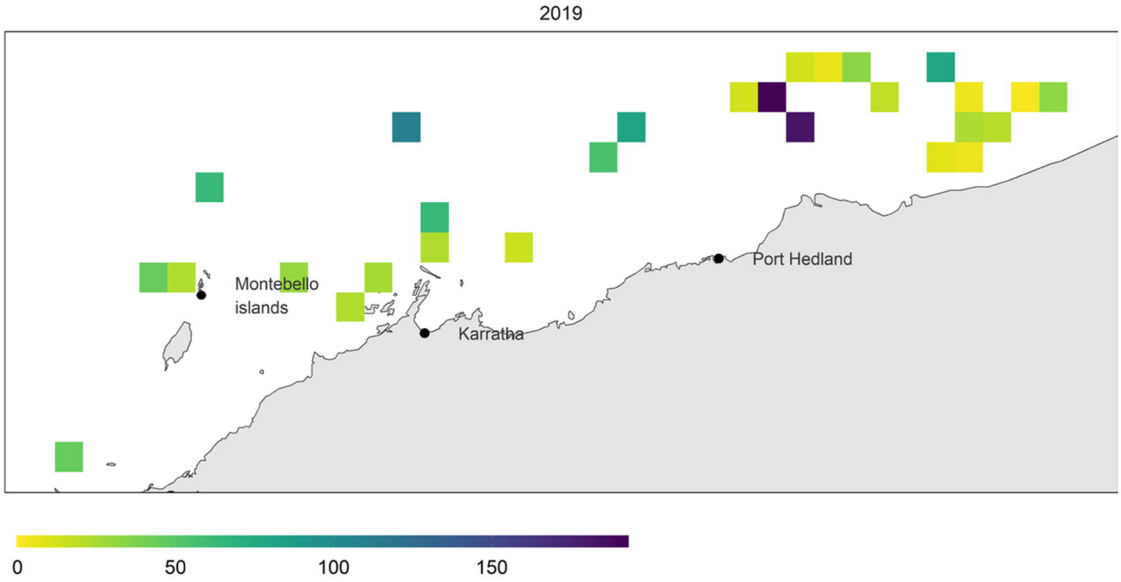

Figure 2: Maps showing distributions of catch by number (for fish measured) for Spanish Mackerel (*Scomberomorus commerson*) from Western Australian waters, from biological samples collected between 2018 and 2021. (Crisafulli et al. 2024)

1.3. North Coast Prawn Resource

- There are four commercial fisheries managed under the North Coast Prawn: the Onslow Prawn Managed Fishery (OPMF), the Nickol Bay Prawn Managed Fishery (NBPMF), the Broome Prawn Managed Fishery and Kimberley Prawn Managed Fishery. The NBPMF is the one relevant to the Proposal area
- The inshore aspects of the Proposal overlap with the NBPMF Size Management Fish Ground (SMFG)- the Fortescue SMFG, an area designated as a prawn recruitment and nursery area for the fishery. The disposal site and associated plume from disposal are not expected to enter this area closure.
- Historically (2021) catch by the OPMF has been recorded in the waters around the Great Sandy Islands which could include DMPA4 (DPIRD 2023)
- Commercial catch has not been recorded in the waters of or around DMPA4, with catch concentrated to Nickol Bay (Figure 3; Koefoed et al. 2024).

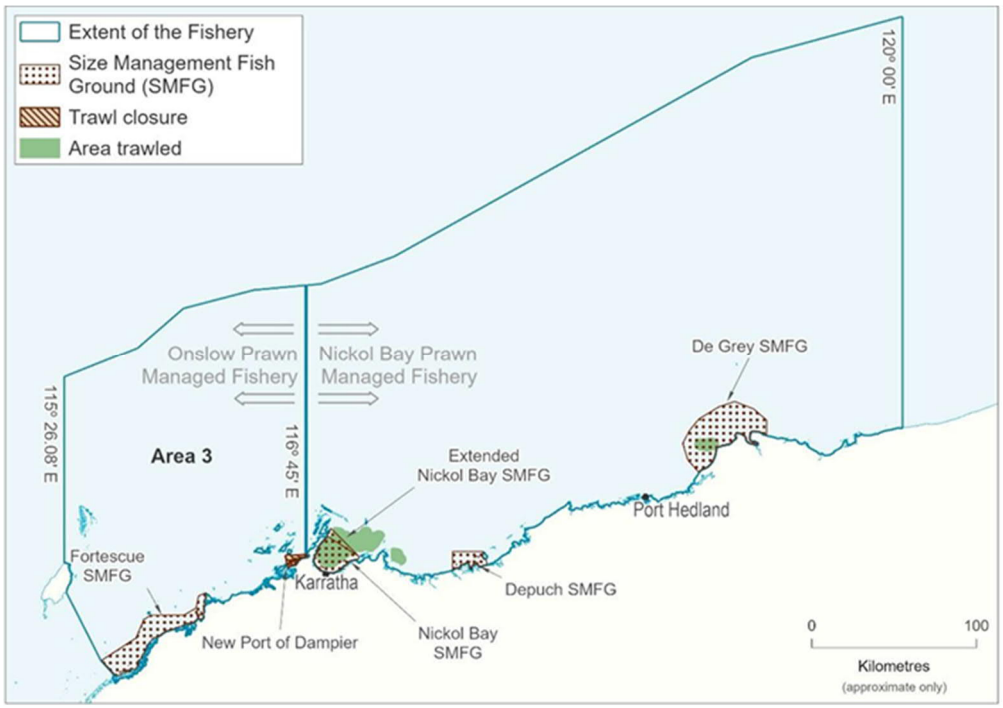

Figure 3: Boundaries of the Nickol Bay Prawn Managed Fishery and areas fished in 2023 (Koefoed et al. 2024)

1.4. North Coast Crab Resource

- There are two commercial fisheries which are managed within the North Coast Crab Resource, they are the Pilbara Crab Managed Fishery (PCMF) and the Kimberley Crab managed Fishery (KCMF). The PCMF is relevant to the Proposal area.
- PCMF generally operates from March to November, and represents ~5% of the statewide catch of blue swimmer crabs
- Blue swimmer crabs are generally found in shallow inshore waters, juveniles in shallow seagrass beds, and adults over seagrass beds, sandy, muddy or algal areas, normally in water depths <20 m but can be found in water depths up to max 50 m. Unlikely the area represents suitable area for blue swimmer crabs and no commercial fishing has been recorded in the waters of or adjacent to DMPA4.

2. Other fisheries

Fisheries such as the Western Australia Sea Cucumber Fishery (WASCF), Marine Aquarium Fish Managed Fishery (MAFMF), Specimen Shell Managed Fishery (SSMF), Pearl Oyster Wild stock Fishery and the Hermit Crab Fishery (HCF) are thought to be minor in the area, however Customary fishing may occur, particularly for silver-lipped pearl oyster

- The HCF targets a land-based species not relevant to DMPA4
- The MAFMF efforts are concentrated to Exmouth Gulf and around Dampier. The fishery targets a variety of species (fish, invertebrates, coral, live rock, algae, and seagrass) is active around islands of the Dampier Archipelago.
- WASCF catch has historically been recorded around the Barrow Island and the Montebello Islands, and the Dampier Archipelago. The fishery is unlikely to be active within or around DMPA4 as does not represent suitable habitat for the species (seagrass beds, adjacent to

mangroves, inner reefs and lagoons, reef flats, estuaries, lagoons, seagrass, rubble, depths <20 m)

- SSMF is concentrated to population centres such as Broome, Exmouth, Shark Bay, Geraldton, Perth, Mandurah, the Capes area, Albany, and Esperance.
- Pearl Oyster Wild stock Fishery not operational leases nearby, not relevant to DMPA4

The Statewide Abalone Resource has two fisheries that operate within WA waters: Abalone (Roe's) Managed Fishery and Abalone (Greenlip/Brownlip) Managed Fisheries. These fisheries extend across the entire waters of WA, with abalone mostly occurring in the West Coast Bioregion and the South Coast Bioregion (Hart et al. 2017). Area 4 (Busselton Jetty to NT/WA border) of the fishery. Management Area 4 has no quota allocated and does not form part of the functional fishery (Hart et al. 2017).

The South Coast and West Coast Crustacean Resource manage the West Coast Deep Sea Crustacean Managed Fishery, which operate off the west coast of WA. The fishery is operational on the seaward side of the 150 m isobath and extends out to the Australian Exclusive Economic Zone (200 nm boundary) (How et al. 2015). The fishery targets the crystal crab (deep-water species), occurring in water depths of 300 to 1200 m (How et al. 2015). This fishery does not operate within the vicinity of the Proposal.

3. Impact pathways

Disposal of dredge disposal can result in increased turbidity, elevated TTS, reduced light from dredging and loss of BCH, which in turn may lead to:

- Direct and indirect impacts to fish species
  - Injury or reduced fitness
  - Loss of BCH and associated fish habitat.

Direct effects of suspended solids on fishes and suspension-feeding organisms can occur through mechanical abrasion that physically damages the gills and reduces feeding rates (Lowe et al.2015) or clogs the filtering apparatus (Ayukai and Wolanski 1997). This can result in interfering with ingestion and respiration, with potentially adverse effects on growth, reproduction and/or mortality (Wilber and Clarke 2001; Fraser et al. 2017; Hess et al. 2017).

Predicted indirect impacts to BCH outside of the dredging footprint within the ZoMI, from increased turbidity, reduction in available light and localised increase in sedimentation, are all sub-lethal and recoverable. No permanent loss of any macroalgae or seagrass beds is expected due to dredge disposal at DMPA4. The lack of important habitat for important fisheries species within the ZoMI for the disposal site indicates it is unlikely that fisheries and their key target species will be impacted.

4. Fisheries publication

Recent work completed by DPIRD scientists in relations to species potentially found in the waters around DMPA4 are presented below in Table 1.

Table 1: Recent studies completed near DMPA4

Title	Study effort and location	Summary	Reference
Seascape effects on the nursery function of macroalgal habitats	13 sites shallow within the Dampier Archipelago were survey for juvenile bluespotted emperor abundance from January 2021 to 2023. In February 2021, juvenile bluespotted emperor were collected from shallow macroalgae beds using baited traps and small spearguns with pronged heads.	The study found that juvenile bluespotted emperor snappers abundance, biomass, productivity and size-at-age exhibited significant spatial variation, although each pattern was best explained by different factors. Juvenile bluespotted emperor was most abundant in macroalgae-rich seascapes. Biomass and productivity peaked at sites where macroalgal cover and water temperatures were high. The fish were found to have the greatest average daily growth at sites located near coral reefs. Overall, the results suggest that habitat and resource availability constrains bluespotted emperor abundance and productivity, while size-at-age is influenced by size-selective mortality and prey quality.	Moustaka M, WD Robbins, SK Wilson, C Wakefield, MVW Cuttler, MJ O'Leary and RD Evans (2024) Seascape effects on the nursery function of macroalgal habitats, *Marine Environmental Research,* 202(106767):1-13. doi: 10.1016/j.marenvres.2024.106767
Otolith growth chronologies reveal distinct environmental sensitivities between and within shallow- and deep-water snappers	Red emperor and Bowen's snapper (giant ruby snapper) long-term growth patterns were investigate using samples collected across the northwestern Australia's coastal shelf waters; red emperor 1950-2020, Bowen's snapper 1973-2013.	The results from annually-resolved otolith growth chronologies showed that there is a distinct environmental sensitivity present within (juveniles vs adults) and among (shallow- vs deep water habitats) species. Within species, juveniles and adults responded differently to shared environmental stimuli, highlighting the importance of understanding the impacts of environmental effects and sensitivities for different life-history stages. Red emperor results showed that variable growth appears to be tied to local climate signals such as sea surface temperature and rainfall. The results highlight potential vulnerabilities of shallow-water species to future environmental perturbations compared to species residing at depth, as they are likely to encounter more extreme climate variability under future oceanic conditions.	Widdrington JB, P Reis-Santos, JR Morrongiello, JI Mcdonald, CB Wakefield, SJ Newman, SJ Nicol and BM Gillanders (2024) Otolith growth chronologies reveal distinct environmental sensitivities between and within shallow- and deep-water snappers, *Review in Fish Biology and Fisheries,*. doi: 10.1007/s11160-024-09898-4
Population genomics informs the management of harvested snappers across north-western Australia	Sampling occurred on research and commercial fishing vessels between 2012 and 2018 across the north western and northern coastline from Shark bay to the Gulf of Carpentaria, including samples from red emperor at Cape Preston to explore the population structure of the red emperor, saddletail snapper and goldband snapper.	The results found similar pattern in genetic structure across the three species, despite the differences in the species biology and ecology. Low levels of genetic subdivision were reflected isolation by distance relationship where genetic connectivity increased with geographic proximity. This result shows extensive but not unlimited dispersal occurs across the north-western Australia shelf. The study shows that the species do not form multiple independent stocks as was previously thought.	Payet SD, J Underwood, O Berry, T Saunders, MJ Travers, CB Wakefield, K Miller and SJ Newman (2024) Population genomics informs the management of harvested snappers across north-western Australia, *Scientific Reports,* 14(26598):1-13. doi: 10.1038/s41598-024-77424-4

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