

Appendix 10-A

Environmental Management Plan Outline - Commonwealth Marine Area





Commonwealth Marine Area Environmental Management Plan Outline

Controlling Provision	Commonwealth Marine Areas	
Area Description	The Commonwealth marine area (CMA) generally equates to a region between approximately 5.6km to 370.4km from the Territorial Sea Baseline (TSB). The TSB is generally the low-water line along the coastline. The TSB in the vicinity of Albatross Bay is taken as a straight line from the low-water mark of Jantz Point in the north to Pera Head in the south. The CMA includes the seabed and airspace of these waters. The scope of this EMP outline does not include the GBRMP, which is covered by a separate, specific EMP outline.	
Area Values	Shipping Route SoE Project shipping routes pass through the Gulf of Carpentaria. The Australian North Marine Region covers the CMA within the Gulf of Carpentaria, Arafura Sea and the Timor Sea as far west as the Northern Territory-Western Australian border. The Australian North Marine Region is recognised as an area of global conservation significance for marine species and migratory birds, providing important breeding, feeding and nursery grounds for marine turtles and Dugong. The Gulf of Carpentaria's coastal zone supports high levels of biological productivity, aggregations of marine life and high biodiversity; however, the majority of the Gulf of Carpentaria consists of flat, unvegetated, soft sediment habitats which have relatively low habitat value to listed marine species or cetaceans and are not considered to be sensitive marine habitats. SoE Project bauxite and cargo shipping pass through the West Cape Commonwealth Marine Reserve, which is part of the North Commonwealth Marine Reserves Network.	
	New Spoil Ground and Surrounds <ul style="list-style-type: none"> The development footprint for the new spoil ground is located within the CMA and consists primarily of bare soft sediments. The new spoil ground does not contain any sensitive features. The nearest potentially sensitive habitat to the spoil ground is Nine Mile Reef, located approximately 6km south-southwest of the new spoil ground, within the CMA. Nine Mile Reef covers an estimated area of approximately 287ha and its structure contains mixed sponge and soft coral assemblages and contains habitat suitable for fish to aggregate. It is an important fishing location for local recreational fishermen and commercial line fishing. The importance of the Nine Mile Reef in a regional context is considered to be high as it supports resources which are of conservation, cultural, commercial and recreational importance. 	
	Boyd Port and Surrounds The listed threatened marine and listed migratory species in the vicinity of the SoE Project area (but outside SoE Project shipping routes) are listed below. Separate EMP Outlines have been prepared for these species.	
	Estuarine and Marine Species <ul style="list-style-type: none"> Hawksbill Turtle (<i>Eretmochelys imbricata</i>) - possibly occurs in new spoil ground Flatback Turtle (<i>Natator depressus</i>) - possibly occurs in new spoil ground Olive Ridley Turtle (<i>Lepidochelys olivacea</i>) - possibly occurs in new spoil ground Leatherback Turtle (<i>Dermochelys coriacea</i>) - likely to occur in new spoil ground Loggerhead Turtle (<i>Caretta caretta</i>) - likely to occur in new spoil ground 	<ul style="list-style-type: none"> Green Turtle (<i>Chelonia mydas</i>) - possibly occurs in new spoil ground Dwarf or Queensland Sawfish (<i>Pristis clavata</i>) - unlikely to occur in new spoil ground Green Sawfish (<i>Pristis zijsron</i>) - possibly occurs in new spoil ground Freshwater Sawfish (<i>Pristis microdon</i>) - possibly occurs in new spoil ground Speartooth Shark (<i>Glyphis sp. A</i>) - unlikely to occur in new spoil ground

<p>Area Values</p>	<p>Avian Migratory</p> <ul style="list-style-type: none"> ▪ Clamorous Reed-Warbler (<i>Acrocephalus stentoreus</i>) ▪ Common Sandpiper (<i>Actitis hypoleucos</i>) ▪ Fork-tailed Swift (<i>Apus pacificus</i>) ▪ Great Egret, White Egret (<i>Ardea alba</i>) ▪ Sharp-tailed Sandpiper (<i>Calidris acuminata</i>) ▪ Red Knot (<i>Calidris canutus</i>) ▪ Curlew Sandpiper (<i>Calidris ferruginea</i>) ▪ Red-necked Stint (<i>Calidris ruficollis</i>) ▪ Great Knot (<i>Calidris tenuirostris</i>) ▪ Oriental Cuckoo (<i>Cuculus saturates</i>) ▪ Oriental Plover (<i>Charadrius veredus</i>) ▪ Eastern Reef Egret (<i>Egretta sacra</i>) ▪ Sarus Crane (<i>Grus Antigone</i>) ▪ White-bellied Sea-Eagle (<i>Haliaeetus leucogaster</i>) ▪ Grey-tailed Tattler (<i>Heteroscelus brevipes</i>) ▪ White-throated Needletail (<i>Hirundapus caudactus</i>) ▪ Barn Swallow (<i>Hirundo rustica</i>) ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) ▪ Rainbow Bee-eater (<i>Merops omatus</i>) ▪ Common Greenshank (<i>Tringa nebularia</i>) 	<ul style="list-style-type: none"> ▪ Satin Flycatcher (<i>Mylagra cyanoleuca</i>) ▪ Marsh Sandpiper (<i>Tringa stagnatilis</i>) ▪ Black-faced Monarch (<i>Monarcha melanopsis</i>) ▪ Greater Sand Plover (<i>Charadrius eschenaultii</i>) ▪ Lesser Sand Plover (<i>Charadrius mongolus</i>) ▪ Lesser Frigatebird (<i>Fregata ariel</i>) ▪ Great Frigatebird (<i>Fregata minor</i>) ▪ Latham's Snipe, Japanese Snipe (<i>Gallinago hardwickii</i>) ▪ Asian Dowitcher (<i>Limnodromus semipalmatus</i>) ▪ Black-tailed Godwit (<i>Limosa limosa</i>) ▪ Eastern Curlew (<i>Numenius madagascariensis</i>) ▪ Little Curlew, Little Whimbrel (<i>Numenius minutus</i>) ▪ Whimbrel (<i>Numenius phaeopus</i>) ▪ Eastern Osprey (<i>Pandion cristatus</i>) ▪ Glossy Ibis (<i>Plegadis falcinellus</i>) ▪ Pacific Golden Plover (<i>Pluvialis fulva</i>) ▪ Grey Plover (<i>Pluvialis squatarola</i>) ▪ Rufous Fantail (<i>Rhipidura rufifrons</i>) ▪ Little Tern (<i>Sterna albifrons</i>) ▪ Terek Sandpiper (<i>Xenus cinereus</i>)
	<p>Non-Avian Migratory Species</p> <p>The following non-avian migratory species were determined as possibly occurring in new spoil ground:</p> <ul style="list-style-type: none"> ▪ Estuarine Crocodile (<i>Crocodylus porosus</i>); ▪ Dugong (<i>Dugong dugon</i>); ▪ Australian Snubfin Dolphin (<i>Orcaella heinsohni</i>); ▪ Indo-Pacific Humpback Dolphin (<i>Sousa chinensis</i>); and, ▪ Bryde's Whale (<i>Balaenoptera edeni</i>). 	

Area Values	<p>Near shore fringing reef communities in the vicinity of the proposed Port occur outside the CMA in Queensland coastal waters approximately 2km to the northeast at Boyd Point and approximately 2.8km to the southwest at Pera Head. Fringing reef communities also occur between Pera Head and Thud Point in Queensland coastal waters. The near shore sponge and soft coral reefs provide a food resource for a range of marine turtle species.</p> <p>A number of marine species that are not threatened are also listed in the Protected Matters Search or are known to occur in the area. These broadly include species from sea snakes, bony fish and nekto-benthic marine invertebrates groups.</p> <p>A number of cetacean species that are not threatened or migratory are also listed in the Protected Matters Search or are known to occur in the area.</p> <p>Commonwealth Reserves or Conservation Zones</p> <p>The only existing Commonwealth reserve or conservation zone in the CMA relevant to the Project is the Great Barrier Reef Marine Park (GBRMP). Values, impacts and mitigation measures for the GBRMP are described in a separate EMP outline.</p>
Known Threats	<p>There are no "known threats" identified for the CMA, rather the Marine Bioregional Plan for the North Marine Region identifies the following pressures to the marine environment in the Gulf of Carpentaria:</p> <ul style="list-style-type: none"> Marine debris is identified as an "of concern" pressure in the Gulf of Carpentaria Basin and the coastal zone and "of potential concern" in the submerged reef of the Gulf of Carpentaria; Changes in sea temperature, ocean acidification, and extraction of living resources are identified as an "of potential concern" pressure across the entire area; and, Sea level rise is identified as an "of potential concern" pressure in the coastal zone. <p>Note: not all of these processes are applicable to the SoE Project. Relevant SoE Project-related threats on the CMA, and mitigation measures for relevant impacts are detailed separately in this table.</p>
Project-related Activities within or surrounding the CMA	<ul style="list-style-type: none"> Disposal of dredge material from the Port at the new spoil ground; Dredging activities at the Port. The Port is outside of the CMA; however, suspended sediments associated with dredging the Port have the potential to enter into the CMA; Disposal of dredged material from Embley and Hey Rivers at the existing Albatross Bay spoil ground, over 12km from the CMA. The Albatross Bay spoil ground is outside of the CMA; however, suspended sediments associated with spoil disposal at the Albatross Bay spoil ground have the potential to enter into the CMA; and, Project-related shipping activities through the CMA.
SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures	<p>Potential Negligible Impacts</p> <p><i>Creation of a Turbidity Plume</i> - Hydrodynamic modelling predicts that the turbidity plume from dredging at the proposed Port would not have a significant impact on reef habitat in coastal waters and would not enter the CMA, therefore, water quality impacts of port dredging on the CMA would be negligible.</p> <p><i>Disposal of Dredged Material from the Port</i> - Potential impacts of disposal of dredge material from the Port at the new spoil ground are predicted to be negligible for the following reasons:</p> <ul style="list-style-type: none"> Spoil disposal would result in smothering of benthic infauna within the new spoil ground footprint however the new spoil ground does not contain any sensitive features; Characterisation of sediments from the proposed Port area show that sediment is suitable for unconfined sea disposal and disposal of sediment from the Port at the new spoil ground would have negligible impact on water quality at the new spoil ground; and, Hydrodynamic modelling predicts that the increase in deposition outside the new spoil ground area is expected to be negligible compared to the mean ambient conditions in the area and shows that any turbidity plume from spoil disposal would not reach habitat at Nine Mile Reef.

<p>SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures</p>	<p><i>Disposal of Dredged Material at the Albatross Bay Spoil Ground</i> - The CMA is over 12km from the Albatross Bay spoil ground and potential impacts on water quality in the CMA would be negligible.</p> <p><i>Fisherles Impacts associated with the Port Development</i> - During the EIS consultation process, the Gulf of Carpentaria Commercial Fishermen's Association and the Queensland Seafood Industry Association expressed concern that disturbance due to the proposed Port development would lead to displacement of fishing effort and loss of income and exclusion from anchorage areas.</p> <p>During the EIS consultation process, private recreational and sport fishing charter operators expressed concern that disturbance due to the proposed Port development would:</p> <ul style="list-style-type: none"> ▪ Adversely affect important fishing charter spots such as the "Three Mile" and the Nine Mile reef; ▪ Restrict access to preferred fishing spots; and, ▪ Lead to economic loss for charter operators. <p><i>Changes in Air Quality</i> - The potential unmitigated impacts associated with air emissions from the mine, Port and associated infrastructure on the CMA would be negligible.</p> <p><i>Water Quality Impacts associated with Shipping Activities</i> - Potential impacts on water quality of the CMA from Project-related shipping activities may include spills of cargo or oil/fuels from ship collision or grounding, propeller was and/or anchorage. However the potential unmitigated impacts associated with Project-related shipping activities on water quality in the CMA would be negligible for the following reasons:</p> <ul style="list-style-type: none"> ▪ Bauxite, cargo and fuel shipping movements associated with the SoE Project in the CMA would continue to traverse the same routes through CMA. ▪ Project-related bauxite, cargo and fuel shipping activities are not likely to increase the risk of collision or grounding in the CMA. Shipping through the CMA would be in deep water, and even in the unlikely event of a spill, it is highly unlikely that hydrocarbon concentrations in the water column would be sufficient to result in accumulation in marine sediments. Bauxite is a benign material that does not leach contaminants in either seawater or freshwater that would result in a substantial change in water quality. Any bauxite spilled as a result of hull damage caused by collision or grounding, would not result in a substantial change in water quality. ▪ Project-related bauxite, cargo and fuel ships are unlikely to elevate turbidity in the CMA as Project-related ships would continue to utilise shipping routes through the CMA which transit deep water. ▪ The only contaminants that could potentially be introduced to the CMA would be associated with oil/fuel spills or antifouling paints from vessels. These contaminants would be unlikely to be present in concentrations sufficient to impact on the CMA. <p><i>Impacts on Marine Species</i> - The potential unmitigated impacts associated with Project-related activities associated with the CMA on listed threatened marine, listed migratory species and other marine species in the CMA would be negligible to minor. The new spoil ground and the anchorage/departure area off the Port of Weipa does not contain, and is not close to any reef communities, contains no seagrass beds, and is not shallow in nature. In addition, indirect impacts from artificial lighting on ships, acoustic impacts and vessel strike associated with Project-related bauxite, cargo and fuel shipping activities are not likely to significantly impact on threatened marine species or marine migratory species.</p> <p><i>Marine Pest Establishment</i> - Relocating the loading of bauxite from the Port of Weipa approximately 45km south west to the new Port is not likely to significantly increase the risk of introducing marine pests to the CMA. The potential unmitigated impacts associated with Project-related bauxite, cargo and fuel shipping activities on the CMA are predicted to be negligible.</p>
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<p>SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures</p>	<p>General Mitigation and Enhancement Measures</p> <p>Specific mitigation measures are not required for the negligible impacts, however, the following general mitigation measures will further reduce any potential for impact on the CMA.</p> <p><u>Dredging and Offshore Spoil Disposal Management</u></p> <p>Implement mitigation measures in accordance with the approved Dredge Management Plan for the Port. Subsequent capital and maintenance dredging for the Port will require separate approved dredge management plans.</p> <p><u>Disposal of Dredged Material from the Port</u></p> <p>The Dredge Management Plan for the Port (initial capital dredging) includes measures such as:</p> <ul style="list-style-type: none"> ▪ Mechanical devices, including turbidity-reducing valves within overflow pipes on the TSHD, shall be used; ▪ Hopper doors shall be kept in good condition to minimise loss of sediment during transport; ▪ The TSHD shall be equipped with below keel discharge of tail waters via an anti-turbidity control valve; ▪ Accurate positioning systems shall be installed on dredges to ensure dredging and disposal occur in approved areas; ▪ Direct sailing routes to and from the relevant spoil disposal ground shall be selected to minimise the impact of propeller wash; ▪ Water quality monitoring and trigger levels, as well as coral health monitoring (if required); ▪ Current and forecasted meteorological and oceanographic information shall be considered in the daily work plan; ▪ Adaptive management measures would be implemented as required depending on the level of impact and may include: <ul style="list-style-type: none"> ▪ moving the dredge operations and vessels to other areas within the development footprint to reduce potential impacts on the affected corals; ▪ reducing or ceasing overflow during periods when the dredge plume is considered likely to lead to further impacts; or, ▪ reducing dredging activities from 24 hours a day to a period timed to reduce impacts (e.g. to 12 hours/day or night); ▪ Subsequent capital and maintenance dredging for the Port will require separate approved dredge management plans. <p><u>Management of Commercial Line and Net Fishing Impacts</u></p> <ul style="list-style-type: none"> ▪ The sum of \$242,000 (based on the compensation model developed by DAFF) shall be paid to the Queensland Rural Adjustment Authority who will administer compensation to relevant fishers and buyout an appropriate level of fishing effort. ▪ Anchorage areas in Boyd Bay and the rock wall will be outside the Maritime Safety Queensland 50m exclusion zone around the wharf and commercial fishermen will not be excluded from anchoring in those areas. <p><u>Management of Charter and Recreational Fishing Impacts</u></p> <p>The following measures to minimise potential impacts on charter operators and recreational fishers shall be implemented:</p> <ul style="list-style-type: none"> ▪ Re-align the jetty and main access channel of the Port by two degrees south to avoid most of the “Three Mile” fishing area; ▪ Designate a safe passage underneath the proposed jetty for small recreational and charter boat users to prevent the need to travel around the jetty (subject to MSQ requirements);
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<p>SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures</p>	<ul style="list-style-type: none"> ▪ Support the establishment of a local recreational fishing reference group to provide a forum to develop and help implement the establishment of a communities fisheries project (which may take the form of new or upgraded infrastructure or studies or management measure). The reference group shall comprise representatives from charter operators and the Weipa Sportsfishing Club and shall operate by consensus; and ▪ Provide funding and/or works up to the value of \$242,000 for the above agreed communities fisheries project. <p><u>Water Quality Management</u></p> <p>There are a number of measures that are used for existing Weipa bauxite, cargo and fuel shipping that shall continue to be used for Project-related bauxite, cargo and fuel shipping. These include:</p> <ul style="list-style-type: none"> ▪ Using the existing shipping route; ▪ Use of pilotage, where required. Compulsory pilotage is estimated to reduce the risk of a shipping incident by a factor of 30.3; ▪ Fatigue management guidelines to ensure the crew remains alert (bauxite shipping); ▪ Using the real-time global positioning system, referred to as the Automatic Identification System (AIS), for vessels over 50m in length, in the northern part of the CMA near Torres Strait. The AIS is integrated with the ReefVTS mandatory ship reporting system. The ReefVTS compiles timely and accurate traffic imaging of shipping throughout the region and generates ship encounter predictions, which are disseminated to ships; ▪ Maintaining a modern fleet of bauxite ships in a good state of repair and subject to regular inspections to minimise the risk of a ship being disabled; and, ▪ The use of two tugs at all times for vessels greater than 100m in length during berthing operations. <p><u>Marine Pest Establishment Management</u></p> <ul style="list-style-type: none"> ▪ All shipping (such as deliveries of construction materials and the cargo barge) is required to comply with the <i>Australian Ballast Water Management Requirements</i> and the <i>International Convention for the Control and Management of Ships Ballast Water and Sediments</i>; ▪ Bauxite ships are required to manage ballast water through a Ballast Water Management Plan which would comply with Australian mandatory requirements (the <i>Australian Ballast Water Management Requirements</i>) and the <i>International Convention for the Control and Management of Ships Ballast Water and Sediments</i>; ▪ Under amendments to the <i>Quarantine Act 1908</i> in 2001, ships are required to exchange a minimum of 95% of ballast water outside the Australian territorial sea, as far as possible from land and in water exceeding 200m depth, where possible; ▪ Discharge of ballast water (and sediment in ballast tanks) within the territorial sea of Australian waters is prohibited by AQIS where it has been derived from ports or coastal waters outside Australian territorial waters; ▪ For bauxite ships, anti-fouling coating systems shall be applied to exposed surfaces, biofouling resistant materials for piping and unpainted components and marine growth prevention systems for sea chests and internal seawater cooling systems; ▪ A relatively new bauxite shipping fleet shall be maintained with hull inspections and surveys, hull cleaning and renewal of antifouling coating systems every 2 ½ years as part of class requirements (all hull cleaning and dry-docking would be undertaken overseas); ▪ Once a bauxite vessel is at berth it shall be loaded/unloaded without delay except for unplanned events; ▪ The bauxite shipping schedule shall be managed as best as possible to minimise queuing and delay at anchor; and, ▪ Undertake regular mussel trap monitoring in the vicinity of the Port when overseas bulk carriers are used.
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SoE Project Potential Impacts and associated Avoidance, Mitigation or Enhancement Measures	<p><u>Management of Indirect Shipping Impacts</u></p> <p><i>Shipping Lighting Management</i></p> <ul style="list-style-type: none"> ▪ Lighting on board vessels at sea and in port shall be minimised to that necessary to comply with navigational safety regulations and provide for safe working while personnel are on deck. ▪ Bauxite vessels waiting to berth at Port shall only anchor in existing offshore anchorage areas as prescribed by the relevant Harbour Master. <p><i>Underwater Noise Management</i></p> <ul style="list-style-type: none"> ▪ All vessels shall operate in accordance with appropriate industry and equipment noise and vibration standards. ▪ RTA owned Project vessels, including on board machinery and equipment, shall be maintained to a high standard and any source of excessive underwater noise shall be investigated and remedied. ▪ Regular maintenance of RTA owned vessels shall be conducted to the manufacturers' specifications. ▪ Where possible, avoid leaving engines, thrusters and auxiliary plants in stand-by or running mode unnecessarily. <p><i>Vessel Strike Management</i></p> <ul style="list-style-type: none"> ▪ All vessels shall strictly adhere to Port controls; and, ▪ Large vessels shall travel more slowly and under pilotage in shallow or confined marine areas, where susceptible marine fauna are more commonly found.
Monitoring	<ul style="list-style-type: none"> ▪ Monitoring requirements during dredging and spoil disposal operations in accordance with the approved DMPs. ▪ Regular mussel trap monitoring in the vicinity of the proposed Port when overseas bulk carriers are used.
Auditing	<p>Auditing of this plan including the effectiveness of mitigation measures and monitoring shall be conducted in accordance with the RTA's certified ISO14001 Environmental Management System.</p>

RTA (2013) *Environmental Impact Statement*. Rio Tinto Alcan.

