



Port Expansion Project EIS

Appendix K1

Impact Significance Tables

APPENDIX K1: Impact Significance Tables

Threatened Species

The following EPBC listed threatened marine fauna species are known to occur, or irregularly occur (i.e. several times per decade) in Cleveland Bay. Impact significance has been assessed against Significant Species Guidelines 1.1 (DEWHA 2009) for threatened species.

Table 1 Criteria listed by the EPBC Act 1999 for a 'significant impact' and the 'likelihood' of impact to populations of humpback whale

Criteria for a significant impact	Likelihood
Lead to a long-term decrease in the size of an important population of a species	Humpback whales have a wide geographic distribution. Individuals that visit Cleveland Bay form part of the Group E (east coast) population. The Project is not expected to result in changes in humpback whale abundance at even a local (Cleveland Bay) scale, and nor are major changes to food resources or habitat expected.
Reduce the area of occupancy	The spatial scale of potentially affected areas relative to the area of suitable habitat elsewhere in the Cleveland Bay region is very low. Furthermore, areas subject to irreversible habitat loss (i.e. construction footprint) do not form suitable habitat for Humpback whale. No major change in the area of occupancy is therefore expected as a result of the Port Expansion Project.
Fragment an existing important population into two or more populations.	The Project will not represent a physical barrier to the movement patterns of whales. Cleveland Bay is not known to represent a natural constriction for whale movements along the coast.
Adversely affect habitat critical to the survival of a species.	Cleveland Bay does not represent a recognised critical habitat for this species (DEH 2005a; DSEWPaC 2011). The proposed development is not expected to result in major long term impacts to humpback whale habitats in the Cleveland Bay region.
Interfere substantially with the recovery of the species.	The Project will not affect humpback whale populations, hence the recovery of the species will not be affected.
Disrupt the breeding cycle of an important population.	The entire Great Barrier Reef complex between 14°S and 27°S forms a humpback whale calving area (DEH 2005a). However Cleveland Bay is not known to represent an important calving area at a regional scale.
Modify, destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The Project is not expected to have major effects on potential humpback whale (pelagic water) habitats within the Bay. Any impacts are expected to be highly localised and short-term (measured in years).
Result in invasive species that are harmful to species becoming established in their habitat.	The Project will not deliberately introduce invasive species. There is some potential for international ships to incidentally introduce marine pests, which depending on the pest species under consideration, could affect plankton assemblages within the Bay. The risk is considered low due to strict international legislation in place and the relatively small increase in the number of ships as a result of the Port Expansion Project. Nevertheless, mitigation strategies will be put in place to minimise the risk of introducing marine pests into the marine environment.
Introduce disease that may cause the species to decline.	The Project is unlikely to introduce new diseases into the marine environment.

Table 2 Criteria listed by the *EPBC Act 1999* for a 'significant impact' and the 'likelihood' of impact to populations of whale sharks

Criteria for a significant impact	Likelihood
Lead to a long-term decrease in the size of an important population of a species	Whale sharks have a wide geographic distribution, occurring between latitudes 30° N and 35° S. This species is a highly irregular visitor to Cleveland Bay. The Project is not expected to result in changes in whale shark abundance at even a local (Cleveland Bay) scale, and nor are major changes to food resources or habitat expected.
Reduce the area of occupancy	The spatial scale of potentially affected areas relative to the area of suitable habitat elsewhere in the Cleveland Bay region is very low. Furthermore, areas subject to irreversible habitat loss (i.e. construction footprint) do not form suitable habitat for whale sharks. No major change in the area of occupancy is therefore expected as a result of the Port Expansion Project.
Fragment an existing important population into two or more populations.	The Project will not represent a physical barrier to the movement patterns of whales. Cleveland Bay is not known to represent a natural constriction for whale movements along the coast.
Adversely affect habitat critical to the survival of a species.	Cleveland Bay does not represent a recognised critical habitat for this species (DEH 2005b; DSEWPaC 2011). The proposed development is not expected to result in major long term impacts to whale shark habitats in the Cleveland Bay region.
Interfere substantially with the recovery of the species.	The Project will not affect whale shark populations, hence the recovery of the species will not be affected.
Disrupt the breeding cycle of an important population.	Cleveland Bay is not known to represent an important whale shark breeding area.
Modify, destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The Project is not expected to have major effects on potential whale shark (pelagic water) habitats within the Bay. Any impacts are expected to be highly localised and short-term (measured in years).
Result in invasive species that are harmful to species becoming established in their habitat.	The Project will not deliberately introduce invasive species. There is some potential for international ships to incidentally introduce marine pests, which depending on the pest species under consideration, could affect plankton assemblages within the Bay. The risk is considered low due to strict international legislation in place and the relatively small increase in the number of ships as a result of the Port Expansion Project. Nevertheless, mitigation strategies will be put in place to minimise the risk of introducing marine pests into the marine environment.
Introduce disease that may cause the species to decline.	The Project is unlikely to introduce new diseases into the marine environment.

Table 3 Criteria listed by the EPBC Act 1999 for a 'significant impact' and the 'likelihood' of impact to populations of marine turtles

Criteria for a significant impact	Likelihood
<p>Lead to a long-term decrease in the size of an important population of a species</p>	<p>The marine turtle species within Cleveland Bay are wide ranging species that form part of larger populations that extend well beyond the boundaries of Cleveland Bay. Major Australian breeding populations include (after Moritz in Environment Australia 2003): Green turtle – possibly part of several turtle breeding populations (e.g. Northern GBR; Southern GBR + Coral Sea etc.) Loggerhead – eastern Australia Hawksbill – NE Australia Flatback – possibly part of several turtle breeding populations (e.g. Central Queensland, North Queensland)</p> <p>Cleveland Bay does not represent critical habitat for any of these species (Environment Australia 2003; DSWEPaC 2011). While turtle nesting areas occur nearby to the Port Expansion Project area, nesting in these areas is low density. The Project will not directly affect nearby nesting areas. The Project is not expected to result in major changes to turtle feeding patterns within Cleveland Bay.</p> <p>Overall, the Port Expansion Project is not expected to significantly affect the abundance of marine turtle species at a local (Cleveland Bay level), nor at the population level described above.</p>
<p>Reduce the area of occupancy</p>	<p>The spatial scale of the area directly affected by the proposed development relative to the area of suitable habitat elsewhere in the Cleveland Bay region is very low. The proposed development is not prime foraging habitat for marine turtles.</p>
<p>Fragment an existing important population into two or more populations.</p>	<p>The proposed development does not represent a physical barrier to the movement of marine turtles.</p>
<p>Adversely affect habitat critical to the survival of a species.</p>	<p>Cleveland Bay does not contain recognised critical habitat for any turtle species (Environment Australia 2003; DSWEPaC 2011). However, Cleveland Bay is recognised as a regionally important foraging habitat for green turtles. The proposed development is not expected to result in major long term impacts to seagrass or reef habitats and will not result in flow on effects to seagrass or reef habitat elsewhere in the Cleveland Bay region.</p>
<p>Interfere substantially with the recovery of the species.</p>	<p>The Project will not affect marine turtle populations, hence the recovery of the species will not be affected.</p>
<p>Disrupt the breeding cycle of an important population.</p>	<p>Coastal foreshores of Cleveland Bay are not a recognised important breeding area for marine turtles. Only low density nesting of green turtles occurs in the Bay.</p>
<p>Modify, destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.</p>	<p>The Project is not expected to have a major effect on key seagrass or reef habitats within the Bay. Any impacts are expected to be highly localised and short-term (measured in years).</p>
<p>Result in invasive species that are harmful to species becoming established in their habitat.</p>	<p>The Project will not deliberately introduce invasive species. There is some potential for international ships to incidentally introduce marine pests, which depending on the pest species under consideration, could affect seagrass and reef feeding habitats within the Bay. The risk is considered low due to strict international legislation in place and the relatively small increase in the number of ships as a result of the</p>

Criteria for a significant impact	Likelihood
	Port Expansion Project. Nevertheless, mitigation strategies will be put in place to minimise the risk of introducing marine pests into the marine environment.
Introduce disease that may cause the species to decline.	The Project is unlikely to introduce new diseases into the marine environment.

Migratory Marine Species

The following EPBC listed threatened marine fauna species are known to occur, or irregularly occur (i.e. several times per decade) in Cleveland Bay. Impact significance has been assessed against Significant Species Guidelines 1.1 (DEWHA 2009) for listed migratory species.

Table 4 Criteria listed by the EPBC Act 1999 for a 'significant impact' and the 'likelihood' of impact to the dugong population

Criteria for a significant impact	Likelihood
Substantially modify, destroy or isolate an area of important habitat for migratory species	Cleveland Bay contains extensive seagrass meadows that represent important feeding habitat for dugongs. The Project is not expected to cause long term changes to seagrass habitat. Furthermore, any impacts to seagrass are expected to highly localised, and are not expected to occur in sections of Cleveland Bay that are known to support highest numbers of dugongs (i.e. dense seagrass meadows in nearshore environments)
Result in invasive species that are harmful to the migratory species becoming established in an area of important habitat for a migratory species.	The Project will not deliberately introduce invasive species. There is some potential for international ships to incidentally introduce marine pests, which depending on the pest species under consideration, could affect seagrass feeding habitats within the Bay. The risk is considered low due to strict international legislation in place and the relatively small increase in the number of ships as a result of the Port Expansion Project. Nevertheless, mitigation strategies will be put in place to minimise the risk of introducing marine pests into the marine environment.
Seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.	The Project could result in noise disturbance that may lead to dugongs temporarily avoiding deepwater seagrass meadows located in close proximity to the dredge site and DMPA. These seagrass areas are ephemeral, have low biomass and not known to represent critical feeding areas for dugongs. The Project is not expected to seriously disrupt feeding or reproductive activities in nearshore environments of Cleveland Bay that represent important dugong habitat.

Table 5 Criteria listed by the *EPBC Act 1999* for a 'significant impact' and the 'likelihood' of impact to local and regional (Cleveland Bay) populations of nearshore dolphins

Criteria for a significant impact	Likelihood
Substantially modify, destroy or isolate an area of important habitat for migratory species	Cleveland Bay contains a locally important assemblage of dolphins, with Australian snubfin dolphin and Indo-Pacific humpback dolphins being most abundant. These species feed a range of fish and invertebrate species throughout the Bay. Reclamation will result in the irreversible loss of 110 ha of soft sediment habitat, which forms part of the foraging area for these species. Such feeding habitat for dolphins is well represented throughout Cleveland Bay.
Result in invasive species that are harmful to the migratory species becoming established in an area of important habitat for a migratory species.	The Project will not deliberately introduce invasive species. There is some potential for international ships to incidentally introduce marine pests, which depending on the pest species under consideration, could affect seagrass feeding habitats within the Bay. The risk is considered low due to strict international legislation in place and the relatively small increase in the number of ships as a result of the Port Expansion Project. Nevertheless, mitigation strategies will be put in place to minimise the risk of introducing marine pests into the marine environment.
Seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.	The Project could result in noise disturbance that may lead to dolphins temporarily avoiding soft sediment habitats located in close proximity to the dredge site and DMPA. The Project is not expected to seriously disrupt feeding or reproductive activities in nearshore environments of Cleveland Bay that represent important dugong habitat.