

PORT OF WEIPA

▶ APPENDIX C

**Threatened and migratory
EPBC significant impact assessments**

Appendix C Threatened and migratory EPBC significant impact assessments

Assessment against significant impact criteria – endangered and vulnerable sea turtles (note -these species are also listed as migratory)

| Scientific Name | Common Name | EPBC Act Status |
|-------------------------------|---------------------|------------------------|
| <i>Caretta caretta</i> | Loggerhead Turtle | Endangered / Migratory |
| <i>Chelonia mydas</i> | Green Turtle | Vulnerable / Migratory |
| <i>Dermochelys coriacea</i> | Leatherback Turtle | Endangered / Migratory |
| <i>Eretmochelys imbricata</i> | Hawksbill Turtle | Vulnerable / Migratory |
| <i>Lepidochelys olivacea</i> | Olive Ridley Turtle | Endangered / Migratory |
| <i>Natator depressus</i> | Flatback Turtle | Vulnerable / Migratory |

An overview of ‘critical habitat’, ‘population/important population’ and the species interaction in the Port of Weipa for each of the six marine turtles is presented in the table below. The Port provide critical habitat for two species (Olive Ridley and Flatback) as per the definition in the *Recovery Plan for Marine Turtles* in Australia (Commonwealth of Australia 2017). Both species are known to nest on beaches within the Weipa Region. The area also provides local foraging habitat, including coastal and deeper-water seagrass beds and reef communities, for transient individuals of all six marine turtle species.

Marine turtles in the Project area

| Species | Interaction with Project area | Definition of 'critical habitat' ¹ | 'Critical habitat' present in Project area | Definition of 'population/important population' ² | 'Population/important population' present in the Project area |
|---------------------|---|---|--|---|---|
| Loggerhead Turtle | Transient species in the area, foraging on the surrounding reef systems or seagrass beds. | Coastal beaches from the Elliot River to Bustard Head, Swain Reefs | No | A 'population' is an occurrence of the species in a particular area. Occurrences include but are not limited to: | No – although each of the three endangered turtle species are part of genetic stocks, the numbers previously recorded do not constitute a distinct regional population. The three endangered species are known from the Weipa and wider Cape York area. |
| Leatherback Turtle | May forage on the surrounding reef systems or seagrass beds. | Tryon, Capricornia- Bunker Group, Pumistone Passage to Double Island Point plus a 20 km radius around each location | No | A geographically distinct regional population, or collection of local populations, or | |
| Olive Ridley Turtle | Known to forage in surrounding reef system and nest on beaches in the region. | Cobourg Peninsula to Cape Arnhem (including Danger Point) and adjacent islands (including Wessel Islands and Elcho Island) | Yes | A population, or collection of local populations, that occurs within a particular bioregion | |
| Green Turtle | Known to forage on the surrounding reef systems or seagrass beds in shallow coastal waters. | Coastal beaches from Jardine River to Chapman River plus a 20 km radius around each location | No | An 'important population' is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: | No - numbers previously recorded in the Project area are not of sufficient density to constitute a key source populate or be necessary for genetic diversity. |
| Hawksbill Turtle | Known to forage in surrounding reef system and nest on beaches in the region. | Bountiful Islands, Rocky Island, Pisonia Island, Cape Shield to Cape Arnhem, Groote Eylandt Archipelago, Sir Edward Pellew Islands plus a 20 km radius around each location | No | Key source populations either for breeding or dispersal; | The north Queensland populations of these three vulnerable turtle species are also not near |

¹ As per the *Recovery Plan for Marine Turtles* in Australia (Commonwealth of Australia 2017)

² As per the *Significant Impact Guidelines* (DoE 2013)

| Species | Interaction with Project area | Definition of 'critical habitat' ¹ | 'Critical habitat' present in Project area | Definition of 'population/important population' ² | 'Population/important population' present in the Project area |
|-----------------|---|--|--|--|---|
| Flatback Turtle | Known to forage in surrounding reef system and nest on beaches in the region. | <p>Island (Smol Muri), Woody Wallace Island, Poll Islet (Guiya), Dugong Islet (Atub), Cap Islet (Mukar), Two Brothers Island (Gebar), Mt Adolphus Island (Muri) plus a 20 km radius around each location</p> <p>Field Island, Crab Island, Bare Sand Island, Tiwi Islands, Quail Island, Hawkesbury Point, Cobourg Peninsula, Wessel Islands, Gove Peninsula, Groote Eylandt Archipelago, Sir Edward Pellew Islands, Wellesley Islands, Deliverance Island, mainland beaches from Jardine River to Edward River, Crocodile Island Group plus a 60 km radius around each location</p> | Yes | <p>Populations that are necessary for maintaining genetic diversity; and/or</p> <p>Populations that are near the limit of the species range.</p> | the limit of the species range. |

Significant impact assessment for endangered species – Loggerhead, Leatherback and Olive Ridley

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|--|--------------------------|---|
| Lead to a long-term decrease in the size of a population | No | <p>The Project area is identified in the Marine Recovery Plan as critical habitat for the Olive Ridley Turtle, which is known to nest on beaches in the Weipa region is the Olive Ridley Turtle. The Project area provides some local foraging habitat for individuals of all three endangered species, including surrounding reef systems and seagrass beds.</p> <p>Direct impacts to coral communities or seagrass beds as a result of dredging are not anticipated. These habitats are not present in the dredge areas. Surveys conducted after previous maintenance dredging events or large sedimentation events have indicated that seagrass communities in the port area did not sustain any significant impacts and recover.</p> <p>Indirect impacts to water quality (turbidity and sedimentation) are unlikely due to the naturally turbid nature of the port. Any increase in turbidity and sedimentation is likely to be minor and temporary.</p> |
| Reduce the area of occupancy of the species | No | <p>‘Area of occupancy’ (AOO) is defined as the area within a species extent of occurrence (EOO) which is occupied by the species (IUCN 2012).</p> <p>There will be no reduction of onshore area or underwater area associated with dredging and disposal. Direct and indirect impacts to seagrass meadows and coral reefs are highly unlikely. The dredging works are not anticipated to reduce the opportunity for Olive Ridley individuals to nest, as the species is already known to occur in the high trafficked operational port. The species will still have access to other nesting beaches within the Weipa region.</p> |
| Fragment an existing population into two or more populations | No | <p>The populations of the three endangered species comprise various different stocks and range in the number of nesting females. The dredge campaigns will typically consist of one dredging vessel (apart from a worst-case scenario), which will be similar to other large commercial vessels that operate in the Port of Weipa. The endangered turtles species are still known to utilise the waters around the Port, regardless of the high traffic and consequently dredge campaigns are unlikely to restrict movement and fragment populations.</p> |
| Adversely affect habitat critical to the survival of a species | No | <p>As per the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia 2017) the Project area contains critical habitat for the Olive Ridley Turtle only. Direct impacts to coral communities or seagrass beds as a result of dredging are not anticipated. Indirect impacts to water quality (turbidity and sedimentation) are unlikely due to the naturally turbid nature of the port. Any increase in turbidity and sedimentation is likely to be minor and temporary.</p> |

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|---|--------------------------|--|
| Disrupt the breeding cycle of a population | No | <p>Despite the dredge operating 24 hours a day, artificial lighting will be negligible in the context of the operating port and is unlikely to disrupt Olive Ridley individuals during the time of key nesting activities (e.g. approaching beaches after dusk and into the night).</p> <p>The Olive Ridley turtle is known to nest on beaches in the Weipa region, however the area is identified as a minor nesting area in the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia). Peak nesting for the species occurs during August, which is outside of the time period that maintenance dredging is historically undertaken.</p> <p>Despite the dredge operating 24 hours a day, artificial lighting will be negligible in the context of the operating port and is unlikely to disrupt Olive Ridley individuals during the time of key nesting activities (e.g. approaching beaches after dusk and into the night). Given the low number of nesting turtles in the area and the intermittent and temporary nature of maintenance dredging, it is not anticipated to disrupt the breeding cycle of any endangered turtle species.</p> |
| Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline | No | <p>There will be no reduction of onshore area or underwater area associated with dredging and disposal. Direct and indirect impacts to seagrass meadows and coral reefs are highly unlikely.</p> <p>Increased artificial lighting will be concentrated in the dredge areas and will generally come from a single dredge vessel. The increase in light will be negligible compared to that generated by the operating port.</p> <p>Increased levels of underwater noise will be minimal, as generally only one dredge will be operating for short durations.</p> |
| Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat | No | <p>The proposed dredge operates on the Queensland coastline and consequently is unlikely to result in any invasive species. Any other dredge would be assessed for invasive marine species to ensure the risk is as low as reasonably practical.</p> |
| Introduce disease that may cause the species to decline | No | <p>As above.</p> |
| Interfere with the recovery of the species | No | <p>The proposed dredging will not impede the success of any of the recovery objective listed in the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia).</p> <p>Dredging can be a key threat to marine turtles due to injury/mortality via interaction with the vessel and/or habitat removal/degradation. Best practice dredging methods including the use of turtle exclusion devices and marine fauna monitoring will be implemented to reduce interactions with the vessel. As discussed in detail above, impacts to habitat within the Port of Weipa are expected to be minor and temporary and not impact turtles.</p> |

Significant impact assessment for vulnerable species – Green, Hawksbill and Flatback

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|--|--------------------------|---|
| Lead to a long-term decrease in the size of an important population of a species | No | <p>The Project area provides some local foraging habitat for individuals of all three vulnerable species, including surrounding reef systems and seagrass beds. Both the Flatback and Hawksbill turtle are known to nest on beaches in the Weipa region, but the area is not considered critical habitat and does not support important populations of the species.</p> <p>Direct impacts to coral communities or seagrass beds as a result of dredging are not anticipated. These habitats are not present in the dredge areas. Surveys conducted after previous maintenance dredging events or large sedimentation events have indicated that seagrass communities in the port area did not sustain any significant impacts and recover.</p> <p>Indirect impacts to water quality (turbidity and sedimentation) are unlikely due to the naturally turbid nature of the port. Any increase in turbidity and sedimentation is likely to be minor and temporary.</p> |
| Reduce the area of occupancy of an important population | No | <p>‘Area of occupancy’ (AOO) is defined as the area within a species extent of occurrence (EOO) which is occupied by the species (IUCN 2012).</p> <p>There will be no reduction of onshore area or underwater area associated with dredging and disposal. Direct and indirect impacts to seagrass meadows and coral reefs are highly unlikely. The dredging works are not anticipated to reduce the opportunity for Flatback and Hawksbill individuals to nest, as the species is already known to occur in the high trafficked operational port. The species will still have access to other nesting beaches within the Weipa region.</p> |
| Fragment an existing important population into two or more populations | No | <p>The Port of Weipa does not support important populations of any of the three vulnerable species. The three vulnerable species comprise various different stocks and range in the number of nesting females. The dredge campaigns will typically consist of one dredging vessel (apart from a worst-case scenario), which will be similar to other large commercial vessels that operate in the Port of Weipa. The vulnerable turtles species are still known to utilise the waters around the Port, regardless of the high traffic and consequently dredge campaigns are unlikely to restrict movement and fragment important populations.</p> |
| Adversely affect habitat critical to the survival of the species | No | <p>The Port of Weipa does not contain any critical habitat for the three vulnerable turtle species as per the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia 2017) the Project area contains critical habitat for the Olive Ridley Turtle only. Direct and indirect impacts to foraging resources are likely to be minor and temporary.</p> <p>Despite the dredge operating 24 hours a day, artificial lighting will be negligible in the context of the operating</p> |

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|--|--------------------------|---|
| | | <p>port and is unlikely to disrupt individuals during the time of key nesting activities (e.g. approaching beaches after dusk and into the night).</p> |
| <p>Disrupt the breeding cycle of an important population</p> | <p>No</p> | <p>The Port of Weipa does not support an important population of any of the three vulnerable turtle species. Both the Flatback and Hawksbill turtle are known to nest on beaches in the Weipa region, however the area is not identified as critical habitat in the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia).</p> <p>Peak nesting for the two species occurs during Late November to February, which is outside of the time period that maintenance dredging is historically undertaken.</p> <p>Despite the dredge operating 24 hours a day, artificial lighting will be negligible in the context of the operating port and is unlikely to disrupt individuals during the time of key nesting activities (e.g. approaching beaches after dusk and into the night). Given the low number of nesting turtles in the area and the intermittent and temporary nature of maintenance dredging, it is not anticipated to disrupt the breeding cycle of any vulnerable turtle species.</p> |
| <p>Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</p> | <p>No</p> | <p>There will be no reduction of onshore area or underwater area associated with dredging and disposal. Direct and indirect impacts to seagrass meadows and coral reefs are highly unlikely.</p> <p>Increased artificial lighting will be concentrated in the dredge areas and will generally come from a single dredge vessel. The increase in light will be negligible compared to that generated by the operating port.</p> <p>Increased levels of underwater noise will be minimal, as generally only one dredge will be operating for short durations.</p> |
| <p>Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat</p> | <p>No</p> | <p>The proposed dredge operates on the Queensland coastline and consequently is unlikely to result in any invasive species. Any other dredge would be assessed for invasive marine species to ensure the risk is as low as reasonably practical.</p> |
| <p>Introduce disease that may cause the species to decline</p> | <p>No</p> | <p>As above.</p> |
| <p>Interfere substantially with the recovery of the species</p> | <p>No</p> | <p>The proposed dredging will not impede the success of any of the recovery objective listed in the <i>Recovery Plan for Marine Turtles</i> (Commonwealth of Australia).</p> <p>Dredging can be a key threat to marine turtles due to injury/mortality via interaction with the vessel and/or habitat removal/degradation. Best practice dredging methods including the use of turtle exclusion devices and marine fauna monitoring will be implemented to reduce interactions with the vessel. As discussed in detail above, impacts to habitat within the Port of Weipa are expected to be minor and temporary and not impact turtles.</p> |

Assessment against significant impact criteria – migratory marine reptiles and mammals

| Scientific Name | Common Name | EPBC Act Status |
|---------------------------|-------------------------------|--------------------|
| <i>Crocodylus porosus</i> | Salt-water Crocodile | Migratory / Marine |
| <i>Dugong dugon</i> | Dugong | Migratory / Marine |
| <i>Orcaella heinsohni</i> | Australian Snubfin Dolphin | Migratory |
| <i>Sousa chinensis</i> | Indo-Pacific Humpback Dolphin | Migratory / Marine |
| <i>Sousa sahalensis</i> | Australian Humpback Dolphin | Migratory |

Significant impact assessment for migratory marine species

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|---|--------------------------|--|
| Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species | No | <p>The Salt-water Crocodile is known to inhabit the creeks and estuaries of the project area. Direct impacts to this species are highly unlikely. Indirect impacts (changes in water quality) with not interfere with any habitat utilised by the species.</p> <p>Dugongs have historically been recorded in low numbers in the Port area. Dredging can be a key threat to dugongs due to injury/mortality via interaction with the vessel and/or habitat removal/degradation. Best practice dredging methods including marine fauna monitoring will be implemented to reduce interactions with the vessel. They are not known to forage in the project area due to the low abundance of seagrass. Indirect impacts to marine water quality, and consequently seagrass habitat as a result of dredging (increased turbidity and sedimentation) are likely to be relatively minor and temporary in nature.</p> <p>The Port of Weipa does not support an important population of inshore dolphin species or any habitat that is critical to the survival of these species.</p> |
| Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species | No | <p>The proposed dredge operates on the Queensland coastline and consequently is unlikely to result in any invasive species. Any other dredge would be assessed for invasive marine species to ensure the risk is as low as reasonably practical.</p> |
| Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. | No | <p>The Port of Weipa does not support an important population of salt-water crocodiles or inshore dolphin species, or any habitat that is critical to the survival of these species.</p> <p>The Port of Weipa not support an ecologically significant proportion of dugong or important habitat for the species. There are no major feeding grounds and no resident population.</p> |

Assessment against significant impact criteria – vulnerable and migratory shark species

| Scientific Name | Common Name | EPBC Act Status |
|-------------------------------|--------------------|------------------------|
| <i>Pristis clavata</i> | Dwarf Sawfish | Vulnerable / Migratory |
| <i>Pristis pristis</i> | Freshwater Sawfish | Vulnerable / Migratory |
| <i>Pristis zijsron</i> | Green Sawfish | Vulnerable / Migratory |
| <i>Anoxypristis cuspidata</i> | Narrow Sawfish | Migratory |

Significant impact assessment for vulnerable species – Dwarf, Freshwater and Green Sawfish

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|--|--------------------------|--|
| Lead to a long-term decrease in the size of an important population of a species | No | <p>The Project area provides some local foraging habitat for individuals of all three vulnerable species, as the species feed on fish and benthic infauna. The Port of Weipa does not support important populations of the species.</p> <p>Direct impacts to benthic infauna will occur due to removal of sediment in the dredging areas and the potential smothering of infauna at the DMPA. Surveys conducted after previous large-scale sedimentation events have identified that benthic infauna recover after such events and are resilient to maintenance dredging. Consequently, it is likely that dredging campaigns will result in the creation of foraging habitat for sawfish at the DMPA.</p> <p>Sawfish are known to regularly inhabit turbid areas and are likely to be resilient to increase in turbidity and sedimentation. Regardless, any increase in turbidity and sedimentation is likely to be minor and temporary.</p> |
| Reduce the area of occupancy of an important population | No | <p>‘Area of occupancy’ (AOO) is defined as the area within a species extent of occurrence (EOO) which is occupied by the species (IUCN 2012).</p> <p>There will be no reduction of estuarine or freshwater river areas associated with dredging and disposal. Direct impacts to benthic infauna are likely in the dredge area, however additional benthic infauna habitat (a foraging resource for sawfish species) will be created at the DMPA.</p> |
| Fragment an existing important population into two or more populations | No | <p>The Port of Weipa does not support important populations of any of the three vulnerable species. The dredge campaigns will typically consist of one dredging vessel (apart from a worst-case scenario), which will be similar to other large commercial vessels that operate in the Port of Weipa. The vulnerable sawfish species are still known to utilise the waters around the Port, including estuarine areas and freshwater river reaches regardless of the high traffic and consequently dredge campaigns are unlikely to restrict movement and fragment important populations.</p> |
| Adversely affect habitat critical to the survival of the species | No | <p>The Port of Weipa does not contain any critical habitat for the three sawfish species. Direct and indirect impacts to</p> |

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|---|--------------------------|--|
| | | foraging resources (fish and benthic infauna) are likely to be minor and temporary. |
| Disrupt the breeding cycle of an important population | No | The Port of Weipa does not support an important population of any of the three sawfish turtle species. The Dwarf Sawfish is likely to breed in estuarine areas, the Freshwater Sawfish breeds in freshwater habitat and the Green Sawfish returns to coastal waters to breed. The sawfish species leave the dredge area to breed and their movement will not be impacted by the dredging operations. No breeding habitat for any of the three vulnerable species will be impacted directly or indirectly by the dredging operations. |
| Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline | No | There will be no reduction of estuarine or freshwater river areas associated with dredging and disposal. Direct impacts to foraging resources will occur due to the removal of benthic infauna habitat. However, additional foraging resources will be created at the DMPA and as such the temporary removal of foraging resources is not considered significant. Sawfish are not sensitive to increased levels of underwater noise or increased turbidity and consequently indirect impacts to the species are unlikely. |
| Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat | No | The proposed dredge operates on the Queensland coastline and consequently is unlikely to result in any invasive species. Any other dredge would be assessed for invasive marine species to ensure the risk is as low as reasonably practical. |
| Introduce disease that may cause the species to decline | No | As above. |
| Interfere substantially with the recovery of the species | No | The proposed dredging will not interfere with the recovery of any of the three vulnerable sawfish species. A key threat to the species is bycatch, predominantly associated with commercial fishing. The use of turtle exclusion devices will reduce the chance for interaction between sawfish and the dredge vessel. As discussed in detail above, impacts to habitat within the Port of Weipa are expected to be minor and temporary and not impact sawfish. |

Significant impact assessment for migratory shark species

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|---|--------------------------|--|
| Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species | No | The Narrow Sawfish has not been recently sighted in the Port of Weipa or wider Weipa region. It's Australian distribution is thought to be concentrated in the Gulf of Carpentaria. The Port of Weipa does not support an important population of the Narrow Sawfish or any important habitat for the species. |

| Significant impact criteria | Significant impact (Y/N) | Response to criteria |
|---|--------------------------|---|
| Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species | No | The proposed dredge operates on the Queensland coastline and consequently is unlikely to result in any invasive species. Any other dredge would be assessed for invasive marine species to ensure the risk is as low as reasonably practical. |
| Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species. | No | The Port of Weipa does not support an ecologically significant proportion of the population of the Narrow Sawfish. |