

Towards Sustainable Management of Dugong and Turtle Tourism

CODE OF PRACTICE FOR THE SUSTAINABLE MANAGEMENT OF DUGONG AND MARINE TURTLE TOURISM IN AUSTRALIA

Foreword:

Some of the world's largest remaining populations of dugongs and marine turtles occur in Australia, and six of the world's seven species of marine turtle are found in these waters. Australian populations of dugongs and marine turtle species are under pressure from a wide range of human-related threats. All of these species are classified as threatened, either internationally, nationally or both. As such they are protected under Commonwealth, State and Northern Territory legislation. The opportunity to utilise these animals for commercial tourism comes with the responsibility to ensure that their use is not only sustainable in and of itself, but that such tourism also contributes actively to the conservation of the animals and the habitats on which they depend.

The consultation and involvement of all stakeholder groups in the development and management of marine wildlife tourism is vital to ensuring its sustainability. For coastal Indigenous (Aboriginal and Torres Strait Islander) societies the sea and coast are part of their traditional estates, for which they have inherited cultural rights of ownership and responsibilities for their management. Best Practice management of dugong and marine turtle tourism must therefore include recognition of this fundamental relationship between Indigenous people and their sea country. Best Practice Guidelines are presented within this Code of Practice to assist managers, tour operators and Traditional Owners engage with each other in a process of equitable negotiation, to ensure sustainable outcomes from the planning and management of dugong and marine turtle tourism in Australia.

This Code of Practice consists of three parts:

1. **PART 1** addresses the broader issues for the sustainable management of dugong and turtle tourism, with specific recommendations for implementation by local councils, protected area and wildlife managers and tour operators, with implications for Traditional Owners, researchers, conservation NGO's, local community members and other stakeholders.
2. **PART 2** contains the *Best Practice Guidelines for Engaging with Indigenous Traditional Owners in the Planning and Management of Dugong and Turtle Tourism*.
3. **PART 3** contains specific Codes of Conduct for tours operating in dugong and marine turtle habitat, and for specific types of interactions with these animals (i.e. aircraft, beach-based, vessel-based and in-water interactions). The provisions in these Codes of Conduct should be followed not just by dedicated dugong/turtle commercial tourism operators, but also by all users of beaches and coastal waters of northern Australia, wherever dugongs or marine turtles occur.

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PART 1: Recommendations for the Sustainable Management of Dugong and Marine Turtle Tourism in Australia

1.1 Adaptive Management Framework: learning while doing

Given the gaps in our knowledge of detailed biology and behaviour of dugongs and marine turtles and of the impacts of human interactions with them, it is vital that all tourism and recreational interactions are managed within an Adaptive Management Framework. An Adaptive Management Framework allows flexibility for changes to a management regime to meet the changing demands and pressures on the resource and the environment, and incorporates new knowledge from scientific research and monitoring into management decisions. Appropriately designed and resourced research and monitoring of dugong and turtle tourism interactions can lead to improvements in their ecologically sustainable management. Research is needed to develop such frameworks, to adapt them to individual locations and to develop appropriate indicators of sustainability. *Note: Some considerations for research and monitoring are outlined in Section 1.8.*

1.2 Moving towards ecotourism

Dugong and marine turtle tourism operators around Australia should be encouraged to adopt the principles of ecotourism into their operations, using nationally accepted ecotourism accreditation guidelines (e.g. Nature and Ecotourism Accreditation Program, EcoGuide Certification Program). Ecotourism operations should foster conservation outcomes, include direct benefits for the local community, include a substantial educational component and should be based on the principles of Ecologically Sustainable Development (*See definitions of 'ecotourism' and 'Ecologically Sustainable Development' in Section 1.9.*)

1.3 Environmental Impact Assessments

All dugong and marine turtle watching tourism programs/operations should be accompanied by an Environmental Impact Assessment (EIA), evaluated by the relevant management agency in a holistic manner to address cumulative impacts, prior to issuing a permit. The extent of detail required for the assessment, and the responsibility of resourcing the assessment process, will need to be decided by the management agency. *Note: Management agencies may already have established protocols in place for assessing the environmental impacts of tourism operations and developments.*

EIAs should require a triple-bottom line evaluation of the operation's sustainability, including:

- (i) Ecological impacts (i.e. on the animals and their habitat).
- (ii) Social and cultural impacts (i.e. on the Traditional Owners' cultural values and on the local community).
- (iii) Economic impacts (i.e. direct benefits to the local community and consideration of the long-term viability of the operation).

Approvals for tour operations should take into consideration the ownership of the land, including Traditional Ownership for the locations (including sea country) on which the tours take place. Traditional Owners should be formally consulted during the permitting process. Note that on land where the Traditional Owners are the landowners this is essential; on land where no current claim exists (or is pending), it is considered courteous and a positive step towards Best Practice planning and management. *See Part 2 for recommendations on appropriate engagement with Traditional Owners.*

1.3.1 Environmental Impact Assessments for beach-based marine turtle tourism

Assessments of proposed sites for beach-based turtle watching tourism programs should include:

- (i) The size and conservation significance of the nesting area(s) visited.
- (ii) The cumulative maximum interaction time over the nesting/hatchling seasons.
- (iii) That the maximum permitted group size per tour is appropriate to the local conditions, the species of turtle (e.g. green turtles are more easily disturbed by the presence of people on the beach) and the number of guides per group.
- (iv) Specific ethics approval by the appropriate regulatory agency for handling turtle eggs or hatchlings.
- (v) Specific approvals for guides to relocate eggs where nests are likely to be doomed (e.g. likely to be washed away by a big tide). Such approvals should be assessed on a case-by-case basis, taking into consideration the experience and training of the guide.
- (vi) The method of the tour group accessing the nesting beach is appropriate to the local environmental conditions (e.g. any use of vehicles; group use of pathways rather than walking over sand dunes).
- (vii) A risk assessment for group safety on the beach at night time (e.g. considering emergency evacuations, threat of snakes, crocodiles, etc.).
- (viii) Appropriate training of tour operators/guides. A minimum standard of tour guide training and accreditation is recommended for commercial operators undertaking guided tours at turtle nesting beaches. Such training and accreditation of guides should meet the requirements of the appropriate State/Territory government management agency (e.g. Queensland Environmental Protection Agency/Parks and Wildlife Service, Western Australian Department of Conservation and Land Management, Northern Territory Parks and Wildlife Commission). Considerations for training of guides include:
 - a) Appropriate use and control of lighting on turtle nesting beaches;
 - b) Movement and approach protocols to nesting and hatchling turtles on the beach;
 - c) Managing groups of tourists on the beach (including health and safety considerations for visitors and guides);
 - d) Research and monitoring techniques, where appropriate, for collection of data for monitoring. *Note: Data collection requirements of guides should be specified by the regulatory agency;* and
 - e) Minimum interpretation requirements should include marine turtle biology and behaviour, as well as appropriate presentation of Indigenous cultural values.
Note: Education and interpretation needs are outlined in Section 1.7.

1.3.2 Environmental Impact Assessments for vessel-based dugong/turtle tourism

Tour operators should use an appropriately designed craft for operating in dugong/marine turtle habitats, suitable to the local conditions. The following vessel design considerations should be taken into account by tourism proponents and by management agencies when evaluating permit applications for vessel-based tour operations in recognised areas of important dugong/marine turtle habitat:

- (i) Vessel design should allow a sufficient field of vision for the pilot of the vessel, with the ability to see any animals in the vessel's path (i.e. in front of the bow);
- (ii) Size, draft and the vessel's maneuverability are suitable to the local conditions of the proposed site(s) of operation;
- (iii) Mode of propulsion (e.g. sail, propeller, jet) should be suitable for the local conditions of the proposed site(s). *Note: It is recommended that a research program be initiated to determine the impacts of associated noise levels on dugongs and marine turtles in a range of habitats;*

- (iv) For reasons of noise, lack of steering ability and the likelihood of more than one vessel being required for group tours, Personal Water Craft (e.g. Jet Skis) should *not* be permitted for conducting tours to view dugongs or marine turtles.

Note that propeller guards are not recommended as a necessary vessel design consideration as these are ineffective at preventing injury and mortality of dugongs and turtles from vessel-strike. The force of impact is the primary cause of injury and mortality from vessel-strikes. Thus the only effective method to minimise the risk of collision and mortality from impact is to limit vessel speed to below 'wake speed'. *Note: The legislated "no wake speed" currently varies between different states (i.e. 6 knots in QLD, 5 knots in WA and NT). It is recommended that governments and agencies work towards establishing a standardised 'no wake' speed limit.*

1.3.2.1 Additional considerations for vessel and in-water tours (e.g. dive vessels) operating in the vicinity of recognised turtle breeding areas (e.g. turtle rookeries on beaches, islands and sand cays) during the turtle nesting/hatchling seasons

Additional considerations of proposed operations in these areas during the turtle breeding season should include:

- (i) The size and conservation significance of the breeding area(s) visited;
- (ii) The cumulative maximum interaction time over the extended nesting and hatchling seasons; and
- (iii) Nighttime mooring/anchoring proximity to the nesting beach and light spillage from the vessel. *Note: It is recommended that vessels anchor at least 1 nautical mile from turtle nesting beaches, wherever possible, to avoid disturbing nesting turtles and/or attracting turtle hatchlings.*

1.3.2.2 Additional considerations for vessel-based dugong watching operations

Assessments of proposed sites for vessel-based dugong watching tourism programs should include:

- (i) The topography and size of seagrass beds, including identification of 'high-risk' areas (see definition of 'high-risk areas' in Section 1.9). *Note: Necropsy records of vessel-impact mortalities can be used to help identify 'high risk' areas (some occurrences may be in different areas from where most dugongs are seen, and they may be seasonal).*
- (ii) The size of the resident population of dugongs, including seasonal variations.
- (iii) The cumulative daily impact of all vessels (including the proposed dugong watching tour(s), research vessels, recreational and fishing vessels) on the dugong population in an area. *This needs to be considered in a pre-impact study prior to issuing permits.*
- (iv) Dedicated tour operators should complete an approved training course on dugong biology and cultural values prior to receiving a permit (see definition of 'dedicated tours' in Section 1.9). *Note: Some considerations for education and interpretation are outlined in Section 1.7.*
- (v) Dedicated swim-with-dugong tourism should not be permitted until better information on the impacts and management of such activities becomes available. *Note: In-water interactions with dugongs are likely to be rare. However, predictable encounters with individual, habituated dugongs have occurred in places such as Vanuatu and Cocos (Keeling) Islands.*

Considering the vulnerable status of dugongs and their high propensity of disturbance by vessels, it is recommended that independent monitoring of all dugong watching programs be implemented collaboratively between management agencies, tourism operators and researchers (*see Section 1.8 'Research and monitoring priorities for sustainable management'*).

1.4 Permits

Permits for dugong/marine turtle tourism operations should only be issued for defined periods on the clear understanding that renewal is dependent on sustainability assessment. Permits should be revoked if operations have a negative impact on the dugong/turtle population or on their habitat. Whilst it is not a requirement for the permitting agency to evaluate the commercial viability of a tourism proposal, tourism proponents should be encouraged to develop a business plan (to reduce the likelihood of being economically unsustainable) before submitting an application for a permit.

1.5 Local implementation and management issues

The following issues are identified to help raise awareness of the threats facing dugong and marine turtle populations in Australia. Specific recommendations are made for implementation by management agencies, local councils and landowners, however all other stakeholders and users of coastal areas and waters of northern Australia can contribute to the conservation of dugongs and marine turtles by supporting and assisting in the implementation of these measures.

A broad public education and awareness campaign about these important issues will be vital to ensure community support for conservation programs for the survival of Australian populations of dugongs and marine turtles.

1.5.1 Addressing threats to dugong and marine turtle populations

Coastal communities in northern Australia and tourism operations in particular should be encouraged to assist in conservation efforts to reduce the impacts of human and feral animal-related threats to dugong and marine turtle populations, for example by:

- (i) Helping to reduce feral animal predation of turtle nests (by pigs, foxes and dogs): Local councils, landowners and communities should be encouraged to participate in feral animal baiting and eradication programs. *Note: in some remote areas of northern Australia it is estimated that 100% of turtle eggs are being eaten/destroyed by feral predators.*
- (ii) Helping to reduce dugong/turtle entanglement in/ingestion of marine debris (e.g. ghost nets, fishing line, plastic bags): All users of coastal waters should be encouraged to assist wherever possible in saving animals in distress, removing threatening marine debris from the water or beach, and reporting incidents to the appropriate local/state authorities. *Note that turtles have been known to take line-fishing bait resulting in fatalities and serious injuries to the animals. If this entanglement occurs, remove the hook and line to reduce injury, do not just cut the line!*
- (iii) Helping to reduce dugong/turtle injury and mortality from boat strikes: This can be done by reducing vessel speed, particularly in areas of important dugong/turtle habitat (i.e. around seagrasses, coral reefs and adjacent to turtle nesting beaches). *See Section 1.5.2 'Establishment of vessel speed limits in important dugong/marine turtle habitat and high-risk areas' for further recommendations.*
- (iv) Helping to reduce light disturbance to nesting and hatchling marine turtles during the breeding season: Local councils, land owners and communities should be encouraged to reduce the impacts of lighting near turtle nesting beaches (*see recommendations for reducing impacts of lighting under Section 1.5.3*). A broad campaign for improving turtle awareness is needed around northern coastal Australia (e.g. "Make Australia Turtle Friendly"). Coastal management plans should also include the protection of marine turtle nesting beaches as an objective for implementation at the local level.

1.5.2 Establishment of vessel speed limits in important dugong/marine turtle habitat and high-risk areas

- (i) ‘**Go slow zones**’ should be established in areas of **important habitat** to dugongs/turtles, including feeding grounds and waters surrounding known turtle breeding beaches/islands (which may be on a seasonal basis), and adhered to by all vessels in these areas. The specific boundaries and appropriate speed limits within these areas should be determined by the relevant local authorities following adequate consultation with all stakeholders, and should take into consideration the vulnerability of the local dugong/turtle population and the level of risk of vessel disturbance and impact. ‘High risk areas’ will need to be identified and clearly defined through this process (*see definition of ‘high-risk areas’ in the Section 1.9*).
- (ii) Speed limits in **high-risk areas** should be implemented at the ‘**no wake speed**’, in accordance with State specific maritime safety laws (e.g. 5 knots in Western Australia and the Northern Territory, 6 knots in Queensland). *Note: in addition to the increased risk of collision with animals at speeds greater than ‘no wake speed’, in shallow water propeller wash can directly affect seagrasses and corals.*
- (iii) **Transit lanes** should be designed to direct vessels away from important habitat and high-risk areas (particularly shallow areas and narrow channels) when boats are traversing to and from the intended destination.
- (iv) ‘**No-go areas**’ may need to be declared in some high-risk areas where the local populations of dugongs/turtles are particularly vulnerable to vessel disturbance and impacts. Detailed spatial planning will be required to map such areas.

Consultation and involvement of all stakeholders in the local community will be essential to the acceptance and compliance with any introduced vessel speed or area restrictions. An extensive public education phase (e.g. including a short-term ‘grace period’ of enforcement with educational briefings for non-compliant vessels) is a necessary component to the successful implementation of such restrictions to recreational and other vessels.

1.5.3 State and local government management of turtle nesting beaches

The management of marine turtles in Australia falls within the jurisdiction of many agencies. The management of many coastal/mainland marine turtle nesting beaches is the responsibility of local councils, whereas other areas will be under the jurisdiction of the State/Northern Territory government. The collaboration of local and State/Northern Territory governments is therefore essential for managing marine turtle populations that use these areas. Local governments must formally recognise their responsibilities for managing marine turtle nesting beaches and integrate these considerations into their planning frameworks.

Considerations for minimising impacts on nesting and hatchling marine turtles on beaches near developed areas include:

- (i) Reducing impacts of lighting, by:
 - a) Minimising and/or shielding artificial lighting on or adjacent to known nesting beaches (e.g. by placing physical light barriers between the lights and beach such as dense vegetation, by installing low pressure sodium vapour lights for street and park lighting adjacent to loggerhead nesting beaches. *Note: Low pressure sodium vapour lights may not be appropriate for solving lighting problems for other species of marine turtle*);
 - b) For safe access to walkways, use intermittent rather than continuous lights (e.g. with proximity sensors which turn on lights briefly).

- (ii) Promoting visitor and general public awareness of turtle breeding season and the sensitivities of nesting & hatchling marine turtles. *Note: Education and interpretation needs outlined in Section 1.7.*
- (iii) Not constructing sea walls or hard structures on nesting beaches.
- (iv) Not using mechanical cleaners or tractors on beaches in the breeding season, especially above the high tide mark. *Note that some species of marine turtle make very shallow nests (i.e. hawksbill, olive ridley) and the use of any sort of rake may be inappropriate.*
- (v) Control of cattle, horse, dog & other pet access to beaches during breeding season, to prevent trampling and digging up of turtle nests.
- (vi) Banning campfires on nesting beaches during the turtle breeding season (light from fires can deter nesting turtles, and hatchlings can be attracted into fires at night).
- (vii) Restricting vehicle access to beaches. If vehicles must access the beach, ensure that they drive below the high tide mark and not on the dunes. *Note that on many remote northern beaches where turtle nesting density is low (e.g. 3-4 turtles over 20km) the use of vehicles is necessary, however it is important that drivers keep vehicles below the high tide mark wherever possible.*
- (viii) Not leaving beach equipment (e.g. umbrellas, chairs, tables) on the beach at night as they can become obstacles to turtle nesting. Umbrellas (or anything that sticks into the sand) should be used below the high tide mark so they do not accidentally impact on nests.

1.6 Introduction of a ‘Marine Animal Interaction Flag’

A ‘Marine Animal Interaction Flag’ should be established for vessels operating in the vicinity of marine wildlife (similar to the ‘Diver Down’ flag for SCUBA diving.) This flag should be flown in a position visible 360 degrees by tour operators whenever interacting with marine fauna, which is likely to be disturbed by the presence of another vessel entering the interaction zone (e.g. dugongs, turtles, cetaceans, pinnipeds, whale sharks).

The distance from which a no-wake approach speed and minimum approach distance to vessels flying such a flag needs to be established as a minimum standard for all marine species in all locations, however some species and locations may require additional restrictions (*E.g. the CALM Marine Mammal Interaction Conditions for Dugongs states that vessels must remain 200m from a vessel interacting with dugongs; the CALM Code of Conduct for Whale Shark Tourism Operations states that additional vessels must stay at least 400m from a single vessel within an exclusive contact zone around a shark; the Draft Australian National Guidelines for Whale and Dolphin Watching 2005 stipulates a ‘caution zone’ with a radius of 300m surrounding whales or dolphins, within which a maximum of three vessels may be present*). It is recommended that governments and agencies work towards establishing a standardised minimum distance wherever this is possible. These approach restrictions should apply to all boat operators including both recreational and commercial vessels.

1.7 Education and interpretation needs

Dedicated dugong/marine turtle tour operators should complete an approved training course on dugong and/or marine turtle biology and cultural values to ensure the information they present to tourists is culturally appropriate and increases their awareness of the species, its habitat and conservation. Information presented needs to meet local and international expectations, and should be linked to the Traditional Owners’ requirements for information presentation.

The recognition of Indigenous cultural values in the design of interpretation for dugong and marine turtle tourism has the potential to add significantly to the tourist experience, and provides an opportunity for Indigenous groups to benefit economically and communicate their connection to land and/or sea country. *Note: It is of utmost importance that the presentation of Indigenous*

cultural values in dugong and turtle tourism activities is done with the full involvement and consent of local Indigenous groups. Some Indigenous groups may not wish to be involved or to have these cultural values presented publicly, others may wish to be involved but only share some aspects of their culture, while others may wish to communicate the cultural significance of turtles and dugongs more comprehensively.

Interpretive programs for all dugong and marine turtle tourism programs should include a conservation message about the animals and their habitat. Interpretation could include information about the nesting (for marine turtles) and marine habitats, the species' life history (e.g. biology, ecology) and guidelines for interactions. For beach-based turtle tours, this should include a detailed description of the different phases for nesting marine turtles and hatchlings, to explain to tourists:

- (i) What is happening during each phase;
- (ii) The sensitivities of the marine turtles during these phases; and
- (iii) The effects on the turtles if disturbed (e.g. the turtle returns to the water, the turtle aborts nest building, hatchlings become disorientated).
- (iv) The effects of eggs being moved after being laid.

1.8 Research and monitoring priorities for sustainable management

Testing and monitoring of any management regime is necessary to determine whether it is effective in achieving the desired goals of Ecologically Sustainable Development (*see definition of Ecologically Sustainable Development' in Section 1.9*). Managers must continually review the effectiveness of the management regime and incorporate findings and outcomes of scientific research and monitoring programs into their decision making as part of an ongoing Adaptive Management Framework.

It is important that monitoring of dugong and marine turtle tourism programs includes consideration of associated impacts on Indigenous cultural values, whether or not Indigenous groups are directly involved in the delivery of such operations. In the absence of reliable information, the precautionary principle should be applied for managing potential impacts of tourism activities.

Research and monitoring priorities include:

- (i) Biological data (e.g. stress levels, spatial changes in feeding/nesting, census size of nesting population (for turtles), biological importance of target area for feeding/social behaviour, impacts of vessel noise, impacts of vessel/diver disturbance).
- (ii) Social/experiential data (e.g. visitor demographics, visitor experiences, response to management frameworks including Code of Conduct, consideration of cultural values, response to interpretation). This could include opportunities for data to be collected by/from tour operators and tourists.
 - *Note: Tour operators have a responsibility to help assess sustainability within an Adaptive Management Framework by assisting in monitoring programs and providing support (financial and/or in-kind) and access to independent researchers.*
 - *Note: Effectiveness of the management regime should include a positive response to Indigenous cultural issues as a measure of success.*
- (iii) Identification and monitoring of measurable Sustainability Indicators to assess cumulative impacts, utilising biological and social/experiential data.
- (iv) Identification of research gaps.

Local communities, managers, researchers and tourism operators should be encouraged to develop partnerships to assist in dugong and marine turtle research and conservation programs.

1.9 Definitions

For the purposes of this Code of Practice including the Codes of Conduct, the following definitions are recommended:

- a) “**Important habitat**” for dugongs includes areas of seagrass where dugongs are known to feed, or any place where dugongs are likely to be found or aggregate.
- b) “**Important habitat**” for marine turtles includes areas of seagrass and coral reefs where turtles are known to feed (e.g. turtles may be resident to a particular coral bommie or dive site and forage regularly in the surrounding area), beaches on islands, coral cays and the mainland where they are known to nest and the surrounding waters where they aggregate during the breeding season (Note: the seasonality of marine turtle breeding seasons varies for different species and locations).
- c) In waters where dugongs/marine turtles are known to occur, “**high-risk areas**” are places where there is a high probability of boat strike from vessels travelling above the ‘no wake speed’, and the consequences are likely to be injury or mortality of dugongs/turtles, due to:
 - (i) high densities of dugongs/turtles occurring in the area (*Note: This may be seasonal in some areas due to feeding or breeding-related migration patterns*); and/or
 - (ii) shallow waters where dugongs/turtles may be struck by a boat even when feeding or resting on the substrate (*Note: Vessels should take extra caution in areas where the vessel’s wash stirs up sediment from the bottom*); and/or
 - (iii) the topography of the specific location (e.g. narrow channels, small patches of seagrass used for feeding).
- d) A “**dedicated**” dugong or marine turtle tour is defined as one that: (a) is undertaken with the specific intent to encounter a dugong/marine turtle, and/or (b) promotes or advertises to prospective clients a high likelihood of encountering dugongs/marine turtles on such a tour. ‘Dedicated’ tour operators may also include those that target multiple species/taxa on a tour. In contrast, an ‘incidental’ tour may occasionally encounter these animals on an opportunistic basis.
- e) *For dugong-watching tours*, an “**interaction**” is defined as the time from when a dugong is first sighted within 100m of the vessel, until a period of 10 minutes has elapsed after the final sighting of a dugong within 100m of the vessel.
- f) “**Avoidance behaviour**” is defined as any fast or sudden movements initiated by an animal in a direction away from the source of disturbance, indicative of the animal fleeing the immediate area to avoid a close interaction. This may be characterised by fast pumping of the tail (for dugongs)/flippers (for marine turtles), sudden acceleration and/or abrupt change in direction of travel.
- g) The term “**environment**”, is defined in the Commonwealth EPBC Act (1999; s528) as:
 - (i) ecosystems and their constituent parts, including people and communities; and
 - (ii) natural and physical resources; and
 - (iii) the qualities and characteristics of locations, places and areas; and
 - (iv) the social, economic and cultural aspects of a thing mentioned in (i), (ii) or (iii)This definition allows for the inclusion of a number of specific human factors as aspects of the environment, for example, the economic or social value of natural resources, humans and human communities where they are part of an ecosystem, and the cultural aspects of a place, either built or natural.
- h) “**Ecotourism**” (defined by Ecotourism Australia) is: ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation.
- i) The National Strategy for **Ecologically Sustainable Development** (NSED; 1992) defines the goal of ESD as: ‘development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.’ Section 3A of the EPBC Act sets out the following five principles of ESD:
 - (i) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
 - (ii) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (i.e. the ‘precautionary principle’);
 - (iii) the principle of inter-generational equity - that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
 - (iv) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and
 - (v) improved valuation, pricing and incentive mechanisms should be promoted.

PART 2: Best Practice Guidelines for Engaging with Indigenous Traditional Owners in the Planning and Management of Dugong and Turtle Tourism

For coastal Aboriginal and Torres Strait Islander societies the sea is part of their traditional estates, for which they have inherited cultural rights of ownership and responsibilities for its management. While legal recognition of these rights through Native Title determinations is more narrowly defined, coastal and island Indigenous people maintain a strong sense of traditional ownership and obligation to their traditional marine estates (or “sea country”), and therefore are known as “Traditional Owners”. Increasingly it is this broader cultural relationship between Traditional Owners and their land and/or sea country that forms the basis for negotiation and collaboration between Indigenous people, management agencies and the tourism industry, in the planning and management of how marine and coastal areas are utilised for tourism.

Dugong and marine turtle tourism, wherever it occurs around the Australian coast, will almost inevitably involve the land and/or sea country of one or more Indigenous groups. Best Practice management of dugong and turtle tourism must therefore include recognition of the fundamental relationship between Indigenous people and their land/sea country.

Indigenous cultural values of dugongs and marine turtles

Dugongs and marine turtles continue to be important in the cultures of many Indigenous societies around northern Australia. In addition to the provision of food, hunting activities maintain traditional knowledge and skills that are important for cultural continuity and identity, as are aspects of language, stories and beliefs relating to dugongs and turtles. Turtle and dugong tourism operations need to respect these cultural values, just as biodiversity and other environmental values are respected.

Towards World’s Best Practice

Within marine protected areas, as with protected areas on land, it is becoming standard practice to collaborate with Indigenous Traditional Owners on planning and management issues, and where possible achieve their informed consent to activities occurring on their sea country. Marine protected area management agencies in Australia are working towards this goal, which is consistent with World’s Best Practice management, as recommended by the World Commission on Protected Areas (IUCN, 2003).

Development of these Best Practice Guidelines

These Best Practice Guidelines are based on the document ‘Overarching Principles for Dugong/Turtle Tourism in Sea Country,’ developed by Indigenous and other participants at the Dugong and Turtle Tourism Planning Workshop, held at James Cook University, Townsville on 20-21 May 2004. The Guidelines were revised on the basis of surveys and interviews conducted with Traditional Owners, tourism operators, Government managers and other stakeholders at Mon Repos/Bundaberg region, Cardwell/Hinchinbrook region and the northern Great Barrier Reef in Queensland, and Shark Bay in Western Australia. These Guidelines have been designed to help Traditional Owners, tourism operators and Government management agencies work together to develop culturally appropriate tourism involving dugongs and marine turtles, and to facilitate greater involvement of Traditional Owners in the development and management of tourism operations in their sea country.

These Best Practice Guidelines (in Table 2.1) are presented below in three sections:

1. **Section 1** applies to all parties involved in the process of planning and management of dugong and marine turtle tourism;
2. **Section 2** contains recommendations for specific actions by government management agencies; and
3. **Section 3** contains recommendations for specific actions by tourism operators and proponents.

Each section shows the recommendations, the intended outcome of each recommendation and additional comments to highlight issues which may require clarification, and/or to draw attention to linkages between recommendations.

Table 2.1: Recommendations for Engaging with Indigenous Traditional Owners in the Planning and Management of Dugong and Marine Turtle Tourism

<i>Section 1: Recommendations for all parties involved in the planning and management of dugong and marine turtle tourism</i>		
RECOMMENDATION	INTENT	COMMENTS
1.1 Prior to the commencement of any dugong or turtle tourism operation, Traditional Owners should have the opportunity to consider the proposal and give informed consent through a process of equitable negotiation.	To ensure that Traditional Owners have adequate opportunities to exercise their cultural obligations to land/sea country, to protect their cultural values, and to negotiate ongoing involvement and benefits through appropriate decision-making processes.	<i>Some government management agencies have institutional arrangements that provide consideration of the protection of “cultural and heritage values” in the permitting and appeals processes for tourism operations. The goal of achieving “informed consent” is consistent with Best Practice marine protected area management, but is not equivalent to a veto – ultimate decision-making remains with the government permitting agency.</i>
1.2 The development of dugong and turtle tourism operations should include opportunities for the ongoing involvement of the Traditional Owners, and ongoing benefits to the Traditional Owners from the tourism operation.	To provide opportunities for the negotiation of benefits to Traditional Owners from the commercial use of their land or sea country, particularly involving the commercial use of such culturally significant animals. Ongoing involvement and benefits could include, for example, joint ventures, employment, training, interpretation of cultural values or assistance in managing land and sea country.	<i>The scope of opportunities for Traditional Owners to become involved will differ from place to place, as will the extent to which Traditional Owners may wish to take up those opportunities.</i>
1.3 Traditional Owners should be adequately resourced to undertake an evaluation of dugong/turtle tourism proposals on their land or sea country, including access to legal and other advice if required.	To ensure Traditional Owners can make fully informed decisions about the management of their land or sea country.	<i>It is necessary to ensure a fair and equitable way of resourcing this process, so that no one stakeholder group should bear all the costs involved.</i>

<p>1.4 Incentives should be developed to encourage ‘cultural accreditation’ of tourism operations. Such accreditation must be developed with the consent and involvement of Traditional Owners.</p>	<p>To encourage and formally recognize collaboration with Traditional Owners, and to assure clients that cultural values are respected. Cultural accreditation may also be an asset in marketing and attracting clients with an interest in cultural aspects of the environment. Management incentives could include, for example, extended permit periods, reduced permit renewal fees, etc.</p>	<p><i>Some government management agencies have noted that incentives such as lengthened permit terms already exist for certified high standard operators under the Eco-Certification program, which includes criteria for “Cultural Respect and Sensitivity”.</i></p>
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Section 2: Recommendations for specific actions by government management agencies

RECOMMENDED ACTION	INTENT	COMMENTS
<p>2.1 All managing agencies/authorities should have protocols in place to engage the Traditional Owners in the planning and management decision making regarding tourism activities on their sea country.</p>	<p>To ensure that Traditional Owners have adequate opportunities to exercise their cultural obligations to land/sea country to protect their cultural values, and to contribute to management decisions affecting their sea country.</p>	<p><i>Protocols for government agency engagement with Traditional Owners need to be negotiated with each Traditional Owner group.</i></p>
<p>2.2 Approvals for turtle and dugong tourism operations should take into consideration the traditional ownership of the land or sea country in which the operations take place.</p>	<p>To respect Traditional Owners’ authority over their land/sea country, especially in respect of the utilisation of animals of such high cultural significance.</p>	<p><i>See comments in 1.1</i></p>
<p>2.3 Where necessary, apply the Precautionary Principle in the assessment of potential impacts on Indigenous cultural values when assessing tourism proposals.</p>	<p>As with the assessment of biodiversity values, take a precautionary approach to the assessment of possible impacts on cultural values in the absence of comprehensive information or advice.</p>	<p><i>A precautionary approach should be taken in those situations where threats of serious or irreversible damage to culture may occur, even when details of those cultural values may not be known by a management agency.</i></p>
<p>2.4 A consultation fee should be paid to the Traditional Owners for the assessment of the tourism proposal.</p>	<p>To enable Traditional Owners to be adequately resourced to properly consider the proposal.</p>	<p><i>The consultation fee could be funded from the permit application fee, or funded directly by the permitting agency.</i></p>

2.5 The potential economic benefits of a tourism proposal should not override the protection of Traditional Owners' cultural values.	To provide a clear hierarchy of values to guide the assessment process, consistent with the Australian Law Reform Commission's recommendation that allocation of natural resources should be based firstly on ecological sustainability, secondly on Indigenous use, and thirdly on commercial and recreational use.	<i>Government management agencies do not make provisions for assessment of the economic value of a proposal, although provisions do exist for the protection of cultural values.</i>
2.6 The assessment process should aim to ensure that dugong and turtle tourism proposals are consistent with strategic or management plans prepared by Traditional Owners for their land/sea country, where such plans exist.	To respect planning mechanisms already established by Traditional Owners for their land/sea country.	<i>Collaboration with Traditional Owner groups and organisations during the development of a tourism proposal will enable proponents to become familiar with strategic or management plans already developed by Traditional Owners</i>
2.7 Dugong and turtle tourism permits should be subject to periodic review, in collaboration with the Traditional Owners.	To enable new information and consideration of impacts on cultural values of tourism operations to be taken into account before permit renewal.	<i>Some government management agencies consider an application to continue an existing permit as a new application, providing an opportunity for review.</i>
2.8 For existing dugong and turtle tourism operations, Traditional Owners should be formally consulted during the permit renewal process.	To enable Traditional Owners to participate in the assessment of existing tourism operations about which they may not have been consulted in the past.	<i>See comments in 1.1 and 2.7.</i>

Section 3: Recommendations for specific actions by tourism operators and proponents

RECOMMENDED ACTION	INTENT	COMMENTS
3.1 Proponents should consult and negotiate with Traditional Owners of land/sea country in the development of their tourism proposal and permit application.	To provide opportunities for collaboration between the operator and Traditional Owners and to assist with the permit assessment process.	<i>Consultation and negotiation could occur directly between the parties or be facilitated by a government agency as part of the permitting process.</i>
3.2 Traditional Owners should be presented with information about the tourism proposal in a form that is appropriate for their consideration.	To enable Traditional Owners to be in a position to make a fully informed assessment of the proposal (e.g. through the use of plain English in written proposals, meetings with proponents, video presentations, etc. where appropriate).	
3.3 A consultation fee should be paid to the Traditional Owners for the assessment of the tourism proposal.	To enable Traditional Owners to be adequately resourced to properly consider the proposal.	<i>The onus of payment of a consultation fee will depend on the type of consultation required. See also comments in 2.4</i>

<p>3.4 In consultation with Traditional Owners, tourism operators should consider including the interpretation of cultural information as part of their marine tourism activities. Agreement should be reached on the appropriate content and delivery of such information. Any cultural information shared with the operator and tourists should remain the intellectual property of the Traditional Owners.</p>	<p>To enable Traditional Owners to select which (if any) cultural values and knowledge they wish to share, to protect their continuing ownership of that knowledge and to become directly involved in transmitting that knowledge to tourists, where appropriate.</p>	<p><i>The inclusion of cultural information potentially provides tourists with a greater understanding and enjoyment of the environments they are visiting, while also providing opportunities for Traditional Owners to become actively involved in the tourism operation.</i></p>
<p>3.5 Protocols should be developed for ongoing communication with the Traditional Owners during the operation of the tourism activity.</p>	<p>To respect Traditional Owners' obligation to their sea country, and to provide opportunities to refine aspects of the operation to better protect or interpret cultural values.</p>	<p><i>See comments in 2.1</i></p>

PART 3: Codes of Conduct

The following Codes of Conduct utilise two levels of provisions (e.g. similar to the Tier structure as used within the *Draft Australian National Guidelines for Whale and Dolphin Watching 2005*) to set minimum national interactions standards whilst enabling certain provisions to be tailored to meet differing management requirements at a site and/or species-specific level. A nationally applicable set of provisions/requirements for all areas (Level 1) form the basis of the Codes of Conduct, with location-specific provisions (Level 2) identified requiring development of additional restrictions at the site-specific level, to be developed and implemented under the jurisdiction of the relevant management authority.

Level 1: Provisions/requirement for all areas

These provisions are recommended as being applicable to all users of dugong/marine turtle habitats, including:

- Dedicated and incidental vessel-based tourism operations;
- All other commercial and private vessels (e.g. fishing vessels, recreational vessels, ferries, etc.);
- Dedicated and incidental beach-based tourism operations (operating on turtle nesting beaches during turtle breeding season);
- All other users of turtle nesting beaches during the turtle breeding season (e.g. independent travelers, members of the local community).

Level 2: Location-specific provisions/requirements

The applicability and requirements of these additional management provisions may vary between different locations, for different species and/or for different activities or types of interaction (e.g. approach distances to dugongs/turtles under these provisions may be closer than those recommended by the Level 1 provisions). These additional management provisions may be required because of:

- Environmental characteristics (topography and geography of the land/waters, marine protected areas);
- Target species' characteristics (particular biological and behavioural sensitivities, importance of local population, importance of local habitat);
- Social characteristics (types and intensity of human activities).

It is recommended that development of these Level 2 provisions include:

- (i) An assessment of the potential impacts on the target animals and their habitat, from tourism operation(s) adhering to the proposed Level 2 provision;
- (ii) Application of the Precautionary Principle where knowledge of potential impacts is deficient;
- (iii) Adequate consultation with all stakeholders; and
- (iv) Development and implementation of a monitoring program for impacts of the tourism activities on the target animals' behaviour and local population.

3.1 Aircraft approach distances to dugongs

Level 1: Requirements for all areas

Due to dugongs' high propensity to disturbance from close approaches by aircraft, a minimum approach distance of 300m altitude, within a 300m horizontal radius of dugongs is recommended for all aircraft (including fixed-wing and rotary aircraft).

3.2 Code of Conduct for Beach-Based Marine Turtle Tourism

This Code of Conduct should be followed by all beach users interacting with nesting and hatchling marine turtles, including commercial tour operations, local beach users and independent travellers.

WARNING: TURTLE TOURS IN CROC COUNTRY

NOTE: Beach-based marine turtle tourism and watching activities must take into consideration the environment in which these activities occur. Estuarine crocodiles inhabit many tropical beaches in remote parts of northern Australia. Estuarine crocodiles are known to attack nesting turtles and people on beaches. As such, EXTREME CAUTION must be taken when walking along beaches in these areas or when taking tourists to these sites. Appropriate workplace health and safety and first aid procedures must be followed in these areas.

Table A: General beach conditions during turtle breeding season

Note: The timing of turtle breeding seasons and diurnal nesting times vary around Australia and by species and will need to be defined and promoted at a local level using appropriate interpretive material including signage.

Level 1: Provisions/requirements for all areas	Level 2: Location-specific provisions/requirements	Comments/explanation
A.1 Minimal use of small torches/lights on beaches ; lights should be limited to 2 cells/batteries (3V) maximum.	Suitably trained guides or management staff may need a brighter torch for crowd control, interpretive or research purposes. Other forms of lights may be allowed only after approval from authorized management staff.	(i) <i>Lights and movement on the beach can deter turtles from nesting; turtles may abort nest building and return to the water without laying their eggs.</i> (ii) <i>Lights will disorient emerging turtle hatchlings.</i> (iii) <i>Brighter lights can disturb larger sections of the beach, hence the need for as low a voltage as possible.</i> (iv) <i>Lights for video cameras, due to their intensity and continuous use, <u>should not</u> be brought onto turtle nesting beaches.</i> (v) <i>Avoid fluorescent, gas and higher voltage incandescent lights.</i>
A.2 Keep dogs and other pets away from known nesting beaches	Dog & pet access to beaches is controlled at the local level.	

A.3 No campfires on turtle nesting beaches during breeding season.	Campfires on beaches are controlled at the local level. If campfires are permitted near nesting beaches, the light should be shielded from the beach.	(i) <i>Light from fires on the beach can deter female turtles from nesting or can attract hatchlings into the fire.</i> (ii) <i>Parks regulations prohibit fires within the boundaries of many protected areas.</i>
A.4 Do not disturb or dig up turtle eggs.	In some cases where nests need to be relocated, only suitably trained guides or management staff with approval from the relevant management authority must do this.	
A.5 Do not drive vehicles or ride horses on beach dunes or above the high-tide mark on beaches during breeding season; avoid driving on beaches at night.	Vehicle access to beaches is controlled at the local level. In situations where a vehicle must be used, drivers should keep below the high tide mark wherever possible.	(i) <i>Note that on many remote northern Australian beaches, the use of vehicles may be necessary due to long distances and low turtle nesting density (e.g. 3-4 turtles over 20km).</i>
A.6 Do not leave litter on nesting beaches.		(i) <i>Nesting and hatchling turtles may become entangled in litter left on nesting beaches.</i>
A.7 Avoid leaving chairs, beach umbrellas or other obstructions in the sand on nesting beaches at night time; avoid placing deep-buried objects in the sand above the high-tide mark.	Use of beach equipment is controlled at the local level.	(i) <i>Nesting and hatchling turtles may become entangled in objects left on nesting beaches.</i> (ii) <i>Beach umbrellas (or anything that sticks into the sand) may accidentally be placed in clutches, destroying the incubating eggs.</i>
A.8 Do not exceed the maximum number of tourists at nesting zone.	Maximum number of tourists at the nesting zone needs to be established at the local level.	(i) <i>Specific recommendations will depend on infrastructure and extent of coordination, the number of suitably trained guides or management staff and the distance people need to be moved from assembly point to the nesting zone (e.g. at Mon Repos, trained guides can successfully manage a group size of up to 70).</i>
A.9 Where possible, turtle nesting watching activities should be limited to the first half of the time period when turtles have access to the nesting beach.		(i) <i>This allows any turtles that may have been deterred from nesting by the presence of people to return for another nesting attempt later in the day/night.</i>

Table B: Interactions with nesting marine turtles

Note: As a general principle, people should walk along the beach with their lights out, unless there is a specific need or safety reason requiring the use of lights. Management authorities should assess the suitability of tours on beaches that require the use of lights to walk along the beach.

Level 1: Provisions/requirements for all areas	Level 2: Location-specific provisions/requirements	Comments/explanation
B.1 Pre-nesting phase (emergence & body pit)		<i>The turtle emerges from the water and makes its way up the beach to dig a pit for laying her eggs</i>
B.1.1 On sighting a turtle emerging from water, all movement should stop, lights out.	An appropriate minimum approach distance to a pre-nesting turtle may need to be established at the local level.	(i) <i>If you can clearly see the turtle moving up the beach, you should not approach any closer.</i> (ii) <i>If you find yourself in front of a turtle moving up the beach, it is best to sit down and remain still rather than move away until the turtle has moved up the dune to begin nest building.</i>
B.1.2 Allow turtle to move unimpeded.		
B.1.3 Do not use a torch before egg-laying begins.	Only do so if directed or authorised by suitably trained guides or management staff.	
B.1.4 Flash photography <i>not</i> allowed.		
B.2 Nest-building phase		<i>The turtle digs a nest in the sand to deposit her eggs.</i>
B.2.1 Remain behind nesting turtle at all times.		(i) <i>Lights or movement in front of the turtle at this stage can cause her to abort the nesting attempt and return to the sea.</i>
B.2.2 Do not use a torch before egg laying begins.	An appropriately trained and qualified guide may use a light (in a controlled manner from behind the turtle) to determine when nest-building ends and egg-laying begins.	
B.2.3 Flash photography <i>not</i> allowed during this phase.		
B.2.4 Do not touch turtle.		

B.2.5 Observe minimum approach distance to a nesting turtle.	An appropriate minimum approach distance to a nesting turtle needs to be established at the local level.	(i) <i>This distance may vary between species and environmental conditions; existing codes vary between 1 – 10 metres.</i>
B.3 Egg-laying phase		
B.3.1 <u>Minimise use of lights.</u>	The maximum number of torches and time limitations of their use may vary between different sites, depending on the environmental conditions, turtle nesting density and size of the tour group.	(i) <i>A trained guide may use a small torch under the rear of the carapace (with the light shielded by the turtle's body) to illuminate the eggs in the chamber.</i> (ii) <i>Guides should control the time that lights should be turned on/off. This ensures minimal disturbance to the turtle being viewed and potentially other turtles that may approach the beach to nest.</i> (iii) <i>Lights should be limited to 2 cells/batteries (3V) maximum.</i>
B.3.2 Flash photography <i>not</i> allowed until it is established that the turtle has settled into laying. Once this is established, keep flash photographs to an absolute minimum and only from behind the egg-laying turtle or off to one side (not from in front).	This should only be done under directions from suitably trained guides or management staff.	(i) <i>Guides should scan the beach for any other turtles before allowing flash photography.</i> (ii) <i>For larger groups of visitors, the guide should allow photography during a brief period of time (e.g. for 10 minutes) or during a particular activity (e.g. when turtle is filling in the egg chamber) only, to minimise disturbance.</i> (iii) <i>Flash photography for an extended time by large numbers of people in a group can decrease visitor enjoyment of the experience. In these situations selling photographs to visitors may be a preferred option.</i>
B.3.3 No close up flash photography or lights near turtle's head.	In some circumstances, authorised researchers/management staff may need to photograph the turtle's head for research purposes.	(i) <i>Turtles have been known to retain eggs, which are later lost at sea, if disturbed by bright lights near the eyes during the egg-laying phase.</i>

B.3.4 Do not touch nesting turtles or the eggs.	Only do so if directed or authorised by suitably trained guides or management staff.	(ii) <i>In specific cases where researchers are involved as guides they may be measuring nesting turtles and counting and measuring eggs, etc. Specific ethics approval should be required for a permit to handle turtle eggs.</i>
B.4 Nest covering & return to sea		<i>The turtle buries her eggs in the sand and returns to the sea</i>
B.4.1 Stand back from turtle during nest covering.		(i) <i>When covering their nests, turtles can move quite a lot of sand. Suggest standing back at least 10m from the turtle.</i>
B.4.2 Minimal use of flash photography during nest covering and then only from behind or side of the turtle. No close up flash photos or lights near turtle's head.		
B.4.3 Allow turtle to move unimpeded.		(i) <i>Allow turtle to cover the nest and return to the sea without disturbance or obstructions.</i>
B.4.4 No lights or flash photography when turtle returns to sea.	Only do so if directed or authorised by suitably trained guides or management staff.	(i) <i>To avoid disorienting the turtle on its return to the sea.</i>

Table C: Interactions with marine turtle hatchlings

Note: Hatchlings usually emerge at night approximately 60 days after egg deposition, their sex determined by incubation temperature. To find the sea, hatchlings orient towards the brightest source of light (traditionally in the direction of the sea). Hatchling turtles need natural light horizons to find the sea. If artificial lighting is used near turtle nesting beaches, it can disrupt the hatchling turtles' normal behaviour and cause them to head inland (towards the light source) away from the sea and hence be more exposed to danger. Hatchlings use a combination of cues (wave direction, current, magnetic fields) to orient themselves to deeper offshore areas. Crossing the beach and swimming away from the beach are believed to imprint the hatchlings with the cues to allow individuals to find their way back to their natal beaches when preparing to breed.

Level 1: Provisions/requirements for all areas	Level 2: Location-specific provisions/requirements	Comments/explanation
C.1 Do not use torch / lights on hatchlings.	Only do so if directed or authorised by suitably trained guides or management staff.	(i) <i>Hatchlings become disorientated by artificial lights.</i>
C.2 Do not disturb nest or assist emerging hatchlings.	Only do so if directed or authorised by suitably trained guides or management staff.	(i) <i>Staff must be trained to determine when assistance may be needed.</i>
C.3 Minimal use of camera flash, and <u>only</u> when hatchlings are emerging from nest.	Only do so if directed or authorised by suitably trained guides or management staff.	(i) <i>Guides should scan the beach for any other turtles before allowing flash photography.</i> (ii) <i>For larger groups of visitors, the guide should allow photography during a brief period of time only (e.g. for 10 minutes), to minimise disturbance.</i> (iii) <i>Flash photography for an extended time by large numbers of people in a group can decrease visitor enjoyment of the experience. In these situations selling photographs to visitors may be a preferred option.</i>
C.4 Do not touch or handle hatchlings.	Only do so if directed or authorised by suitably trained guides or management staff.	(i) <i>Specific ethics approval should be required for a permit to handle turtle hatchlings.</i>

C.5 Allow hatchlings to run to the sea without disturbance or assistance.	If you find a hatchling <u>obviously heading away from the sea towards an artificial light source</u> , rescue it by picking it up, carrying it to a dark section of beach and letting it run to the sea by itself; notify the State Wildlife Management Agency of this event (e.g. QLD EPA, WA CALM, NT Parks and Wildlife) within 72 hours. Guides/management staff should facilitate/supervise this event if it occurs.	(i) <i>Allowing hatchlings to run to the sea without assistance is important for their natural imprinting of the nesting beach and its surrounds.</i>
C.6 Stand still when hatchlings are running down the beach to avoid stepping on them.		
C.7 No flash photography of hatchlings as they move down the beach.		
C.8 Do not illuminate hatchlings in the water.		(i) <i>This is important to avoid confusion and possible return to the beach.</i>

3.2.1 Guidelines for photography and filming of nesting and hatchling marine turtles

Note: Flash photography by large numbers of people around a nesting turtle or hatchlings can decrease visitor enjoyment of the experience. For larger groups it is recommended that guides restrict the timing of flash photographs, or instead offer pictures for sale after the watching experience.

Nesting turtles

As a general rule, nesting turtles on a beach should not be approached until they have begun laying their eggs. At this time, the animal is less likely to be disturbed due to an altered physiological state induced by the egg-laying process. Photographs may be taken at this time under the direction of suitably trained guides or management staff. Care should be taken not to aim lights or flashes towards the turtle's head, as some of the eggs may be retained and later lost at sea as a result of this disturbance. Photographs should be taken from behind the turtle or off to one side. During the nest covering phase and the turtle's return to the sea, flash photographs should also be directed away from the turtle's head as they may disorient the animal.

It is important to be aware of the likelihood of other turtles approaching the beach that may be disturbed by lights/flashes and deterred from nesting. Tour guides should be aware of the nesting density of the beach, and scan the area for other turtles before allowing flash photographs to be taken.

Hatchling turtles

Flash photography of hatchling turtles should be kept to a minimum, and should only occur when the hatchlings are first emerging from the nest, under the direction of suitably trained guides or management staff. There should be no flash photography of hatchlings after this period (i.e. as they move down the beach, on entering the water) as hatchlings are highly sensitive to lights and are likely to become disoriented.

Additional requirements for film crews:

- a) The use of continuous bright lights for filming should require a specific permit from the relevant management authority and an observer from that authority should supervise the activity.
- b) Manipulation of hatchling turtles (e.g. holding back from returning to the sea to await suitable filming conditions) should require specific ethics approval from the relevant management authority and an observer from that authority should supervise such activities. *Note that hatchlings need to enter the sea as quickly as possible so that they do not waste valuable yolk reserves required for swimming.*

3.3 Code of Conduct for Vessel-Based Dugong and Marine Turtle Tourism

It is intended that all vessels adhere to the provisions listed below to allow dugongs/turtles to continue their normal behaviour with minimal disturbance. Provisions E.1 and E.14 refer specifically to dedicated vessel-based dugong watching tour operators (see above definition of ‘dedicated’ tours’), but should be followed wherever possible by all other vessels including ferries and recreational vessels.

Table D: Vessels operating in dugong and marine turtle habitats

Level 1: Provisions/requirements for all areas	Level 2: Location-specific provisions/requirements	Comments/explanation
D.1 <i>Go slow</i> in important dugong/turtle habitats (e.g. over seagrass beds, coral reefs or near turtle breeding aggregation sites or nesting beaches), keeping a lookout for dugongs/turtles to avoid collision.	Appropriate speed limits in important habitats need to be implemented at the local level.	(i) <i>The risk of collision and mortality from vessel strike is significantly reduced at lower speeds.</i> (ii) <i>In important habitat areas where no speed limit is set, 10 knots is recommended as a maximum transit speed for deeper waters or clearer waters where dugongs/turtles can easily be seen; ‘no wake speed’ is recommended for shallow and low-visibility waters.</i>
D.2 In high-risk areas, vessels should travel at the <i>‘no wake speed’</i> . (See definition of ‘high risk areas’ in Part 1, Section 1.9)	The ‘no wake’ (or ‘no wash’) speed relevant to the location (e.g. 5 knots in WA and NT, 6 knots in QLD) is recommended as a maximum speed for vessels operating in high-risk areas.	(i) <i>In shallow water, travelling below wake speed also minimizes sediment disturbance and damage to seagrass by propeller wash.</i>
D.3 When travelling through dugong/marine turtle habitat, reduce the likelihood of collision with dugongs/turtles by using wide and deep channels, away from shallow areas, seagrass beds and coral reefs. Channels that are narrow at low tide should be avoided wherever possible.	Transit lanes, ‘go slow zones’ and ‘no go areas’ need to be established in important habitat and high risk areas; detailed spatial planning, based on local knowledge, is required to delimit such zones.	(i) <i>If travelling in shallow water (e.g. bottom can be affected by propeller wash), the vessel should travel at no wake speed and a lookout should be used to avoid collision.</i>

<p>D.4 Wherever possible, outboard motors on vessels in important habitat and high-risk areas should be able to tilt up in the event of a collision (i.e. not locked down) to reduce the force of impact.</p>		<p>(i) <i>Studies have shown that fractures and damage to dugongs and turtles from boat-strike have been considerably less when the motor was free to tilt.</i></p> <p>(ii) <i>It is noted that larger motors are unable to tilt, so lower speeds and the use of a lookout are recommended to avoid collisions.</i></p> <p>(iii) <i>Note that the use of propeller guards has been shown to be ineffective at reducing injuries and mortalities from vessel impacts. The force of the impact from a vessel travelling at high speed can kill a dugong/turtle.</i></p>
<p>D.5 No littering, food scraps or sewage from vessels operating in dugong/marine turtle habitats.</p>		<p>(i) <i>E.g. in the vicinity of seagrass beds, coral reefs and turtle nesting cays/beaches.</i></p> <p>(ii) <i>Note: Dumping of food scraps is considered littering.</i></p>
<p>D.6 No anchoring in seagrass beds or on coral. If observing dugongs or turtles in these areas, allowing the vessel to drift (with engine in neutral) or using a permanent mooring are Best Environmental Practices.</p>	<p>Where anchoring is essential, follow local Best Environmental Practices. This includes avoiding seagrass or coral areas and anchoring in mud or sand.</p>	<p>(i) <i>Motor towards anchor when hauling in.</i></p>
<p>D.7 Avoid overnight anchoring/mooring in the vicinity of turtle nesting beaches during the nesting/hatchling season. If vessel is anchored at night in the vicinity of a nesting beach during these periods, minimise externally visible lighting to avoid disturbing nesting turtles and/or attracting turtle hatchlings. Use only anchor light. Recommend anchoring at least 1 nautical mile from nesting location whenever possible.</p>		<p>(i) <i>Nesting turtles may be disturbed by lights and abort nesting. Anchoring in the vicinity of a nesting beach can change the nesting distribution of turtles on the beach (e.g. turtles nest on other side of the island avoiding the vessel).</i></p> <p>(ii) <i>Hatchling turtles have been known to swim towards lights on vessels near nesting beaches, where the risk of predation from fishes is increased.</i></p> <p>(iii) <i>Cover or switch off lights from portholes, deck lights, etc.</i></p>

<p>D.8 If an animal in distress (e.g. entangled) is encountered, notify the relevant authority (e.g. marine animal hotline). Help the animal through advice from the relevant authority or through common sense if this advice is not available. Notify the authority within 72 hours of the incident and of any action taken.</p>	<ul style="list-style-type: none"> • In QLD call the EPA Hotline: 1300 130 372; • In NT call the PWC Wildlife Management Officer: 0401 110 205; • In WA call the CALM Duty Officer: (08) 9334 0224. 	<ul style="list-style-type: none"> (i) <i>If an animal's life is in danger and can be saved, particularly in a remote location, you may be the only person able to act.</i> (ii) <i>Seek advice from the relevant authority. If contact with the authority cannot be made, report the incident as soon as possible.</i> (iii) <i>Act only if it safe to do so. Do not under any circumstances put your own life at risk to save the animal (e.g. by entering the water in crocodile habitat).</i>
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Table E: Vessel interactions with dugongs

Level 1: Provisions/requirements for all areas	Level 2: Location-specific provisions/requirements	Comments/explanation
<p>E.1 Dedicated dugong watching operators should have a person acting as a marine animal lookout at all times when operating in areas of important habitat for dugongs. (See Part 1, Section 1.9 for definitions of ‘dedicated’ operators and ‘important habitat’.)</p>		<p>(i) <i>This person may be the skipper of the vessel (i.e. for small tour operations). S/he must have a sufficient field of vision around the vessel including the ability to see any animals in the vessel’s path (i.e. directly in front of the bow).</i></p>
<p>E.2* Vessel speed should be reduced to <i>no wake speed</i> immediately when a dugong is seen <i>within 100m</i> of the vessel.</p> <p><i>*See Figure 3.2.1 below for diagram of maximum vessel approach speed and minimum approach distance to a dugong.</i></p>	<p>The legislated “no wake speed” currently varies between different states (i.e. 6 knots in QLD, 5 knots in WA and NT).</p>	<p>(i) <i>Vessel speed should be reduced to ‘no wake speed’ or below as soon as a dugong is sighted (this is also recommended when dugongs are seen at distances greater than 100m), as other dugongs may be nearby but not visible.</i></p> <p>(ii) <i>Dugongs are likely to be killed or seriously injured from impact with high-speed boats, irrespective of whether the damage is from the keel/skeg or the propeller.</i></p>
<p>E.3* Vessels should not intentionally approach a dugong closer than <i>40 metres</i>.</p> <p>However, if a dugong approaches the vessel closer than 40m, the vessel need not move away.</p>	<p>In some locations it may be possible to consider closer approach distances where areas of important habitat are known and well defined. A pre-impact assessment of disturbance to dugongs should be conducted prior to permitting closer approach distances.</p>	<p>(i) <i>Within the 40m zone, a vessel may maneuver under power at idle speed away from dugongs, but not towards them.</i></p> <p>(ii) <i>It is recognised that in some locations the habitat is ill-defined, the water clarity is poor and dugongs may not be visible until they are much closer. Extreme care must be taken in such areas to avoid disturbing dugongs.</i></p> <p>(iii) <i>Dugongs may be disturbed if boats stop/start their engine nearby. When dugong(s) are nearby, let engine idle in neutral rather than stopping / restarting to avoid startling animal(s).</i></p>
<p>E.4 Do not separate a group of dugongs or come between a dugong mother and calf (e.g. by drifting deliberately through a group of animals).</p>		<p>(i) <i>Allow dugongs to continue their normal behaviour without disturbance. Any close approaches to the vessel should be of the animals’ own volition.</i></p>

E.5 Be aware of any other vessels in the area and communicate to avoid collision, disturbance or entrapment of animal(s) in an area.		(i) <i>Flying a 'Marine Animal Interactions Flag' may be an effective signal to warn other vessels of the nearby presence of dugongs.</i> (ii) <i>Allow dugongs an escape route at all times.</i>
E.6 If dugongs display any signs of avoidance behaviour, or flee the area to avoid contact, do not pursue them. (See definition of 'avoidance behaviour' in Part 1, Section 1.9.)		(i) <i>Do not herd, intercept path of travel or chase dugongs.</i>
E.7 Do not feed or attempt to feed dugongs or throw any object in the water near them.		
E.8 Do not touch or attempt to touch a dugong during any interaction.	Dugongs are protected under various national, State and Northern Territory legislation. Be aware of their protection measures at a local level.	
E.9 No person shall enter the water during an interaction with dugongs.		(i) <i>Note: this does not apply when a person is helping an animal in distress (see D.8 above)</i>
E.10 Adhere to specified maximum interaction time and maximum number of interactions in an area per vessel per day (see definition of 'interaction' in Part 1, Section 1.9).	The maximum interaction time and maximum number of interactions in an area per vessel per day needs to be established at a local level.	(i) <i>Vessels operators should be mindful of the cumulative impacts of other vessels disturbing dugongs.</i> (ii) <i>The cumulative daily impact of vessel-based dugong tours in an area needs to be considered in a pre-impact study prior to issuing permits.</i> (iii) <i>Maximum cumulative interaction time in a specific area needs to be established on a site-specific basis, and the maximum duration and number of interactions for all vessels in this area needs to be defined by the management agency in each permit.</i>
E.11 Observe the specified minimum distance between vessels interacting with dugongs in the same area. The maximum number of vessels interacting with a group of dugongs includes any research and recreational vessels present at that time.	The minimum distance between vessels interacting with dugongs in the same area needs to be established at a local level. This distance may vary between different locations and environmental conditions (e.g. the current minimum distance stipulated in WA is 200m).	(i) <i>An appropriate minimum distance between vessels needs to be established in a site-specific risk assessment, so that dugongs' normal behaviour is not restricted and they do not become trapped in an area by multiple vessels.</i>

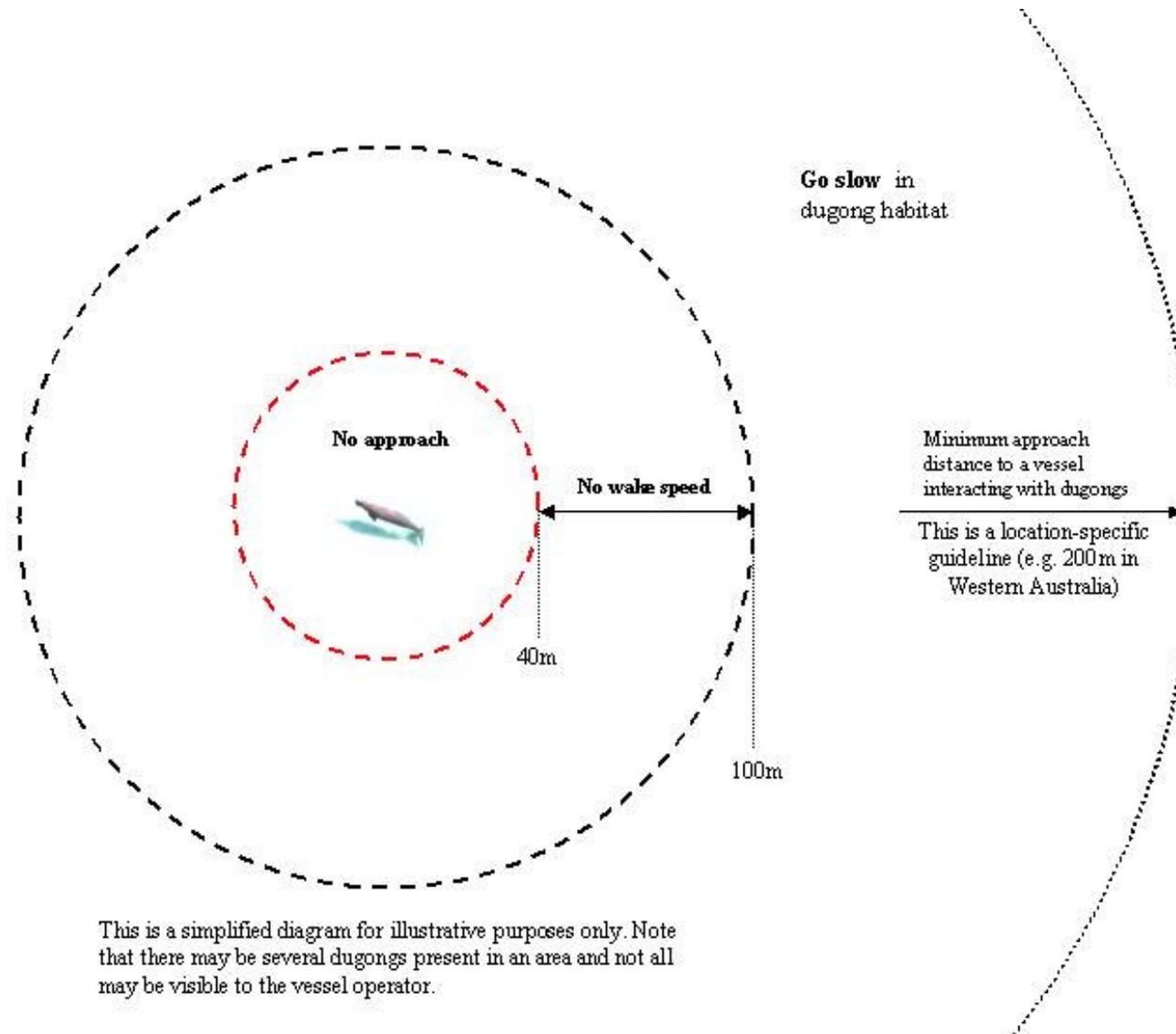
<p>E.12* On departing, wait until dugongs are <u>further than 40 metres</u> from the vessel before accelerating gradually to <i>no wake speed</i>. Check bow and stern before engaging propeller, and maintain a lookout around the boat while underway.</p>		<p>(i) <i>If a dugong is closer than 40m to the vessel, it is recommended that the vessel drift or maneuver away at idle speed to at least 40m before accelerating gradually to no wake speed.</i></p> <p>(ii) <i>Ensure that no dugongs are under the vessel or near the bow or stern before engaging the propeller.</i></p>
<p>E.13* When terminating an interaction, do not accelerate to speeds greater than no wake speed until the vessel is <u>more than 100 metres</u> from dugongs.</p>		<p>(i) <i>It is recommended that vessel speed should remain at no wake speed or below whenever dugongs are visible, even at distances greater than 100m, as other dugongs may be nearby but not visible.</i></p> <p>(ii) <i>If dugongs are no longer visible, remain at no wake speed or below until at least 100m away from the location of last sighting.</i></p>
<p>E.14 Dedicated permitted dugong tour operators should assist dugong research and monitoring programs.</p>	<p>Sightings data should be supplied to the relevant management agency at specified intervals. The manner of collection and format of data required should be established at a specific level.</p>	<p>(i) <i>Researchers should collate data and give timely feedback on results to operator and managers.</i></p>

***See Figure 3.2.1 for diagram of maximum vessel approach speed and minimum approach distance to a dugong.**

Figure 3.2.1: Maximum vessel approach speed and minimum approach distance to a dugong.

If a dugong approaches the vessel closer than 40m, the vessel need not withdraw.

When moving away from a dugong that is closer than 40m, idle away to at least 40m before accelerating gradually to 'no wake speed'.



This is a simplified diagram for illustrative purposes only. Note that there may be several dugongs present in an area and not all may be visible to the vessel operator.

Aircraft approach distances to dugongs: Due to dugongs' high propensity to disturbance from close approaches by aircraft, a minimum approach distance of 300m altitude, within a 300m horizontal radius of dugongs is recommended for all aircraft (including fixed-wing and rotary aircraft).

Table F: Vessel interactions with marine turtles

Level 1: Provisions/requirements for all areas	Comments/explanation
F.1 When approaching sites where marine turtles are seen regularly, (e.g. dive sites with resident turtles) slow to 'no wake speed' from a distance of 100 metres.	<ul style="list-style-type: none"> (i) <i>Turtles are likely to be killed or seriously injured from impact with high-speed boats, irrespective of whether the damage is from the keel/skeg or the propeller.</i> (ii) <i>Resident turtles at sites (e.g. coral bommies) will forage in a larger area surrounding the site during the day.</i>
F.2 Vessel speed should be reduced to <i>no wake speed</i> immediately when a turtle is seen <u>within 30m</u> of the vessel.	<ul style="list-style-type: none"> (i) <i>Vessel speed should be reduced to 'no wake speed' or below as soon as a turtle is sighted (this is also recommended when turtles are seen at distances greater than 30m, especially in areas where the water clarity is poor), as other turtles may be nearby but not visible.</i>
F.3 If watching turtles, put the engine in neutral and allow animal(s) to continue their normal behaviour without disturbance.	<ul style="list-style-type: none"> (i) <i>Do not herd, intercept path of travel or chase marine turtles.</i> (ii) <i>Let the engine idle in neutral rather than stopping/restarting to avoid startling the animal(s).</i>
F.4 If travelling, go slow and steer away from the animal(s) to avoid the chance of collision.	
F.5 Be aware of any other vessels in the area and communicate to avoid collision, disturbance or entrapment of animal(s) in an area.	<ul style="list-style-type: none"> (i) <i>Be mindful of the greater risk of vessel strikes when multiple vessels are near turtles; turtles fleeing from one vessel may collide with a second vessel.</i> (ii) <i>Cumulative interactions with turtles at the same site for prolonged periods may impact on their normal behavioural patterns, health, reproductivity or site preference/avoidance. Future management of vessel numbers and timing limitations at some sites may be necessary.</i>
F.6 If marine turtles display any signs of avoidance behaviour, or flee the area to avoid contact, do not pursue them (see definition of 'avoidance behaviour' in Part 1, Section 1.9).	<ul style="list-style-type: none"> (i) <i>Do not herd, intercept path of travel or chase turtles.</i> (ii) <i>Any close approaches to the vessel should be of the animals' own volition.</i>
F.7 Do not feed or attempt to feed marine turtles or throw any object in the water near them.	
F.8 Do not touch or attempt to touch a marine turtle during any interaction.	
F.9 When terminating an interaction, allow vessel to drift or idle away to a safe distance before accelerating gradually to appropriate speed (e.g. 'no wake speed' in high-risk areas). Keep a lookout and check the bow and stern before engaging propeller.	

3.4 Code of Conduct for In-Water Marine Turtle Tourism (Swimming, SCUBA diving and Snorkelling)

It is intended that all commercial and recreational divers, swimmers and snorkellers adhere to the provisions listed below to allow turtles to continue their normal behaviour with minimal disturbance. The following provisions should be incorporated into formal dive briefings for dive tourism operations.

Table G: In-water interactions (swimming/snorkel/scuba) with marine turtles

Level 1: Recommendations for all areas	Comments/explanation
<p>G.1 Allow turtles to continue their normal behaviour and minimise your disturbance to them, by:</p> <ul style="list-style-type: none"> (i) Not attempting to chase, touch or ride turtles. (ii) When there are several divers present, avoid crowding or surrounding turtles. (iii) Remaining still, if you see mating turtles, and not approaching them. (iv) Not using underwater scooters. (v) Not approaching a turtle closer than arm's length. 	<ul style="list-style-type: none"> • <i>At popular dive sites, frequent disturbance of resident turtles could result in behavioural changes and/or site avoidance.</i> • <i>Turtles should be allowed an escape route at all times.</i> • <i>Mating turtles will separate and cease mating if disturbed.</i> • <i>The noise generated by underwater scooters will disturb turtles.</i>
<p>G.2 Improve your in-water encounters with marine turtles, by:</p> <ul style="list-style-type: none"> (i) Swimming slowly and calmly, (ii) Approaching turtles slowly from side-on to a distance which does not cause the turtle to change its behaviour. 	<ul style="list-style-type: none"> • <i>Giving turtles space and control will enable you to watch and appreciate their normal behaviour (e.g. feeding, foraging, resting, mating).</i> • <i>This will most likely lengthen your interaction time, provide closer encounters and improve your turtle watching experience.</i> • <i>Further research may be needed to establish appropriate species-specific and activity-specific approach distances.</i>
<p>G.3 When night diving, minimise disturbance to resting or sleeping turtles, by:</p> <ul style="list-style-type: none"> (i) Minimising the use of lights (e.g. torches, video lights) near turtles. (ii) Shining lights on the turtle's shell only, not the head. (iii) Avoiding the use of flashes/strobes near the turtle's head and eyes. 	<ul style="list-style-type: none"> • <i>Disturbing a sleeping turtle may result in a startled response and likely stress,</i> • <i>Turtles will often sleep inside a coral crevice and they may flee this enclosed space if startled – there may be a risk of injury to the turtle or diver as well as coral damage from sudden fleeing.</i>
<p>G.4 During turtle breeding season, find alternate dive sites to those near main nesting beaches for night dives.</p>	<ul style="list-style-type: none"> • <i>If conducting night dives near nesting beaches, ensure that vessel lights are minimised to only an anchor light. This is important to minimise impacts on turtle nesting behaviour and hatchlings attracted to vessel lights.</i>