POSITION STATEMENT

Australian Government
Great Barrier Reef Marine Park Authority

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Great Barrier Reef Marine Park Authority Position Statement on the conservation and management of protected species in relation to the Queensland East Coast Inshore Finfish Fishery

[Post publishing note]
This Great Barrier Reef Marine Park Authority Position Statement in relation to the *Queensland East Coast Inshore Finfish Fishery* was developed in June 2007.

The Statement was developed to inform the Queensland Government review of the fishery. Recently, the Australian Government assessed the revised management arrangements for this fishery against provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (the *EPBC Act 1999*). An independent review informed this assessment. In February 2009 the fishery was declared an approved Wildlife Trade Operation until February 2012.

The fishery in now operating under a suite of conditions and recommendations. For more information on the assessment, conditions and recommendations please refer to the Department of Environment, Water, Heritage and the Arts website: http://www.environment.gov.au/coasts/fisheries/index.html

Great Barrier Reef Marine Park Authority Position Statement on the conservation and management of protected species in relation to the Queensland East Coast Inshore Finfish Fishery

Overview

This document outlines the Great Barrier Reef Marine Park Authority's (GBRMPA) position on the conservation and management of protected species in the Great Barrier Reef Marine Park (the Marine Park) in relation to the Queensland East Coast Inshore Finfish Fishery (ECIFF). A protected species is a plant or animal in the Marine Park that is protected by law (i.e. under the *Great Barrier Reef Marine Park Regulations 1983* Regulation 29[1]) and needs special management. Protected species are classified as either threatened, iconic or at risk and are some of the natural values associated with the listing of the Great Barrier Reef as a World Heritage Area. Protected species include dugongs, dolphins, whales, sawfish and marine turtles. Most populations of protected species within the Marine Park are under pressure, some with noticeable population declines in the past 40 years, as is the case for threatened dugong and marine turtles. An exception is the humpback whale, whose population is recovering and as such will interact more frequently with ECIFF gear. The decline of some populations, the increase of at least one population and the presence of all of these protected species along the Great Barrier Reef coast mean that appropriate management arrangements need to be in place to reduce the potential for interactions between them and the ECIFF, in particular the large mesh net component of the fishery.

The GBRMPA's objective in relation to protected species is to ensure their long-term conservation by facilitating the recovery of populations that have declined, preventing future declines in populations, and only supporting commercial, recreational and Indigenous uses that have been demonstrated to be ecologically sustainable.

Species such as dugongs, inshore dolphins and marine turtles rely almost entirely on near shore, coastal-estuarine environments for feeding, breeding, resting and socialising. This means that their long-term population recovery depends on an inshore habitat that is as free as possible from human threats to them and their habitats. The GBRMPA recognises that population declines in these species are the result of the cumulative impacts of many human-related activities, including (in alphabetical order):

- Boating activity
- Disease
- Habitat degradation (for example from poor water quality, trawling and inappropriate anchoring practices)
- Illegal activities (for example poaching, illegal netting)
- Incidental drowning in commercial fishing (gill or mesh) nets and shark nets set for bather protection
- Indigenous hunting
- Ingestion of or entanglement in marine debris
- Poor water quality

However, some have been a greater influence than others. The ECIFF, and in particular the large mesh net component of the fishery, has been identified as a significant factor in the declines, and the negative potential for recovery, of dugongs along the urban coast of Queensland (from Cooktown south), inshore dolphins, some species of marine turtle and sawfish[2].

In particular, there is still a need to reduce the mortality of dugongs from all human-related causes along the urban coast to as close to zero as possible (for example less than 10 per year from all human-related causes) to facilitate recovery and allow for their future sustainable traditional use as marine resources.

Summary of recommendations to the Queensland Government in relation to the ECIFF

The GBRMPA recommends the following fishery-wide management arrangements be introduced as a matter of urgency for the ECIFF:

1. That the ECIFF management plan be endorsed by the Great Barrier Reef Ministerial Council prior to its implementation.
2. That there be on-water attendance for all offshore, foreshore, and river/creek nets.
    a. 100m on-water attendance for all offshore nets
    b. 800m on-water attendance for all foreshore nets
    c. 800m on-water for all river/creek nets.
3. That there be a requirement for mandatory reporting of lost commercial fishing nets.
4. That the definition of a headland be resolved.
5. That acoustic alarms not be used as a mitigation tool for the fishery until such time that they can be scientifically proven to be effective for a range of species including dugongs, humpback whales, Australian snubfin dolphins and Indo-Pacific humpback dolphins and non-detrimental to other species.
6. That the post-release survivorship of marine turtles caught and released from nets be monitored via an independent and scientifically valid research programme.
7. That there be improved compliance and adequate enforcement of management measures relating to protected species, including the implementation of an observer programme to independently validate logbook data.
8. That a code of practice be developed for releasing marine turtles and promotion of this code occur to recreational and commercial line fishers and commercial net fishers.
9. That a code of practice be developed for disentangling marine mammals and promotion of this code occur to commercial net fishers.
10. That a public education and awareness raising strategy be developed and implemented on the impacts of discarded fishing lines and hooks, and the requirements under the *Environment Protection and Biodiversity Conservation Act 1999* for fishers to report interactions with protected species.
11. That research on factors influencing interactions with protected species occurs to develop appropriate mitigation strategies.
12. That there be ongoing monitoring of the effectiveness of Dugong Protection Areas.

Within Dugong Protection Areas (A), the GBRMPA recommends:

13. The implementation of the Great Barrier Reef Ministerial Council recommendation that a commercial fisher must not use or possess a net in Shoalwater Bay.

Within Dugong Protection Areas (B), the GBRMPA recommends:

14. The boundary of Rodd's Bay DPA (B) be re-aligned to encompass all of Facing Island.

These recommendations are outline in detail below (see *Assessment of issues and recommendations*).

Background

The Australian Government Department of the Environment and Water Resources (DEW) environmental assessment of the ECIFF in November 2006 centred on, amongst other things, the likely impact of the fishery on a range of protected species, particularly dugong, increasingly on marine turtles (particularly green turtles) but also on crocodiles, dolphins, humpback whales and sawfish[3].

One of the GBRMPA's primary concerns for ensuring the ecological sustainability of the ECIFF is the conservation of dugongs. The GBRMPA recognises that management arrangements put in place for dugong conservation in the ECIFF should also benefit other protected species. Information about these other protected species is considered below in developing the GBRMPA's recommendations in relation to the ECIFF management plan.

The Great Barrier Reef Marine Park Authority's Obligations and Responsibilities
The GBRMPA's fundamental obligation is to protect the Great Barrier Reef Marine Park and the World Heritage Area. Subsidiary objectives include providing for a range of uses consistent with the principles of ecologically sustainable use.

As noted in the recent review of the Authority[4], *the GBRMPA has a legitimate role in relation to fishing activities as part of its responsibility, as ecosystem manager, to protect the environmental and cultural values of the Marine Park and to provide opportunities for sustainable use*.

Attachment 1 outlines the International, National and State obligations that the GBRMPA must consider in determining its response to protected species conservation issues in the Marine Park. This list of conventions, agreements and legislative instruments is not exhaustive but rather gives a context for some of the GBRMPA's responsibilities in relation to the conservation of protected species.

For the purposes of this position statement, the term 'conservation status' means, *'the GBRMPA has an obligation to conserve the species or taxon because it is listed as threatened under Australian or Queensland legislation, or under other international agreements or conventions'*. Species such as dugongs, inshore dolphins, humpback whales, marine turtles, estuarine crocodiles and the freshwater sawfish are listed internationally, nationally and/or in Queensland (Attachment 2).

Information on protected species
Significance of the dugong
The Great Barrier Reef region supports globally significant populations of the dugong and this was one of the factors for the Great Barrier Reef's World Heritage listing[5]. This herbivorous marine mammal plays a fundamental ecological role in the functioning of coastal marine habitats, particularly seagrass systems. The status of dugong populations is an indicator of ecosystem health. There could be an ecosystem-level effect on such systems if dugong populations become severely depleted[6]. Dugongs have a high biodiversity conservation value because they are the only surviving species in the Family Dugongidae and are the only herbivorous mammal that is strictly found in the marine environment. Dugongs have high cultural, social, economic and spiritual significance for Indigenous Australians and feature in Indigenous stories and art. Dugongs, like other marine mammals, also have a high public profile reflecting the interest from the general public in their conservation and welfare.

Need for special management
Dugongs need special management to halt and reverse the decline in their numbers along the Queensland east coast. Dugongs are vulnerable to human impacts because of their life history and their dependence on seagrasses that are restricted to mostly coastal habitats. As long-lived and slow breeding animals, dugong populations can be rapidly depleted and are slow to recover. Even a slight reduction in adult survivorship can cause a critical decline in a dugong population. In optimum conditions (for example low natural mortality and no human-induced mortality) a dugong population can only increase at about 5 per cent per year. Dugongs are seagrass specialists, and the health of dugong herds also depends on the health of coastal seagrass meadows. The vulnerability of dugongs is also a function of their value as a marine resource, making them target species in Australia.

Dugongs can move over long distances (hundreds of kilometres[7]) and recent research has shown they move more frequently around headlands and between bays than previously thought. Evidence is provided by aerial surveys and satellite tracking of dugongs showing dugong movements at both local and large spatial scales[8]. Genetic studies suggest that dugong populations in the Marine Park may be connected with dugongs in neighbouring regions (for example Torres Strait, Hervey Bay)[9]. Current knowledge about the greater movement of dugongs along the coast means that, while Dugong Protection Areas (DPA) are important for dugong conservation as discussed below (see *Overview of Dugong Protection Areas*), the DPA network is not enough on its own to protect dugongs from the serious threat caused by commercial large mesh net fishing in the ECIFF. This also means that complementary management arrangements (for example across inshore waters and with Torres Strait) are required at the state and national levels to ensure dugongs are protected in Australia.

Current status of dugongs in the Great Barrier Reef World Heritage Area
The remote coast (north of Cooktown) is the most important dugong habitat within the World Heritage Area, and is one of the most important in the world. Although dugong numbers along the remote coast showed no significant change in surveys between 1985 and 2000[10], there is a high probability for future declines in eastern Cape York if human-induced mortality is not managed[11].

Along the urban coast of Queensland from Cooktown to the Queensland-New South Wales border dugong numbers have declined dramatically at a regional scale in the past 45 years. The evidence for a long-term decline comes from anecdotal information and records of dugong by-catch from the Queensland Shark Control Program. A hind-casting study suggests that dugong numbers have declined by more than 90 per cent since 1962[12]. These declines have largely coincided with the introduction of monofilament gillnetting and the rapid human population increase along the Great Barrier Reef coast. Anecdotal evidence indicates that historic population sizes of dugongs may have been much higher still[13]. The latest population estimates indicate that the population may no longer be declining[14] but does not indicate that the population is recovering.

The GBRMPA places high importance on the ongoing monitoring of these dugong populations.

Management intent for dugongs
The management intent for dugong conservation in the Great Barrier Reef Marine Park is to prevent further declines in dugong populations and to recover their populations such that they fulfil their ecological role within the Great Barrier Reef ecosystem (for example maintain seagrass pastures) and, where ecologically sustainable, the cultural needs of Traditional Owners.

To achieve this goal:

1. On the urban coast of the Marine Park (from Cooktown south), the mortality of dugongs from all human-related causes should be reduced to as close to zero as possible (for example less than 10 dugongs per year) to facilitate recovery and allow for future ecologically sustainable traditional use of marine resources involving dugongs
2. On the remote coast of the Marine Park (north of Cooktown), the mortality of dugongs from all human-related causes should be reduced to as close to zero as possible (for example less than 10 dugongs per year) except for ecologically sustainable traditional use of marine resources involving dugongs
3. Throughout the Marine Park, the quality and extent of habitat for dugongs should be protected, including feeding, calving and mating areas and migratory pathways.

Other protected species
Other protected species are also components of the natural values included as justification for the listing of the Great Barrier Reef as a World Heritage Area. In addition to the species outlined in more detail below, other protected species such as sea snakes (Hydrophiidae, Laticaudidae), groupers (for example Queensland grouper *Epinephelus lanceolatus*) and some species seabird species are also known to interact with the ECIFF to some degree. There is substantial overlap in the distribution of these species and the areas used by the ECIFF.

Inshore dolphins:
A new species of dolphin in Australia was recently described[15]. Previously known as the Irrawaddy dolphin (*Orcaella brevirostris*), the new species has been reclassified as the Australian snubfin dolphin (*Orcaella heinsohni*) based on differences in genetics, appearance and skull morphology. The Australian snubfin dolphin is considered endemic to Australia and southern Papua New Guinea. Scientists are still debating whether the Indo-Pacific humpback (*Sousa chinensis*) in Australia is also a distinct species to that found elsewhere in the world[16].

Australian snubfin and Indo-Pacific humpback dolphins inhabit nearshore waters of the Great Barrier Reef World Heritage Area. Australian snubfin dolphins tend to be found in shallow water (0-2m),

remain closer to river mouths and the coast (mean distance from coast of 6.6km) and are often associated with seagrass areas. Indo-Pacific humpback dolphins tend to be found in slightly deeper waters (2-5m) and dredge channels (5-15m depth) and are less associated with seagrass. They have a low density of 0.1 dolphin per km^2. Published information indicates that both species may be declining along the eastern Queensland coast.[17]

In a recent in-depth study of inshore dolphins in Cleveland Bay[18], both species were present year-round, although some individuals appeared to be permanent residents while other individuals moved in and out of the bay. The area was used mainly for foraging activities. Their site fidelity patterns may reflect fluctuations in prey resource availability and levels of predation risk. Less than 100 individuals of each dolphin species used Cleveland Bay between 1999 and 2002. In the absence of information about these species from elsewhere, the GBRMPA assumes that these two species exhibit a similar behaviour and density throughout the Great Barrier Reef World Heritage Area.

Humpback whales
Humpback whales are found seasonally throughout the Great Barrier Reef World Heritage Area (generally from May to September). The eastern Australian population is now increasing at about 10 per cent each year with the 2004 population estimate of about 7000 [19]. Pre-whaling population estimates suggest a population size of around 27 000 whales. Because of the increase in the humpback whale population along eastern Australia, entanglements in fishing gear are likely to increase. During their southward migration, humpback whales tend to be closer to the entire urban coast of the Great Barrier Reef as mothers and calves migrate south to Antarctica, further increasing the risk of interactions with the large mesh net component of the ECIFF.

Marine turtles
Six of the world's seven species of marine turtle inhabit the Great Barrier Reef World Heritage Area. In this area, declines in nesting numbers have been noted for loggerhead[20] and hawksbill[21] turtles and there are indications of population declines in green turtle[22]. Flatback[23] and olive ridley[24] turtles are rarely sighted in the Marine Park but are thought to inhabit nearshore / inshore muddy bottom habitats. The leatherback turtle is found mainly in deeper offshore waters[25].

Estuarine crocodiles
Following the 1974 ban on hunting crocodiles in Queensland, crocodile numbers are thought to be increasing on the east coast of Queensland. However, a lack of nesting habitat on the developed coast is a limiting factor on population growth. Estuarine crocodiles commonly occur in the Great Barrier Reef World Heritage Area. Results of Queensland Parks and Wildlife Service estuarine crocodile census data from coastal river surveys conclude that the estuarine crocodile population in northern Queensland appears to be undergoing a limited recovery[26]. Such recovery may mean the potential for increased interactions with the ECIFF in the future.

Sharks and rays
Protected species of sharks in the Marine Park currently include great white shark (*Carcharodon carcharias*), whale shark (*Rhincodon typus*), grey nurse shark (*Carcharias taurus*), speartooth shark (also known as Bizant River shark, *Glyphis* sp. A) and freshwater sawfish (*Pristis microdon*)[27].

Sawfish are threatened by a number of activities including fishing, trophy hunters, and habitat degradation[28]. Sawfish (*Pristis* spp) inhabit freshwater, estuarine and marine waters, with a preference for coastal bays and foreshores. Unfortunately, this preference, in combination with their toothed rostrum, makes them vulnerable to capture in all forms of fishing nets[29]. Sawfish are of high value in the aquarium trade, and their fins and rostrums fetch high prices in international trade[30]. Sawfish have the added trouble of being caught by line fishing and in marine trawling nets and they have also occasionally been found tangled in shark nets off the Queensland coast[31]. The freshwater sawfish is listed as vulnerable in Australia[32].

Interactions with the ECIFF

The protected species covered in this statement all have interactions with the ECIFF. Accidentally catching one of these species is not an offence if the fishing gear is being used legally. However, the non-reporting of the interaction would be an offence in both state and federal waters. Very few captures of dugongs (and most other protected species) in nets have been reported. However, assessments of the Environmental Protection Agency (EPA) marine wildlife stranding and mortality database indicate, and recent annual reports compiled by the EPA (for example 2003) advise, that there is circumstantial evidence that dugong* and inshore dolphins** are being caught in gill net fisheries in Queensland but not being reported. The GBRMPA recognises that it is difficult to obtain data on such mortality in large mesh nets in the Marine Park for a variety of reasons, some of which include remoteness, the tendency for fishers to set nets at night and the lack of resources and staff to adequately oversee netting practices[33].

A dugong or inshore dolphin may die in a mesh net as a result of drowning or stress, or may be killed by a fisher to enable its removal from the net. The GBRMPA is particularly concerned about the practices of cutting the tail off an entangled living dugong or inshore dolphin in order to remove it from a net, and/or sinking a dugong or inshore dolphin carcass by slitting its abdomen, removing its internal organs and sometimes tying weights to the tails[34].

The GBRMPA aligns with the DEW assessment emphasising that the lack of definitive data calls for a precautionary approach to the ECIFF, and the level of all protected species interactions needs to be more clearly established[35].

General risk to protected species and other by-catch

Factors contributing to the high potential for interactions of protected species with the ECIFF include: 1) overlap in areas used by the fishery and protected species; 2) scavenging behaviour of protected species; and 3) unselective nature of large mesh net fishing gear. The overlap of the fishery with protected species stems from the shared habitats and movement patterns of both targeted fish species and protected species (for example bays, movement corridors around headlands). This is applicable to all protected species that interact with the fishery (for example dugong, inshore dolphins, humpback whale, marine turtles, estuarine crocodile, sawfish). As major piscivores, animals such as dolphins, sawfish and crocodiles may consume meshed fish (and crabs) and discards from large mesh net fishing operations, and in the process of these scavenging activities may themselves become part of the catch[36]. Other animals such as marine turtles may also become entangled in mesh nets. Current technology and fishing practices are not able to prevent by-catch of protected species in the fishing gear (particularly large mesh nets and lines). Similar considerations would apply to other at risk species such as other sharks, rays, cods and groupers.

Further, the fishery is conducted in several RAMSAR Convention Areas (in Moreton Bay, Great Sandy Strait, Corio Bay and Bowling Green Bay). Pelicans, and other birds, are known to interact with the fishery, although the significance of these interactions is poorly understood.

Interactions with protected species of sharks and rays

The low frequency of recorded interactions with sawfish by commercial fishers is likely to be due to the sawfish's specific habitat preferences and restricted distribution that has contracted further as their populations have declined. The low frequency of reported interactions with grey nurse shark in recent years may be due to management measures introduced by the Queensland Government to minimise

* In 2005, four dugong were incidentally captured by commercial nets (two by set nets; one by a tunnel net; one by an unidentified commercial net), with one animal being released alive. 2005 saw the first recorded dugong mortality from entanglement in fishing nets within Dugong Protection Areas since their introduction in early 1998 (two carcasses were found within DPAs B).

** Based on information contained in the EPA annual stranding reports, in 2004, one dolphin is reported to have been caught in fishing gear off Gladstone and in 2005, two dolphins were reported to have net marks.

the interactions with this species (grey nurse shark protection areas). Interactions with great white sharks in the ECIFF are considered to be very infrequent, although the species is found in the southern area of the ECIFF. Potential interactions of the critically endangered speartooth shark with the fishery are of concern given this species is naturally rare with specific habitat preferences that overlap with the ECIFF and low reproductive rates. For further consideration of sharks and rays, see the *Great Barrier Reef Marine Park Authority Position Statement on the Conservation and Management of Sharks and Rays in the Queensland East Coast Inshore Finfish Fishery (April 2007).*

Risk to dugongs from river, foreshore and offshore set nets

An expert assessment found that the river, foreshore and offshore set nets exhibited a medium to low score of safety for dugongs (the lower the score the higher the risk to dugongs)[37]. The expert assessment found that features associated with greater potential impacts on dugongs include: less frequent attendance, medium to long net length, large spatial extent, medium to low foreseeability (by a fisher to avoid interactions with dugongs), low net tautness and larger mesh size[38] as described below:

- Attendance requirements for nets may help to reduce the risks to dugongs and other protected species by 1) having a watch kept and being able to avoid approaching dugong or 2) being able to detect and release trapped dugong.
- From an attendance point of view, a shorter net to be patrolled would constitute lesser risk to a dugong than a longer net. The greater the net length and maximum spatial extent of the netting operation then the greater the spatial area affected by the net. It is assumed this in turn increases the chance a dugong has of encountering a net.
- Foreseeability by a fisher to avoid interactions relates to soak time (the amount of time a net is in the water). Shorter soak times may help to minimise the potential for interactions with dugongs, because fishers may be better able to avoid times when a dugong is in the area.
- The risk of entanglement is greatest in nets with sufficient slack net available, either by design or accident, to create an envelope of netting around the animal. Factors that increase net tautness include high hanging coefficients, small hanging length, taut frame lines and ensuring the net is well stretched vertically (high water depth to height ratio).
- The risk to dugong varies with mesh size, and increases significantly if the mesh size is large enough to enmesh any part of the dugong's body. (By also increasing by-catch of other species, the ecological effect is likely to be greater with larger mesh size.)

Set mesh nets in offshore waters, foreshore waters and rivers/creeks

Offshore nets are typically larger mesh and can either be set on the bottom or suspended from the water's surface using floats and passively fish a fixed position. The vertical position and the length of the net affect interactions with protected species.

A particular risk of entanglement in offshore nets is for humpback whales that travel through the Marine Park between May and September each year to mate and calve. Other protected species at risk of entanglement in offshore nets includes dugongs and dolphins. The potential for entanglements with humpback whale is likely to be significant in the future, given the increasing number of whales within the area used by the ECIFF.

However, as these nets are also used adjacent to headlands, they also pose significant risks to dugongs and potentially inshore dolphins in these important movement corridors. Recent research has shown there is much more movement of dugongs at both local and large spatial scales than previously realised[39]. The habitats and movement corridors used by dugongs are likely to overlap with those used by fishes targeted by the ECIFF, and therefore there is a high risk of continued interactions.

Foreshore set nets pose the greatest threat to dugong, inshore dolphins and marine turtles (mostly green turtles) as they are set in key inshore habitat for dugong and green turtle grazing and dolphin foraging and socialising. Of the 70 dugongs tracked with satellite transmitters along the Queensland coast, the majority spent their time within 13km of the coast[40].

Set mesh nets in rivers and creeks tend to be set perpendicular to the riverbank. The protected species that are likely to interact most with these mesh nets are estuarine crocodiles, marine turtles, inshore dolphins, dugongs (in some locations) and sawfish.

Line

Marine turtles and sawfish can become hooked during normal line fishing activities along the Marine Park coast. Green turtles, although mostly herbivorous, will also take bait, such as squid or prawns. Turtles are also known to scavenge baited hooks that are lost or discarded as well as those being actively fished. Marine turtles have been found entangled in monofilament line after being hooked. Both dugongs and marine turtles have stranded alive or dead along the eastern Queensland coast after ingesting fishing line and/or hooks. Such ingestions can result in perforation of the intestinal wall, resulting in peritonitis and death or can cause intestina ulceration and enteritis in the small intestine and ulceration in the large intestine.[41]

Overview of Dugong Protection Areas

A network of sixteen Dugong Protection Areas (DPAs) on the east coast of Queensland from Hinchinbrook Island south was implemented in January 1998. DPAs restrict or prohibit the use of large mesh nets and are legislated under the *Queensland Fisheries Act 1994.* DPAs are also given legislative effect under the *Nature Conservation Act 1992* through the *Nature Conservation (Dugong) Conservation Plan 1999* and more recently through Species Conservation (Dugong Protection) Special Management Areas declared under the *Great Barrier Reef Marine Park Zoning Plan 2003.*

Two types of DPAs exist. DPAs (A) include significant habitats in the southern Great Barrier Reef and Wide Bay regions. In most DPAs (A) the use of offshore set, foreshore set and drift nets are prohibited, except in the Hervey Bay and Great Sandy Strait DPAs where specialised netting practices are allowed to continue with modifications. Foreshore set nets are prohibited in all DPAs (A), with the exception of the western foreshore of the Upstart Bay DPA (A) where they can be set with limits on mesh size and overall net length. The use of river set nets is allowed with modifications in DPAs (A), except in two key dugong areas where river set nets are prohibited (Hinchinbrook and Shoalwater Bay DPAs). Other netting practices such as ring, mesh, seine, tunnel and set pocket netting, where allowed, are relatively unaffected, except for restrictions relating to deployment of nets and some mesh size restrictions. In DPAs (B) mesh netting practices are allowed to continue, the intention to be with safeguards and greater restrictions (for example netting restrictions on 'headlands', net attendance rules) than other areas outside of DPAs. However, the rules in DPAs (B) are largely ineffective.

The large scale movement (15-560km) of dugongs along the coast, identified through the satellite tracking of 70 animals, means that while DPAs are important for dugong conservation the DPA network is not enough on its own to protect dugongs from the serious threat caused by commercial large mesh net fishing in the ECIFF[42].

Assessment of issues and recommendations

In summary, dugongs and other protected species are some of the natural values associated with the listing of the Great Barrier Reef as a World Heritage Area; most populations within the Great Barrier Reef Marine Park are under pressure, some with noticeable population declines in the past 40 years. Dugong numbers remain at a very small fraction (3 per cent) of their population size in the 1960s. An exception is the humpback whale, whose population is recovering dramatically and as such will interact with ECIFF gear more now than it ever has in the past. The movements of dugongs, dolphins and marine turtles along the Great Barrier Reef coast means that as far as possible, there needs to be consistent measures in place to reduce the potential for interactions with the ECIFF, especially the large mesh net component. Such consistency requires cross-jurisdictional cooperation for management of these species. Greater movement of dugongs along the coast also means that, while DPAs are important for dugong conservation as discussed below, the DPA network is not enough on its own to protect dugongs (or other protected species) from the serious threat caused by large mesh net fishing in the ECIFF.

The protected species covered in this statement rely almost entirely on near shore, coastal-estuarine environments. This means that their long-term population recovery depends on an inshore habitat that is as free from threatening processes as possible. The GBRMPA recognises that population declines in these species are the result of multiple factors, although some have been a greater influence than others. The ECIFF, in particular the large mesh net component of the fishery, has been identified as a significant factor in the declines of and/or potential for recovery of dugongs along the urban coast of Queensland (south of Cooktown), inshore dolphins, some species of marine turtle and sawfish.

To improve the ecological sustainability of the ECIFF and promote recovery of depleted populations, interactions with protected species need to be minimised as a matter of priority. In light of the above information, the GBRMPA makes the following recommendations to the Queensland Government in relation to the ECIFF.

Fishery wide

1. **Management plan to be endorsed by the Great Barrier Reef Ministerial Council**
   The Great Barrier Reef Ministerial Council has maintained ongoing oversight for management actions to halt and reverse the decline in dugong numbers along the urban coast of Queensland (from Cooktown south). Because the Queensland Department of Primary Industry and Fisheries (QDPI&F) management planning process will be implementing several outstanding Council recommendations, the GBRMPA believes that the Council should endorse the management plan for the ECIFF prior to it being implemented.

2. **Attendance for all offshore, foreshore, river/creek nets**
   The GBRMPA recommends there be on-water attendance for all offshore, foreshore, and river/creek nets:
   a. 100m on-water attendance for all offshore nets
   b. 800m on-water attendance for all foreshore nets
   c. 800m on-water for all river/creek nets.

   The matter of fisher attendance at mesh nets revolves around the premise that if fishers are close to their nets, they will have a greater chance of avoiding or being aware of an entanglement of a protected species (for example dugong) and hence have a greater possibility of disentangling the animal and releasing it alive. Fishers in attendance may also have an increased likelihood of being able to avoid dugongs and other protected species.

   Current attendance rules do not specify that the fisher is to *remain on the water* when being 'in attendance'. As such, there are some instances of nets being set and fishers returning to shore, but still within the required attendance distance of their nets. In this scenario, the likelihood of releasing an entangled protected species such as a dugong alive would be very low.

   Offshore set mesh nets
   In 1999 the Great Barrier Reef Ministerial Council recommended that the Queensland Government immediately introduce 'within 100 metres at-the-net' attendance rules for all offshore nets.

   Though attempts were made to introduce this legislation in 2001, this agreement has still not been effected eight years after it was agreed. *Fisheries Legislation Amendment and Repeal Regulation (No.1) 2001* gave effect to <u>most</u> of the outstanding measures agreed to at the Council's 27th meeting in July 1999. Unfortunately, sections of the *Fisheries Regulations 1995* were overlooked for deletion in the above Amendment and Repeal Regulation. These deletions were required to give effect to the requirement for 100 metres at-the-net attendance for offshore nets.

Foreshore and river/creek set mesh nets
Currently, attendance is required and the distance between the first and last foreshore set net can be no further than 1000 metres apart. To simplify this rule, and to improve attendance at nets most likely to interact with protected species, the GBRMPA recommends consistency with the river/creek set mesh net attendance rule, that is, no further than 800 metres.

3. Mandatory reporting of lost commercial nets
The loss of commercial mesh nets can have potentially devastating effects on marine life. Discarded or lost nets (known as 'ghost nets') are known to trap marine turtles, marine mammals, sharks, rays and sawfish. Floating nets are also a hazard to navigation and the safe operation of vessels at sea. They can become caught up in propellers, rudders and even engine in-takes.

Currently there is no requirement for commercial fishers to report lost nets. Monofilament net has been found from time to time within the Marine Park, sometimes trapping or entangling marine turtles.

The GBRMPA recommends that there be a requirement for mandatory reporting of lost commercial fishing nets. Mandatory reporting would assist with the recovery of lost nets so that they do not continue to trap/entangle marine life.

4. Adequately define a headland
Whilst the GBRMPA believes that DPAs (A) seem to be effective, the rules in DPAs (B) are largely ineffective. The problems mainly relate to a lack of 'at net attendance rules' (see recommendation #2 above) and the lack of a definition of a 'headland' (often corridors for dugong and inshore dolphin movement) and what 'adjacent to' means.

The Dugong Protection Areas Advisory Group, which advised the Great Barrier Reef Ministerial Council, recognised in 1997 that 'headlands' were important movement corridors for dugong. Set nets in these 'headland' areas are used to capture several fish species, including barramundi. Concerns about ineffective restrictions related primarily to there being no definition of a 'headland', the use of offshore and foreshore set nets greater than the prescribed three nets x 50 metres maximum length immediately adjacent to 'headlands', and the use of set mesh nets on 'headlands' not being permitted under any net fishery symbol.

The Ministerial Council was advised that a review of the large-mesh netting in DPAs (B) should occur and should address issues including: aspects of the Fisheries Regulations describing the use of nets in DPAs (B) where the intent of the regulations is not delivered by at-sea fishing practices or are difficult to enforce; and recognise that restrictions on the use of nets in DPAs (B) are not as stringent, or intended to be as stringent, as those applying to the use of nets in DPAs (A).

Restrictions on the use and length of nets were introduced to reduce the threat of set mesh to dugongs in 'headland' areas. The restrictions are ineffective because:

(i) there is no definition of a 'headland' or any indication in any documentation related to the introduction of DPAs on how a 'headland' should be defined; and
(ii) fishers use nets of a length greatly in excess of that intended for use on 'headlands' by setting offshore set nets or foreshore nets adjacent to headlands.

The result is that nets, larger than intended, have been used in these area and they are considered to be a threat to dugongs. The GBRMPA recommends that the headland issue be resolved. Given the inherent difficulties in defining what a headland is, the headland issue could be addressed by the QDPI&F as part of developing its regional management arrangements for the ECIFF by ensuring that significant headlands are identified for more stringent management measures to address site-specific issues.

5. **The GBRMPA does not support the use of pingers as a mitigation tool for the fishery until such time that they can be proven effective for a range of species including dugongs, humpback whales, Australian snubfin dolphins and Indo-Pacific humpback dolphins**
   Dugongs showed no response to 10 kHz pingers when trialled in Moreton Bay including no startle or investigative response, and pingers did not cause dugongs to move away from the immediate area. Dugongs were observed to pass between active pingers (where a net would be located) and would continue feeding irrespective of pinger noise. As such, 10 kHz pingers are unlikely to displace dugongs from key habitat areas or reduce dugong mortalities in fishing nets[43].

   Existing peer-reviewed published information on the effectiveness of pingers states that they have only been shown to be effective for harbour porpoises in one part of their range in the Pacific Northwest of the USA[44].

   Therefore, the GBRMPA does not support the use of pingers as a mitigation tool for the fishery until such time that they can be proven effective for a range of species including dugongs, humpback whales, Australian snubfin dolphins and Indo-Pacific humpback dolphins. Research into alternative mitigation tools for the fishery would be more appropriate.

6. **Information on post-release survivorship of marine turtles caught and released from nets**
   The DEW, in its assessment of the ECIFF, was particularly concerned about the apparently increasing number of interactions with turtles, specifically green turtles[45]. The assessment report notes that in most instances turtles are returned to the sea alive. Further, the report notes, from QDPI&F observer data, that post-capture survival of this species is considered high and that more than 90 per cent of the nesting habitat for green turtle in Queensland is protected.

   It is likely that most marine turtles are caught foraging (although this is unknown because no information was presented by QDPI&F). Marine turtles exhibit strong fidelity not only to nesting and inter-nesting habitats, but also to specific foraging areas[46]. As such, interactions with marine turtles in their home foraging ground are likely to continue, therefore, ways to minimise interactions with the ECIFF need to be found. One aspect of this would be to analyse the environmental variables (for example tide, season, geographic region) and other variables (for example where are turtles caught) associated with the entanglements.

   Examples of studies with longline fishery interactions with marine turtles could be reviewed to see if there are similar methodologies or analyses that could be modified and/or applied to the ECIFF. However, unless individual turtles are tracked for a sufficient period of time after their release, the long-term survival of released animals remains unknown. Both flipper tags and the use of satellite transmitters could assist with determining long-term survival of released turtles.

   The GBRMPA recommends that the post-release survivorship of marine turtles caught and released from nets be monitored via an independent and scientifically valid research programme.

7. **Improved compliance and enforcement**
   There is a need for improved compliance and enforcement across all sectors in the ECIFF. Some issues identified in the QDPI&F Annual Status Report 2006 include: recreational fishers using or possessing nets not prescribed for recreational use, and the high number of unattended or incorrectly marked nets seized (51 nets during 2005)[47].

   To be successful, surveillance, enforcement and monitoring of rules associated with the ECIFF must respond to the following issues:
   - The large and widespread nature of the Dugong Protection Areas
   - The complex jurisdictional and legislative environment under which they operate
   - Existing staff and resourcing constraints within management agencies
   - The need to enhance staff and user understanding of legislation, and
   - The need to enhance voluntary compliance by targeted education programmes.

An improved observer programme (greater coverage) in the ECIFF would also ground truth the current reporting of interactions with protected species. The EPA Stranding Program has identified possible cause of death due to net entanglement, which is at odds with no reports of mortality for green turtles by SOCI logbooks[48]. The EPA Stranding Program has also reported that cetaceans captured in the Gulf of Carpentaria Inshore Finfish Fishery are only reported when observers are on board[49].

It is important that the level of interaction with protected species is known and confirmed. The GBRMPA believes a minimum 25 per cent coverage of fishing days for an observer programme in the ECIFF is required to validate logbook entries. A geographic spread of observer days across this fishery is required to accurately reflect interactions with protected species.

The GBRMPA recommends there be improved compliance and adequate enforcement of management measures relating to protected species. A risk-based process should be used to determine priorities for compliance and enforcement. The GBRMPA also recommends the implementation of an observer programme to independently validate logbook data.

8. Code of practice for releasing marine turtles

It is known through anecdotal reports that interactions between line and net fishers and marine turtles occur along the Great Barrier Reef coast. It is likely that these interactions occur mainly with green turtles and that in most instances turtles are returned to the sea alive. However, the GBRMPA has received information from concerned members of the public that often a line-caught turtle is released with a hook and some length of monofilament line still attached. The length of line remaining on the animals depends on how close the fisher could reach before having to cut the line. This depends on whether the turtle was caught while fishing from the side of a boat, from the shore, or from a raised platform such as a jetty or a rock wall.

The GBRMPA recommends that a Code of Practice be developed to assist commercial and recreational line fishers and commercial net fishers with what to do should they accidentally capture a marine turtle. Strategies to encourage compliance with the Code should be developed, for example incentive schemes.

[For consideration of by-catch issues relating to sharks and rays, see the *Great Barrier Reef Marine Park Authority Position Statement on the Conservation and Management of Sharks and Rays in the Queensland East Coast Inshore Finfish Fishery (April 2007).*]

9. Code of practice for disentangling marine mammals

Marine mammals that may become entangled in ECIFF gear include large whales, such as humpback whales, and smaller marine mammals, such as dugongs and dolphins.

The east Australian humpback whale population is increasing by about 10 per cent each year with a current (2004) population of 7000 animals. It is estimated that the pre-whaling population was around 27 000 animals. Humpback whales use the waters of the Great Barrier Reef to mate and calve between May and September each year. The EPA Stranding Reports state that one humpback whale was entangled in a commercial fishing net off Cairns in 2004 and one humpback whale was entangled in a commercial fishing net off Ingham in 2006. Both whales were released alive, but considerable damage occurred to the nets.

The humpback whale population that migrates along the Western Australian coast is twice the size of Queensland's, and in 2006 Western Australian dealt with nine whale entanglements in commercial fishing gear (net and pot fisheries). In 2005 they reported six whale entanglements, which gives a potential indication of the level of interactions that can be expected over the coming years in the waters of eastern Queensland.

The risk of interactions may be greatest in the second half of the season because humpback whales migrating south from the Great Barrier Reef back to their Antarctic feeding grounds tend to travel closer to the coast with their calves than they do migrating north to mate and calve.

Risk factors for dugongs and inshore dolphins should be evaluated and disentanglement procedures developed based on best available information.

The GBRMPA recommends that a Code of Practice be developed to assist commercial fishers with what to do should if they accidentally entangle a marine mammal. Development of the code should consider large whales separately from smaller marine mammals such as dugongs and dolphins because the necessary procedures will differ. The Code would not involve fishers in attempting to free large whales from nets, since this needs to be done by well-trained and equipped specialist government personnel. Examples of such Codes of Practice exist for the commercial pot fisheries in Western Australia. Strategies to encourage compliance with the Code should be developed, for example incentive schemes.

10. Education/awareness raising on littering with line/hooks

Several protected species within the ECIFF area, including marine turtles and dugongs, have been identified as at risk from ingestion of plastics or from entanglement or hooking in fishing gear that has been lost, discarded or abandoned at sea (ghost fishing). No formal risk assessment has been undertaken for the ECIFF. The Australian Government has identified the threat posed to marine vertebrate species through ingestion of or entanglement in harmful marine debris as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999*, and a Threat Abatement Plan is currently being developed.

The GBRMPA recommends that a public education and awareness raising strategy be developed and implemented on the impacts of discarded fishing lines and hooks. Education and awareness raising programmes for all fishing sectors would be valuable to address marine debris issues associated with the fishery.

The GBRMPA recognises there are some existing education and awareness raising initiatives.

11. That research on factors influencing interactions with protected species be done to develop appropriate mitigation strategies

Fishers and resource management agencies are valuable sources of information about marine species, including protected species. Fishers spend vast amounts of time on the water, and often are well attuned to the habits of non-target species. Any opportunities to incorporate this information should be explored, along with the possible participation by fishers and associated organisations in collection of data on protected species in the Marine Park. The GBRMPA recognises the reluctance of fishers, especially commercial fishers, to report interactions because of the fear of having restrictions (for example gear modifications, spatial/temporal closures) brought into the fishery. The GBRMPA can only stress that without verified information about how interactions occur, it is difficult to develop mitigation strategies to ensure the fishery is ecologically sustainable.

The GBRMPA recommends research on factors influencing interactions with protected species occurs to develop appropriate mitigation strategies.

12. Ongoing monitoring of the effectiveness of Dugong Protection Areas

There should be ongoing monitoring of the effectiveness in relation to dugong conservation of the DPA network and commercial netting arrangements in the ECIFF. Such monitoring would help to ensure that management arrangements for the fishery are adequate and associated compliance and enforcement activities are effective in minimising adverse impacts on dugongs from the fishery. There would likely be secondary benefits for the conservation of other protected species.

Specific to Dugong Protection Areas (A)

13. Commercial fisher must not use or possess a net in Shoalwater Bay

At the Great Barrier Reef Ministerial Council's 27th meeting it was agreed to investigate an amendment to effectively mean a 'commercial fisher must not use or possess a net' in Shoalwater Bay. It is believed that such intent can only be given effect by an amendment of the *Fisheries Act 1994*. The proposal is to ensure that no nets are used or possessed in Shoalwater Bay. Fishers currently have the ability to possess nets in Queensland waters of Shoalwater Bay provided the nets are stowed and secured. However, all people are prohibited from possessing a net within the area covered by the GBRMPA's *Shoalwater Bay (Dugong) Plan of Management*.

The GBRMPA recommends the implementation of the Great Barrier Reef Ministerial Council recommendation that a commercial fisher must not use or possess a net in Shoalwater Bay.

Specific to Dugong Protection Areas (B)

14. Re-align boundary of Rodd's Bay DPA (B) to encompass all of Facing Island

In 2005, eight dugong stranding reports were recorded within the Rodd's Bay DPA (B). Of these eight, two were confirmed to have been entangled in commercial nets (one was reported dead, one was reported released alive). In November 2003, six turtles, two dugongs and several queenfish were found washed ashore at the one location at the same time. As a general rule in the Great Barrier Reef, marine mammal and turtle strandings occur as single events, not grouped, as was the case in this incident. The GBRMPA recommends that re-aligning the boundary of the Rodd's Bay DPA (B) to encompass all of Facing Island because this may assist with reducing the number of interactions between commercial nets and dugongs and other protected species. Due to a likely lack of reporting on interactions with dugongs and other protected species, it is unclear where interactions are actually taking place. Dugong carcasses could be washing in to Rodd's Bay DPA (B) from elsewhere, but given commercial net activity occurs around Facing Island, the additional netting provisions may address this issue.

Attachment 1. Obligations and responsibilities for protected species in the Great Barrier Reef Marine Park

International
Australia is a signatory to and a participant in several international conservation conventions. By being a signatory or a participant, the Australian Government has committed to implement and follow the principles of the agreements.

- Convention for the Protection of the World Cultural and Natural Heritage (World Heritage Convention)
- Convention on Biological Diversity
- Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention)
- Convention on the International Trade of Endangered Species of Wild Flora and Fauna (CITES)
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)
- The World Conservation Union (IUCN)
- Japan – Australia, Migratory Bird Agreement
- China – Australia, Migratory Bird Agreement
- Republic of Korea – Australia, Migratory Bird Agreement (which will enter into force in late June 2007)

National
The overarching Australian environmental legislation, the *Environment Protection and Biodiversity Conservation Act 1999*, protects the environment, particularly matters of National Environmental Significance. It streamlines national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and cultural places.

In addition, the GBRMPA must also have regard to Australia's:

- National Strategy for Ecologically Sustainable Development
- National Strategy for the Conservation of Australia's Biological Diversity
- National Oceans Policy
- National Strategy for the Conservation of Australian Species and Communities Threatened with Extinction
- Recovery plan for marine turtles 2003
- Humpback whale recovery plan 2005-2010
- Sustainable harvest of marine turtles and dugongs 2005 – A national partnership approach
- National Plan of Action for the Conservation and Management of Sharks

Queensland
Fishing activities in the Marine Park are managed by the QDPI&F through fisheries plans and regulations. These set out the rules for commercial fisheries and recreational anglers such as the type of fishing gear that may be used, the number of commercial fishing boats allowed in a fishery and size and bag limits.

- *Fisheries Act 1994*
- *Nature Conservation Act 1992*
- *Marine Parks Act 2004*

Within the Great Barrier Reef Marine Park
In addition to the above-mentioned obligations, under the *Great Barrier Reef Marine Park Act 1975* the GBRMPA*:*

- Is required under s.32 (7) to have regard, among other things, to the '*conservation of the Great Barrier Reef*'
- Has a five-year objective under the *25 Year Strategic Plan for the Great Barrier Reef World Heritage Area: 1994-2019*[50] is '*to pay special attention to conserving rare and endangered species*'.

- Under *Great Barrier Reef Marine Park Regulations 1983*, Regulation 29, is the ability to list protected species, the take of which from the Great Barrier Reef Marine Park requires the GBRMPA's permission. Protected species under Regulation 29* are:

  (a) each species that is a listed threatened species, a listed migratory species or a listed marine species (in each case within the meaning given by the *Environment Protection and Biodiversity Conservation Act 1999*);

  (b) each species of marine mammal, bird or reptile that is prescribed as 'endangered wildlife', 'vulnerable wildlife' or 'rare wildlife' under the *Nature Conservation Act 1992* of Queensland;

  (c) each species mentioned or referred to in Table 29.

  (2) An individual of a species of the genus *Epinephelus* (other than *E. tukula* or *E. lanceolatus*) is taken to be of a protected species if the individual is more than 1000 millimetres long.

  **taking into account amendments up to SLI 2007 No. 32, prepared on 6 March 2007.*

Table 29 from *Great Barrier Reef Marine Park Regulations 1983,* Regulation 29

Item	Species	Common name
Invertebrates		
1	Family Tridacnidae (all species)	Giant clams
2	*Cassis cornuta*	Helmet shell
3	*Charonia tritonis*	Giant triton shell
Fish		
4	Families Syngnathidae and Solenostomidae (all species)	Seahorses, pipefish, seadragons
5	*Epinephelus tukula*	Potato cod
6	*Epinephelus lanceolatus*	Queensland grouper
7	*Cheilinus undulatus*	Maori wrasse
8	*Cromileptes altivelis*	Barramundi cod
9	*Rhincodon typus*	Whale shark
10	*Carcharias taurus*	Grey nurse shark
11	*Carcharias carcharias*	Great white shark
Marine reptiles		
12	Genus *Crocodylus* (all species)	Crocodiles
13	Families Hydrophiidae and Laticaudidae (all species)	Sea snakes
14	Family Cheloniidae (all species)	Green turtle, loggerhead turtle, olive ridley turtle, hawksbill turtle, flatback turtle
15	Family Dermochelydae (all species)	Leatherback turtle
Birds		
16	Class Aves (all species)	Birds
Marine mammals		
17	Families Otariidae and Phocidae (all species)	Seals
18	*Dugong dugon*	Dugong
19	Order Cetacea (all species)	Whales and dolphins

Attachment 2. Conservation status of selected protected species relevant to the ECIFF in the Great Barrier Reef World Heritage Area

Common Name	Scientific Name	IUCN	Bonn	CITES	Australia	Qld
Dugong	*Dugong dugon*	V	II	I	LMi, LMa	V
Loggerhead turtle	*Caretta caretta*	E		I	E, LMi, LMa	E
Green turtle	*Chelonia mydas*	E	I, II	I	V, LMi, LMa	V
Hawksbill turtle	*Eretmochelys imbricata*	CE	I, II	I	V, LMi, LMa	V
Flatback turtle	*Natator depressus*	DD	I, II	I	V, LMi, LMa	V
Olive ridley turtle	*Lepidochelys olivacea*	V	I, II	I	E, LMi, LMa	E
Leatherback turtle	*Dermochelys coriacea*	E	I, II	I	V, LMi, LMa	E
Australian snubfin dolphin	*Orcaella heisohni*			II	Pro	R*
Indo-Pacific humpback dolphin	*Sousa chinensis*		II	I	Pro, LMi	R
Humpback whale	*Megaptera novaeangliae*	V	I	I	Pro, V, LMi	V
Estuarine crocodile	*Crocodylus porosus*		II	I	LMi, LMa	V
Freshwater sawfish	*Pristis microdon*	CE		II	V	
Sea snakes	Family Hydrophiidae, Laticaudidae				LMa	

- *Disclaimer* Whilst every attempt has been made to ensure the accuracy of this information, for certainty the original source documents should be examined. Note also that the list is not exhaustive as some other protected species in the Marine Park may also interact with the ECIFF (for example other cetaceans, Queensland grouper, birds, grey nurse shark, great white shark, speartooth shark, green sawfish).
- Bonn = Bonn Convention (*Convention on Migratory Species* or CMS). Appendix I lists migratory species that are endangered; Appendix II lists migratory species that have an unfavourable conservation status and that require international agreements for their conservation and management, as well as those that have a conservation status that would benefit significantly from international co-operation and agreement.
- CITES = *Convention on International Trade in Endangered Species of Wild Fauna and Flora.* Appendix 1 includes those threatened with extinction that are or may be affected by trade. Trade in specimens of these species is not permitted for commercial purposes and other international movement is subject to particularly strict regulation in order not to endanger further their survival and can only be authorised in exceptional circumstances. Appendix II includes: (a) species which, although not necessarily now threatened with extinction, may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilisation incompatible with their survival; and (b) other species which must be subject to regulation in order that trade in specimens of certain species referred to in sub-paragraph (a) of this paragraph may be brought under effective control.
- * = Now described as *Orcaella heinsohni*
- CE = Critically endangered
- DD = Data deficient;
- E = Endangered
- LMa = Listed marine species under the *Environment Protection and Biodiversity Conservation Act 1999*
- LMi = Listed migratory species. Implements Australia's obligations under the Bonn Convention as part of the *Environment Protection and Biodiversity Conservation Act 1999*.
- Pro = Protected species by virtue of it being a cetacean
- R = Rare
- V = Vulnerable

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