

Chapter 9

Conservation

9.1 The Torres Strait region forms a rich and ecologically unique ecosystem that supports extensive subsistence and commercial fishing activity. It also contains a number of critical habitats for some vulnerable and endangered species. In recognising the economic and cultural ties of the local inhabitants to their lands and surrounding seas, the Torres Strait Treaty also supports the protection of this complex and fragile environment. Its strong conservation focus is evident in the following articles where Australia and PNG have agreed to:

- acknowledge and protect the traditional way of life and livelihood of the traditional inhabitants, including their traditional fishing and free movement (Article 10.3);
- protect and preserve the Torres Strait marine environment and indigenous fauna and flora (Article 10.4);
- take legislative and other measures necessary to protect and preserve the marine environment in, and in the vicinity of, the Protected Zone (Article 13);
- identify and protect species of indigenous fauna that are or may become threatened with extinction, prevent the introduction of species of fauna and flora that may be harmful to indigenous animal and plant life; and control noxious species of fauna and flora (Article 14); and
- cooperate with each other in the conservation, management and optimum utilisation of Protected Zone commercial fisheries (Article 21).

9.2 In this and the following chapters, the committee considers the main threats to the health of the environment in the Torres Strait and Australia's actions alone and jointly with PNG to mitigate them. The committee starts by identifying the most vulnerable species in the region; their importance to the traditional way of life and the factors that place them at risk of serious depletion. It considers in particular the available data on their stocks in the Torres Strait, fishing practices, population trends, and changes in climate.

Protected species in Torres Strait

9.3 Two marine species in the Torres Strait—marine turtle and dugong—pose particular challenges for, and test the capacity of, Australia and PNG to secure their future survival. Marine turtles are classified as an endangered species and are registered on the International Union for Conservation of Nature and Natural

Resources (IUCN) Red List of Threatened Species. The dugong is deemed to be a threatened migratory mammal and recorded as vulnerable on this list.¹

9.4 Both marine turtles and dugongs are also listed in Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The convention recognises them as animals threatened with extinction which are or may be affected by trade.

Turtles and dugong

9.5 For centuries, dugongs and turtles have figured prominently in the lives of Torres Strait Islanders. Not only are they a main source of animal protein but they hold great spiritual, cultural and social significance for Torres Strait Islanders. Dugong and turtle meat is particularly important for ceremonial purposes—weddings, tombstone openings and feasts. Indeed, for some communities, they are totemic animals and central to their rites of passage.² One researcher, who conducted a case study on Mabuiag, underlined the status and prestige that the local community attaches to a successful dugong take:

...'hunting' for community members on Mabuiag, does not only consist of the fact of 'catching' an animal. The practice of hunting encompasses a whole process which starts with the decision of going out on a dinghy...continues with the hunt itself and the knowledge of '*continuing an old practice*' and finishes with the time the meat is brought back to the community to be cut '*in a traditional way as our forefathers did*' and shared among families on the island.³

9.6 Hunting these protected animals is therefore of the utmost importance for Torres Strait Islanders. But in order for this tradition to continue, the long-term survival of these creatures must be secured. The challenge for Australia and PNG is to find the right balance that allows traditional inhabitants to hunt turtle and dugong, while ensuring that the species remain both culturally and ecologically sustainable.

1 See for example, 'Chelonia mydas', <http://www.iucnredlist.org/apps/redlist/details/4615/0/print> 'Dugong dugon', <http://www.iucnredlist.org/apps/redlist/details/6909/0/print> (accessed 15 April 2-10).

2 TSRA, *Submission 18*, p. 16. According to the TSRA, 'Turtle and dugong are the main sources of meat for people who live in the outer islands of the Torres Strait and are 'prestige' food for islanders who live elsewhere in Australia'. See also Jillian Grayson et al, 'Options for the sustainable use of green turtles by Hammond Islanders', 28th ISTS Symposium on Sea Turtle Biology and Conservation, Mexico, 2008, p. 249 and Australian Academy of Science, *Interviews with Australian scientists*, Professor Helene Marsh, 2002, <http://www.science.org.au/scientist/hm.htm> (accessed 11 January 2010).

3 Aurélie Delisle, 'Perceived costs and benefits of Indigenous hunting of dugongs and marine turtles: Mabuiag Island as a case study', James Cook University, 2009, http://www.ecoeco.org/anzsee09/cd_view_detail.php?id=773 (accessed 12 March 2010).

The Treaty, protected species and traditional activity

9.7 Under the Treaty, there is scope for arrangements to be made that would help achieve this balance between cultural and ecological sustainability. Thus, while the Treaty allows protected animals to be caught, it stipulates that they can be hunted by traditional means only. It defines traditional fishing as 'the taking, by traditional inhabitants for their own or their dependants' consumption or for use in the course of other traditional activities, of the living natural resources of the sea, seabed, estuaries and coastal tidal areas'.⁴ Moreover, Articles 14 and 20 clearly contemplate that even traditional activities may have to be curtailed. For example, under the Treaty, Australia may adopt a conservation measure, if necessary, for the conservation of a species. This measure may apply to traditional fishing, for example for turtles and dugong, provided that best endeavours are used to minimise any restrictive effects of that measure on traditional fishing.⁵

9.8 The Treaty incorporates Australia's and PNG's obligations under international conventions to protect turtles and dugongs as endangered and threatened species. For example, Australia is a party to the Convention on the Conservation of Migratory Species of Wild Animals and a signatory to memoranda of understanding concerning the conservation and management of marine turtles and dugongs and their respective habitats.⁶ Australia and PNG are parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora. This convention prohibits international trade in specimens of these species except in exceptional circumstances.⁷

9.9 As noted above, the Treaty allows traditional inhabitants to harvest turtles and dugongs in the Torres Strait, despite their protected status, according to established custom. Bêche-de-mer fishing, an important part of traditional fishing in the region, demonstrates the importance of managing threatened species carefully in order to avoid the imposition of drastic conservation measures or to avert permanent harm to vulnerable species.

4 Article 1(l), Definitions.

5 Article 14.1 (a)(b)(c) and 14.4; Article 20 (2).

6 Convention on the Conservation of Migratory Species of Wild Animals, http://www.cms.int/about/Partylist_eng.pdf and http://www.cms.int/about/map/world_english.jpg See also for example, Helene Marsh et al, *Dugong, Status Report and Action Plans for Countries and Territories*, UNEP, UNEP/DEWA/RS.02-1; *ICUN Red List, Dugong dugong*, <http://www.iucnredlist.org/apps/redlist/details/6909/0/print> (accessed 15 April 2010). See for example, 'Chelonia mydas', <http://www.iucnredlist.org/apps/redlist/details/4615/0/print> (accessed 15 April 2-10).

7 Convention on International Trade in Endangered Species of Wild Fauna and Flora, <http://www.cites.org/eng/disc/what.shtml> and <http://www.cites.org/eng/disc/parties/alphabet.shtml> (accessed 8 September 2009).

Bêche-de-mer—case study

9.10 The bêche-de-mer fishery in the Torres Strait is a commercial fishery but, because of over-exploitation, fishing for three species—sandfish, black teat fish and surf redfish—has been closed (since 1998 for sandfish and 2003 for the other two).⁸ CSIRO informed the committee that fishing for the black teat fish and the surf redfish, which were not as depleted or in as bad a shape as the sandfish, was closed as a more precautionary measure and that they were expected to recover more quickly.⁹ Even so, recovery to sustainable levels takes time. In 2006, the CSIRO published the results of a survey on bêche-de-mer in the Torres Strait which showed no signs of recovery in any of the closed species. Indeed, it found that the density of sandfish had actually declined to levels similar to those in 1998 when the fishery was closed.¹⁰

9.11 In 2009, the Torres Strait Scientific Advisory Committee noted that the findings of this scientific survey were consistent 'with experience from overexploited bêche-de-mer fisheries in the Pacific where stock recovery was found to be a lengthy process, potentially taking decades'. It stated further:

Torres Strait Islanders have expressed frustration over the slow rate of recovery of these stocks and the [Protected Zone Joint Authority] PZJA can expect increased pressure in coming years to expedite stock recoveries.¹¹

9.12 The Australian Fisheries Management Authority (AFMA) believed, however, that the bêche-de-mer would 'potentially come back and be a viable fishery' in the region.¹² Indeed, under the closed fishing regime, the black teat species has shown promising signs of increased stocks.¹³

9.13 A recent CSIRO survey suggested that the species could be reopened to fishing, providing there was some management strategy that would 'mitigate against an overshoot of the TAC [total allowable catch] and prevent localised depletion'.¹⁴ The survey indicated, however, that the surf redfish should remain closed to fishing

8 *Committee Hansard*, 18 December 2009, pp. 35–36. See also Torres Strait Scientific Advisory Committee, *Strategic Research Plan for Torres Strait Fisheries*, July 2009, p. 7; Professor Hurry, *Committee Hansard*, 17 December 2009, p. 58.

9 *Committee Hansard*, 18 December 2009, p. 36.

10 Timothy Skewes et al, *Sustainability Assessment of the Torres Strait Sea Cucumber Fishery*, CRS-TS Task Number T1.4, CSIRO Marine and Atmospheric Research, July 2006, p.vii.

11 Torres Strait Scientific Advisory Committee, *Strategic Research Plan for Torres Strait Fisheries*, July 2009, p. 7.

12 *Committee Hansard*, 17 December 2009, p. 58.

13 Mr Timothy Skewes informed the committee that CSIRO had been monitoring that population and thought there had been a recovery, at least in the black teat fish population in the Torres Strait. *Committee Hansard*, 18 December 2009, pp. 36–37.

14 Tim Skewes et al, *Torres Strait Hand Collectables, 2009 survey: Sea cucumber*, Final Report, CSIRO Marine and Atmospheric Research, March 2010, p. 18.

for the time being.¹⁵ A survey was undertaken in February 2010 to assess the status of sandfish in the Warrior Reef area.¹⁶ This fishery has now been closed to fishing for twelve years.

9.14 The strong measures that were required to redress the serious depletion of some species of bêche-de-mer in the Torres Strait provides a powerful lesson for those responsible for the management of turtle and dugong.

Management of fisheries in Torres Strait

9.15 As noted earlier, marine turtle and dugong, which are central to the traditional way of life in the Torres Strait, are under threat and need to be protected from overfishing and extinction. In order to avoid drastic conservation measures such as the long-term closure of hunting, both species require careful management. In the following section, the committee discusses the key challenges to the sustainable management of turtle and dugong in the region.

Data on stocks and level of catch

9.16 Although identified as vulnerable species, the health of the turtle and dugong stock in the Torres Strait cannot be stated with absolute certainty. Indeed, numerous studies have noted that the availability of data required for sound and robust scientific assessment of the sustainability of marine turtles and dugongs in the Torres Strait is limited.¹⁷ Even so, a 2007 stock assessment of these animals in the region suggested that they were 'being overfished'.¹⁸

9.17 Some researchers point out that knowledge of the size and nature of the catch is one notable area of weakness when predicting the overall status of the population of

15 Tim Skewes et al, *Torres Strait Hand Collectables, 2009 survey: Sea cucumber*, Final Report, CSIRO Marine and Atmospheric Research, March 2010, p. 18. *Committee Hansard*, 18 December 2009, p. 37 and Torres Strait Hand Collectable Working Group, Meeting no. 4, 27–28 July 2010, Agenda item no. 2.2 for noting.

16 *Committee Hansard*, 18 December 2009, p. 37 and Torres Strait Hand Collectable Working Group, Meeting no. 4, 27–28 July 2010, Agenda item no. 2.1 for noting. CSIRO, *The Recovery of the *Holothuria scabra* (sandfish) population on Warrior Reef, Torres Strait*, Milestone Report, May 2010, Project 2009/846.

17 See for example, Jillian Grayson et al, *Information to assist Torres Strait Islanders manage their traditional fisheries for dugongs and green turtles*, Final project report prepared for the Ocean Park Conservation Foundation, May 2006, p. 6.

18 *Torres Strait Turtle and Dugong Fisheries Assessment Report*, Prepared by the Australian Fisheries Management Authority on behalf of the Torres Strait Protected Zone Joint Authority, January 2007, p. vi. http://www.pzja.gov.au/notices/notices/2007/Final_TandD_Report.pdf (accessed 7 June 2010).

marine species in the Torres Strait.¹⁹ With regard to marine turtles, the 2007 assessment found that there was 'no formal assessment of the potential productivity of any Torres Strait's turtle stocks or estimates of likely sustainable egg harvest levels', and no reference points had been set for the fishery. The outlook for the green turtle was particularly worrying. The report stated:

The northern Great Barrier Reef green turtle stock is thought to be in the early stages of a population decline, it being considered highly unlikely that the current combined turtle catch within the Northern Planning Area (an area covering the Torres Strait, the Gulf of Carpentaria and north western-Australia) is sustainable and there being a reasonable probability that the stock will experience a severe reduction in numbers of near-adult and adult turtles within a few decades (one generation).²⁰

9.18 Ms Sheriden Morris from the Reef and Rainforest Research Centre noted further that there are two turtle rookeries for green turtle in the region—Raine Island, which is the biggest in the world, and Bramble Cay. She explained that the Centre had monitored failed breeding at both sites and that the hatchings from them 'constitute about 90 per cent of the population, so when they fail there are consequences'. According to Ms Morris, the effects of a failed breeding season would take a decade to come through. She explained that there have been four failed breeding seasons for green turtle, and in about 10 years time, this will have 'a colossal impact on the communities of the eastern side of the Torres Strait'. She stated further:

...we have very good data on take—not on how many are taken but on shell size. We have noticed that females are getting smaller, and that is usually a fairly good indication in the fisheries that the population is under some pressure. We have good empirical data on that.²¹

19 See for example, Jillian Grayson et al, *Information to assist Torres Strait Islanders manage their traditional fisheries for dugongs and green turtles*, Final project report prepared for the Ocean Park Conservation Foundation, May 2006, p. 6. The report noted that there was inadequate data on catch rates of dugongs and turtles, on the geographic ranges of stocks and population sizes in Torres Strait. The UNEP report on dugongs noted that 'current estimates of dugong populations and harvest suggest that the present level of dugong harvesting may not be sustainable in Torres Strait'. Helene Marsh et al, *Dugong, Status Report and Action Plans for Countries and Territories*, UNEP, UNEP/DEWA/RS.02-1, p. 119. See also Helene Marsh et al, *Condition trends and projected futures of marine species of conservation concern*, Final Report, MTSRF Project 1.4.1. August 2007, p. 20 and Torres Strait Scientific Advisory Committee, *Strategic Research Plan for Torres Strait Fisheries*, July 2009, p.15.

20 *Torres Strait Turtle and Dugong Fisheries Assessment Report*, Prepared by the Australian Fisheries Management Authority on behalf of the Torres Strait Protected Zone Joint Authority, January 2007, p. vii. http://www.pzja.gov.au/notices/notices/2007/Final_TandD_Report.pdf (accessed 7 June 2010).

21 *Committee Hansard*, 25 March 2010, pp. 35–6.

9.19 According to experts in the field, the Torres Strait is the most important dugong habitat in the world.²² Ms Morris noted that 'surprisingly, dugong is still in pretty good condition', with sea beds also in good condition.²³ Even though this animal is not under the same level of threat in the Torres Strait as the green turtle, the variability of the data suggests that care should be taken when making definitive assessments about the size of the population now and into the future. For example, the 2007 assessment concluded that 'the difference between the current estimate of a sustainable catch level and current catches is so large that the overall conclusion that current catches are not sustainable is inescapable'. In this report, the AFMA Board Environment Committee took the opportunity to raise its concerns. It noted that the current level of dugong take from the Torres Strait, (currently unknown but 'could be as high as 10 times the Maximum Sustainable Yield') and the illegal take by PNG nationals were, among other things, a threat to the future of the fishery.²⁴

9.20 A 2008 report by the Marine and Tropical Sciences Research Facility (MTSRF) found that the surveys of dugongs in the Torres Strait since the mid-1980s had 'not demonstrated a significant decline in dugong numbers, despite long standing concern' about their sustainability.²⁵ The authors urged caution, however, in using these results to justify postponing management action, and identified a number of threats to the dugong population, including unknown levels of harvest by Indigenous Australians and neighbouring countries, and illegal poaching by Australians and

22 See for example, Helene Marsh et al, *Dugong, Status Report and Action Plans for Countries and Territories*, UNEP, UNEP/DEWA/RS.02-1, p. 115.

23 *Committee Hansard*, 25 March 2010, p. 35.

24 *Torres Strait Turtle and Dugong Fisheries Assessment Report*, Prepared by the Australian Fisheries Management Authority on behalf of the Torres Strait Protected Zone Joint Authority, January 2007, pp. viii and xv, http://www.pzja.gov.au/notices/notices/2007/Final_TandD_Report.pdf (accessed 7 June 2010). A United Nations Environment Programme (UNEP) report on dugongs noted that the status of the animal in the Torres Strait region was unknown.

25 Helene Marsh et al, *Condition, status and trends and projected futures of the dugong in the Northern Great Barrier Reef and Torres Strait*, Commonwealth Environment Research Facilities, Marine and Tropical Sciences Research Facility, James Cook University, April 2008, p. 11. See also, Torres Strait Scientific Advisory Committee, *Torres Strait Strategic Marine Research Plan 2005–2010*, Draft, pp. 10–11.

foreign fishers.²⁶ They noted the impossibility of evaluating the relative impact of these threats without additional data.²⁷

9.21 In their view, there was 'time to work with local Traditional Owners and commercial fishers to develop appropriate management arrangements without dugongs becoming locally extinct within the region'.²⁸ Mr Stephen Oxley, Department of Environment, Water, Heritage and the Arts (DEWHA), informed the committee that if there were to be 'an increased level of harvest we would need better data about the overall size and status of the resource in order to be confident that the fisheries were capable of sustaining high levels of take'.²⁹

Committee view

9.22 Monitoring the status of turtle and dugong stocks in the Torres Strait and complete and accurate data on the health of their population are critical factors in their sound management. Although periodic surveys are undertaken, evidence suggests that important gaps remain in information, especially on the level of harvest.

Long-term projections

9.23 In addition to problems with data, a further complicating factor in assessing the future prospects for turtle and dugong in the Torres Strait is the difficulty predicting the long-term effects of current practices or events that may not become apparent for many years. For example, when considering conservation measures, there are two critical aspects of turtle fishery—hunting the animals for meat and the harvesting of their eggs.³⁰ The 2007 assessment report noted that 'some researchers have suggested that the effects of continued over-harvesting of adults and/or eggs will

26 Helene Marsh et al, *Condition, status and trends and projected futures of the dugong in the Northern Great Barrier Reef and Torres Strait*, Commonwealth Environment Research Facilities, Marine and Tropical Sciences Research Facility, James Cook University, April 2008, pp. 11 and 13.

27 Helene Marsh et al, *Condition, status and trends and projected futures of the dugong in the Northern Great Barrier Reef and Torres Strait*, Commonwealth Environment Research Facilities, Marine and Tropical Sciences Research Facility, James Cook University, April 2008, p. vi. As noted earlier, it urged caution in using the results of its time series aerial surveys of Torres Strait citing problems such as difficulty detecting trends in the abundance of marine mammals, the total area of dugong habitat not being surveyed and dugongs breeding at exceptionally small sizes/young ages which may be a sign that the population is declining, pp. 11 and 13.

28 Helene Marsh et al, *Condition, status and trends and projected futures of the dugong in the Northern Great Barrier Reef and Torres Strait*, Commonwealth Environment Research Facilities, Marine and Tropical Sciences Research Facility, James Cook University, April 2008, pp. vi and 12.

29 *Committee Hansard*, 17 December 2009, p. 69.

30 Torres Strait Scientific Advisory Committee, *Strategic Research Plan for Torres Strait Fisheries*, July 2009, p. 16.

not be seen in terms of reduced turtle abundance for decades, at which point the effects may be rapid, dramatic and possibly irreversible'.³¹ The committee has already mentioned the failed breeding seasons of the green turtle, the results of which may not become evident for many years.

9.24 A number of other factors, including the use of modern technology in traditional activities, increased demand for these stocks, unregulated or illegal fishing and climate change, may further compromise the health of these vulnerable species in the Torres Strait.

Traditional activities and new technology

9.25 While the Treaty defines traditional fishing, it is unclear about the extent to which modern equipment and means of transport are allowed. It stipulates that the term 'tradition' shall be 'interpreted liberally and in the light of prevailing custom'. For the moment, regulations restrict the use of modern technology in traditional fishing activities. For example, turtle and dugong may not be carried in a commercial fishing boat and only a 'wap' (a small spear) may be used to hunt dugong. According to the TSRA, this type of fishing control 'keeps to the "spirit" of the Treaty and also helps the sustainability of the fishery'.³²

9.26 The United Nations Environment Program (UNEP) status report on dugong, however, registered concern about the increased availability of out-powered boats, which may be expected to improve the effective hunting effort. Even so, it stated that there was no evidence to date to support or refute that proposition.³³ Professor Glen Hurry, AFMA, also noted the difficulty created by the move away from the strictly traditional modes of fishing. He said:

...as things move on and better boats become available and people can range further from home there is more of a tendency to take some of the products [turtle and dugong].³⁴

9.27 He recognised that while people have access to improved boats that enable them to increase their hunting range, there had been no evidence of commercial fishery for turtle or dugong.³⁵ It should be noted, however, that, as discussed earlier, some scientists have identified the lack of information on the level of take of dugong and turtle as a problem for those devising management plans.

31 *Torres Strait Torres Strait Turtle and Dugong Fisheries Assessment Report*, Prepared by the Australian Fisheries Management Authority on behalf of the Torres Strait Protected Zone Joint Authority, January 2007, p. vii.

http://www.pzja.gov.au/notices/notices/2007/Final_TandD_Report.pdf

32 TSRA, *Submission 18*, p. 16.

33 See for example, Helene Marsh et al, *Dugong, Status Report and Action Plans for Countries and Territories*, UNEP, UNEP/DEWA/RS.02-1, p. 118.

34 *Committee Hansard*, 17 December 2009, p. 54.

35 *Committee Hansard*, 17 December 2009, p. 54.

Increasing demand

9.28 Dr Garrick Hitchcock, an anthropologist who has worked on both sides of the Torres Strait border, including the Treaty villages, drew attention to future pressures on the environment and natural resources in the region due to population increase in PNG, including Western Province. In his view, the increased demand on resources, specifically the hunting of turtle and dugong, was a key future challenge. He asked:

Are the fisheries of Torres Strait, including turtle and dugong, sustainable in the face of PNG's population growth rate of 2.7 per cent per annum, with the population of Treaty Villages set to double every 26 years?³⁶

9.29 Similarly, Mr Raymond Moore, a commercial fisherman in the region, referred to the growing population in Daru and the coastal villages and the likely escalation in traditional fishing.³⁷ Australia's Torres Strait Treaty Liaison Officer, Mr Brett Young, also mentioned population trends and the respective pressure placed on fisheries which were 'not there in the past'.³⁸ Clearly, increases in population is an important factor bearing on future demand for species such as turtle, dugong, and bêche-de-mer in the Torres Strait.

Unregulated or illegal fishing and hunting

9.30 Finally, some witnesses referred to unreported, unregulated or illegal fishing as a problem for the management of protected species in the Torres Strait. They cited activities by PNG nationals such as the illegal fishing of bêche-de-mer; illegal netting or trapping of turtle and dugong; and unregulated shark fin harvesting in the Torres Strait.³⁹

9.31 Migratory species such as marine turtles and dugong and other species such as bêche-de-mer are found on both sides of the border. PNG traditional inhabitants can fish in the Torres Strait Protected Zone (TSPZ). According to the TSRA, hunting in this zone can only be for subsistence or for ceremonial purposes, and the meat cannot be sold. It also noted that PNG fishers have 'artisanal rights to turtle and dugong in their own territorial waters outside of the TSPZ, which allow meat to be sold or bartered'. The TSRA observed, however, that the open sale of turtle meat in Daru

36 *Submission 30*, p. 2. See also *Committee Hansard*, 18 June 2010, p. 48. Dr Hitchcock noted: '...people seek much of their livelihood from the seas in Torres Strait and there is obviously concern, particularly with species such as turtle and dugong. Many of these communities do not have a history of being gardening people. Of them, the Kiwai in particular only practiced it in a minimal way and have been largely focussed on the coast. Some of the peoples who have now moved to the coast have begun to hunt turtle and dugong. This is cause for concern'.

37 *Submission 6*, p. [1].

38 *Committee Hansard*, 18 December 2009, p. 4.

39 TSIRC, *Submission 9*, p. 4. See also TSRA, *Submission 18*, pp. 16–17; Mr Kevin Murphy, *Submission 15*, p. 7 and Helene Marsh et al, *Dugong, Status Report and Action Plans for Countries and Territories*, UNEP, UNEP/DEWA/RS.02-1, p. 119.

market had 'raised questions about its provenance because of the close proximity of the TSPZ and Australian waters'.⁴⁰ It referred to staff with the Land and Sea Management Unit who:

...have had to respond to widespread concerns in the Torres Strait about illegal fishing activity by PNG nationals, and concerns that management plans must apply equally to Australian and PNG traditional inhabitants of the Torres Strait.⁴¹

9.32 Based on his own research and work in the Torres Strait, Mr Kevin Murphy submitted that some PNG nationals do not regard the international maritime boundary as legitimate. He informed the committee that they frequently cross the border to fish on the rationale that there are insufficient resources on the PNG side and too many people exploiting them.⁴² Ms Morris informed the committee that, based on anecdotal information, 500 turtles are being taken at one time and traded up through Daru into Irian Jaya.⁴³ She also noted that their researchers on the ground come across monitoring sites that have been 'severely raided' or on information that is 'anecdotal, real or monitored' about take, illegal activity and activity with the Treaty villages.⁴⁴ She noted:

The islands closest to the western province of New Guinea, where there are treaty activities in place, are the areas where we have seen quite a deal of poaching and quite a deal of loss of even our sites. Some of this is done by treaty villagers themselves—and they are allowed to do a lot of that work...The other is other players that come in and operate and take—and this is particularly important for turtle in that region.⁴⁵

9.33 Mr Ned David, Magani Lagaugal, Registered Native Title Body Corporate, referred to the many instances where illegal fishers, a large number from PNG, abuse the Treaty arrangement and 'go overboard in accessing our crayfish fisheries and other fisheries that can be sold on Daru'. He stated:

We know the market is open to anything; there is absolutely no regulation existing. Back in 1992 you could sell a turtle for 100 kina and that allowed you to be treated as some kind of millionaire for a couple of weeks. That continues to exist—we are made well aware of that.⁴⁶

40 TSRA, *Submission 18*, p. 16.

41 TSRA, *Submission 18*, pp. 16–17. The Land and Sea Management Unit has overall responsibility for co-ordinating the Turtle and Dugong Program in the Torres Strait.

42 *Submission 15*, p. 7.

43 *Committee Hansard*, 25 March 2010, p. 35.

44 *Committee Hansard*, 25 March 2010, p. 34.

45 *Committee Hansard*, 25 March 2010, p. 34.

46 *Committee Hansard*, 24 March 2010, p. 34.

9.34 The TSIRC argued that it is difficult to regulate fish catches taken to PNG as the authorities tasked to police this area have no powers.⁴⁷ It also noted that PNG has no laws prohibiting the sale of dugong meat, which it noted 'is marketed on a regular basis'. Mayor Gela informed the committee:

...we need to be mindful of the types of practices that PNG has in terms of...the hunting of sea cows. On the Australian side, it is illegal to sell sea cows; on the PNG side, it is commercialised. It is these individuals who enter Australian territorial waters and set up and conduct illegal netting of species that are basically endangered. On our side we are looking at the management and sustainability of species for the next generation to come; we do not commercialise it. We engage in traditional practices, and they are defined. On their side, that is not the case. We need to be mindful also that, whatever rules we put in place, it will be difficult because on their side there will be no legislation and no policing in place to enforce such rules.⁴⁸

9.35 The *bêche-de-mer* fishery also highlighted the problem of illegal poaching from the PNG side. For example, the Torres Strait Scientific Advisory Committee noted that compliance is a key issue in this fishery, particularly the illegal fishing of sandfish on the Warrior Reef.⁴⁹ In this regard, the TSRA in 2009 informed the committee that:

...illegal fishing by PNG nationals for *bêche-de-mer* continues to be reported at Warrior Reef and in the 'home reef' area of communities in the eastern Torres Strait which are located a considerable distance from the PNG coast. Some of those PNG nationals who have been apprehended by Australian fishery protection vessels have falsely presented themselves as 'Treaty' visitors.⁵⁰

9.36 Mr Timothy Skewes, CSIRO, noted that the PNG section of the Torres Strait *bêche-de-mer* fishery is managed by PNG under a set of arrangements that are different from Australia. He also mentioned that there was some concern that poaching from the PNG side was the reason the Australian population remained 'so low'.⁵¹ As a consequence of the October 2009 fisheries bilateral meeting, PNG closed its entire *bêche-de-mer* fishery countrywide for three years.⁵² Based on his observations, Mr Skewes informed the committee that 'the ability to close those species and to have reasonable compliance is quite good'.⁵³ He noted that with the prohibition on *bêche-de-mer* fishing in PNG waters and increased surveillance in the

47 TSIRC, *Submission 9*, p. 4.

48 *Committee Hansard*, 18 June 2010, p. 5.

49 Torres Strait Scientific Advisory Committee, *Strategic Research Plan for Torres Strait Fisheries*, July 2009, p. 17.

50 TSRA, *Submission 18*, p. 17.

51 *Committee Hansard*, 18 December 2009, p. 37.

52 *Committee Hansard*, 18 December 2009, pp. 36–37 and TSRA, *Submission 18*, p. 17.

53 *Committee Hansard*, 18 December 2009, pp. 36–37.

Torres Strait, 'hopefully, there is a chance that the sandfish population will show recovery'.⁵⁴ The TSRA also acknowledged the recent imposition of a total ban on bêche-de-mer in PNG waters—'a decision applauded by Torres Strait Islanders'.⁵⁵

9.37 While local communities expressed disquiet about the level of illegal fishing in the region, government officials appeared satisfied with current fishing practices, especially as they related to illegal fishing on a commercial scale. Professor Glen Hurry, AFMA, informed the committee that while, for some time, there had been rumours about turtle and dugong being fished for commercial purposes, he had not been able to quantify it.⁵⁶ He explained that these animals are usually caught for traditional use at tombstone openings and other ceremonial functions. According to Customs, the number of people apprehended for fishing illegally in the Torres Strait has fallen considerably.⁵⁷

9.38 Although dugong, marine turtle and bêche-de-mer are not subject to commercial fishing in the Torres Strait, reports of the illegal taking of these species by villagers from the PNG side of the border persist. This activity could pose a threat to these animals as evidenced by the slow recovery of the sandfish around Warrior Reef. Clearly, cooperation with PNG in the sustainable management of protected species such as bêche-de-mer in the Torres Strait and compliance with conservation measures is critical to the sustainability and/or recovery of populations under threat in the Torres Strait.

Climate Change

9.39 Changes in climate also have the potential to complicate the effective management of threatened species in the Torres Strait. Drawing on their experiences, Islanders have voiced concerns for a number of years about rising sea levels and the visible changes happening in their localities. They mention 'increased erosion, strong winds, land accretion, increasing storm frequency and rougher seas of a sort that elders have never seen or heard of before' and the effects they are having on the number of turtles nesting, bird life and sea grass.⁵⁸

9.40 In its submission, the TSRA highlighted its concerns about the potential adverse effects on ecosystems, food security and the health and livelihoods of Torres Strait Islanders particularly associated with, but not limited to, temperature and water

54 *Committee Hansard*, 18 December 2009, p. 37.

55 TSRA, *Submission 18*, p. 17.

56 Professor Hurry, *Committee Hansard*, 17 December 2009, p. 53.

57 Information conveyed during committee's tour of detention centre on Horn Island for illegal fishers.

58 Australian Human Rights Commission, 'Case Study 1 Climate change and the human rights of Torres Strait Islanders', *Native Title Report 2008*, p. 231, http://www.hreoc.gov.au/social_justice/nt_eport.ntreport08/index.html (accessed 5 November 2009).

acidification.⁵⁹ It noted that similar issues are thought to effect neighbouring coastal communities in PNG's Western Province and Irian Jaya in Indonesia.

9.41 Although the consequences from increased temperatures and sea inundation are becoming evident, the likely extent of changes to ecosystems in the Torres Strait is unknown. Dr Andy Sheppard, CSIRO, informed the committee that the Torres Strait is influenced by a number of climate drivers such as the Australian monsoon, the El Niño southern oscillation, the Pacific decadal oscillation and, from time to time, tropical cyclones. He explained:

Climate variables such as sea surface temperature, rainfall, wind, mean sea level pressure, solar radiation, cloudy days, humidity, evaporation and apparent temperature play an important role in human and marine life and the ecosystems of the region. However, how these variables will alter with climate change and what future impacts they will have on ecology and livelihoods in the region is not clear.⁶⁰

9.42 Similarly, his colleague, Dr James Butler, stated that basically we 'do not know what the impacts of climate change are going to be on culture there, let alone the broader issues of economy, ecosystem, fisheries and everything else that rely upon the ecosystem. It is really a very open question'.⁶¹

9.43 Despite their inability to predict precisely the effects of changes in climate on ecosystems in the Torres Strait, scientists are already detecting what they regard as detrimental effects on the habitats and life cycles of native flora and fauna in the region. They fear that coastal species such as marine turtles could be affected greatly by sea level rises that would decrease nesting beaches and feeding habitats. Increased sand temperature could also 'alter the sex ratio or potentially result in mortality'.⁶² For example, Ms Morris told the committee that, based on reliable data, researchers are 'seeing a feminisation of the turtle population that is attributable to increased sand surfaces where the turtles are'. She explained:

Turtle sex is determined by temperature, and when there is a slight increase in temperature it feminises and when there is a slight decrease it makes the eggs male. It is just like crocodiles and a lot of bird species. That plays out very strongly.⁶³

9.44 She went on to say that researchers are seeing a lot of turtle eggs drowning from sea level rise or inundation. The committee has already mentioned failed

59 *Submission 18*, pp. 25–26.

60 *Committee Hansard*, 18 December 2009, p. 33.

61 *Committee Hansard*, 18 December 2009, p. 40.

62 See for example, Convention on Migratory Species, 'Migratory Marine Species: Strategic considerations for 2009–11 and beyond', prepared by the CMS Secretariat, Ninth meeting of the Conference of the Parties, UNEP/CMS/Conf.9.26, 10 October 2008, p. 4.

63 *Committee Hansard*, 25 March 2010, p. 35.

breeding seasons at the two turtle rookeries for green turtle, Raine Island and Bramble Cay.

9.45 Scientists are also concerned that rises in the temperatures of the sea's surface could affect coral and sea grasses that would in turn influence the foraging habits of migratory species.⁶⁴ A study on dugongs in the Northern Great Barrier Reef and Torres Strait found that a likely reason for the movement of dugongs within the area is 'the susceptibility of the region to episodic seagrass diebacks, which are now believed to be largely natural events, the frequency of which may be exacerbated by climate change'. Even so, it noted that there was 'considerable uncertainty surrounding the impact of climate change on the frequency of seagrass diebacks'.⁶⁵

9.46 The changes in climate in the Torres Strait also have a number of other potential serious implications, including for the viability of essential infrastructure, especially on the low-lying islands and coastal areas of PNG, Australia's biosecurity, and border control. The committee discusses these matters in relevant sections later in the report, including consideration of the Australian Government's response to these emerging challenges.

Committee view

9.47 The committee is not in a position to make a scientific assessment about dugong and marine turtle stocks in the Torres Strait. Based on various studies and the evidence before it, the committee can with confidence, however, make some general observations. Dugongs and marine turtles in the Torres Strait require careful and informed management if their sustainability into the future is to be secured. A central plank of good and effective management relies on sound understanding of all aspects critical to their survival—breeding and foraging habitats, their behaviour throughout their life cycle, population trends, and the extent and effects of hunting not only in the immediate term but also into the future. Current data on marine life in the Torres Strait is inadequate, which is complicated by the uncertainty around the annual take of turtle and dugong. Population increase in Western Province and illegal fishing add to these concerns about the sustainability of hunting such animals in the Torres Strait, as does the potential adverse effects of climate change on the ecosystem.

9.48 In the following section, the committee looks at the measures that relevant agencies and authorities are taking to ensure that the environment in the Torres Strait is protected from damaging human and natural activity.

64 See for example, Convention on Migratory Species, 'Migratory Marine Species: Strategic considerations for 2009–11 and beyond', prepared by the CMS Secretariat, Ninth meeting of the Conference of the Parties, UNEP/CMS/Conf.9.26, 10 October 2008, p. 4.

65 Helene Marsh et al, *Condition, status and trends and projected futures of the dugong in the Northern Great Barrier Reef and Torres Strait*, Commonwealth Environment Research Facilities, Marine and Tropical Sciences Research Facility, 2008, pp. v and 11.