



Overview of Legislation Pertinent to Marine Turtle Harvest



Foreign & Commonwealth
Office





This document is part of a larger publication and should be cited as:
Godley BJ, Broderick AC, Campbell LM, Ranger S, Richardson PB (2004) 3. Overview of Legislation Pertinent to Marine Turtle Harvest. In: An Assessment of the Status and Exploitation of Marine Turtles in the UK Overseas Territories in the Wider Caribbean. pp 16-38. Final Project Report for the Department of Environment, Food and Rural Affairs and the Foreign and Commonwealth Office.

The full report is hosted in PDF format at the Project website: <http://www.seaturtle.org/mtrg/projects/tcot/finalreport/>



This project was implemented by the Marine Turtle Research Group (University of Exeter in Cornwall, UK), the Marine Conservation Society (UK), and Duke University (USA) in association with the Cayman Islands Department of Environment, Cayman Turtle Farm, and University of Cardiff (UK). This initial consortium was expanded to include a large number of organisations across the Overseas Territories.

3. Overview of Legislation Pertinent to Marine Turtle Harvest

Contents

	Page
3.1. Harvest Legislation in the UK Overseas Territories in the Caribbean	17-25
3.1.1 Anguilla	20-21
3.1.2. Bermuda	22
3.1.3. British Virgin Islands	22
3.1.4. Cayman Islands	22
3.1.5. Montserrat	23
3.1.6. Turks and Caicos Islands	23-24
3.2. Multi-lateral Environmental Agreements (MEA's) and Turtle Harvest Legislation	25-29
3.2.1. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	25-27
3.2.2. Convention on Migratory Species (CMS or Bonn Convention)	27
3.2.3. Protocol Concerning Specially Protected Areas and Wildlife (SPAW) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	27-28
3.2.4. Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)	29
3.3. TCOT Recommendations for Changes to National Legislation	29-37
3.3.1. Anguilla	29-32
3.3.2. Bermuda	32
3.3.3. British Virgin Islands	32-34
3.3.4. Cayman Islands	34
3.3.5. Montserrat	34-36
3.3.6. Turks and Caicos Islands	36-37
3.4. Acknowledgements	37
3.5. References	37-38

Reflecting the historical importance of turtle fisheries in the Wider Caribbean, all 6 Territories involved in the TCOT project have enacted legislation specifically designed to regulate marine turtle fisheries. Indeed, in 1620 the First Bermuda Assembly produced what is thought to be the world's first marine turtle protection legislation, by passing an Act that prohibited the harvest of young turtles (see section 5).

Currently, there is a diversity of legislation pertaining to the harvest and sale of marine turtles and their products in the UK Overseas Territories, ranging from complete prohibition in Bermuda, to regulated harvest of turtles and take of eggs in Montserrat. This section presents an overview of this legislation, highlights those multi-lateral environmental agreements (MEAs) that provide specific protection to marine turtles in the UK Overseas Territories in the Caribbean, and presents TCOT's recommended legislative changes. Where available, the full text of the pertinent legislation for each Territory is given in Appendices 3.1 to 3.6.

3.1. Harvest Legislation in the UK Overseas Territories in the Caribbean

The national legislation that regulates turtle harvest in each UK Overseas Territory in the Caribbean is, in most cases, based on legislation drafted several decades ago when scientific understanding of marine turtle ecology was less developed than it is today. While marine turtle population



Photo 3.1. Nest protection is an important component of depleted population conservation and recovery (Photo P. Richardson).

ecology is a relatively new field of study, Heppell *et al.* (2003) provide a comprehensive overview of the current status of understanding. The key points of the review by Heppell *et al.* are highlighted here.

Egg harvest: It is widely accepted that individual mortality at the hatchling and egg stage is common and is of minimal significance to the population when compared to mortality at other age classes. Female marine turtles have evolved to produce thousands of eggs during their reproductive lifetime to compensate for the inevitably high levels of egg and hatchling mortality to natural predators. However, survival at this life stage leads to recruitment into the population of the more valuable older age classes, and extensive harvest of eggs can prevent recruitment and lead to long-term nesting population collapse. As turtles are long-lived, the effects of sustained egg harvest at the nesting beach will only become evident within a nesting population several decades after the egg harvest has occurred. It is now fully accepted that when attempting to facilitate the recovery of small or depleted turtle populations, the protection of turtle nests from human harvest is an important component of an effective conservation strategy.

Harvest of juveniles, sub-adults and adults: Protecting nests alone will not facilitate the recovery of marine turtle populations if there is high mortality in later age classes. Maintenance of long-lived, slow-growing species like marine turtles depends heavily on high survival rates of juvenile, sub-adult and adult age classes within particular populations. Populations that suffer extensive and prolonged harvest of individuals within these age classes are liable to collapse. The UK Overseas Territories' traditional turtle fisheries typically targeted (and continue to target) foraging populations, nesting females and in some cases mating adults. Minimum size limits are a common feature of the Territories' harvest legislation, thereby permitting the take of the most reproductively valuable age classes. Prohibiting the take of older age classes is essential for effective marine turtle population management and therefore harvest legislation must include a maximum size limit.

The TCOT Socio-economic Questionnaire (TCOT SEQ) revealed that many turtle fishermen appreciate the need for a minimal size limit '*to protect the turtle nursery*', and often fishermen release very small turtles simply because of their limited value. Any change in turtle fishery legislation that limits a fisherman's activities and income is likely to be met with some opposition amongst the fishing community. Territory authorities often have limited enforcement capacity with regard to fishery management and therefore fishing community acceptance of legislation change is essential to avoid widespread illegal and covert turtle fishing. There is little biological justification for imposing a minimum size limit on a turtle fishery. However, in Territories where a harvest is desired and the fishermen appreciate this fishery conservation ethic, it may be justifiable to maintain the minimum size limit of the old legislation. This may give amended legislation introducing maximum size limits some familiarity, accessibility and thereby promote much



Photo 3.2. Most turtle fishermen interviewed during the TCOT SEQ accepted minimum size limits as a conservation measure (Photo P. Richardson).

needed acceptance and ownership amongst the fishing communities. Once appropriate awareness programmes have sensitised fishers to legislation amendments and have increased fisher understanding of turtle fishery management, the necessity of maintaining a minimum size limit can be reviewed.

Marine turtles are migratory, with females often travelling vast distances between foraging grounds and nesting beaches. Following their initial pelagic life stage, juvenile cheloniid turtles may settle on inshore foraging habitat located thousands of kilometres from their natal beach. Consequently, inshore foraging turtle populations, largely consisting of juvenile and sub-adult individuals, will represent nesting populations from throughout the region. Therefore, the foraging assemblage of any given species found in the waters of a particular Overseas Territory will be distinct from and largely unrelated to the population of adults of the same species that nest on the beaches of that same Territory. This is the case for green, hawksbill and loggerhead turtles. Leatherbacks are generally pelagic and do not regularly forage in inshore waters in the Caribbean. The two distinct aggregations, foraging and nesting, have completely different conservation management requirements, especially where harvest is permitted.

It is essential that this fundamental and critical concept is understood by all stakeholders involved in marine turtle population conservation and management in the UK Overseas Territories in the Caribbean.

Fisheries that extensively target mixed-stock foraging populations can have adverse impacts on the recruitment of the various contributing nesting populations within the region. Such fisheries could not only affect nesting populations elsewhere, but in turn may eventually impact the recruitment into the foraging population targeted. It is therefore prudent to ensure that any harvest is controlled, measured and limited, with, for example, measures such as closed seasons, geographical no take zones (e.g. Marine Protected Areas), quotas and permitting systems for marine turtle harvest. The TCOT SEQ assessed fisher acceptance of different management options. In most instances restrictions on fishing gear, seasons, and numbers of turtles captured were more acceptable than geographic no take zones, and efforts to implement the latter will need to work with fishers if these are to succeed.

Harvest of nesting females: Female green, hawksbill and loggerhead turtles exhibit high levels of fidelity to the nesting beaches they use, which are more than likely within close proximity to the beach that they themselves emerged from as hatchlings. Nesting females are perhaps the most valuable life stage of any turtle population, but are extremely susceptible to human predation given their predictable nesting behaviour and vulnerability on the nesting beach. Extensive and prolonged harvest of nesting females on the beaches of an Overseas Territory will rapidly deplete the nesting populations using those beaches. This has famously occurred in the Cayman Islands, once the location of one the largest green turtle rookeries in the Caribbean (Aiken *et al.* 2001), in Bermuda, and has probably occurred on Salt Cay, Grand Turk and Providenciales, Turks and Caicos Islands. The extensive harvest of nesting females almost led to the extinction of the leatherback population frequenting Tortola, BVI in the 1980s (Hastings 2003).



Photo 3.3. Harvest of nesting turtles should be completely prohibited in all the UK Overseas Territories in the Caribbean (Photo P. Richardson).

Legislation provisions	Anguilla	Bermuda	British Virgin Islands
Harvest legislation ^{3.1.1}	Fisheries Protection Act, Revised Statutes of Anguilla, Chapter F40, Fisheries Protection Regulations, Revised Regulations of Anguilla, Chapter F40-1 ^{3.1.2}	Fisheries Act 1972, Fisheries (Protected Species) Order 1978, Protected Species Act 2003	The Turtles Ordinance 1959 as amended 1986, Fisheries Act, 1997 ^{3.1.3}
Harvest, sale and possession of turtle eggs & nesting females	Prohibited until 15 th December 2005	No nesting turtle population but harvest of all marine turtles species is prohibited	Prohibited
Open season	NA	NA	NA
At sea capture, sale and possession	Prohibited until 15 th December 2005	Prohibited	Allowed with conditions
Open season	NA	NA	December through to March inclusive
Quota	NA	NA	No quotas
Size restrictions	NA	NA	Captured turtles must be 20lbs (9.07kg) in weight.
Species restrictions	NA	NA	No species restrictions, although legislation effectively protects leatherbacks as they are most likely encountered as nesting females.
Geographical restrictions	NA	NA	Fishing is prohibited within Marine Parks and Protected Areas
Method restrictions	NA	NA	Fishing using spear guns, SCUBA gear and explosives is prohibited
Penalties	<i>A fine of up to EC\$50,000 or up to one year imprisonment, or a fine of EC\$250,000 and imprisonment for 2 years for a second or subsequent offence or to both such fine and imprisonment.</i>	Fisheries Act: <i>Imprisonment for one year or a fine of \$5,000 or both such imprisonment and fine, and any forfeiture of any fish so taken and any vessel, instrument and equipment used in such taking.</i> Protected Species Act: <i>Fine of \$5,000 or imprisonment for 6 months or, in the case of a second or subsequent offence, to a fine of \$10,000 or imprisonment for 6 months and, where the offence is a continuing offence, is liable on summary conviction to a fine of \$1,000 for each day on which the offence continues.</i>	Fisheries Act: <i>For offences involving using prohibited fishing methods, offenders are liable to fines of up to \$15,000, forfeiture of equipment and seizure of catch.</i> Turtles Ordinance: <i>Fines up to \$1,000, forfeiture of equipment and seizure of catch.</i>

Table 3.1.a A summary of all legislation relevant to the harvest of turtles and their eggs, and the sale of turtle products in Anguilla, Bermuda and BVI. (NA - Not Applicable).

Legislation provisions	Anguilla	Bermuda	British Virgin Islands
Protected Area Legislation	Marine Parks Act, Chapter M30, Revised Statutes of Anguilla; Marine Parks Regulations, Chapter M30-1, Revised Regulations of Anguilla. ^{3.1.2}	The Fisheries (Protected Areas) Order 2000	Marine Parks and Protected Areas Act, 1979, Marine Parks and Protected Areas Regulations, 1991
Penalties	<i>A fine of EC\$5,000 or a term of imprisonment of 6 months, and in the case of a continuing offence to a further fine of EC\$100 for each day on which the offence continues (for non-Anguillians fishing turtles in a marine park – superseded by moratorium).</i>	<i>Imprisonment for one year or a fine of \$5,000 or both such imprisonment and fine, and forfeiture of any fish so taken and any vessel, instrument and equipment used in such taking.</i>	<i>For conviction on indictment, fine up to \$1,000 and imprisonment for 1 year, or for summary conviction, fine up to \$500, imprisonment for a term of 6 months, or to both such fine and imprisonment.</i>

Table 3.1.b. A summary of all legislation relevant to protected habitats of marine turtles in Anguilla, Bermuda and BVI.

Depletion and extinction of turtle nesting populations in the Overseas Territories will not only deprive the Territory inhabitants of a rich and valuable natural resource, but will also have adverse impacts on the foraging populations elsewhere in the region to which the Territory nesting populations contribute.

The harvest of nesting female turtles in recovering populations should be completely prohibited in any harvest legislation. When given complete protection, nesting populations appear to have the capacity to recover rapidly, as is currently being shown by the leatherbacks of Tortola, and by nesting populations of other species around the Caribbean (IUCN 2002; Seminoff 2004).

Closed seasons for turtle harvest should be set to begin before the onset of the nesting season. Adult turtles are generally believed to mate within proximity of the nesting beach and about one month prior to when the female nests. A closed season that begins one month prior to the composite nesting season of all appropriate species will mitigate accidental capture (for example, in nets) of mating turtles prior to the nesting season. Some current harvest legislation already provides closed seasons, perhaps in recognition of the need to protect nesting females, but again, the legislation was drafted at a time when there was incomplete knowledge of marine turtle nesting seasonality. In most cases, the closed season period requires revision.

Table 3.1 (a-f) presents an overview of the current legislation in the UK Overseas Territories pertinent to the take and sale of marine turtles and their products, including marine protected areas legislation and, where appropriate, national legislation that transposes the Convention on International Trade in Endangered Species (CITES) into domestic legislation. This legislation is briefly described

here and TCOT's recommended amendments are outlined and discussed in section 3.3.

3.1.1. Anguilla

Anguilla hosts nesting and foraging populations of green and hawksbill turtles, nesting populations of leatherback turtles, and occasional foraging loggerheads. (See section 4 for further discussion).

Prior to 1995, the harvest of turtles and their eggs in Anguilla was regulated by the Fisheries Protection Regulations 1988, which was an updated version of Anguilla's original Turtle Ordinance gazetted in 1947. The Fisheries Protection (Amendment) Regulations, 1995 introduced a 5-year moratorium on the harvest that was extended for a further 5 years from the 15th December 2000 under the Fisheries Protection Regulations, Chapter F40-1.

The penalty for violating the current moratorium is a fine of up to EC\$50,000 or up to 1 year imprisonment. For a second or subsequent offence, a fine of EC\$250,000 and imprisonment for 2 years or both such fine and imprisonment applies. These penalties are significantly more severe than most other offences under the Fisheries Protection Regulations. This penalty was repeatedly criticised by respondents to the TCOT SEQ, and the point was raised that that such a high initial penalty might even discourage the Department of Fisheries and Marine Resources (DFMR) from prosecuting offenders. Since 1995, the authorities have apprehended a few individuals for breaking the moratorium, but no prosecutions have resulted from these cases (see section 4).

The TCOT SEQ revealed that most interviewees perceived turtle fishing as the main reason for a perceived decline in Anguilla's turtle populations prior to the moratorium. The

Legislation provisions	Anguilla	Bermuda	British Virgin Islands
Domestic CITES legislation	Legislation in draft	Protected Species Act 2003	Endangered Animals and Plants Act, 1987 (Cap. 89)
Penalties	NA	See above	<i>Fine up to \$1,000 or to imprisonment for 12 months for provision of false information on application for export/ import license, or forfeiture of article if unlawfully exported from or imported to the BVI.</i>

Table 3.1.c. A summary of domestic CITES legislation relevant to the harvest of turtles and their eggs, and the sale of turtle products in Anguilla, Bermuda and BVI (NA - Not Applicable).

Fisheries Protection Regulations, 1988 would not have facilitated sustainable turtle populations for a number of reasons, and this perceived decline possibly reflects real historical trends in Anguilla's turtle populations. Harvest of turtles at sea, nesting females and turtle eggs were all permitted between the 1st of October and the 31st May in any year, and the minimum size limit for harvested turtles was 20lb (9.07kg). Turtle eggs, nesting females and older age classes within the foraging populations were therefore legally targeted.

CITES does not extend to Anguilla and therefore there is no national legislation that regulates the import or export of marine turtles. Prior to the moratorium there was a strong demand for Anguillian turtle meat and shells from other Caribbean states (e.g. St Martin, Puerto Rico, USVI). By the early 1980s, the levels of turtle harvest had reached unprecedented levels, primarily because lobster fishermen and spear fishermen began targeting turtles to benefit from the overseas demand for hawksbill shell (Meylan 1983). While spear fishing is highly selective, it is also relatively efficient compared to hand capture, and a change to extensive use of spear guns could have increased the number of turtles caught beyond sustainable levels.

TCOT SEQ interviews revealed that prior to the moratorium, former egg collectors harvested eggs throughout the nesting season, with peak egg collection occurring in the middle of the closed season. Furthermore, harvest of nesting females would have deleteriously impacted the nesting populations, especially if the closed season was flouted for nesting females in the same way as it was for eggs. The full nesting seasons for the turtles species found in Anguilla are unknown, but recent (but incomplete) monitoring efforts indicate that the nesting season for all species of marine turtle in Anguilla extends from at least March to September. To get a more comprehensive picture of real nesting seasons, one must consider regional patterns. The leatherbacks nesting in USVI sometimes begin in February and the season can extend to August (Boulon *et al.* 1996), whereas the hawksbill nesting season in USVI is year round with peak nesting activity occurring between May and November (Starbird *et al.* 1999). Therefore, if we consider

that turtle nesting in Anguilla could extend from February to November, the old closed season would not have protected nesting leatherbacks during a significant period of their nesting season, and would not have protected hawksbills at the end of their nesting season. However, TCOT SEQ indicated that adult leatherbacks were rarely targeted and rarely became entangled in turtle nets.

The green turtle nesting season in USVI extends from May to October (in Hirth 1997) and so would largely have been covered by the old closed season, but early nesters entering Anguilla's waters to mate prior to nesting would not have been protected by the closed season and neither would females nesting at the tail-end of the season in October. Anguilla's nesting green turtle population has been small for the last few decades (Meylan 1983) and any take of the highly valued adult green turtles would have deleteriously impacted such a small population. Leatherback and loggerhead turtles appear to be relatively scarce in Anguilla's waters, and any occasional take of these species under the old fishery regime would have had a significant impact on the nesting leatherback population and the resident foraging population of loggerheads.

The moratorium was introduced in response to growing public and government concerns about the decline of Anguilla's foraging turtle populations. TCOT SEQ indicates a general perception that turtle populations have responded to the moratorium, although biological data describing recent trends in abundance have not been gathered. Heppell *et al.* (2003) suggest that small, depleted populations cannot withstand even moderate harvest, and without an understanding of Anguilla's real turtle population trends, it is prudent to proceed with caution when considering the reopening of a turtle fishery. However, TCOT recognises that some Anguillians desire the reopening of the turtle fishery and acknowledge that if the perceived turtle population increases are reflected by real trends in abundance, then Anguilla's foraging turtle populations may be able to sustain a limited fishery. In the event that a turtle fishery is reopened in Anguilla, TCOT recommends critical changes to the Fisheries Protection Regulations, 1988, as discussed in section 3.3 below.

3.1.2. Bermuda

Bermuda's waters host foraging populations of green and hawksbill turtles. There is no longer any turtle nesting in Bermuda. (See section 5 for further discussion).

The harvest of marine turtles and their eggs is prohibited under the Fisheries (Protected Species) Order 1978 of the Fisheries Act 1972, and will be under the Protected Species Act 2003, once a list of 'protected species' as defined under section 5 of the Act is completed (J. Gray (BAMZ) pers. comm. 2003). TCOT does not recommend any changes to this legislation, and the TCOT SEQ revealed little demand for access to turtles, their eggs or other products.

3.1.3. British Virgin Islands

BVI hosts nesting and foraging populations of green and hawksbill turtles, nesting populations of leatherback turtles and occasional foraging loggerheads. (See section 6 for further discussion).

The current turtle harvest in BVI is regulated by the Turtles Ordinance 1959 as amended 1986, while the Fisheries Act, 1997 prohibits certain fishing methods. The Ordinance permits the take of all species of turtles at sea weighing 20lb or over during an open season from the 1st of December to the 31st of March in any year (closed season April to November inclusive). Older age classes are therefore legally targeted in BVI's turtle fishery, although harvest of nesting females (on the beach and at sea within 100 yards of the shore) and their eggs is prohibited. Fishing with spear guns, SCUBA and explosives is prohibited under the Fisheries Act, 1997 and fishing within BVI's Marine Parks is prohibited by the Marine Parks and Protected Areas Regulations, 1991.

Loggerhead turtles are occasionally reported in BVI waters, and are therefore probably quite rare, but are not protected in BVI waters. Harvest of leatherbacks at sea is not prohibited, but nesting females are protected and therefore enjoy protection so long as they are on a beach or at sea and within one hundred yards of the shore.



Photo 3.4. The British Virgin Islands hosts the largest leatherback nesting population in the UK Overseas Territories in the Caribbean (Photo S. Gore).

BVI has the longest closed season for marine turtle harvest of all the Caribbean OTs that still permit turtle harvest, and would provide sufficient protection to nesting green and hawksbill turtles if an appropriate maximum size limit was also imposed. TCOT SEQ did not reveal any reports of leatherback entanglement in nets set for other turtle species, although incidents of entanglements in ropes have been reported. TCOT recommends legislative changes for BVI in section 3.3 below.

3.1.4. Cayman Islands

The Cayman Islands host nesting and foraging populations of green and hawksbill turtles and a nesting population of loggerhead turtles. (See section 7 for further discussion).

The Marine Conservation (Turtle Protection) Regulations 1996 regulate the turtle fishery and provide for the most comprehensive and regulated turtle fishery of all the OTs. All species of turtle can be harvested between the 1st of November and the 30th of April in any year, with minimum size limits set at 120lbs for green turtles and 80lbs for hawksbills and loggerheads. The larger size classes are therefore specifically excluded from protection, and while the harvest of nesting females is not specifically prohibited, all turtles must be caught outside of the 'reef crest' and therefore cannot be taken on the beaches. Harvest of eggs is prohibited and turtles may not be taken with harpoons or spear guns. The fishery has been licensee-only since 1978, and there are only 24 islanders who can apply for a turtle fishing license from the Cayman Island Department of Environment (CDoE). Eligible licensees are individuals from families that have a long tradition of turtling. Licenses are non-transferable, and under the current legislation, the fishery will die with the last of the 24 traditional turtle fishermen. Only 8 of these fishers have current licenses, and each is allowed a quota of 6 turtles per open season. All harvested turtles must be fitted with CDoE issued tags after capture and presented to CDoE for inspection, biometric measurement and genetic sampling prior to slaughter.

Turtles may not be taken along West Bay Beach, in George Town Harbour (Grand Cayman), or in any of the bays or sounds within the reef crest and may not be fished in any Marine Park or Environmental Zone as defined in the Marine Conservation (Marine Parks) Regulations (1996 Revision).

The combined nesting seasons of green, hawksbill and loggerhead turtles in the Cayman Islands extend from May to September (Aiken *et al.* 2001). Hence, the current closed season does not necessarily mitigate the capture of female loggerhead turtles (nesting season from May to August) entering Cayman's waters in April to mate in preparation for nesting in May. Data on legally recorded captures of marine turtles show only 3 loggerheads captured from 1999 to 2004 (see Table 7.9), but any take of adult loggerheads in Cayman's waters could adversely impact the recovery of the island's small nesting population.

TCOT recommends a number of changes to the legislation summarised above, as discussed in section 3.3.

Legislation provisions	Cayman Islands	Montserrat	Turks and Caicos Islands
Harvest legislation¹	The Marine Conservation (Turtle Protection) Regulations 1996	Turtles Ordinance Cap. 112 1951 ^{3,1,4}	Fisheries Protection Ordinance (1998)
Harvest, sale and possession of turtle eggs & nesting females	Harvest of eggs is prohibited unless by a person with a license issued by the Marine Conservation Board. Nesting females not specifically protected in the legislation.	Allowed with conditions.	Prohibited
Open season	NA	Nesting females and eggs can be harvested, possessed, bought and sold from October through to May inclusive.	NA
At sea capture, sale and possession	Board-issued license holders (traditional turtle fishermen) only can fish for turtles in Cayman. There are currently 24 such fishermen and in 2003 only 8 had renewed their licenses.	Allowed with conditions	Allowed
Open season	November through to April inclusive	October through to May inclusive.	Harvest allowed year round
Quota	Licence use stipulates a maximum of 6 turtles shall be caught per licensed person per season	No Quotas	No Quotas
Size restrictions	Captured green turtles must weigh at least 120lbs (54.4kg), whereas hawksbill and loggerhead turtles must weigh at least 80lbs (36.4kg)	Captured turtles must weigh at least 20lbs (9.07kg).	Hawksbill and green turtles must measure 20inches (50.8cm) from the neck scales to the tailpiece and weigh at least 20lbs (9.07kg). Any other turtles must weigh at least 20lbs (9.07kg)
Species restrictions	Green, hawksbill and loggerheads only are mentioned in the license stipulation although the Marine Conservation (Turtle Protection) Regulations 1996 apply to all extant marine turtle species.	No species restrictions	No species restrictions
Geographical restrictions	Turtles may not be taken along West Bay Beach or in George Town Harbour (Grand Cayman), or in any of the bays or sounds within the reef crest. Turtles may not be fished in any Marine Park Zone or Environmental Zone as defined in the Marine Conservation (Marine Parks) Regulations (1996 Revision)	Limited fishing within the Maritime Exclusion Zone.	Capture of turtles in National Parks is prohibited.
Method restrictions	Turtles may not be taken with harpoons or spear guns.	No gear restrictions.	Use of spear gun and Hawaiian sling is prohibited
Penalties	<i>The Marine Conservation (Turtle Protection) Regulations 1996: Fine of \$5,000 and to imprisonment for twelve months.</i> <i>Marine Conservation (Marine Parks) Regulations (1996 Revision): Fine of \$500,000 and imprisonment for twelve months; confiscation of any vessel or equipment used for the purpose of committing or facilitating the offence or intended to be used for the offence.</i>	<i>Turtles Ordinance: Fine of up to EC\$48 and forfeiture of equipment used in the offence.</i> <i>Fisheries Act: Fine of up to EC\$25,000 and six months imprisonment.</i>	<i>Harvesting undersized turtles or collecting or possessing eggs: Fine of \$5,000 and/ or imprisonment for 6 months.</i> <i>Use or possession of spear gun or Hawaiian sling: Fine of \$50,000 and/ or imprisonment for 12 months.</i>

Table 3.1.d. A summary of all legislation relevant to the harvest of turtles and their eggs, and the sale of turtle products in the Cayman Islands, Montserrat and TCI. (NA - Not Applicable).



Photo 3.5. Marine turtle nests are completely protected in the Cayman Islands (Photo P. Richardson).



Photo 3.6. The harvest of nesting females is permitted at certain times of year in Montserrat (Photo J. Jeffers).

3.1.5. Montserrat

Montserrat hosts nesting and foraging populations of green and hawksbill turtles, with leatherback and loggerhead nesting rarely reported and occasional loggerheads reported foraging in Montserrat's waters. (See section 8 for further discussion).

The Turtles Ordinance Cap 112(1951) regulates Montserrat's turtle harvest. It permits the harvest of any turtle weighing at least 20lbs, the harvest of nesting females, and the harvest of eggs. The open season for turtle and egg harvest extends from the 1st of October to the 31st May in any year. This fishery therefore targets the older age classes, including nesting females and allows harvest of eggs.

TCOT surveys suggest that the combined turtle nesting seasons for green and hawksbill turtles in Montserrat extend from June to October. The closed season therefore does not mitigate the capture of nesting turtles in October or the capture of female turtles arriving in Montserrat's waters to mate in May prior to nesting in June. TCOT therefore recommends some amendments to this legislation, as discussed in section 3.3 below.

3.1.6. Turks and Caicos Islands

The Turks and Caicos Islands (TCI) host nesting and foraging populations of hawksbill and green turtles, while occasional foraging loggerhead turtles are reported. Fletemeyer (1983) also suggests that loggerheads nest in the TCI. Although TCOT found no physical evidence of loggerhead nesting, it must be noted that TCOT nesting surveys were far from complete. Furthermore, 32.6% (n=30) of the TCOT SEQ respondents identified loggerheads as a species that nests in TCI. Some loggerhead nesting cannot be discounted and this must be taken into consideration when amending the harvest legislation. If there is loggerhead nesting in TCI, it is likely to be low-level, and every effort should be made to protect it. (See section 9 for further discussion).

The TCI turtle harvest is regulated under the Fisheries Protection Ordinance (1998). This legislation permits the year round take of any turtles weighing at least 20lbs, but the use of spear guns and Hawaiian slings is prohibited. Harvest of nesting females and their eggs is prohibited and turtle fishing is prohibited within TCI's extensive network of National Parks under the National Parks Ordinance, 1998, Cap. 80. TCOT SEQ and sampling has revealed that illegal turtle fishing occurs in TCI's protected areas,

Legislation provisions	Cayman Islands	Montserrat	Turks and Caicos Islands
Protected Area Legislation	Marine Conservation Law, 1978 (1995 Revision); Marine Conservation (Marine Parks) Regulations (1996 Revision)	Forestry, Wildlife, National Parks and Protected Areas Ordinance 1996	National Parks Ordinance, 1998, Cap. 80
Penalties	See above	<i>Fines up to EC\$5,000 and six months imprisonment</i>	<i>Fine of \$50,000 or a term of imprisonment for 12 months or both, or in the case of a continuing offence, \$100 for every day or part of a day on which the offence continues</i>

Table 3.1.e. A summary of all legislation relevant to protected habitats of marine turtles in the Cayman Islands, Montserrat and TCI (NA - Not Applicable).

Legislation provisions	Cayman Islands	Montserrat	Turks and Caicos Islands
Domestic CITES legislation	The Endangered Species (Trade and Transport) Law (2004 revision)	Endangered Animals and Plants Ordinance 1976	Legislation in draft
Penalties	<i>A fine of US\$500,000 or imprisonment for 4 years or both, and forfeiture of article if unlawfully exported or imported</i>	<i>For provision of false information when applying for a license, fine up to EC\$500 or up to 6 months imprisonment, or forfeiture of article if unlawfully exported or imported</i>	NA

Table 3.1.f. A summary of domestic CITES legislation relevant to the harvest of turtles and their eggs, and the sale of turtle products in the Cayman Islands, Montserrat and TCI (NA - Not Applicable).

particularly the Nature Reserve along the southern shores of North, Middle and East Caicos (a wetland of international importance designated under the Ramsar Convention). The TCI Protected Areas Department (PAD) and Department of Environment and Coastal Resources (DECR) will need to address the issue with increased enforcement patrols, and increased public awareness amongst the fishermen regarding fishing practices within protected areas.

TCI's harvest regulations specifically allow the harvest of older age classes and do not protect reproductive females at sea. Fletemeyer (1983) suggests that the combined nesting season for turtle species nesting in TCI extends from April to August, but the turtle nesting season is largely unknown. TCOT surveys revealed hawksbill and green turtle nesting on some remote Cays during September 2002. In nearby Cuba, the hawksbill season extends from August to February, with peak nesting activity occurring between September and January (Moncada *et al.* 1999). Green turtle nesting in the Bahamas occurs from June to September (in Hirth 1997). In the absence of reliable turtle nesting seasonality data from TCI, and based on regional seasonality, it is reasonable to expect the combined green and hawksbill nesting seasons in TCI extend from June to January.



Photo 3.7. Adult green turtle landed at Cockburn Harbour, South Caicos in September 2002 (Photo P. Richardson).

CITES does not extend to TCI and therefore there is no domestic legislation that regulates the export of marine turtles from TCI. TCOT recommends several amendments to the country's legislation as discussed in section 3.3 below.

3.2. Multi-lateral environmental agreements (MEA's) and turtle harvest legislation

There are four widely ratified MEAs that require contracting Parties to provide specified protection for marine turtles, and these are briefly discussed in this section. Table 3.2 provides an overview of the status of these MEAs in each UK Overseas Territory in the Caribbean.

3.2.1. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) *Adapted from* ©Joint Nature Conservation Committee, www.jncc.gov.uk

CITES was adopted in Washington DC, USA in March 1973 and entered into force in July 1975. The UK ratified CITES in August 1976. The Convention aims to regulate international trade in endangered species or those species that may become endangered if trade is not regulated and controlled. CITES lists species in Appendices I, II and III, with different trade restrictions applying to the different appendices. All species of marine turtle are currently listed in CITES Appendix I, and therefore international commercial trade in wild marine turtles and their parts is prohibited between all contracting Parties to CITES.

The convention provides for Parties to enter reservations on CITES Appendix listed species. A reservation allows the Party to be exempt from the provisions of the Convention relating to trade in named species listed in the Appendices. While the reservation is in effect, the Party is formally treated as a non-Party with respect to trade in the species (or specimen) concerned. However, the convention recommends that Parties that have entered reservations for Appendix I species should treat the species as if it were in CITES Appendix II and should therefore monitor trade in these species and report any trade to the Secretariat.

CITES currently extends to Bermuda, British Virgin Islands, Cayman Islands, and Montserrat, and legislation that

UKOT	CITES ¹	CMS ²	SPAW Protocol ³	IAC ⁴
Anguilla	Does not currently extend to Anguilla - high priority	Does not extend - medium priority	UK has not ratified	UK has neither signed nor ratified
Bermuda	Extends to Bermuda	Extends to Bermuda	NA	UK has neither signed nor ratified
BVI	Extends to BVI	Extends to BVI	UK has not ratified	UK has neither signed nor ratified
Cayman Islands	Extends to Cayman	Extends to Cayman	UK has not ratified	UK has neither signed nor ratified
Montserrat	Extends to Montserrat	Extends to Montserrat	UK has not ratified	UK has neither signed nor ratified
TCI	Does not currently extend to TCI - high priority	Extends to TCI	UK has not ratified	UK has neither signed nor ratified

¹ **CITES** – Convention on International Trade in Endangered Species

² **CMS** – Convention on Migratory Species

³ **SPAW Protocol** – Protocol Concerning Specially Protected Areas And Wildlife (SPAW) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region

⁴ **IAC** – Inter-American Convention for the Protection and Conservation of Sea Turtles

Table 3.2. Status of MEA's with provisions for the protection of marine turtles and whose geographical scope includes the Wider Caribbean (Source: FCO).

transposes CITES to domestic law is described briefly below and in tables 3.1.c and 3.1.f.

Bermuda: The commercial export of 'protected species' is prohibited under the Protected Species Act, 2003, although a list of protected species under this Act has not yet been finalised.

British Virgin Islands: The commercial export of marine turtles from BVI is prohibited under the Endangered Animals and Plants Act, 1987 (Cap. 89). Import and export of live or dead turtles of all Caribbean species is prohibited under the Act, as is the export any shell, scales and claws of '*any animal of the family Cheloniidae*'. Curiously, export of shell, scales or claws is not prohibited if the objects are '*cut to shape*'.

Cayman Islands: The Endangered Species (Trade and Transport) Law (2004 revision) fully transposes CITES to domestic law. Import, export and re-export of all turtle products must be accompanied by permits from relevant authorities in the Cayman Islands and destination/source countries. As Appendix I species, permits for marine turtle products would not be issued for commercial purposes (G Ebanks-Petrie (CIDoE) pers. comm. 2004).

Montserrat: All marine turtle species are listed in Schedule 1 of the Endangered Animals and Plants Ordinance, 1976, and therefore the import and export of live and dead specimens of all marine turtle species is specifically

prohibited. This Ordinance also states that the importation and exportation of articles listed in Schedule 3 is also prohibited. However, Schedule 3 includes '*The shell and scales, whether unworked or simply prepared but not if cut to shape, the waste of the shell and scales, and the claws of any animal of the family Cheloniidae.*' Therefore, this Ordinance does not currently prohibit the import or export of turtle products that are cut to shape (e.g. tortoiseshell jewellery).

Anguilla and TCI: CITES does not extend to Anguilla and the Turks and Caicos Islands, but both these Territories consider CITES extension as high priority and are in the process of preparing appropriate domestic legislation (K. Hodge (Govt. of Anguilla) pers. comm. 2003; J Campbell (DECR) pers. comms. 2003). Meylan (1983) and the TCOT SEQ indicate that foreign demand for turtle products from neighbouring Caribbean states, including St Martin, Puerto Rico, St Lucia and the US Virgin Islands, triggered the high and possibly unsustainable levels of turtle harvest witnessed in Anguilla prior to the moratorium (see section 4). St Martin, Puerto Rico, St Lucia and the US Virgin Islands have now all acceded to CITES and therefore the demand for Anguillian turtle products from overseas has probably declined. However, extension of CITES to Anguilla would provide for the regulation of any commercial export trade of turtle products to non-CITES states in the region (e.g. Haiti), therefore minimising the potential for Anguilla's turtle populations to be adversely impacted by significant future foreign demand.

In TCI, TCOT SEQ interviewees corroborated claims in Fleming (2001) by suggesting that hawksbill turtle shell harvested in TCI waters is currently smuggled out of the country by Dominican and Haitian migrant fishermen (see section 9). Future CITES extension to TCI is therefore particularly important with respect to enforcing against this potentially damaging and unmonitored trade.

3.2.2. Convention on Migratory Species (CMS or Bonn Convention)

Adapted from ©Joint Nature Conservation Committee, www.jncc.gov.uk

CMS was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species that require or would benefit from international cooperation (listed in CMS Appendix 2), and by undertaking co-operative research activities.

The UK ratified the Convention in 1985, but it does not currently extend to Anguilla (D. Dudgeon (FCO) pers. comm. 2003). All Caribbean species of marine turtle are listed on Appendix I of the CMS. Species in this appendix receive the highest levels of protection under CMS, and Article III, clause 5 reads:

'Parties that are Range States of a migratory species listed in Appendix I shall prohibit the taking of animals belonging to such species. Exceptions may be made to this prohibition only if:

- a) the taking is for scientific purposes;*
- b) the taking is for the purpose of enhancing the propagation or survival of the affected species;*
- c) the taking is to accommodate the needs of traditional subsistence users of such species; or*
- d) extraordinary circumstances so require; provided that such exceptions are precise as to content and limited in space and time. Such taking should not operate to the disadvantage of the species.'*

It is therefore possible that the UK is not satisfying its obligations under this convention, with respect to the legal and commercial harvest and trade of turtles currently regulated in Cayman Islands, BVI, Montserrat and TCI. The term *'traditional subsistence users'* is not defined by the convention text, but regardless of the ambiguity of this term, the UK does not have any current reservations to Article III registered on behalf of any its Overseas Territories.



Photo 3.8. Regional demand for turtle products, such as these old hawksbill turtle scutes in a fisher's garden, has probably declined in the last 20 years (Photo P. Richardson).

3.2.3. Protocol Concerning Specially Protected Areas And Wildlife (SPA) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region

The Cartagena Convention is the only legally binding environmental treaty for the Caribbean region and includes the Gulf of Mexico, the Caribbean Sea and adjacent areas of the Atlantic Ocean (Fleming 2001). The Convention was adopted in 1983, when the Protocol to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region Concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region (Oil Spills Protocol) was also adopted. Both the Cartagena Convention and the Oil Spills Protocol entered into force in 1986 after having been ratified by 9 governments. In addition, the Convention opened the **Protocol Concerning Pollution from Land-Based Sources and Activities** (The LBS Protocol) for signature in 1999.

The Convention is designed to facilitate national and joint management of coastal and marine resources within the region. It identifies sources of pollution that require control (i.e. pollution from ships, dumping, land-based sources and sea bed activities, as well as airborne pollution) and identifies environmental management issues that require co-operation between Parties, including specially protected

areas and wildlife, co-operation in cases of emergency, environmental impact assessment and scientific and technical co-operation (UNEP 2000a).

The UK ratified the Cartagena Convention and the Oil Spills Protocol on behalf of the Cayman Islands and Turks and Caicos Islands on 28 February 1986, and reserved the right to extend it at a future date to include other territories. On 21 November 1987, the Convention and the Oils Spills Protocol were extended to the British Virgin Islands. The UK has not signed or ratified the LBS Protocol.

Protocol Concerning Specially Protected Areas and Wildlife (SPA) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region was adopted by the Convention in 1990. The UK signed the SPAW Protocol in 1990, but is yet to ratify it. Although the UK remains committed to working towards ratification of the SPAW Protocol, this is entirely dependent upon the relevant Overseas Territories having the necessary domestic legislation in place (D. Dudgeon (FCO) pers. comm. 2004). Therefore none of the provisions of the SPAW Protocol currently apply to any of the UK Overseas Territories in the Caribbean.

This Protocol requires that Parties take the necessary measures to:

'protect, preserve and manage in a sustainable way:

- a) areas that require protection to safeguard their special value; and*
- b) threatened or endangered species of flora and fauna.'*

The six species of marine turtle found in the Wider Caribbean are included in Annex II of this Protocol.

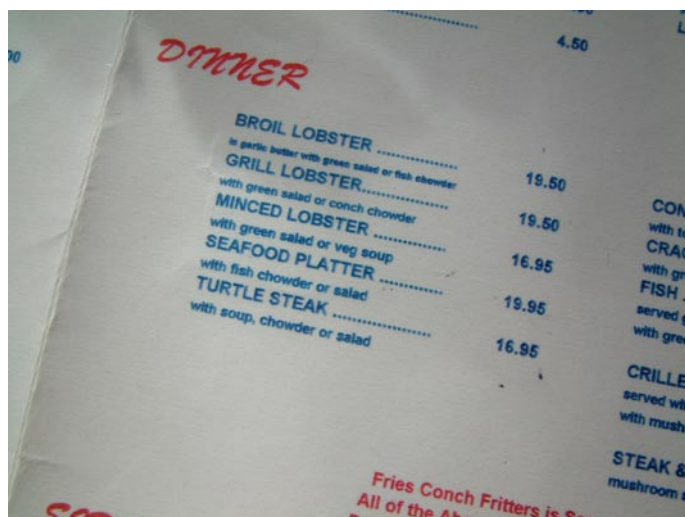


Photo 3.9. Given that Article III of CMS accommodates the needs of traditional subsistence users of marine turtles, the Overseas Territories Governments may have to consider the role of trade in subsistence economies, and limit commercial activities regarding the sale of turtle products (Photo S. Ranger).

Paragraph 1(b) of Article 11 '**CO-OPERATIVE MEASURES FOR THE PROTECTION OF WILD FLORA AND FAUNA**', reads,

'Each Party shall ensure total protection and recovery to the species of fauna listed in Annex II by prohibiting:

- (i) the taking, possession or killing (including, to the extent possible, the incidental taking, possession or killing) or commercial trade in such species, their eggs, parts or products;*
- (ii) to the extent possible, the disturbance of such species, particularly during periods of breeding, incubation, aestivation or migration, as well as other periods of biological stress.'*

However, Article 14 '**EXEMPTIONS FOR TRADITIONAL ACTIVITIES**', reads:

'Each Party shall, in formulating management and protective measures, take into account and provide exemptions, as necessary, to meet traditional subsistence and cultural needs of its local populations. To the fullest extent possible, no exemption, which is allowed for this reason, shall:

- (a) endanger the maintenance or areas protected under the terms of this Protocol, including the ecological processes contributing to the maintenance of those protected areas; or*
- (b) cause either the extinction of, or a substantial risk to, or substantial reduction in the number of, individuals making up the populations of species of fauna and flora within the protected areas, or any ecologically inter-connected species or population, particularly migratory species and threatened, endangered or endemic species.*

Parties which allow exemptions with regard to protective measures shall inform the Organization accordingly.'

It is presently unclear whether or not the legal turtle harvests in the UK Overseas Territories in the Caribbean are compliant with this Protocol, as there is little or no data regarding the extent of these harvests or on the abundance and trends of local marine turtle populations. In BVI, Montserrat and TCI the impacts of these harvests cannot yet be determined due a complete lack of long-term and consistent turtle fisheries data, however, Bell and Austin (2003) state that the current harvest in Cayman severely impacts the resident breeding population of marine turtles and hinders this depleted population's recovery (see section 7). This suggests that the Cayman harvest does not meet the requirements of the SPAW Protocol. The uncertainties presented by these unmonitored turtle harvests would need to be addressed before the UK considers ratification of the SPAW Protocol. Bermuda lies outside of the geographic scope of the Cartagena Convention.

3.2.4. Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)

The IAC entered into force in 2001 and is the only international treaty dedicated exclusively to sea turtles (Hykle 2002). It covers the '*land territory in the Americas of each of the Parties, as well as the maritime areas of the Atlantic Ocean, the Caribbean Sea and the Pacific Ocean*'. To date, the IAC has been ratified by Brazil, Belize, Costa Rica, Ecuador, Honduras, Mexico, the Netherlands, Peru, USA and Venezuela (www.seaturtle.org/iac). The UK has neither signed nor ratified this treaty and accordingly, the provisions of the convention do not currently apply to any of the UK Overseas Territories in the Caribbean.

The IAC requires Parties to protect and conserve marine turtle populations and habitats; to reduce the incidental capture, injury and mortality of marine turtles due to commercial fisheries; to prohibit the intentional harvest, international and domestic trade in turtles and turtle products; and encourage international cooperation in research and management programmes.

Article IV requires that Parties prohibit '*the intentional capture, retention or killing of, and domestic trade in, sea turtles, their eggs, parts or products*'. Exceptions are allowed to '*satisfy economic subsistence needs of traditional communities*', but Parties allowing such exceptions must '*establish a management program that includes limits on levels of intentional taking*.' Again, the largely unmonitored but legal harvests of marine turtles in the UK Overseas Territories in the Caribbean probably do not satisfy the requirements of the IAC. This issue would need some resolution if the UK were to sign this treaty on behalf of those Territories.

3.3. TCOT Recommendations for Changes to National Legislation

In this section, TCOT presents recommendations regarding amendments and progress with the pertinent legislation in all the UK Overseas Territories in the Caribbean. Table 3.3 presents an overview of the recommended changes to national marine turtle harvest legislation in each Territory.

3.3.1. Anguilla

Amendments to environmental legislation and policy to facilitate the effective management and protection of marine resources in Anguilla, including turtles, should be given priority. TCOT acknowledges that recent successful bids by the Government of Anguilla for funding from the Foreign and Commonwealth Office Overseas Territories Environment Programme (OTEP) will facilitate vital amendments to environmental legislation including some of the recommendations below.

Prior to the Fisheries Protection (Amendment) Regulations, 1995, the legislation that regulated the harvest of marine turtles and their eggs in Anguilla did not facilitate the sustained management of the country's nesting and foraging populations of marine turtles. Indeed, the harvest may also

have impacted nesting and foraging populations of turtles found elsewhere in the Wider Caribbean Region.

TCOT recognises that cessation of all marine turtle fishing is likely to facilitate recovery of depleted turtle populations. However, in Anguilla, despite a 9 year moratorium on turtle harvest, the data that would allow for a scientific assessment of the status of turtles and recommendations on future management options are only now beginning to be gathered.

TCOT recognises that turtle meat is a component of the traditional Anguillian diet and that turtle populations may recover to an extent that they could support a future limited sustainable harvest of green and hawksbill turtles. A requirement of any future harvest of turtles is that it is carried out in a regulated and controlled manner, with programmes in place to monitor stock abundance and mechanisms to reduce or close the fishery in response to measured decreases in turtle stock. If DFMR are responsible for the management of a future turtle fishery, it is vital that they have the skills and the human, technical and financial resources for effective monitoring. TCOT does not believe that this is currently the case and it is unlikely that such resources could be put in place by the end of 2005. TCOT therefore believes that effective management and monitoring of a turtle fishery cannot currently be guaranteed.



Photo 3.10. Carlos Sasso (DFMR) with a sub-adult green turtle sampled during TCOT. DFMR officers must be provided with the necessary training and resources if they are to effectively manage a future turtle fishery in Anguilla (Photo P. Richardson).

Prohibition of egg harvest	Specific prohibition of nesting female harvest	Change size limits	Prohibition of harvest of leatherback & loggerhead turtles	OT-specific amended closed seasons
Anguilla: Fisheries Protection Regulations				
NA	NA	NA	NA	NA
Notes & overall TCOT recommendations for Anguilla: Replace moratorium with 3-year, participatory research programme (see section 3.3.1 below)				
Bermuda: Protected Species Act 2003				
NA	NA	NA	NA	NA
Notes & overall TCOT recommendations for Bermuda: Turtle harvest already prohibited				
BVI: The Turtles Ordinance 1959 as amended 1986				
No change recommended	No change recommended	Change recommended	Change recommended	No change recommended
Notes & overall TCOT recommendations for BVI: 'Fisheries Regulations 2001' pending but draft needs attention (see section 3.3.3 below)				
Cayman Islands: The Marine Conservation (Turtle Protection) Regulations 1996				
No change recommended	Change recommended	Change recommended	Change recommended	Extend closed season from April to October inclusive
Notes & overall TCOT recommendations for the Cayman Islands: The turtle fishery licensing scheme operated in Cayman may serve as a model for the other UKOT's that plan to continue (or reinstate) their turtle harvests				
Montserrat: Turtles Ordinance Cap. 112 1951				
Change recommended	Change recommended	Change recommended	Change recommended	Extend closed season to March to November inclusive
Notes & overall TCOT recommendations for Montserrat: Turtle Act 2002 pending but first draft needs attention (see section 3.3.5 below)				
TCI: Fisheries Protection Ordinance (1998)				
No change recommended	No change recommended	Change recommended	Change recommended	Introduce a closed season from July to January inclusive
Notes & overall TCOT recommendations for TCI: Significant changes recommended				

Table 3.3. TCOT recommended changes to marine turtle harvest legislation.

Therefore, TCOT recommends replacing the moratorium on turtle fishing in Anguilla with a 3 year active and participatory research programme. For the duration of this research programme there should be no harvest of marine turtles in Anguillian waters. The programme should assess the viability of establishing a highly regulated experimental turtle fishery by 2009 and should be characterised by active involvement of fishers and open dialogue between all stakeholders. Capacity building to ensure that the DFMR

will be equipped to effectively manage a turtle fishery, should it be established, should begin immediately.

While making this recommendation, TCOT would like to highlight and acknowledge that fishers appear to have been largely compliant with the moratorium since 1995. TCOT SEQ interviews indicate that fishers perceived that the aim of this temporary legislation was to facilitate turtle population recovery and allow the authorities to measure

population recovery through monitoring. Inaction on the part of the relevant authorities on this matter means that it is not currently possible to ascertain whether the desired increase in the turtle population has occurred. In the absence of any long term, meaningful research, the fishers have repeatedly been asked to compromise and to date have been given no scientific justification for this compromise – hence the TCOT recommendation that fishers should be at the heart of future research. In order to facilitate fisher participation in this research, funding should immediately be sought to initiate the recommended research programme, which should include financial incentives for fisher participation.

In the event of a future marine turtle harvest in Anguilla, TCOT recommends that there are a number of legislative changes required to facilitate the sustainability of such a harvest. In addition, Anguilla's turtles face a host of threats imposed by the growing human population (2004 estimate: 1.98%, www.cia.gov) and the rapid growth of tourism. The regulation of use alone will not serve the sustainable management of these turtle populations. TCOT therefore also makes recommendations regarding legislation changes to facilitate protection of critical marine turtle habitat in Anguilla:

3.3.1.1. Amend the Fisheries Protection Regulations

Short to medium term

- a) The Advisory Committee described in section 4.1.1.2 should immediately start to seek funding for a participatory marine turtle research programme and solicit the participation of interested fishermen in the in-water and nesting beach monitoring and sampling regimes described in section 4.
- b) Change the current penalty for contravening the moratorium under the Fisheries Protection regulations, to a more appropriate penalty in line with other offences under the Act (e.g. Fine of EC\$5,000 and or imprisonment for up to 12 months).

Long-term

Once abundance trends of green and hawksbill turtles have been established through the programmes described below, and if they are deemed favourable to reopen a turtle harvest, amend the Fisheries Protection Regulations as follows:

- a) Ensure permanent and complete prohibition of the harvest of nesting female turtles and turtle eggs.
- b) Ensure a closed season that protects breeding turtles in Anguillian waters from the 1st of April to the 30th of November inclusive, to be reviewed every five years (in order to react to possible shifts in nesting seasons due to climate change).
- c) Ensure permanent and complete prohibition of harvest of any large, reproductively valuable turtles by instigating

a maximum size limit. A suggested maximum may be 50lbs (22.7kg) or less, but should be based on additional research on the fishery and turtle stocks. This research should also yield an equivalent maximum curved carapace length for all harvested turtle species that should be stipulated in any amended legislation.

- d) Consider a continued minimum size limit, as most fishermen already accept this as an established conservation measure. A suggested minimum would be 20lbs (9.07kg) with an equivalent minimum curved carapace length for all harvested turtle species that should also be stipulated in any amended legislation.
- e) Establish a limited turtle fishing licensing scheme, whereby licensed turtle fishers are required to abide by strict regulations regarding fishery practice, limited quotas and catch recording, including statutory monthly catch reporting by fishers to DFMR (including incidental catch), and voluntary reporting of all turtles caught in advance of slaughter for biometric measurement and sampling by DFMR. Quotas should be reactive and based, inter alia, on number of licensed turtle fishers and stock assessments established through the monitoring regimes. The DFMR should have the statutory power to implement spot checks at fish landing sites to assess compliance and to close the fishery if stock monitoring reveals abundance declines below a pre-established and measurable level*.
- f) Establish regulations with regard to the type of gear that can be used to capture turtles. Possible regulations could ensure permanent and complete prohibition of all turtle capture methods excluding hand capture and use of turtle nets, with strict specifications for legal net structure and use.
- g) Ensure prohibition of the harvest of loggerhead and leatherback turtles in Anguillian waters. The Government of Anguilla have also expressed that they would recommend prohibition of any future take of hawksbill turtles.

NB. Any future turtle fishery must be accompanied with systematic monitoring regimes as described in section 4, along with a programme to monitor Catch per Unit Effort of licensed fishermen, and biometrics of turtle catch, which should also be implemented by the DFMR. In the event of the reopening of Anguilla's turtle fishery, the Fisheries Protection Act must be further revised to provide statutory powers to react to the ongoing results of the abundance trend monitoring programmes. In the event of declining abundance trends or declining Catch per Unit Effort below pre-established thresholds, the DFMR must have the power to temporarily or permanently close the turtle fishery.

3.3.1.2. Amend the Marine Parks Act

Anguilla's Marine Parks provide important habitat for foraging populations of juvenile and sub-adult green and hawksbill turtles. Island Harbour and Little Bay support relatively large numbers of green turtles, whereas hawksbills are encountered in all the Marine Parks. In order to facilitate

turtle population recovery, it is important that these areas are free of disturbance and take by turtle fishermen under any future harvest regime. To facilitate this Management Plans should be drafted for all marine parks to ensure the effective implementation and enforcement of Marine Parks Regulations and, the Marine Parks Act should be amended to:

- a) Ensure that all five 'designated' marine parks are fully described in Schedule 1 of the Marine Parks Regulations.
- b) Ensure that marine turtles have permanent and complete protection within Anguilla's Marine Parks. This should include no take zones as well as policies to curb potential negative tourism impacts e.g. through SCUBA diving and snorkelling.

3.3.1.3. Amend Planning Policy and Beach Protection Act

Anguilla's nesting marine turtles are at critically low levels. The adverse impacts of increased beachfront development on the nesting populations using Anguilla's mainland beaches must be considered, in addition to the potential adverse impacts of turtle harvest. Every effort should be made to protect the remaining turtle nesting habitat in Anguilla, and therefore TCOT recommends the following legislative and policy changes:

- a) Revise the Planning Department's proposed Land Use Plan (1996) so that Captain's Bay and Savannah Bay and all land at least 100m landward of the high tide marks of these Bays are protected from the adverse impacts of development. E.g. by being re-designated as Conservation Areas.
- b) Introduce planning regulations to mitigate the adverse impacts of development, including, for example light pollution, disturbance of nesting females and erosion on all other nesting beaches.
- c) Ensure that all developments that impact on marine turtle nesting or foraging habitat are required to undertake an environmental assessment that includes an evaluation of impacts and measures to mitigate negative impacts.
- d) Amend the Beach Protection Act (2000) in order to prohibit all sand mining at Windward Point (and any other turtle nesting beach), thereby allowing natural sand accretion and beach rehabilitation for marine turtle nesting.
- e) Under the guidance of the advisory committee (see 4.1.1.2), develop guidelines for beachfront property owners with respect to minimising adverse impacts on nesting turtles and hatchlings and distribute recently produced National Trust advisory leaflet to all hotels to advise on mitigating against light pollution.

3.3.1.4. Recommendations regarding Multilateral Environmental Agreements

- a) Gazette legislation to transpose CITES to domestic law.
- b) Given that Article III of CMS allows for harvests to accommodate the needs of subsistence users of marine turtles, the Government of Anguilla may have to consider the role of trade in subsistence economies, and limit commercial activities regarding the sale of turtle products if it requests that the UK Government extend the Convention on Migratory Species (CMS) to Anguilla.

3.3.2. Bermuda

Bermuda's current legislation provides complete protection for all species of marine turtle found in her waters. TCOT makes no recommendations regarding this legislation, but urges the Government of Bermuda to finalise a draft of the list of protected species, to include all species of marine turtle, under the Protected Species Act, 2003.

3.3.3. British Virgin Islands

The legislation that currently regulates the harvest of marine turtles and their eggs in the British Virgin Islands does not facilitate the sustained management of the country's nesting and foraging populations of marine turtles.

TCOT recognises that cessation of all turtle fishing would significantly contribute to the recovery of depleted turtle populations in the BVI. TCOT also recognises that, although direct exploitation of marine turtles is no longer a major economic activity of many fishers, turtle meat is a component of the traditional BVI diet and trunk oil is highly valued. However, we recommend that any/all future harvest of turtles must be carried out in a highly regulated and controlled manner, with programmes in place to monitor stock abundance and mechanisms to reduce or close the fishery in response to measured decreases in turtle stocks. Furthermore, if the CFD are responsible for the management of a future turtle fishery, it is vital that they have the human, technical and financial resources to effectively monitor the fishery and enforce supporting legislation.

TCOT recommends a number of legislative changes required to increase the likely sustainability of any harvest. In addition, it is noted that the regulation of use alone will not serve the sustainable management of turtles in the British Virgin Islands. TCOT therefore also makes recommendations regarding legislation and policy changes to facilitate protection of critical marine turtle habitat in the British Virgin Islands:

3.3.3.1. Harvest legislation recommendations

Although not monitored, the BVI turtle harvest is regulated by the Turtles Ordinance 1959 as amended 1986 and the Fisheries Act 1997. This legislation is not comprehensively upheld or enforced, e.g. as evidenced by the high prevalence of turtle meat at the Virgin Gorda Easter Festival

during the designated closed season for the turtle fishery 2004. We recommend a number of changes below. Any future harvest must be accompanied by meaningful, long-term and systematic monitoring programmes to ascertain trends in turtle abundance and adequate surveillance and enforcement.

In 2001, the Government of the BVI produced a draft document entitled *Fisheries Regulations, 2001*, that we were allowed to view. Sections 22, 26 and 27 dealt with regulations pertaining to the harvest of marine turtles and their eggs. Section 22 contained text that is contradictory to text in section 26 with respect to closed seasons for marine turtle harvest. Text in section 22 also contradicted the text of section 27 with respect to moratoria on the harvest of certain species of marine turtle. We felt that this needed reconsideration in order to become a more meaningful piece of legislation. The Regulations have now been gazetted, but we have not been able to obtain a final copy in time for this report. Based on the draft regulations, TCOT recommends the following amendments of the legislation to further facilitate sustainable harvest of BVI's foraging green and hawksbill turtles;

- a) Ensure permanent and complete prohibition of harvest of any large, reproductively valuable turtles by instigating a maximum size limit. A suggested maximum may be 50lbs (22.7kg) or less, but should be based on additional research on the fishery and turtle stocks. This research should also yield an equivalent maximum curved carapace length for all harvested turtle species that should be stipulated in any amended legislation.
- b) Consider a continued minimum size limit, as most fishermen already accept this as an established conservation measure. A suggested minimum would be 20lbs (9.07kg) with an equivalent minimum curved carapace length for all harvested turtle species that should also be stipulated in any amended legislation.
- c) Establish a limited turtle fishing licensing scheme, whereby licensed turtle fishers are required to abide by strict regulations regarding fishery practice, limited quotas and catch recording, including statutory monthly catch reporting by fishers to BVI CFD (including incidental catch), and voluntary reporting of all turtles caught in advance of slaughter for biometric measurement and sampling by CFD. Quotas should be reactive and based, inter alia, on number of licensed turtle fishers and stock assessments established through the monitoring regimes. The CFD should have the statutory power to implement spot checks at fish landing sites to assess compliance, and to close the fishery if stock monitoring reveals abundance declines below a pre-established and measurable level.*
- d) Ensure prohibition of the harvest of loggerhead and leatherback turtles given their very low numbers in the BVI.

- e) Increase fines for infringements to a more punitive level in line with those recommended in other OTs.

***NB.** Any future turtle fishery must be accompanied by systematic monitoring regimes as described in section 6, along with a programme to monitor Catch per Unit Effort of licensed fishermen, and biometrics of turtle catch, which should also be implemented by the CFD.

3.3.3.2. Strengthen and enhance BVI's marine protected areas system

In order to preserve the marine biodiversity of the BVI, including marine turtles, it is recommended that the BVI marine parks are strengthened and extended. Current CFD-led monitoring of marine turtles will allow "hot spots" of marine turtle abundance to be defined and integrated within BVI National Park Trust (BVINPT) system plan for marine protected areas. From limited monitoring carried out to date it appears that the only important turtle nesting beach included in the National Parks Plan is Rogue's Bay, Tortola. Although coastal areas of Windlass Bight in Anegada are proposed for protection, this does not seem to be the most important area for turtle nesting in Anegada.

3.3.3.3. Amend planning policy and beach management

The nesting marine turtles of the British Virgin Islands undoubtedly represent remnants of depleted populations and are at critically low levels. However, the adverse impacts of increased beachfront development on the nesting populations using the beaches of the British Virgin Islands must be considered, in addition to the potential adverse impacts of turtle harvest. Every effort should be made to protect the remaining turtle nesting habitat in British Virgin Islands, and therefore TCOT recommends the following:

- a) Ensure that key nesting habitats highlighted by ongoing BVI CFD monitoring work are incorporated in the BVINPT systems plan and afforded protected status where no beachfront development will be permitted.
- b) Introduce planning regulations to mitigate the adverse impacts of development, including, for example light pollution, nesting female disturbance and erosion on all other nesting beaches.
- c) Under the guidance of the working group, develop guidelines for beachfront property owners with respect to minimising adverse impacts on nesting turtles and hatchlings.

3.3.3.4. Recommendations regarding Multilateral Environmental Agreements

- a) The Endangered Animals and Plants Act, 1987 (Cap. 89) should be amended to prohibit commercial import and export of turtles and all wild turtle products of marine turtle species, so that this legislation fully transposes CITES to domestic law.

- b) Given that Article III of CMS allows for harvests to accommodate the needs of subsistence users of marine turtles, the Government of BVI may have to consider the role of trade in subsistence economies, and limit commercial activities regarding the sale of turtle products.

3.3.4. Cayman Islands

It is felt by CIDoE that data from their ongoing in-water monitoring provide convincing evidence that the fishery should be closed, and they have made such a recommendation to the Marine Conservation Board (G. Ebanks-Petrie (CIDoE) pers. comm. 2004). Available data suggest the fishery, although small, as currently structured is likely to be affecting nesting population recovery. TCOT recognises that a complete ban on marine turtle fishing is the most effective management option to facilitate rapid and lasting recovery of depleted turtle populations in the Cayman Islands. TCOT also recognises that turtle meat is a component of the traditional Caymanian diet, but that in the Cayman Islands, turtle meat can be obtained from farmed stocks. Complete closure of the traditional turtle fishery may, however, be deemed politically and socially unacceptable. At minimum, it is recommended regulations governing the traditional harvest be altered.

In addition, the Cayman Islands' turtles face a host of threats imposed by the growing human population (2.71%, 2004 est.), and the regulation of utilisation alone will not serve the sustainable management of these turtle populations. TCOT therefore also makes recommendations regarding legislation and policy changes to facilitate protection of critical marine turtle habitat in the Cayman Islands.

3.3.4.1. Harvest legislation recommendations:

While the Cayman Islands have relatively sophisticated regulations to monitor marine turtle harvest, this harvest must be accompanied by meaningful, long-term and systematic monitoring programmes to ascertain trends in turtle abundance. TCOT makes the following recommendations:

- a) Prohibit the capture of all adult marine turtles in Cayman waters. Ensure permanent and complete prohibition of the harvest of reproductively active turtles by extending the closed season to include the 1st of April to the 30th of November inclusive.
- b) Ensure permanent and complete prohibition of harvest of any large, reproductively valuable turtles by instigating a maximum size limit. A suggested maximum may be 50lbs (22.7kg) or less, but should be based on additional research on the fishery and turtle stocks. This research should also yield an equivalent maximum curved carapace length for all harvested turtle species that should be stipulated in any amended legislation.
- c) Consider a continued minimum size limit, as most fishermen already accept this as an established conservation measure. A suggested minimum would be 20lbs (9.07kg) with an equivalent minimum curved

carapace length for all harvested turtle species that should also be stipulated in any amended legislation.

- d) Ensure prohibition of the harvest of loggerhead and leatherback turtles.

3.3.4.2. Increase the network of Protected Areas in the Cayman Islands

- a) **Key nesting sites should be given protected status.** At present, none of the key nesting beaches in the Cayman Islands is afforded protected status. It is recommended that key nesting sites for marine turtles are given a high level of protection from the deleterious effects of inappropriate coastal development. While there is currently no legislation to implement this recommendation, the Draft National Conservation Law would provide the necessary legal framework. Therefore, TCOT recommends the immediate enactment of this law.

- b) **Key foraging sites should be given protected status.** Based on the ongoing and recommended expanded in-water monitoring programme, key foraging sites not already protected should be given protected status to ameliorate the effects of coastal development and recreational use. In so doing, it is likely that key coral reef and seagrass habitats will be preserved. The Draft National Conservation Law would provide a comprehensive framework for management of protected areas and species.

3.3.4.3. Recommendations regarding Multilateral Environmental Agreements

- a) TCOT recommends that the CIDoE be adequately resourced to implement the provisions of the recently enacted Endangered Species Trade and Transport Law, and that the necessary commencement orders be issued by Cabinet as soon as possible. When this legislation comes into effect, it should fully transpose CITES to domestic law.
- b) Given that Article III of CMS allows for harvests to accommodate the needs of subsistence users of marine turtles, the Government of the Cayman Islands may have to consider the role of trade in subsistence economies, and limit commercial activities regarding the sale of wild turtle products.

3.3.5. Montserrat

The current legislation that regulates the harvest of marine turtles and their eggs in Montserrat does not facilitate the sustainable management of the country's nesting and foraging populations of marine turtles.

TCOT recognises that cessation of all turtle fishing would significantly contribute to the recovery of depleted turtle populations. TCOT also recognises that turtle meat is a component of the traditional Montserratian diet and a

moratorium is unlikely to receive enough support from the fishing community, especially given the current economic situation in Montserrat. However, we make a suite of recommendations to allow future harvest of turtles to be carried out in a highly regulated and controlled manner, minimising its impact on the local nesting populations. We suggest programmes to monitor stock abundance and mechanisms to reduce or close the fishery in response to measured future decreases in turtle stock. The fishing community should be involved in this process, and their interest in doing so was expressed as part of the TCOT SEQ results (see section 8.9). Furthermore, given that GoM will be responsible for the management of a future turtle fishery, it is vital that they have the skills, as well as the human, technical and financial resources to effectively monitor the fishery.

Regulation of use alone will not serve the sustainable management of these turtle populations. TCOT therefore also makes recommendations to facilitate protection of critical marine turtle habitat in Montserrat.

3.3.5.1. Revise Turtle Ordinance Cap 112 1951

We recommend the following based on the draft revisions drawn up by the GoM as “the Turtle Act 2002” (not yet gazetted), but with additional changes:

- a) Ensure permanent and complete prohibition of the harvest of nesting female turtles and turtle eggs.
- b) Ensure a closed season from the 1st of March to the 30th of November inclusive, to be reviewed every 5 years (to facilitate legislative adaptation to possible nesting season shift caused by climate change).
- c) Ensure permanent and complete prohibition of harvest of any large, reproductively valuable turtles by instigating a maximum size limit. A suggested maximum may be 50lbs (22.7kg) or less, but should be based on additional research on the fishery and turtle stocks. This research should also yield an equivalent maximum curved carapace length for all harvested turtle species that should be stipulated in any amended legislation.
- d) Consider a continued minimum size limit, as most fishermen already accept this as an established conservation measure. A suggested minimum would be 20lbs (9.07kg) with an equivalent minimum curved carapace length for all harvested turtle species that should also be stipulated in any amended legislation.
- e) Establish a limited turtle fishing licensing scheme, whereby licensed turtle fishers are required to abide by strict regulations regarding fishery practice, limited quotas and catch recording, including statutory monthly catch reporting by fishers to the Government of Montserrat (including incidental catch), and voluntary reporting of all turtles caught in advance of slaughter for biometric measurement and sampling by Government of Montserrat. Quotas should be reactive and based,

inter alia, on number of licensed turtle fishers and stock assessments established through the monitoring regimes. The Government of Montserrat should have the statutory power to implement spot checks at fish landing sites to assess compliance and to close the fishery if stock monitoring reveals abundance declines below a pre-established and measurable level.*

- f) Ensure permanent and complete prohibition of all turtle capture methods except hand capture and use of turtle nets, with strict specifications for legal net structure and use.
- g) Ensure prohibition of the harvest of loggerhead and leatherback turtles.

***NB:** Any continuing turtle fishery must be accompanied by systematic monitoring regimes as described in section 8, along with a programme to monitor Catch per Unit Effort of licensed fishermen, and biometrics of turtle catch, which should also be implemented by the GoM.

3.3.5.2. Establish Marine Protected Areas

Montserrat does not currently have any marine protected areas. It is advised that, based on holistic assessment of the marine biodiversity of Montserrat, key areas be set aside for protection.

3.3.5.3. Consider Marine Turtles as part of Planning Policy and Beach Management

Montserrat's nesting marine turtles probably represent remnants of depleted populations and are at critically low levels (see section 8.5). However, the adverse impacts of increased beachfront development on the nesting populations using Montserrat's mainland beaches must be considered in addition to the potential adverse impacts of turtle harvest. Every effort should be made to protect the remaining turtle nesting habitat in Montserrat, and therefore TCOT recommends the following policies:

- a) Ensure all development, other than non-permanent structures designed for daytime beach use, is 100m landward of the high tide mark.
- b) Introduce planning regulations to mitigate the adverse impacts of development on marine turtles, including, for example light pollution, nesting female disturbance and erosion.
- c) Ensure marine turtles are considered in the current beach sediment extraction projects being carried out in support of Montserrat's reconstruction.

3.3.5.4. Recommendations regarding Multilateral Environmental Agreements

- a) The Endangered Animals and Plants Ordinance, 1976, should be amended to prohibit commercial import and export of wild turtles and all wild turtle products of all marine turtle species, so that this legislation fully transposes CITES to domestic law.

- b) Given that Article III of CMS allows for harvests to accommodate the needs of subsistence users of marine turtles, the Government of Montserrat may have to consider the role of trade in subsistence economies, and limit commercial activities regarding the sale of turtle products.

3.3.6. Turks and Caicos Islands

The turtle fishery in the Turks and Caicos Islands incurs the largest legal take of marine turtles in the UK Overseas Territories in the Caribbean. From a biological perspective, the Fisheries Protection Ordinance 1998 does not facilitate the sustained management of TCI's nesting and foraging populations of marine turtles. TCOT recognises that a cessation of all turtle fishing in TCI would significantly contribute to the recovery of depleted populations. However, TCOT also recognises that turtle meat is a component of the traditional TCI diet, and that a demand for turtle meat remains amongst TCI's residents and visitors. TCOT SEQ suggests that foraging turtle populations may be either stable or increasing, which indicates that a ban on turtle fishing in TCI would not receive majority support and that such a ban would probably present significant enforcement problems. However, we recommend that future harvest of turtles must be carried out in a highly regulated and controlled manner, with legislation in place to permanently and strictly protect adult turtles, programmes established to monitor stock abundance, and mechanisms in place to reduce or close the fishery in response to measured decreases in turtle stock. It is important to note that the DECR must have the skills, as well as the human, technical and financial resources to effectively manage the fishery.

TCOT recommends a number of legislative changes required to increase the likelihood of sustainability of a turtle harvest in TCI. In addition, it is noted that the regulation of use alone will not serve the sustainable management of turtles in the Turks and Caicos Islands. TCOT therefore also makes recommendations regarding the promotion and publicising of the National Parks Ordinance 1998, which should protect critical marine turtle habitat (see section 9.1.4.2).

3.3.6.1. Amend harvest legislation:

TCOT recommends that the Fisheries Protection Ordinance, 1998 is amended to include the following provisions:

- a) Ensure permanent and complete prohibition of harvest of any large, reproductively valuable turtles by instigating a maximum size limit. A suggested maximum may be 50lbs (22.7kg) or less, but should be based on additional research on the fishery and turtle stocks. This research should also yield an equivalent maximum curved carapace length for green and hawksbill turtles that should be stipulated in any amended legislation.
- b) Consider a continued minimum size limit, as most fishers already accept this as an established conservation

measure. A suggested minimum would be 20lbs (9.07kg) with an equivalent minimum curved carapace length for green and hawksbill turtles that should also be stipulated in any amended legislation.

- c) Establish a limited turtle fishing licensing scheme, whereby licensed turtle fishers are required to abide by strict regulations regarding fishery practice, limited quotas and catch recording, including statutory monthly catch reporting by fishers to DECR (including incidental catch), and voluntary reporting of all turtles caught in advance of slaughter for biometric measurement and sampling by DECR. Quotas should be reactive and based, inter alia, on number of licensed turtle fishers and stock assessments established through the monitoring regimes. The DECR should have the statutory power to implement spot checks at fish landing sites to assess compliance and to close the fishery if stock monitoring reveals abundance declines below a pre-established and measurable level*.

***NB.** Any future turtle fishery must be accompanied by systematic monitoring regimes as described in section 9, along with a programme to monitor Catch per Unit Effort of licensed fishermen, and biometrics of turtle catch, which should also be implemented by the DECR.

- d) Establish a closed season (see NB below) to be reviewed every five years (to facilitate legislative adaptation to possible nesting season shift caused by climate change) to prevent capture of adult turtles entering TCI's waters to breed.

NB. Estimates of composite turtle nesting seasonality for green, hawksbill and loggerhead turtles in TCI, based on regional seasonalities, suggest that while turtle nets are still used in TCI, the ideal closed season would extend from the 1st of April to the 31st of January inclusive (see section 9.5.1). However, it is important to note that no evidence of loggerhead nesting has been recorded in TCI in the last 20 years. TCOT also acknowledges that almost all turtles currently caught in TCI are caught by hand, and the use of spearguns and Hawaiian slings is already prohibited. Therefore, if the suggested maximum size limits are introduced, and the use of turtle nets is prohibited as suggested below, then accidental, fatal capture of adult turtles entering TCI's waters to breed will be unlikely. Furthermore, the introduction of a 10 month closed season to the current fishery may present significant enforcement difficulties for the DECR. TCOT therefore suggests that a preliminary 6 month closed season from the 1st of July to December the 31st be considered, to encompass the majority of both the green and hawksbill turtle nesting seasons. This can be reviewed in the future when systematic rookery monitoring, as suggested below, reveals the actual composite turtle nesting season in TCI.

- e) Establish regulations with regard to the type of gear that can be used to capture turtles. Possible regulations could ensure permanent and complete prohibition of all turtle capture methods except hand capture (i.e. jumping turtles from a boat and in-water hand capture using only hands and lobster hook) as suggested by turtle fishers during TCOT SEQ.

- f) Ensure prohibition of the harvest of loggerhead and leatherback turtles given their very low numbers in TCI.

NB. It is important that all legislative changes are designed under the marine turtle conservation and management advisory process in consultation with the fishing community. Forty-two percent of the turtle fishers surveyed in the TCOT SEQ said that they thought fishers should be consulted when regulations are set.

3.3.6.2. Amend Planning Policy and Beach Management

Historical records suggest that marine turtle nesting populations in TCI have been subject to prolonged harvest and therefore, while trends in abundance of nesting turtles are unknown, these populations may represent remnants of depleted populations. However, the adverse impacts of increased beachfront development on the nesting populations using TCI mainland beaches must be considered, in addition to the potential adverse impacts of turtle harvest. Every effort should be made to protect the remaining turtle nesting habitat in TCI, and therefore TCOT recommends the following:

- a) Where possible, protected status should be extended to all nationally important nesting sites within TCI.
- b) Introduce planning regulations to mitigate the adverse impacts of development, including, for example light pollution, nesting female disturbance and erosion on all other nesting beaches.
- c) Where the extension of protected status to identified nesting beaches is not possible, TCOT recommends that TCI Government ensures, as a matter of priority, that any development occurring adjacent to important turtle rookeries is undertaken sensitively under the planning regulations mentioned above, to mitigate disturbance and destruction of habitat.
- d) Under the guidance of the marine turtle conservation and management process, develop guidelines for beachfront property owners with respect to minimising adverse impacts on nesting turtles and hatchlings (e.g. property lighting regimes).

3.3.6.3. Recommendations regarding Multilateral Environmental Agreements

- a) CITES should be extended to TCI as soon as possible, and the appropriate domestic legislation drafted and gazetted, to address the possible trade of hawksbill scutes from TCI to neighbouring states.
- b) Given that Article III of CMS accommodates the needs of traditional subsistence users of marine turtles, the Government of TCI should consider the role of trade in the subsistence fishery economy of TCI, and limit commercial activities regarding the sale of turtle products.

NB. CITES does not currently extend to TCI and TCOT SEQ corroborates previous reports that suggest there is limited trade in hawksbill turtle shell between TCI, the Dominican Republic and possibly Haiti. TCOT SEQ also suggests that turtle meat may be occasionally and illegally smuggled into the USA via Miami.

3.4. Acknowledgements

Anguilla: Many thanks to the Anguilla National Trust for providing copies of some of the legislation, and to the staff of the Heritage Room of the National Library for assistance in tracking down the more elusive legislation.

Bermuda: Jennifer Gray for her useful insights and willingness to provide up to date information regarding Bermuda's legislation.

BVI: Kelvin Penn for sharing his expertise on BVI environmental legislation.

Cayman: To Catherine Bell for promptly responding to a blizzard of requests and to the staff of CIDoE for insights and help in locating copies of key pieces of legislation.

Montserrat: To the staff of the Attorney General's Office for access to legislation and photocopy facilities, and John Jeffers for sharing draft copy of Turtles Act 2002.

TCI: Special thanks to the staff of the DECR and the PAD for providing copies of the relevant legislation.

Other: We also thank the staff of FCO Sustainable Development and Commonwealth Group and the FCO Legal Library for accessing key documents for TCOT, and the JNCC for allowing TCOT to adapt some of their MEA's overviews. This overview was improved by the constructive review of the following colleagues: Denise Dudgeon (FCO), Vin Fleming (JNCC), Matthew Godfrey (NCWC), Jennifer Gray (BAMZ),

3.5. References

- Aiken J, Bell C, Solomon J, Clamp J (2001b) The Reproductive Status of Marine Turtles Nesting in The Cayman Islands: Work in Progress. Marine Turtle Newsletter 95:13-14
- Bell CL, Austin T (2003) The continued assessment of the reproductive status of the marine turtle rookery in the Cayman Islands. In: Seminoff JA (compiler) Proceedings of the Twenty Second Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-503 pp 87
- Bjorndal KA, Wetherall JA, Bolten AB, Mortimer JA (1999). Twenty-Six Years of Green Turtle Nesting at Tortuguero, Costa Rica: An Encouraging Trend. Conservation Biology 13:126
- Boulon RH, Dutton PH, McDonald DL (1996) Leatherback turtles (*Dermochelys coriacea*) on St. Croix, US Virgin Islands: fifteen years of conservation. Chelonian Conservation and Biology 2: 141-147
- Fleming EH (2001) Swimming against the tide: Recent surveys of exploitation, trade and management of marine turtles in the Northern Caribbean. Report for TRAFFIC North America, Washington DC, ISBN 0-89164-161-0

- Fletemeyer JR (1983) The national report for the country of Turks and Caicos Islands. National report presented at the Western Atlantic Turtle Symposium, San Jose, Costa Rica, 1983
- Hastings M (2003) A Conservation Success: Leatherback Turtles in the British Virgin Islands. *Marine Turtle Newsletter* 99: 5-7
- Heppell SS, Snover ML, Crowder LB (2003) Sea turtle population ecology. In: Lutz PL, Musick J (eds) *The Biology of Sea Turtles* Vol. II. CRC Press, Inc., Boca Raton, Florida, pp. 275-306
- Hirth HF (1997) Synopsis of the biological data on the Green turtle *Chelonia mydas* (Linnaeus 1758). Biological Report 97(1), Fish and Wildlife Services, U.S. Department of Interior.
- Hykle D (2002) The Convention on Migratory Species and Other International Instruments Relevant to Marine Turtle Conservation: Pros and Cons. *Journal of International Wildlife Law and Policy* 5: 105-120
- IUCN (2002) Hawksbill turtles in the Caribbean region: Basic biological characteristics and population status. Consolidated paper presented to the CITES Secretariat as part of the Hawksbill Range States Dialogue Process.
- Meylan AB (1983) Marine turtles of the Leeward Islands, Lesser Antilles. *Atoll Research Bulletin*, 278, The Smithsonian Institution, Washington DC.
- Moncada F, Carrillo E, Saenz A, Nodarse G (1999) Reproduction and nesting of the hawksbill turtle, *Eretmochelys imbricata*, in the Cuban Archipelago. *Chelonian Conservation and Biology* 3:257-263
- Proctor D, Fleming LV (eds) (1999) *Biodiversity: the UK Overseas Territories*. Peterborough, Joint Nature Conservation Committee.
- Starbird C, Hillis-Starr Z, Harvey JT, Eckert SA (1999) Internesting movements and behaviour of hawksbill turtles (*Eretmochelys imbricata*) around Buck Island Reef National Monument, *Chelonian Conservation and Biology* 3:237-243
- Seminoff J (2004) Green turtle Red List assessment. <<http://www.iucn-mtsg.org>> IUCN Species Survival Commission

