

A. PROPOSAL

An annotated transfer of that part of the Caribbean population of Hawksbill Turtles (*Eretmochelys imbricata*) inhabiting Cuban waters*, from Appendix I to Appendix II pursuant to Resolution Conf. 9.24, for the exclusive purposes of allowing:

1. The export in one shipment of all existing registered management stocks of shell accumulated from Cuba's management program between 1993 and March 2000 (up to 6900 kg) to Japan for total consumption within Japan with no re-exports; and,
2. The export each year thereafter to Japan or to other Parties with equivalent controls which will not re-export of the shell produced from the traditional harvest, which will not exceed 500 individual *E. imbricata* each year.

* *In accordance with Article I(a) of the Convention, the population for which a transfer to Appendix II is sought is comprised of that segment of the regional Caribbean population bounded by the geographic limits of Cuban waters and includes E. imbricata resident within Cuban waters and immigrants and emigrants, only while they are located within Cuban waters and under the jurisdiction of Cuba.*

B. PROPONENTS

Republic of Cuba, co-sponsored by Commonwealth of Dominica

C. SUPPORTING STATEMENT

1. Taxonomy (Resolution Conf. 9.24, Annex 6.C.1)

1.1. <u>Class</u>	Reptilia
1.2. <u>Order</u>	Testudinata
1.3. <u>Family</u>	Cheloniidae
1.4. <u>Species</u>	<i>Eretmochelys imbricata</i> (Linnaeus, 1766)
1.5. <u>Scientific synonyms</u>	none
1.6. <u>Common Names</u>	Tortuga de carey (Spanish) Hawksbill Turtle (English) Tortue caret (French) [see Márquez (1990) for local names]
1.7. <u>Code number</u>	A-301.003.003.001

2. Executive Summary

2.1. Regional Perspective

- 2.1.1. The Caribbean regional population of *E. imbricata* is a mosaic of subpopulations of different sizes, with different centres of activity and overlapping ranges of movement. No subpopulations are "closed" but neither are they completely "open" and randomly mixed. Their long-term conservation, management and sustainable use requires attention at national and regional levels, in both the short- and long-term.
- 2.1.2. *Eretmochelys imbricata* inhabit inshore reef ecosystems and regardless of movements between foraging and nesting areas, the majority of the population is within the national waters of different countries at any one point in time. Satellite tracking confirms the sporadic rather than continuous nature of any long-distance movements. Improving and consolidating management at a national level, within existing legal frameworks, is fundamental to improving conservation at both national and regional levels.

- 2.1.3. The status of *E. imbricata* in the waters of different Caribbean nations reflects the area of habitat in different nations (some 80% of shallow water coral reefs in the Caribbean are restricted to 20% of the nations), the quality of habitat, past and present management practices, and proximity to major population foraging and nesting areas. No two nations are the same and there is no single “status” category nor management prescription that is appropriate to all nations.
- 2.1.4. Cuba has long been aware of the importance of regional co-operation in *E. imbricata* conservation and management, and has contributed positively towards it. Cuba held a regional meeting to discuss the conservation and management of *E. imbricata*; undertook three regional training programs and workshops; joined regional forums germane to this issue (SPAW Protocol, IUCN, CTMRG); contributed to debate on the issue within international treaties (CBD, CITES, IACCPST); participated in numerous technical and scientific conferences on marine turtles; entered into bilateral co-operative agreements with regional neighbours; published research results openly and transparently; visited regional neighbours to discuss Cuba’s management program and to dispel misinformation; and, has continually opened its program to international scrutiny and constructive criticism.
- 2.1.5. From a regional perspective, there is no doubt that the transfer of national subpopulations from Appendix I to Appendix II by countries seeking it, which can provide supporting data, is more precautionary than transferring the global or Caribbean population to Appendix II in one step. There is no conflict between advancing national and regional management together, and neither can wait until the other is perfect.
- 2.1.6. Under international law (see Section 2.2.1), Cuba has responsibility for the geographically bounded population of *E. imbricata* in Cuban waters. Cuba contains an estimated 32% of shallow water coral reef habitat in the Caribbean, and supports an *E. imbricata* population that meets the criteria for Appendix II (Annex 2a of Resolution Conf. 9.24) and not the criteria for Appendix I (Annex 1 of Resolution Conf. 9.24), taking into account the "Precautionary Measures" (Annex 4 of Resolution Conf. 9.24). Transfer to Appendix II will contribute to Cuba’s national conservation efforts and will consolidate responsible management for a significant portion of the Caribbean population of *E. imbricata*.
- 2.1.7. Strictly controlled legal trade from Cuba will create a much needed incentive for other nations in the region to invest further in *E. imbricata* conservation and management. Cuba’s previous legal trade did not stimulate illegal trade or stockpiling and future legal trade can not reasonably be expected to do so. Cuba’s intention to submit this proposal has stimulated regional interest in research, co-operation and improved management: not in illegal trade or stockpiling.
- 2.1.8. International trade today is largely restricted to tourists purchasing small items made and sold by local people, and then crossing international borders with them, largely in ignorance. Since 1993, legal trade has declined from tonnes of shell per year for commercial purposes, which involved thousands of individual turtles, to kilograms per year for scientific purposes, with involving very few individuals. CITES infraction data indicate illegal trade is decreasing, not increasing. Reported seizures have declined from 49 per year (1987-93) to 33 (1994-97), and items seized from 877 per year (1987-93) to 109 (1994-97). The majority of this trade is from outside the Caribbean.

2.2. National Perspective

- 2.2.1. Cuba’s management stocks of *E. imbricata* shell, accumulated since 1993, are a byproduct of a national conservation and management program implemented by the Government of Cuba in accordance with national laws and sovereign rights under international law [Permanent Sovereignty over Natural Resources, United Nations General Assembly, Resolution 1803(XVII)(Dec. 14, 1962); Declaration of the Rights to Development, United Nations General Assembly, Resolution 41/128 (Dec. 4, 1986); Declaration of the United Nations Conference on the Human Environment, Principle 21, June 16, 1972 (Stockholm Declaration); United Nations Law of the Sea (Dec. 2, 1982)]. They have been obtained legally from Cuban waters and belong to the State.

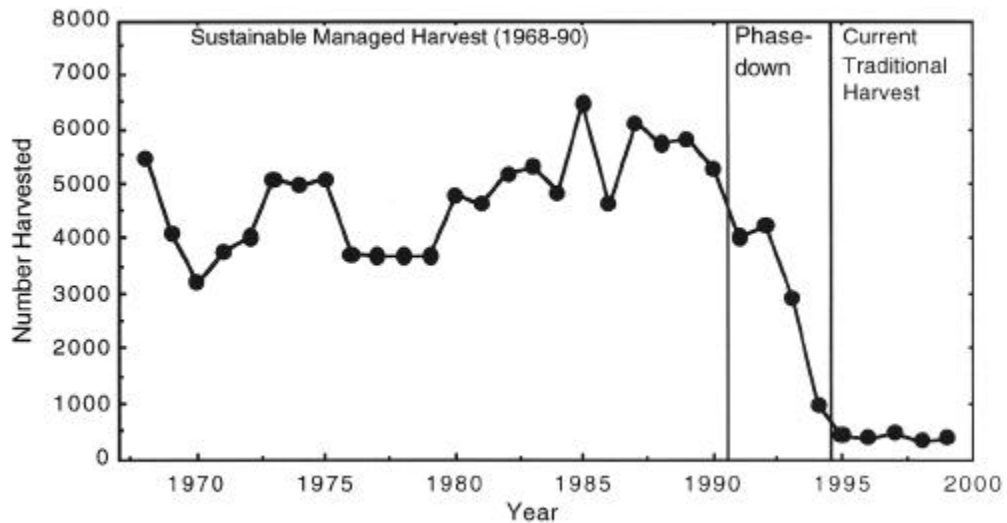


Figure 1. Harvest data for *E. imbricata* in Cuba. Cuba voluntarily phased down its historical harvest (1991-94) to meet changed economic circumstances and contribute further to regional conservation efforts: stocks were still abundant. The *E. imbricata* shell Cuba seeks to export is that derived from its conservation and management program from 1993 onward, which includes the period of phase-down and the current traditional harvest, which under current adaptive management protocols can be sustained indefinitely. Data for 1999 are extrapolated from harvest results up to 31 October.

- 2.2.2. When Cuba acceded to CITES in 1990 it had a national management program for conserving marine turtle resources which provided for their sustainable use for food. Turtles have been harvested in Cuba since the 1500's and since the 1960's legislative controls on use and consumption have been greatly strengthened. In the period 1968-90 the harvest was strictly controlled by the Ministry of Fishing Industries (MIP) using annual quotas, limited seasons, monitoring and adjustments to fishing effort (ROC 1998a; Carrillo *et al.* 1999). The harvest levels (average of 4744 *E. imbricata* individuals per year) were sustained for over two decades (Fig. 1), with a declining fishing effort (Carrillo *et al.* 1999).
- 2.2.3. In 1990, Cuba entered a reservation on *E. imbricata* as provided for by Article XXIII of CITES because the wild population in Cuban waters was large and did not meet the criteria for Appendix I listing (see Section 8). In 1976, when the Parties listed the global population of *E. imbricata* on Appendix I, the population in Cuban waters was not taken into account and nor was it considered by the IUCN in past global assessments of status (Meylan and Donnelly 1999).
- 2.2.4. Between 1990 and 1994 Cuba faced severe economic restrictions. To earn more export income, the national fishing industries concentrated their resources on export fisheries, often at the expense of domestic fisheries. The turtle fishery was phased down through a reduction in the number of boats operating in the fishery (Carrillo *et al.* 1998b), despite stocks of *E. imbricata* being abundant. In 1994, as a further contribution to regional conservation, Cuba reduced further the fishing effort throughout the Cuban shelf (Carrillo *et al.* 1998b), and restricted its marine turtle fisheries to two local communities with a long tradition of marine turtle fishing. Based on historical harvest data at the two traditional harvest sites, fishing effort was reduced to maintain a maximum limit of 500 *E. imbricata* per year being harvested. By 1995 the annual harvest had been reduced from 4744 *E. imbricata* per year (1968-90) to an average of 399 (1995-99), with a ceiling of 500 individuals per year for both areas combined. Turtle meat is distributed by the State to maternity hospitals, nursing homes for old-aged people, State-run shops and some restaurants.
- 2.2.5. Cuba's traditional harvest provides direct data on the abundance and structure of the wild population. In addition, there is a nest monitoring program. All results indicate the traditional harvest is sustainable. Catch per unit effort is increasing, juveniles are abundant in Cuban reef ecosystems, the mean size of turtle caught is stable or increasing, nest numbers are increasing, and increased numbers of young adults are being recruited into the nesting population. Monitored populations in neighbouring

countries are also stable or increasing, although some may be depleted relative to the distant past (Carrillo *et al.* 1999; Meylan and Donnelly 1999).

- 2.2.6. A significant and continuing Cuban research effort is providing new information on population dynamics, genetics, movement, nesting, general biology and ecology, that is adding to regional and global knowledge of *E. imbricata*.
- 2.2.7. Because *E. imbricata* are abundant in various parts of the Caribbean, including Cuba, and because most Caribbean nations rely on commercial fishing as a primary economic activity, incidental catch of *E. imbricata* is widespread in the region. It is unavoidable and creates a management dilemma in all nations. In Cuba, live *E. imbricata* caught in fishery operations must be released. Dead *E. imbricata* are handled in two ways:
 - a. Within the two traditional harvest sites, around 20 individuals per year (mostly juveniles) die in fin-fish and ray fisheries, and in capture studies for tagging. These individuals are identified as “incidental catch” in the record-keeping, but are otherwise treated as part of the traditional harvest from those sites and contribute to the overall ceiling of 500 individuals per year from the two sites combined. It is Cuba’s intention to export this shell with that derived from the traditional harvest, but if the Parties do not agree with this decision, this shell can be excluded from the export.
 - b. Outside the two traditional harvest sites, incidental catch is managed the same way as in most other Caribbean nations. It is illegal to possess parts of *E. imbricata* caught as incidental catch. Strong legal disincentives for fishermen to increase catch under the guise of incidental catch are in place, but these make it difficult to quantify the extent of incidental catch precisely: it may involve <400 individuals (mostly juveniles) per year. The shell derived from these animals cannot be legally traded, nor can it enter the Government store for eventual export: legally it must be discarded.
- 2.2.8. Management stocks of shell accumulated in the Government store since 1993 have been meticulously registered and stored using a stringent method of marking and control that exceeds CITES requirements.
- 2.2.9. Despite recognised gaps in the scientific knowledge of all species of marine turtles (Meylan 1982; Chaloupka and Musick 1997; Carrillo *et al.* 1998e, 1999), the wild population supporting the Cuban harvest is large. A conservative estimate is 110,905 non-hatchlings, which includes 5865 adults (AACC 1998; Carrillo *et al.* 1998e, 1999), but some authorities (Doi *et al.* 1992; Heppell *et al.* 1995; Heppell and Crowder 1996) present results suggesting the population may be much larger.
- 2.2.10. The traditional fishery does not involve expensive infrastructure, and cannot reasonably be expected to create commercial incentives to harvest unsustainably in the future. There are no incentives for fishermen at the traditional harvest sites to catch more *E. imbricata* than the maximum limit, as their salaries are fixed to the ceiling of 500 per year.
- 2.2.11. The purpose of the Cuban proposal to COP11 is not to increase harvest levels, which is a national responsibility. It is to allow a legally acquired byproduct, from a deceased animal taken legally and responsibly in Cuban waters, to be sold outside Cuba to earn export income. Part of the proceeds of the sale of the shell will be allocated to a conservation trust fund, for regional management initiatives in the Caribbean. In addition, the payments received by Cuba for its shell will:
 - ensure the welfare of the fishing communities involved; and,
 - ensure a continuing budget is available to meet commitments made in this proposal for advancing marine turtle conservation, research, monitoring, education, training and participation in national, regional and international forums advancing marine turtle conservation.
- 2.2.12. Given support by the Parties for this proposal, Cuba makes the following undertakings:
 - a. To withdraw its reservation on *E. imbricata* within 90 days in accordance with Annex 4, Para. B3 of Resolution Conf. 9.24.

- b. To organise under the control of the CITES Secretariat and with such direction that the Secretariat may provide, the immediate export of the stocks of shell derived from the management program in Cuba, in one shipment to Japan, for total consumption in Japan, where equally strict controls are in place and where there will be no re-export.
- c. To limit the traditional harvest of *E. imbricata* to a maximum of 500 individuals per year and ensure local communities receive direct benefits.
- d. To export the shell produced annually from the traditional harvest for the remainder of the Year 2000 and each year thereafter to Japan or other Parties which will not re-export and have equivalent controls.
- e. Ensure an appropriate budget is made available to meet the conservation, management and research obligations made in this proposal (see Section 2.2.11).
- f. Provide the CITES Secretariat with an annual report on conservation, management and research of *E. imbricata* in Cuba, which includes details of the extent of the harvest and all monitoring and research results.
- g. Continue to support regional efforts to conserve and manage marine turtles, through training programs, regional meetings and participation in regional forums.
- h. Provide the 12th Conference of Parties with a comprehensive report on the conservation and management of *E. imbricata* in Cuba, and specifically provide information pertaining to Article IV2 (a) of CITES, which requires that utilisation continues to be “not detrimental to the survival of the species”.

3. Biological Parameters (Resolution Conf. 9.24, Annex 6.C.2)

3.1. Distribution (Resolution Conf. 9.24, Annex 6.C.2.1)

Eretmochelys imbricata occur within the territorial waters of 100+ nations and have a global range exceeding 100 million km² (Fig. 2). Nesting occurs in at least 60 nations (Witzell 1983; Groombridge and Luxmoore 1989; Márquez 1990; Meylan and Donnelly 1999). The species favours shallow, warmer waters, especially coral reef ecosystems, and feeds primarily on sponges (eg Witzell 1983; Meylan 1988; Anderes 1994, 1996; Anderes and Uchida 1994; Bjorndal 1990, 1997). There is an extensive literature on the general biology of *E. imbricata* and their natural history in different parts of their range (eg see Witzell 1983; Miller 1985, 1994, 1997; Márquez 1990; Limpus 1992; Moncada 1994b; Moncada and Nodarse 1994; Mrosovsky 1994; Mrosovsky *et al.* 1994; Pérez 1994; Limpus and Miller 1996, 1997, 1998; Musick and Limpus 1997; Bjorndal 1997; ROC 1998a; Rhodin and Pritchard 1999; AACC 1998).

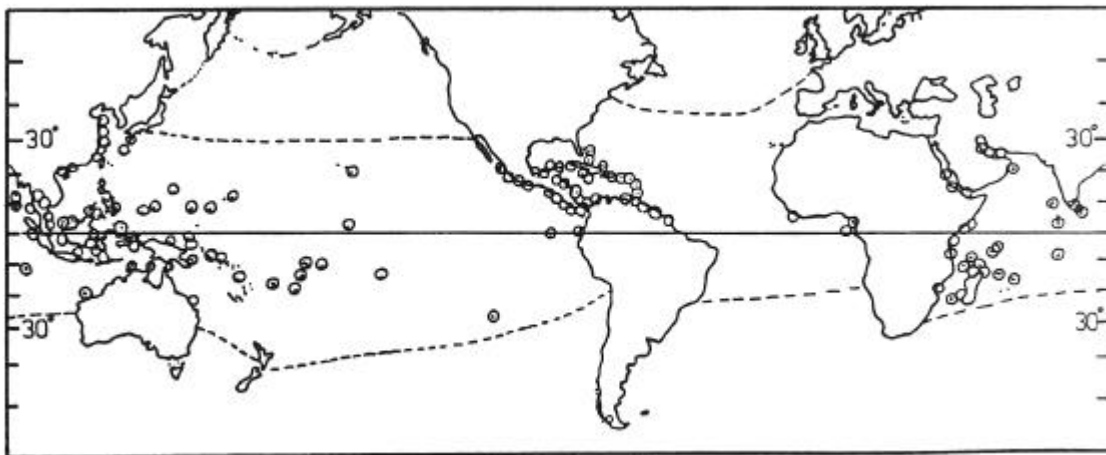


Figure 2. Global distribution of *E. imbricata* showing known nesting sites [modified after Witzell (1983) and Márquez (1990)].

Analysis of mtDNA indicates the global population is separated into reasonably distinct regional populations. Within regions, nesting populations tend to be genetically distinct from each other. Foraging populations, often dominated by animals from nearby nesting areas, include individuals from a wider range of nesting areas. Foraging populations are more diverse than nesting populations, but are also distinct from each other (Broderick *et al.* 1994; Espinosa *et al.* 1994, 1996; Bass *et al.* 1996, Bass 1999; Bowen *et al.* 1996; Koike 1995a; Koike *et al.* 1996; Moncada *et al.* 1998b; Díaz-Fernández *et al.* 1999; Okayama *et al.* 1996, 1999).

Cuba (Fig. 3) is the largest island complex in the Caribbean and has 2128 islands and atolls with a total land surface area of 110,860 km². Territorial waters and the exclusive economic zone comprise 370,630 km² (Carrillo and Contreras 1998). *Eretmochelys imbricata* are found throughout Cuban waters but the majority inhabit the southern waters, which are mostly shallow, sheltered and warm (García 1981).

Cuba is surrounded by waters that drop sharply in depth to over 2 km (Carrillo and Contreras 1998) which is beyond the feeding depth of *E. imbricata*, and may act as a partial barrier around the Cuban shelf. The *E. imbricata* population in Cuban waters cannot be considered fragmented, but interchange between resident animals, immigrants and emigrants is complicated. Superimposed on shared Cuban haplotypes, in different parts of Cuba there are different mixes of less common haplotypes, some of which come from outside Cuba (Díaz-Fernández *et al.* 1999; Carrillo *et al.* 1999).

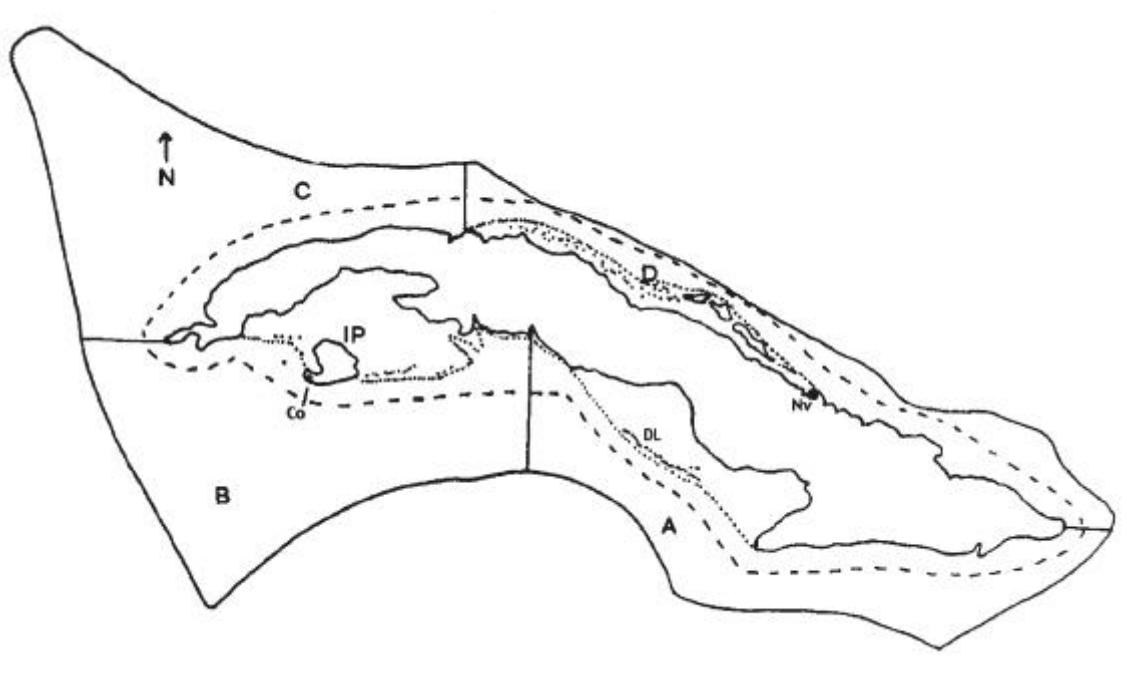


Figure 3. Cuba and its territorial waters (dashed line) and exclusive economic zone (solid line). The 20 m depth contour (dotted line; 44,076 km²) indicates the extent of shallow waters where coral reefs are abundant. A-D= fisheries Zones; Co= Cocodrilo; DL= Doce Leguas Keys; IP= Isle of Pines; Nv= Nuevitas. Scale: 1mm= 10 km.

3.2. Habitat Availability and Status (Resolution Conf. 9.24, Annex 6.C.2.2)

Eretmochelys imbricata nest on mainland beaches in some countries [eg Mexico (Garduño-Andrade *et al.* 1999)] but more typically on small patches of beach on offshore islands and keys (eg Limpus *et al.* 1983; Loop *et al.* 1995; Limpus and Miller 1996, 1997, 1998; Miller 1997; Miller *et al.* 1997; Meylan and Donnelly 1999; Moncada *et al.* 1998a, 1999; Richardson *et al.* 1999). Significant nesting areas can occur within significant foraging areas (eg Cuba, Mexico), or females may move from more distant foraging grounds to nest at specific sites which may have limited habitat for feeding (eg Antigua, US Virgin Islands, Puerto Rico, Barbados) (Hillis-Starr *et al.* 1999; Horrocks *et al.* 1999; NOAA 1999; Richardson *et al.* 1999; Starbird *et al.* 1999; Carlos Diez, pers. comm.).

The status of foraging and nesting habitats varies from country to country (eg Groombridge 1992). Some island and mainland nesting beaches around the world have been affected by beachfront development, but

many nesting habitats are also secure and protected. In some areas nesting females are evidently being harvested (Meylan 1999a; Meylan and Donnelly 1999), but in other areas they are now protected and secure (Meylan and Donnelly 1999). The main nesting beaches in Cuba (Moncada *et al.* 1998a, 1999) are on small islands and keys in the Doce Leguas region (Fig. 3). Forty-nine different nesting beaches for *E. imbricata* have been identified and more are found each year (Carrillo *et al.* 1999; Moncada *et al.* 1998a, 1999; MIP, unpublished data). Nesting also occurs in the southwest and northwest of Cuba, and 9 nesting beaches outside the Doce Leguas area have been identified to date (Moncada *et al.* 1998a, 1999; MIP, unpublished data).

Table 1. Land areas and approximate extent of shallow water coral reef habitats within 35 Caribbean geopolitical units, based largely on information presented by Groombridge (1992), WCMC (WCMC 1999) and NOAA (1999).

Geopolitical Unit	Land Area (km ²)	Area of Reef (km ²)	% of Total Reef Area
Anguilla (UK)	91	0<10	0.1
Antigua/Barbuda	441	10<25	0.2
Aruba	193	10<25	0.1
Bahamas	13,939	2000<3000	15.7
Barbados	430	0<10	0.1
Belize	22,965	250<500	1.8
Cayman Islands (UK)	260	25<50	0.4
Colombia	1,141,748	500<1000	3.6
Costa Rica	50,700	0<10	0.1
Cuba	110,860	4000<5000	32.2
Curacao/Bonaire (Neth.)	731	10<25	0.1
Dominica	750	10<25	0.1
Dominican Republic	48,422	100<250	1.1
Grenada	344	100<250	1.8
Guadeloupe (Fr.)	1780	25<50	0.3
Haiti	27,750	100<250	1.3
Honduras	112,088	100<250	1.3
Jamaica	10,991	100<250	1.3
Martinique (Fr.)	1100	10<25	0.2
Mexico	1,958,201	2000<3000	14.3
Montserrat (UK)	100	10<25	0.1
Nicaragua	120,254	500<1000	5.4
Panama	75,650	250<500	1.8
Puerto Rico (USA)	9104	100<250	1.4
St. Eustacius/Saba (Neth.)	35	0<10	0.1
St. Kitts/Nevis	174	10<25	0.1
St. Lucia	616	0<10	0.1
St. Barthelemy/St. Maarten (Guad./Neth.)	161	10<25	0.1
St. Vincents/Grenadines	389	10<25	0.2
Trinidad/Tobago	5128	50<100	0.7
Turks/Caicos Islands (UK)	430	250<500	2.9
USA	9,369,885	500<1000	5.4
Venezuela	912,050	500<1000	5.4
Virgin Islands (USA)	352	0<10	0.1
Virgin Islands (UK)	150	0<10	0.1

The main foraging habitats for *E. imbricata* are coral reefs, and Cuba contains some 32% of shallow water reefs in the Caribbean. Coral reefs in Cuba are in good condition (WCMC 1999). Around 77% of the 44,076 km² of shallow (<20 m) interior waters in Cuba (Fig. 3) are on the southern side (Carrillo and Contreras 1998), and development in this region is restricted and subject to strict environmental impact assessment (see Section 5.1.1). Some 80% of shallow water coral reefs in the Caribbean are contained within 20% of the geopolitical units (nations) (Cuba, Bahamas, Mexico, Colombia, Nicaragua, Venezuela and USA) (Table 1).

3.3. Population Status (Resolution Conf. 9.24, Annex 6.C.2.3)

As emphasized by Mrosovsky (1983, 1997), the status of marine turtles, including *E. imbricata*, is often projected as being much worse than scientific survey data establish is the case. Pritchard (1997) notes that alarm about the status of *E. imbricata* was not based on definitive survey data, but rather on the disparity between trade figures (Milliken and Tokunaga 1987) and the known extent of nesting. Being precautionary

(Bjorndal 1999; Meylan and Donnelly 1999) may be a sound conservation strategy, but it should not replace objective evaluation and interpretation of scientific results (Bowen and Karl 1999; Webb and Carrillo 1999).

To assess the global status of *E. imbricata* objectively, past population sizes and distributions need to be compared with those at present. This is difficult and error-prone with marine turtles (Bjorndal 1999; Chaloupka and Musick 1997; Carrillo *et al.* 1998e, 1999) because:

- historical data on abundance are scarce and tend to ignore large numbers of low density areas (eg Limpus and Miller 1997; ROC 1998a);
- standard procedures for reducing biases when collecting anecdotal evidence (eg Anderson *et al.* 1996; Vardon *et al.* 1999) are rarely used;
- the IUCN uses 105 years ago as a reference point for quantifying current status;
- with the exception of Cuba (ROC 1998a; Carrillo *et al.* 1998b, 1999) harvest data over time are generally lacking;
- most life stages can not be seen or surveyed at a population level (Meylan 1982);
- most surveys are restricted to one sex (females), and only when they nest; and,
- estimates of population size rely on series of assumptions and guesses which cannot be tested empirically and may be wildly in error (Chaloupka and Musick 1997; Carrillo *et al.* 1998e).

However, scientific survey data are available from different locations around the world and they allow status and trends over the last 10-20 years to be quantified with confidence. The last 10-20 years is a more meaningful reference point for evaluating current status than 105 years ago (Messel 1999; Webb and Carrillo 1999).

3.3.1. Global

Within the constraints of these limitations, the following are apparent:

- a. The global range of *E. imbricata* does not appear to have contracted over the last century (Groombridge and Luxmoore 1989; Meylan and Donnelly 1999), although some historical nesting sites may have been lost (Meylan 1999a; Meylan and Donnelly 1999).
- b. The status of *E. imbricata* within different nations around the world ranges from “good” (stable at or below carrying capacity and/or increasing) to “bad” (greatly depleted and still declining or not being given an opportunity to recover), with a variety of intermediate and unknown positions. Where the status is “good” it invariably reflects good national management programs (Meylan and Donnelly 1999).
- c. Reportedly poor status in some Caribbean nations (Meylan and Donnelly 1999) is not a measure of the status of the regional population, because most nations have limited *E. imbricata* habitat.
- d. Strongholds of *E. imbricata* habitat, particularly in Cuba and Mexico (46% of Caribbean coral reefs; Table 1) have stable or increasing populations (Hernández *et al.* 1995; Carrillo *et al.* 1999; Garduño-Andrade 1999; Garduño-Andrade *et al.* 1999; Meylan 1999a; Meylan and Donnelly 1999).
- e. Legislation aimed at improving the status of marine turtles has been adopted by many countries from the 1970’s onward, particularly in the Caribbean region (Groombridge and Luxmoore 1989).
- f. Amongst the larger secure global populations, northern Australia appears exceptional (Groombridge and Luxmoore 1982; Limpus 1992; Limpus and Miller 1996, 1997, 1998; Dobbs *et al.* 1999; Meylan and Donnelly 1999), with 20,000 to 30,000 adults and perhaps ten times that number of juveniles and subadults. There is no evidence indicating this population was ever

significantly larger and it may represent a population at or near carrying capacity. [The suggestion that this population may be declining (Meylan and Donnelly 1999) is misleading (Dobbs *et al.* 1999)].

- g. In Mexico, Cuba and Puerto Rico, extrapolations from nest data (Moncada *et al.* 1998a, 1999; Carrillo *et al.* 1999; Garduño-Andrade 1999; Garduño-Andrade *et al.* 1999; Meylan 1999a; Meylan and Donnelly 1999) indicate the populations in these three countries alone may be 50% of that in northern Australia. The total global population, in 100+ countries, may well exceed one million individuals and 100,000+ adults.
- h. Scientific monitoring indicates populations are increasing or stable in many countries [eg Antigua, Australia, Brazil, Costa Rica, Cuba, Malaysia (Sabah), Mexico, Puerto Rico, Saudi Arabia, Seychelles and the US Virgin Islands (Chan and Liew 1999; Dobbs *et al.* 1999; Garduño-Andrade 1999; Garduño-Andrade *et al.* 1999; Kerr *et al.* 1999; Marcovaldi *et al.* 1999; Meylan 1999a; Meylan and Donnelly 1999; Mortimer and Bresson 1999; Pilcher 1999; Pilcher and Ali 1999; Richardson *et al.* 1999)].
- i. Populations of *E. imbricata* in some nations are reported to have been greatly reduced within the last three generations (since 1894) (Meylan and Donnelly 1999) and are not being given an opportunity to recover (Meylan and Donnelly 1999; Suganuma *et al.* 1999).
- j. The prospects for improving the status of wild *E. imbricata* is not good where poverty and basic human needs for food are involved. International trade in commercial quantities of *E. imbricata* shell essentially ceased in 1993 (Meylan and Donnelly 1999), and is no longer a significant threatening factor for *E. imbricata* anywhere. Illegal trade today consists mainly of tourists purchasing small items in local markets and attempting to cross international borders with them in ignorance.
- k. The IUCN (Baillie and Groombridge 1996; Meylan and Donnelly 1999) provide no information substantiating the claim, that based on changes over the last 105 years, the global population of *E. imbricata* currently faces an "extremely high risk of extinction in the immediate future". Indeed, they state that *E. imbricata* is "not expected to become extinct in the foreseeable future" (p. 217, Meylan and Donnelly 1999).
- l. *Eretmochelys imbricata* are abundant and secure in major areas of habitat despite serious status problems in some of the 100+ nations within their range. There is no measurable risk of global extinction, and no realistic scenarios have been advanced that could possibly lead to global extinction (Webb and Carrillo 1999).

3.3.2. Cuba

The size and structure of the pristine population of *E. imbricata* in Cuban waters is unknown (Carrillo *et al.* 1999). Estimating current population size is difficult for any marine turtle (Meylan 1982; Chaloupka and Musick 1997), but:

- a. Cuba's harvest data (Fig. 1) establish unequivocally that despite hundreds of years of harvest (Pérez de Oliva 1528; Depeñalver Angulo 1635; Dirección Política De Las F.A.R. 1967; Le Riverend 1971; Parsons 1972; Pearson 1981; Baisre 1987; Fosdick and Fosdick 1994; Carrillo *et al.* 1998a), by 1990 a large, wild population still existed in Cuban waters.
- b. First estimates of population size around 1990 were 20,000+ adults, which means hundreds of thousands of juvenile and subadults (Doi *et al.* 1992; Heppell *et al.* 1995; Heppell and Crowder 1996).
- c. Given Cuba was only one of many sites in the Caribbean where the wild population of *E. imbricata* was being harvested (Groombridge and Luxmoore 1989), the regional population size has always been greater than that centred around Cuba.

- d. Cuba demonstrated that a smaller wild population could have been sustaining the Cuban harvest in 1990 (AACC 1998; Carrillo *et al.* 1998e, 1999)(Table 2), and has no reason to doubt this was and still remains the case.

Table 2. Minimum population size needed to sustain the historical harvest of *E. imbricata* in Cuba (AACC 1998). The estimate assumes population stability in 1989-91, which is supported by sampling data (Carrillo *et al.* 1998e). The estimate for hatchling survival is the rate needed for this model to balance (and thus the harvest to be sustainable), and seems realistic.

Annual survival rate (1-20 y)	0.95
Non-hatchling population	110,905
Number of mature adults	5865
Percentage mature adults	5.3%
Number of mature females	4504
Percentage of mature females	4.1%
Nesting females per year	1787
Nests per year	4218
Eggs per year	569,429
Hatchlings per year	243,062
Estimated survival to 1-year	2.8%

- e. The Cuban estimate (Table 2) is conservative but more consistent with known nesting and recruitment [1700-3400 nests annually in Cuba alone which could be expected to produce 159,049 to 318,099 hatchlings (Moncada *et al.* 1999)]. It and relies on four key assumptions:
- The population size and age structure was reasonably stable by 1989-91. The size structure of harvested animals between 1989 and 1991 (Carrillo *et al.* 1998e) was stable although gradual long-term changes in mean size were still occurring in some parts of Cuba (Carrillo *et al.* 1999).
 - Growth rates were higher in Cuban waters than reported for some other areas (Fig. 4), which meant age to maturity was reduced. [*Eretmochelys imbricata* has the biological capacity to grow fast (Witzell 1980) and under research conditions males can reach maturity in 3 years (MIP, unpublished data)].
 - Parameters used to model reproduction (nesting intervals, clutch sizes, clutches per year) should be those from Cuba and Mexico rather than those from Antigua, which are quite different.
 - Repeated harvesting would have gradually removed older adults from the population.

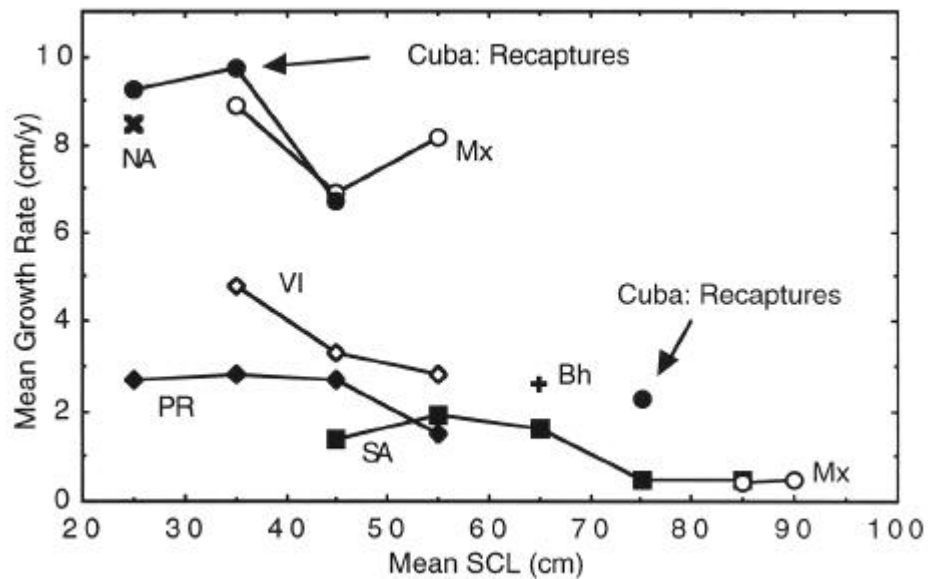


Figure 4. Mean relationship between growth rate [in straight carapace length (SCL)] and mean size (SCL) for wild *E. imbricata* recaptured in Cuba (N= 10) compared with reported growth rates from other areas: Mexico (Mx); Bahamas (Bh); US Virgin Islands (VI); northern Australia (NA); southern Australia (SA); Puerto Rico (PR). Raw data from: Limpus (1992); Limpus and Miller (1996); Kowarsky and Capelle (1979); Bjorndal and Bolton (1988); Boulon (1994); Garduño and Márquez (1994, 1996); MIP, unpublished data; Carrillo *et al.* 1998e; Diez and van Dam (1995); and, Wood and Wood (1993). Where necessary, raw data were converted to units of SCL using the formula in Limpus (1992).

- f. The Cuban estimate does not assume all animals in the population live within Cuban waters all the time, but if they did, and were within shallow waters (<20 m deep), it would result in low densities (2-3 per km²) relative to those known to exist in some habitats (Table 3).
- g. Some 50+% of *E. imbricata* caught in Cuban waters have mtDNA suggesting they come from nests in Cuba, even though life stages between hatching and capture may be spent elsewhere (Bass 1999; Carrillo *et al.* 1999; Díaz-Fernández *et al.* 1999). Recent satellite tracking confirm some adult females live and nest in the Doce Leguas region, which is consistent with high site fidelity indicated from tagging results reported previously (Moncada 1994a, 1996a, 1996b; Moncada *et al.* 1998b).
- h. *Eretmochelys imbricata* hatched in the Doce Leguas region of Cuba also appear to contribute significantly to foraging populations elsewhere, particularly in Puerto Rico (Bass 1999; Díaz-Fernández *et al.* 1999).

Table 3. Estimates of the density of wild juvenile, adult and subadult *E. imbricata* in Cuba and other countries.

Country	Density (N/km ²)	Notes
Australia	81	Intertidal reef on northwest coast of Australia (Fog Bay, N.T.) (Whiting and Guinea 1998)
Australia	3	Heron Island Reef, southeastern Australia (Limpus 1992)
Cuba	280	Juveniles in 3 km long by <20 m wide swim transect in Doce Leguas coral reef habitat: 7 caught and 10 sighted (MIP, unpubl. data)
Cuba	122	Juveniles (10 caught, 1 sighted) in a 200 m long by 100 m wide area in Doce Leguas coral reef habitat (MIP, unpublished data)
Cuba	59	4.3 km long by <20 m wide swim transects in mixed habitat (coral reef, sand, sea grass and rocks) at the Isle of Pines (5 sighted) (MIP, unpubl. data)
Dominican Republic	6-97	Various habitats (Leon and Diez 1999)
Mexico	3-41	Coral reef, Rio Lagartos, Yucatan Peninsula (Maldonado and Garduño 1999)

- i. Mitochondrial DNA studies suggest that within Cuban waters the proportion and origins of the *E. imbricata* which do not emanate from nests in the Doce Leguas region differ in different parts of Cuba: they could come from a variety of locations (AACC 1998; Díaz-Fernández *et al.* 1999). Satellite tracking confirms that some individuals caught in Cuba make extensive movements when released (Manolis *et al.* 1998; Carrillo *et al.* 1999), which is well documented in other parts of the world (eg Parmenter 1983; Marcovaldi and Filippini 1991; Starbird 1992; Groshens 1993; Groshens and Vaughan 1994; Hillis 1995; Balasz *et al.* 1996; AACC 1998; Miller *et al.* 1998; Meylan 1999b; Starbird *et al.* 1999; Carlos Diaz, pers. comm.). Others remain in Cuban waters after being released.

In any overview, Cuba contains a significant wild population of *E. imbricata* comprised mainly of animals hatched in Cuban waters, but with mixes of other animals arriving through immigration. Emigration sees animals hatched in Cuba inhabiting the waters of other nations. The captive population of *E. imbricata* in Cuba is small (Table 4) and involves animals used for display and research (Pelegrin *et al.* 1994; Nodarse 1996; Nodarse *et al.* 1998).

Table 4. Numbers of *E. imbricata* maintained in captivity in Cuba, at 31 October 1999.

Age Class	Isle of Pines	Displays	Total
Hatchlings	15	-	15
1 < 2 years	-	-	-
2 < 3 years	55	-	55
3 < 4 years	-	-	-
4 < 5 years	20	-	20
5 < 6 years	9	-	9
> 6 years	21	28	49
Totals	120	28	148

3.4. Population Trends (Resolution Conf. 9.24, Annex 6.C.2.4)

Most *E. imbricata* populations around the world subject to scientific monitoring are increasing or stable (Section 3.3.1). In areas where *E. imbricata* appear depleted (Meylan 1999a; Meylan and Donnelly 1999), current trends are mostly unclear. It is unknown whether populations are depleted and stable, or depleted and continuing to decline, yet the difference has obvious conservation significance.

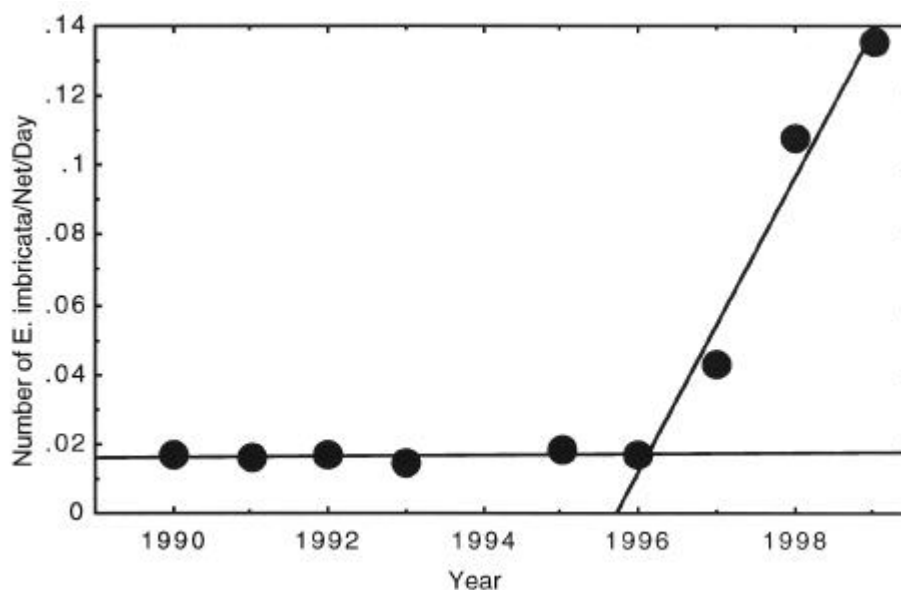


Figure 5. Catch per unit effort (Jan-Apr; Aug-Dec) for *E. imbricata* at Isle of Pines. Lines are regressions for periods 1990-96 (CPUE remained stable; $r^2= 0.08$, $p= 0.58$), and 1996-99 (significant increase; $r^2= 0.97$, $p= 0.016$). Data from some months in 1994 are missing; CPUE for 1999 has been extrapolated from harvest data to 31 October 1999.

In Cuba, all data confirm the wild population is increasing:

- At the Isle of Pines, catch per unit effort indicates abundance is increasing (Fig. 5). The number of nets has been decreasing since 1997 due to damage and replacement delays.
- At Nuevitas, CPUE records are available from 1997 onward. Catch per unit effort has increased at two sites and been stable at the other two sites, although the trends do not reach significance over the 2-3 years for which there are records ($r^2= 0.01-0.97$; $p= 0.10-0.94$). Total fishing effort is being reduced due to hurricane damage and delays in repairing and replacing nets.

- c. At the Isle of Pines and Nuevitas fishermen have always reported that abundance changes from year to year, but has been reasonably constant over living memory up to 1996/97. Since 1997 they have no doubt abundance is now increasing.
- d. At the Isle of Pines the mean size of *E. imbricata* being caught is increasing (Fig. 6).
- e. At Nuevitas the mean size of *E. imbricata* being caught is also increasing (Fig. 6).
- f. The difference in mean size of *E. imbricata* caught in the north (Nuevitas) and south (Isle of Pines) reflects real differences in the wild population. Extensive juvenile and subadult foraging habitats in the south are responsible for this trend (Carrillo *et al.* 1999).

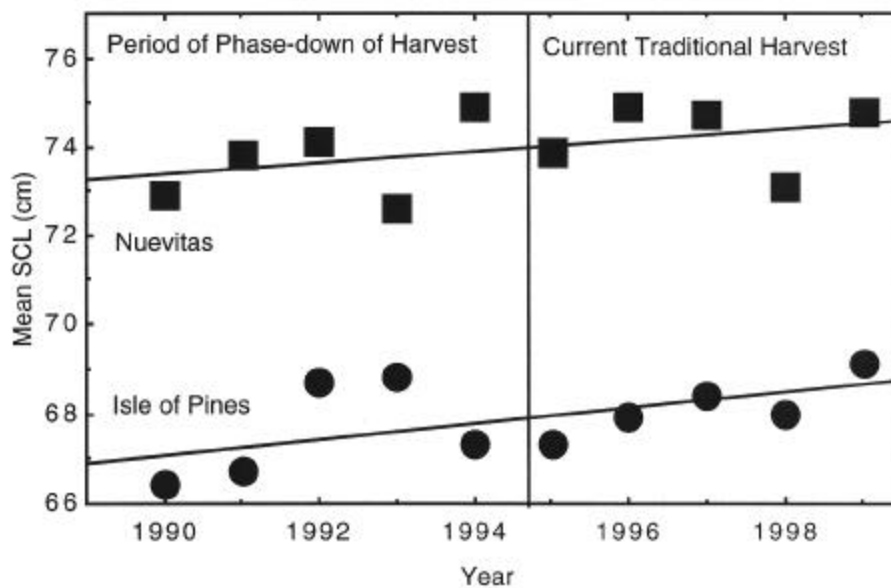


Figure 6. Mean size (SCL) of *E. imbricata* landed at the Isle of Pines (circles) and Nuevitas (squares) since 1990. Lines indicate regression relationships. Since the phase-down of the harvest at the Isle of Pines, the increase in the mean size of *E. imbricata* caught reaches significance (1995-99). Data for 1999 are to 18 October (Isle of Pines) and 30 September (Nuevitas).

- g. The sex ratio (proportion of females) of *E. imbricata* reported from the Isle of Pines [0.84 ± 0.012 (SE); N= 4 years (1996-99)] is constant.
- h. The sex ratio (proportion of females) of *E. imbricata* reported from Nuevitas [0.73 ± 0.016 (SE); N= 3 years (1997-99)] is constant.
- i. The size frequency distribution of *E. imbricata* taken in the traditional harvest (Fig. 7) indicates animals of all size classes are represented. The size frequency distributions for males and females mirror that for all *E. imbricata* taken (Fig. 7).
- j. Most nest surveys in Cuba have been identifying nesting areas (Moncada *et al.* 1998a, 1999). Standardised surveys for monitoring trends in abundance (rather than identifying nest sites) on 11 offshore beaches in the Doce Leguas Keys were started recently, and appropriate beaches in other areas are being sought for systematic surveying. At Doce Leguas, search days per beach in 1998/99 were reduced by an average of 42% relative to 1997/98 due to bad weather. Numbers of nests found increased by 22% regardless. Data from the 1999/2000 surveys (to 31 October 1999) are indicating increases of 117 to 200% relative to the 1997/98 and 1998/99 results.

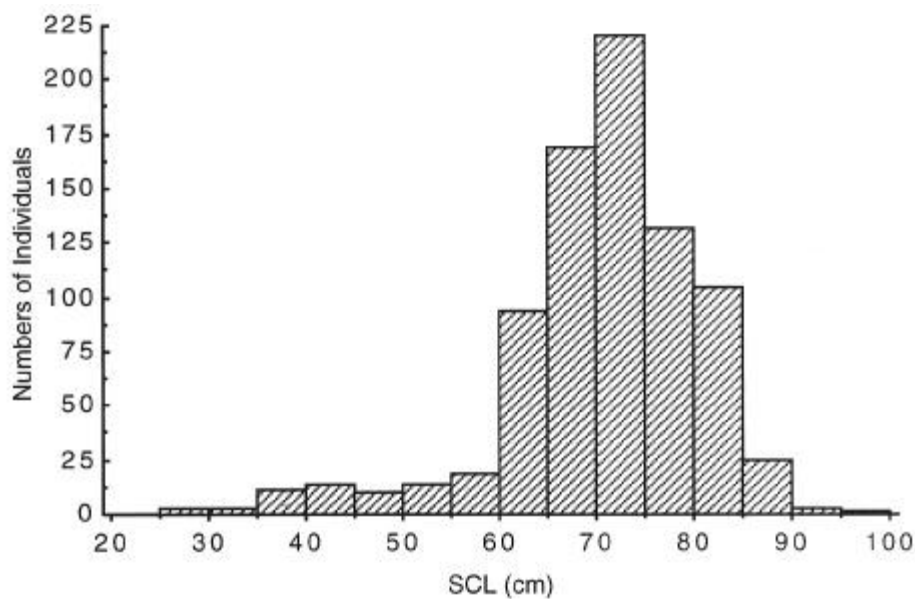


Figure 7. Size distribution of *E. imbricata* taken at the two traditional harvest sites in Cuba (1997 and 1998 combined; includes incidental catch; N= 817). Sex ratio expressed as a proportion of females was 0.772 and 0.764 in 1997 and 1998 respectively. The mesh size of nets restricts the capture of smaller (<60 cm SCL) *E. imbricata*.

- k. Between 1988 and 1996 clutch size in the Doce Leguas region was constant (mean= 135.3 eggs), suggesting that the average size of nesting females was stable (Moncada *et al.* 1999). Clutches containing less than 90 eggs, indicating small nesting females, were rare (1.3% of clutches examined, 1988-95). In the 1997/98 and 1998/99 nesting seasons, significant increases in the numbers of small clutches (<90 eggs) were apparent (7.5% of 120 nests and 16.3% of 92 nests examined respectively), suggesting increased recruitment of young adult females into the nesting population.

3.5. Geographic Trends (Resolution Conf. 9.24, Annex 6.C.2.5)

No national populations of *E. imbricata* are extinct despite some nesting beaches reportedly not being used any longer and *E. imbricata* being depleted in some nations (see Section 3.3).

There has been no geographic reduction of the range of *E. imbricata* in Cuba and the main nesting areas identified in the 1500's and 1600's are still those used today (Moncada *et al.* 1999). Some known nesting beaches in the Doce Leguas region were rendered largely unsuitable for *E. imbricata* nesting by hurricanes (1997/98), and similar events may occur regularly. In Zone C, mangrove vegetation has covered some beaches, making them unsuitable for nesting.

3.6. Role in the Ecosystem (Resolution Conf. 9.24, Annex 6.C.2.6)

Abundance of sponges (the main food of *E. imbricata*) may change with changing *E. imbricata* density. Predators of wild *E. imbricata* appear to be large fish and sharks (Witzell 1983; Dobbs *et al.* 1999), and eggs and hatchlings are eaten by a variety of birds, crabs, fish and mammals (Witzell 1983; Dobbs *et al.* 1999). Nest predation rates in Cuba are minor relative to some countries, where few eggs survive to hatching (Smith 1992; Moncada *et al.* 1999). No predators of *E. imbricata* rely solely on *E. imbricata* for food.

That Cuban coral reefs are in good condition despite *E. imbricata* densities being lowered after many years of harvesting suggests that *E. imbricata* are not critical to maintaining healthy reefs, although they no doubt play a role in reef ecology at some level of resolution.

3.7. Threats (Resolution Conf. 9.24, Annex 6.C.2.7)

The population of *E. imbricata* in Cuban waters is not threatened by the strictly controlled, conservative, traditional harvest (Fig. 1), which is linked through monitoring and research to an adaptive management strategy. Ample safeguards are in place (eg Sections 4.1.2.g and 4.4.5) to ensure the harvest remains sustainable. The majority of known *E. imbricata* nest sites in Cuba are on offshore islands, where legislation now restricts human activities likely to adversely affect the beaches and turtles (see Section 5.1.1).

Since 1961 the taking of eggs and turtles by private persons has been prohibited and these laws were strengthened in 1996 (Decree Law 164) with heavier fines and penalties. Illegal subsistence use occurs from time to time, but at low levels: occasionally nests are taken by unknown people on offshore islands. The nest monitoring program has established a major presence of Government personnel in the Doce Leguas area, which if maintained will further reduce illegal take.

Incidental catch in shrimp trawling operations occurs rarely in Cuba, involves few animals, and does not constitute a significant threat. Incidental catch in inshore fisheries using fixed nets is now the subject of a more detailed study with the co-operation of Fishing Enterprises and the National Office of Fishing Inspection (see Section 4.1.1).

International trade was not the motivating force behind the Cuban harvest and was never a threat as such. International trade has now all but ceased and in the future any trade will be subject to strict oversight by the CITES Secretariat. It is misleading to invoke illegal international trade as a significant future threat to *E. imbricata* (Meylan and Donnelly 1999).

4. Utilisation and Trade (Resolution Conf. 9.24, Annex 6.C.3)

4.1. National Utilisation (Resolution Conf. 9.24, Annex 6.C.3.1)

4.1.1. General

The current traditional harvest is restricted to two sites in Cuba. The traditional harvest site on the Isle of Pines (Fig. 3) is at Cocodrilo township (formerly Jacksonville), a remote settlement on the southwest coast, where there is a permanent MIP research presence. The traditional harvest site at Nuevitas (Fig. 3) involves four sites (Punta Ganado, Cayo Romano, Cayo Guajaba and Los Pinos), with small family groups living at each site. At all locations turtle fishing has been the main economic activity. Cocodrilo (1999 human population= 318) was founded by turtle fishermen who arrived from the Cayman Islands in 1885, and the central economic activity of the community has been turtle fishing for 114 years. Around 30% of the population of Cocodrilo is directly dependent on turtle fishing.

At all sites there is a closed season for three months (May-July) and harvesting within the open season is often reduced by bad weather. The closed season reflects the nesting season for *E. imbricata* in Zone B (Isle of Pines) (Moncada *et al.* 1999; Fig. 3); little, if any nesting occurs in Zone D (Nuevitas). Under the umbrella of the maximum harvest limit (500 *E. imbricata* per year) both areas have operated under a catch plan (Table 5) with limits on boats and nets (Carrillo *et al.* 1999). Regular contact between sites, area supervisors and MIP (Habana) allows the harvest data to be assessed throughout the year. If the number of *E. imbricata* being caught is approaching the

maximum limit (500), then the sites are advised accordingly. If the limit is reached, all harvesting at both traditional harvest sites ceases. Assessment of harvest data, including catch per unit effort, allow MIP to alter the catch plan in following years, so that the maximum limit is maintained.

The mesh size of the nets used to catch turtles is regulated in order to minimise the numbers of smaller animals caught (see Fig. 7). Turtles drowned in the nets are used regardless of their size, but if they are alive and under 65 cm SCL they are released (often after being tagged).

Fishermen use the same traditional methods that they have used historically, and they have been reluctant to change those methods without assurances that similar rates of catch will be achieved. A series of trials will be undertaken over the next 1-2 years to quantify differences between surface and bottom nets, and appropriate changes will be introduced gradually on the basis of trial results.

Table 5. Boats and nets at the two traditional harvest sites in Cuba.

Traditional Harvest Area	No. of Boats	Number and Length of Nets
Nuevitas	4	Mostly 260 m long; <5 nets per boat
Isle of Pines	4	60-80 m long; <15 nets per boat

For each turtle landed, a unique field identification number (FIN) coded for capture site (Isle of Pines= IP; Nuevitas= PG, CR, CG or LP), year and consecutive number (eg IP/96/001) is written on the shell. The following data are then recorded in triplicate data books: straight carapace length; straight carapace width; curved carapace length; curved carapace width; general condition; body weight; presence of tags; sex; presence and size of enlarged follicles and/or oviducal eggs; presence of corpora lutea; number and weight of different shell scutes and weight of meat produced. One copy of the data is forwarded to MIP in Havana, one is kept at the harvest sites and one at the processing facility (Carrillo *et al.* 1998d).

After measuring, meat is deboned, weighed, packed in plastic crates and chilled (<10°C). The plastron and carapace are placed in individual mesh bags and submerged in water for 5-10 days to facilitate the separation of the shells from the carapace. All shell plates are recovered (plastron, dorsal scutes, marginals, hoof), weighed and repacked in plastic bags provisionally sealed with the FIN. Meat and bags of scutes are collected regularly by the local Fishing Enterprises. The shell plates are sent to the central store at Cojimar (in Havana), where they are processed for eventual export in accordance with strict procedures which comply with CITES requirements (see Section 4.1.2), and the meat is distributed by MIP Enterprises at the Isle of Pines and Nuevitas. Most of the meat produced is sent to maternity hospitals, nursing homes for aged people and restaurants.

In addition to *E. imbricata* used in the traditional harvest, eggs and hatchlings are used for research (Nodarse *et al.* 1998; Carrillo *et al.* 1998b). The use of hatchlings represents the production from 1-2 females per year and is biologically insignificant. All animals harvested since 1996 are summarised in Table 6, and the size frequency distribution is on Figure 7. Since 1995 the harvest has averaged 399 individuals per year (range= 339 to 482).

Table 6. Numbers of *E. imbricata* harvested from the wild and numbers of hatchlings collected for research. Harvest data for 1999 are corrected to 12 months from results up to 31 October. For hatchlings, the year represents the first part of a nesting season (eg 1996= 1996/97 nesting season). * = estimated.

Year	Location	Type	Number
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1996	Doce Leguas	Hatchlings	808
	Isle of Pines	Animals	278
	Nuevitas	Animals	129
1997	Doce Leguas	Hatchlings	94
	Isle of Pines	Animals	211
	Nuevitas	Animals	244
1998	Doce Leguas	Hatchlings	1162
	Isle of Pines	Animals	187
	Nuevitas	Animals	152
1999	Doce Leguas	Hatchlings	500 *
	Isle of Pines	Animals	220
	Nuevitas	Animals	120

Within the two traditional harvest sites, some *E. imbricata* are obtained from incidental catch in other fishing and research activities during the closed season. Live turtles are released and sometimes tagged and recaptured. If dead, turtles are processed like harvested animals, although records are marked “incidental catch” and the type of fishery specified. They contribute to the 500 per year limit, and have been added to the management stocks of shell to be exported. Between 1996 and October 1999, 75 individuals (IOP= 59; Nv= 16) have been acquired through other activities, and most are small (mean= 57.7 ± 1.89 (SE) cm SCL; range= 27.0 to 88.2 cm SCL; N= 75).

Incidental catch involving dead animals outside the traditional harvest areas is more complicated. It is illegal to hold or possess parts of *E. imbricata* and incidental catch may not always be reported accurately. Collaborative efforts with local fishing enterprises, the Fisheries Research Centre (CIP) and the National Office of Fisheries Inspection (ONIP) is leading to a more accurate picture of the extent of incidental catch (Section 2.2.7). Shell from incidental catch outside the traditional harvest areas is not accompanied with the data sheets needed to process shell for export, and is thus readily identifiable and cannot be exported.

Incidental catch occurs in all countries with *E. imbricata* which engage in commercial fishing in inshore waters.

4.1.2. Management Stocks of Shell in Cuba

Shell is stored at the Government store at Cojimar, which is controlled and managed by the Ministry of Fishing Industries. Shell from the traditional harvest is accumulated at the local fisheries enterprises (Cocodrilo and Nuevitas) until sufficient quantities and appropriate transport is available for transfer to the store. This leads to delays between the capture of turtles and processing of the shell at Cojimar, particularly in the earlier part of the year when fewer *E. imbricata* are caught. The store and all shell into and out of the store is subject to inventory.

At Cojimar, all individual pieces of shell for each individual *E. imbricata* are photographed with a digital camera, together with the CITES label (see later), and re-packed into plastic bags which are double heat-sealed (ie 2 seams). For the majority of bags (and all bags containing shell of individual *E. imbricata*), this first bag containing the shell is placed within another plastic bag to reduce the likelihood of shell plates cutting the first bag and the contents spilling out. The second plastic bag is also double heat sealed, and a uniquely numbered, non-reuseable CITES label (Fig. 8) relating to the shell within the bags is affixed to it.


Since 1997 most shell from individual *E. imbricata* (identified by a field identification number) is packed, sealed and labelled in individual bags. Shell prior to 1997 is of mixed origin and is specified as “RESERVA ACUMULADA” (“STOCKPILE”) on the CITES labels.

Labels also contain information on the number, weight and type of shell plates in each bag. The format in which the field identification number (individual turtles since 1997) has been recorded on the CITES labels differs from that indicated on the labels (year/site/number), but matches the format

recorded at the harvest sites (site/year/number). The integrity of the field identification number has in no way been compromised by this change, and maintains consistency between data from the harvest sites and that recorded at Cojimar. This does not apply to the bulk of the management shell stocks (“RESERVA ACUMULADA”) which were collected prior to the data recording system being improved at the harvest sites.

Some bags have been opened after sealing for research purposes (eg DNA). In this case, the shell is re-photographed with a new CITES label, and the computerised database updated accordingly. The number from the discarded label (no longer valid) is retained in the database for checking purposes.

It has been confirmed that the photographic images do allow scutes from individual turtles to be identified by size, shape and color pattern (Carrillo *et al.* 1998e). Since November 1999, triplicate copies of the image database are maintained at Cojimar, MIP and the Management Authority, and hard copies of images are maintained in a secure location at MIP.



**CONVENCION SOBRE EL COMERCIO INTERNACIONAL DE ESPECIES
AMENAZADAS DE FAUNA Y FLORA SILVESTRES**
(Convention on International Trade in Endangered Species of
Wild Fauna and Flora)

CONCHAS DE CAREY
(HAWKSBILL SEA TURTLE SHELL)
Eretmochelys imbricata (A-301.003.003.001)

PRODUCTO DE CUBA
PRODUCT OF CUBA

Número de etiqueta:CU _____
(Label Number) (Año/Lugar/No. de Serie)

Código de campo : _____ / _____ / _____
(Field Code) (Year/Place/Serial No.)

Origen de la Tortuga : _____
(Origin of Turtle)

Fecha de producción : _____
(Date of Production)

!! IMPORTANTE !!
(!! IMPORTANT !!)
No valido si no se abre a lo largo de esta linea.
(INVALID UNLESS OPENED ALONG THIS LINE)

Corte por aqui (cut here) Corte por aqui (cut here)

Peso de las conchas : _____ kg
(Weight of Shell)

Número de las piezas : _____
(Number of Pieces)

Número de foto : _____ / _____
(Photo Number) (Número de disco/marco)
(Disk Number/Frame Number)

Figure 8. CITES Label (tag equivalent) attached to sealed bags of *E. imbricata* shell in Cuba.

The marking system used by Cuba is best described by reference to definitions in Resolution Conf. 10.18 (for ranched specimens).

a. Product of Operation [Resolution Conf. 10.18(b)]

Any piece of *E. imbricata* shell, including whole or broken parts, from the plastron or carapace (plates, marginals).

b. Product Unit [Resolution Conf. 10.18(c)]

A standardised, double heat-sealed, heavy duty, plastic bag containing shell of *E. imbricata* is the smallest single item that will be individually marked and enter international trade. It is the Product Unit. [The uniquely numbered, non-reusable label on the bag is the equivalent of a Tag]. That part of the management stocks not separated into individual animals (prior to 1997) is packed in the bags according to shell type and grade.

c. Uniform Marking System [Resolution Conf. 10.18(d)]

Applies to a bag of shell, not an individual piece or broken piece of shell.

d. Primary Container [Resolution Conf. 10.18(e)]

Each product unit (bag) serves as its own primary container and as such both primary containers and product units conform with the uniform marking system.

e. Labels

The CITES labels affixed to each bag (Fig. 8) are uniquely numbered, non-reusable, high security (cannot be duplicated by photographic means), are clearly identified to Cuba, contain individual field identification numbers, information on the origin of the shell within Cuba, date of production, the number of pieces and weight of shell in each bag, and photograph number. The labels are glued to the bag and cannot be removed without destroying them.

f. Supervision/CITES Permits

Packaging of the stockpile is carried out by the Cuban CITES Management Authority or their delegate (MIP). All exports of shell will be subject to supervision and issuance of CITES export permits by the Cuban CITES Management Authority, and confirmation that Japanese CITES import permits have been issued.

g. Additional Safeguards

Information on DNA haplotypes, nitrogen and carbon isotope concentrations and trace element concentrations in the shell of Cuban *E. imbricata* (Moncada *et al.* 1998b) provide additional safeguards against illegal trade.

Table 8. Details of management stocks of *E. imbricata* shell in Cuba. An additional 200 kg is estimated to be produced between 1 November 1999 and 31 March 2000.

Held at	As of	Weight (kg)	Status
Cojimar	31 October 1999	6413.2	Fully processed
Isle of Pines	31 October 1999	195.0	Unprocessed
Nuevitas	31 October 1999	90.0	Unprocessed
Total		6698.2	

Since December 1992, none of the *E. imbricata* shell produced through the traditional harvest program has been exported, with the exception of small samples for research purposes. Some shell has been used domestically and for research, but the majority has been stored pending acceptance of a protocol for legal trade by the Parties to CITES. Details of current shell stocks derived from Cuba's management program are in Table 8.

Cuba intends to export all management stocks of shell accumulated up to 31 March 2000 (up to 6900 kg) in one shipment to Japan (Section 4.1.3) Each year thereafter, shell produced from the traditional harvest will be exported in one shipment per year to Japan or to other Parties. Cuba will not consider any trading partner other than Japan, unless the CITES Secretariat confirms that the Party has equivalent controls (eg legislation, internal controls, enforcement capability), and will not re-export.

In all cases the CITES Secretariat will be provided with a complete list of all label numbers, bag contents and security images for registration prior to the export and is invited to oversee the final packing and export, or any other aspect of the export deemed advisable by them.

4.1.3. Management of Shell in the Importing Country

Within Japan, the *Foreign Exchange and Foreign Trade Law* governs export and import in compliance with CITES. A Cabinet Order issued under this law currently prohibits the export and import of *E. imbricata* shell for commercial purposes (ROC 1998b). The tradition of tortoise-shell crafting in Japan is sustained on supplies of shell imported before Japan lifted its reservation.

When the Parties agree to this proposal, the import restrictions (but not the export restrictions) in Japan will be altered to allow the importation, and further controls will be introduced in Japan to ensure the shell imported from Cuba can be readily recognized from other shell in Japan. Cuba will not export until these conditions have been met.

Current domestic controls over *E. imbricata* shell trade in Japan are focussed on the manufacturers and artisans dealing with raw shell, and not on the retail consumers of finished products. There is a practical reason for this. The crafting of items involves the fusing together of selected pieces of individual shell, from different turtles, with different color patterns, to form a matrix with specific artistic characters. This matrix is then cut and crafted into individual items, with inlays of other materials, and many of the final products are small and for the purposes of law enforcement cannot be readily identified back to an individual turtle or even shell plate.

At the industry level, laws governing *E. imbricata* shell are within amendments to the *Law for the Conservation of Endangered Species of Wild Fauna and Flora*, which came into force on 28 June 1995. They refer mainly to stocks of shell within Japan. These amendments control domestic trade in individual pieces of raw shell. Artisans trade with each other in particular pieces of shell in order to obtain the exact materials needed for crafting a particular item. The Government of Japan agencies responsible for controlling domestic trade are the Environment Agency (EA) and the Ministry of International Trade and Industry (MITI). Specific requirements are:

a. Registration of Business

All people or corporations involved in the business of trading pieces of raw shell are required to register their personal and business details (including stocks of shell) with EA and MITI. Random inspections are carried out by EA and MITI to ensure those involved in the industry are registered: violations invoke fines up to ¥500,000.

b. Record-Keeping

Any person or corporation which carries out any transaction involving pieces of raw shell is required to compile and maintain a ledger recording all such transactions. The ledger must contain the name and address of the person or corporation with whom any individual transaction was made, the date of the transaction and the weight and quantity of shell involved. Current stocks of raw shell held are also required to be recorded. The ledger is required to be preserved for 5 years and must be presented at the request of officials from EA and MITI.

Details on stock of shell and transactions are submitted to EA and MITI, enabling monitoring of stock. Violations may result in the suspension of business for up to 3 months, fines up to ¥500,000 and imprisonment up to 6 months. The database on registered persons, corporations and shell stocks is maintained by EA and MITI.

With the importation of accumulated management stocks of shell from Cuba, the following procedures will be followed.

- c. Based on an assessment of the management stocks of shells in Cuba, the non-profit organization Japan Bekko Association (JBA) will agree to pay to Cuban Ministry of Fishing Industries (MIP) a sum considered by both MIP and JBA to be a fair value for the shell. JBA is an officially approved organization under the supervision of MITI and is considered to be the most appropriate organization to co-ordinate business and manage the shell stocks.
- d. The Cuban CITES Management Authority will provide the Government of Japan with copies of the computerized security images of the shell.
- e. Upon arrival in Japan the sealed containers of Cuban shell will be installed in a Custom bonded area. The containers will be opened in the presence of JBA and representatives of the Governments of both Japan and Cuba. Random samples of the bags of shell will be opened and the contents checked against the security images. The CITES Secretariat will be invited to oversee this operation.
- f. After the shipment has been cleared by Customs and under the supervision of JBA and representatives of the Governments of both Japan and Cuba, each bag will be opened and all the dorsal shell plates within a bag will be stamped with a number or have a label attached to them bearing a number, that is the CITES label number of a particular bag from which the shell plates came (Section 4.1.2.b).
- g. All minor pieces of shell from a particular bag, many of which are small and colorless, will be stamped with a common seal or label (“Cuba 2000”).
- h. The shell will be graded into batches according to colour, size, imperfections and other industry criteria.
- i. For batches containing the major dorsal shell plates (13-14 per individual turtle), the number of shell plates and the individual identification numbers of each plate within each bag will be recorded.
- j. For batches containing minor plates, which are all others excluding the main dorsal plates in “i” above, the number, weight and type of shell plate will be recorded (all stamped “Cuba 2000”).
- k. The batches will be sold by auction and only persons registered with the Government of Japan who have complied with all requirements specified elsewhere in Section 4.1.3 will be entitled to bid at the auction.
- l. The Government of Japan will retain the records of which buyers have purchased which particular batches.

Export of management stocks of shell from Cuba to Japan will not take place until:

- m. The Government of Japan confirms that the security images have arrived and that they are accessible on computers in Japan.
- n. MIP (Cuba) has received the first payment for the shell from JBA.
- o. Agreement has been reached between Japan and Cuba that after all costs and taxes associated with the auction have been met that a sum of not less than 5% of the value of the shell sold at auction will be set aside in a conservation trust fund, for the express purpose of providing

project funding and training support to CTMRG members to advance regional management of marine turtles in the Caribbean.

- p. Agreement has been reached that if after the deduction of the costs of the auction, the monies allocated to the conservation trust fund, and the original purchase price of the shell, monies are still available then those monies will be remitted to Cuba as a second payment.
- q. That the Government of Japan will continue to carry out random spot checks to ensure numbered shell plates match those on the security images and that shell marked with an identifying stamp or label can be validated.

Future exports of the shell derived from the annual traditional harvest will be treated in an identical manner, with the minor shell parts marked with the year of export (“Cuba 2001”, etc).

4.2. Legal International Trade (Resolution Conf. 9.24, Annex 6.C.3.2)

International trade in *E. imbricata* from Cuba in the past (Carrillo *et al.* 1998b, 1999) has been restricted to export of shell, primarily for commercial purposes. The current proposal will not alter the nature of the trade, but will result in improved levels of documentation, reporting and enforcement capability. At a global level, legal international trade is currently restricted to trade in specimens for non-commercial purposes.

4.3. Illegal International Trade (Resolution Conf. 9.24, Annex 6.C.3.3)

Despite their reservation, in 1992 Cuban authorities apprehended an international visitor to Cuba in connection with a shipment of *E. imbricata* shell he was attempting to import into Cuba for transit purposes. The shipment was seized before it could be re-exported and all details were reported to the CITES Secretariat (CITES Doc. 9.22. Review of alleged infractions and other problems of implementation of the Convention. Summary Number 3.17). This is the only attempt to engage in illegal commercial-scale international trade detected by Cuba since joining CITES in 1990.

Unfounded allegations of illegal international trade between Cuba and Costa Rica made by the IUCN (1997) have never been substantiated and nor can they be. Tourists are occasionally apprehended bringing handicrafts purchased in local markets across international borders (IUCN 1997), but the weight of shell involved is very small. Japanese Customs have intercepted 6 attempts in 6 years to illegally import *E. imbricata* shell into Japan.

Reported data to CITES indicate that trends in illegal trade are decreasing rather than increasing (see Section 2.1.8).

4.4. Actual or Potential Trade Impacts (Resolution Conf. 9.24, Annex 6.C.3.4)

4.4.1. General

Harvesting and trade of *E. imbricata* in Cuba is strictly controlled by Government. Since no trade in *E. imbricata* shell is known between non-Parties, with Cuba’s reservation lifted (Section 2.2.12.a) any future international trade would be between Parties to CITES and comply with CITES requirements.

4.4.2. Effects of Legal Trade

Trade from Cuba will not stimulate excessive harvesting within Cuba waters. It will encourage both the maintenance of strict regulations and the further investment of resources in *E. imbricata* conservation and management.

Cuba’s harvest was responsibly managed before CITES came into being and before Cuba became a Party to CITES. Existing laws are strengthened by Decree Law 164 (1996) which imposes heavy penalties (400<5000 Cuban pesos) relative to the average monthly salary (203 pesos), for the unlicensed harvest, trade and transport of marine turtles and/or their products, in addition to confiscation of equipment and suspension of fishing licenses if appropriate.

The untested hypothesis that legal trade from Cuba may stimulate illegal trade from Cuba or from other nations (Meylan and Donnelly 1999) lacks supportive evidence and is contradictory to all actions taken by CITES to encourage legal trade and sanction the conservation and economic benefits that flow from it, which Parties recognized in Resolution Conf. 8.3.

Cuba's legal trade will not encourage additional use of shell in other countries, because there are no avenues through which it can legally be traded, and all Parties are aware of the stringent requirements needed for a program involving marine turtles to meet the approval of the Parties. It is inconceivable that Parties would promote the view that illegal harvesting will be rewarded.

4.4.3. Benefits of Trade

The proposed listing on Appendix II will enhance the conservation of *E. imbricata* in many ways.

- a. To export shell, Cuba's management program for *E. imbricata* will need to meet the stringent requirements of CITES and be subject to international oversight. This will clearly not be the case if *E. imbricata* is listed in Appendix I and the shell is used domestically.
- b. The increased levels of monitoring, reporting and research linked to Cuba's desire to trade shell internationally are providing definitive data on the population dynamics of *E. imbricata* subject to harvest. Given the widespread and continuing use of *E. imbricata* in many countries (Groombridge and Luxmoore 1989; Meylan and Donnelly 1999), such data are critical to the international community's ability to make decisions based on experimental results rather than theory.
- c. The management results from Cuba provide new insights into likely impacts of domestic use in other nations (Groombridge and Luxmoore 1989).
- d. The reduction by 90% of Cuba's wild harvest, which represents a significant contribution to regional conservation, will continue after approval of this proposal.
- e. If the current management program is maintained the extent of the harvest will not increase, and *E. imbricata* will be protected throughout most Cuban waters. The two traditional harvest sites make up 0.005% of available *E. imbricata* habitat in Cuba.
- f. Upgraded record-keeping at the harvest sites provides a new approach for monitoring population trends in the wild, which has national and regional significance.
- g. The traditional harvest provides unique opportunities for research into the ecology and biology of *E. imbricata*, and provides a means of determining whether *E. imbricata* tagged in other countries are caught in Cuban waters.
- h. The program will provide a legal source of *E. imbricata* shell to Japan, thereby lessening incentives for those elements that may try to trade illegally.
- i. The program creates sound, tangible, economic reasons for Cuba to maintain a budget commitment to the conservation and management of marine turtles when other pressing needs exist.
- j. The program has already led to regional co-operation (Section 5.1.2.d) and has stimulated renewed interest and funding support for *E. imbricata* research (eg Rhodin and Pritchard 1999).
- k. The program is based on sustainable economic development of a renewable resource for the benefit of local communities and the Cuban society as a whole, and is thus consistent with principles and guidelines espoused by the IUCN and CBD.
- l. Cuba's reservation on *E. imbricata* will be lifted.

- m. The nest monitoring program results in Government officers being stationed in the main nesting areas throughout the nesting season, which is a clear local demonstration of Government concern about the conservation and management of *E. imbricata*.
- n. Some of the income generated from the sale of the shell will be allocated directly to national and regional conservation efforts (Section 4.1.3).

4.4.4. Reporting

In compliance with Article VIII of the Convention, Cuba will provide the CITES Secretariat with annual reports on the shell exported and stored, and on monitoring and research results.

4.4.5. Response Capability and Commitments (Safeguards)

Sustainability depends on: effective monitoring of population indices; realistic assessment of results; and, the ability to alter management regimes on the basis of those assessments (response capability) (eg see Gibbs *et al.* 1999).

Monitoring results from Cuba since the phase-down of the historical harvest are consistent with the traditional harvest not being detrimental to the wild population, but specific commitments to corrective actions are made here to account for unforeseen events:

- a. If results at either harvest site indicate numbers of *E. imbricata* over 70 cm SCL are declining at a rate equivalent to a 20% reduction in this segment of the population over a 3 year period, that can not be explained by management or environmental factors, the traditional wild harvest at the affected sites will be reduced by 50% as a first stage response and maintained at that level until the decline has been rectified.
- b. In the event that the results of annual nest monitoring in the Doce Leguas region indicate a declining trend over 3 years equivalent to a 20% decline in the total numbers of nests, which can not be reasonably accounted for by management or environmental factors, the harvest at both traditional sites will be reduced by 50% as a first stage response, and maintained at that reduced level until the apparent decline has been rectified.
- c. In the event that the decline in (a) above is 50% in one year or 40% in two years, or the decline in (b) above is 50% in one year or 40% in two years, that is not explicable by management or seasonal biases, all harvesting will cease until the apparent declines have been rectified.

4.5. Captive Breeding or Artificial Propagation for Commercial Purposes (Outside Countries of Origin) (Resolution Conf. 9.24, Annex 6.C.3.5)

No significant captive breeding of *E. imbricata*, for commercial purposes is known to occur within or outside range states.

5. Conservation and Management (Resolution Conf. 9.24, Annex 6.C.4)

5.1. Legal Status (Resolution Conf. 9.24, Annex 6.C.4.1)

5.1.1. National (Resolution Conf. 9.24, Annex 6.C.4.1.1)

The history of development of legal controls on *E. imbricata* management in Cuba has been described by Carrillo *et al.* (1998a). Of particular significance:

- a. Decree Law No. 704 (1936) called “General Law of Fisheries” establishes closed season for marine chelonians during the reproductive period.
- b. Decree Law No. 2724 (1956) establishes regulations dealing with the utilisation of marine resources.

- c. Ministry of Fishing Industries Resolution 31-V (1960) establishes closed seasons for sea turtles: 15 June to 10 August.
- d. Ministry of Fishing Industries Resolution 16-VI (1961) establishes permanent prohibition on taking and consuming sea turtle eggs and disturbing females at night.
- e. Ministry of Fishing Industries Resolution 117 (1968) establishes State control on the accumulation and distribution of sea turtle products and byproducts.
- f. Ministry of Fishing Industries Resolution 10 (1973) prohibits capture of sea turtles by private persons.
- g. Article 27 of Cuban Constitution (1976) establishes policy for sustainable use of natural resources.
- h. Ministry of Fishing Industries Resolution 34 (1976) authorises capture of sea turtles for research purposes.
- i. Decree Law No. 1 (1977) establishes limits of Cuban territorial waters.
- j. Decree Law No. 2 (1977) establishes limits of marine economic zone.
- k. Ministry of Fishing Industries Resolution 317 (1977) prohibits the destruction of sea turtle nests.
- l. Ministry of Fishing Industries Resolution 134 (1978) prohibits the capture of female sea turtles before nesting.
- m. Law No. 33 (1981) establishes in detail Cuba's policy concerning the environment and rational use of natural resources.
- n. Ministry of Fishing Industries Resolution 298 (1994) permanently closes all seasons for taking marine turtles.
- o. Ministry of Fishing Industries Resolutions 300 (1994) and 3 (1995) permits harvesting of turtles in the traditional harvesting sites at the Isle of Pines and Nuevititas.
- p. Ministry of Science, Technology and Environment Resolution 168 (1995) establishes procedures for undertaking and approving environmental impact evaluations.
- q. Ministry of Science, Technology and Environment Resolution 130 (1995) establishes regulations for appropriate inspections of environmental issues.
- r. Decree Law 164 (1996) updates fisheries legislation, creates an advisory commission for fisheries, and further strengthens restrictions on the taking of *E. imbricata* and their eggs by unauthorised persons.
- s. Ministry of Science, Technology and Environment Resolution 29 (1996) designates the Centre for Environmental Management of the Environmental Agency as the Management Authority for CITES.
- t. Ministry of Science, Technology and Environment Resolution 87 (1996), establishes Regulations for compliance of Cuba's obligations under CITES.
- u. Ministry of Science, Technology and Environment Resolution 111 (1996) establishes regulations about biological diversity.
- v. Agreement 2994 (1996) of Executive Committee of the Cuban Council of Ministers creates the National Office for Fishing Inspection.

- w. Ministry of Fishing Industries Resolution 562 (1996) declares Doce Leguas Keys, as a special use and protected area, which restricts commercial fishing operations in the area (makes it subject to consent) and prohibits sport-recreation fishing activities unless carried out under a special permit.

Cuba's legislation has proved effective in maintaining protected areas and in controlling and regulating the harvests.

5.1.2. International (Resolution Conf. 9.24, Annex 6.C.4.1.2)

a. Intergovernmental Organisations

According to the CITES Secretariat (ROC 1998a) there are no intergovernmental organisations responsible for coordinating international utilisation of sea turtles within national fisheries waters: it is a sovereign right of all nations (see Section 2.2.1).

CITES was effective in restricting international trade, but can only influence domestic management if there is international trade, or a desire to engage in international trade.

b. International Instruments

Groombridge and Luxmoore (1989) reviewed the world status and management of *E. imbricata*, and provide information on protection measures. As a direct consequence of CITES trade in *E. imbricata* is declining (Section 2.1.8). There does not appear to be any large-scale international trade from producer countries, although curios made from *E. imbricata* shell can be purchased at markets in many developing countries (Groombridge and Luxmoore 1989) and through tourism some of these cross international borders, are confiscated, and are sometimes reported as "shells" (IUCN 1997), even if items are made from small pieces of shell. The conservation significance of this trade is unclear because many coastal peoples use turtles for food and the shell is a byproduct.

Within nations which have imported *E. imbricata* shell from Cuba in the past [Argentina, Austria, Bahamas, Belgium, Canada, France, Germany, Holland, Hong Kong, Italy, Jamaica, Japan, Switzerland, Great Britain, United States of America (Carrillo *et al.* 1998b)], there has been a steady increase in the effectiveness of import restrictions. Since Japan lifted its reservation on *E. imbricata* in 1992, no legal imports of *E. imbricata* shell into Japan for commercial purposes have occurred (see Section 4.3). Imports reported by the IUCN refer to small samples of shell for DNA and chemical analyses reported previously (ROC 1998a).

c. Regional Instruments

Of the 38 nations in the Caribbean region reviewed by Groombridge and Luxmoore (1989), 36 had legislation aimed at regulating utilisation and trade in *E. imbricata*. New legislation had been passed during the 1970's and 1980's in 31 of those 36 countries, indicating active, regional consideration of *E. imbricata* conservation and management needs.

In the late 1980's *E. imbricata* could be used legally in 23 of 38 Caribbean nations with varying degrees of control. Of the 36 nations with legislation, it provided for controls on use in 21, and blanket prohibition in 15. Of the nations which had blanket prohibition, various forms of subsistence use and domestic trade occurred in coastal fishing communities. During the 1990's general trends have been towards increases in regulatory legislation and controls on use which have tended to be ignored in recent reviews (eg Meylan 1999).

d. Regional Initiatives

Cuba has and will continue to promote regional co-operation in the conservation and sustainable use of marine turtles. Cuba held a regional workshop on *E. imbricata* bycatch in shrimp fisheries (1992), and two meetings to advance regional assessments of marine turtle mtDNA (1994, 1995). A series of technical meetings have been held to discuss Cuba's management program with international experts (JBA 1994, 1995, 1996; IWMC 1997, 1999). In March 1996, Cuba

hosted a major regional meeting to foster co-operation in conservation, management and sustainable use of *E. imbricata* (ROC 1998c). Prior to COP10 Cuba consulted broadly within and outside the region. Cuba has participated actively in CITES forums about marine turtles (eg those leading to Resolution Conf. 9.20), and contributed to forums aimed at resolving why the IUCN criteria are such a poor index of global risk of extinction with *E. imbricata* (Mrosovsky 1983, 1997; Lapointe 1997; Webb and Carrillo 1999).

Cuba and Mexico have co-operated in marine turtle conservation, management and training since the 1970's, and a bilateral agreement to share management and research information and to undertake joint research and training programs on marine turtles, was formalised in 1999.

Cuba continues to contribute to discussions on the InterAmerican Convention for the Conservation and Protection of Sea Turtles (IACCPST), and has signed and ratified the SPAW Protocol of the Cartagena Convention.

In June 1997 Cuba and four other Caribbean nations agreed to work together to enhance regional cooperation in the conservation, management and sustainable use of marine turtles. In May 1998 (Venezuela) a co-operative agreement was drafted [Caribbean Turtle Management and Research Group (CTMRG)], and at three further working meetings (Grenada, May 1999; Trinidad & Tobago, August 1999; Dominica, October 1999) membership expanded to 10 signatory countries.

The CTMRG is an independent consortium of Caribbean Governments dedicated to improving regional management of marine turtles. Specific issues addressed to date include:

- i. The first CTMRG training program on the management of marine turtles, hosted by Cuba (13-21 September 1999), was attended by participants from 12 regional nations and involved members of the IUCN-MTSG.
- ii. Collaboration with DNA analysis of samples with a number of signatory countries is underway, and offers to collaborate with other range states have been made (eg Cayman Islands, Bahamas, Mexico). Other areas of co-operation have also been identified (eg satellite tracking).
- iii. A major review of the current status of marine turtles in the Caribbean region has been initiated. The goal is to update recently published reviews (Meylan 1999) which are outdated and rely on anecdotal evidence: they do not reflect the current situation in many Caribbean countries. After analysis of status in CTMRG member nations, the study will be extended to other nations in the Caribbean and results will be presented at a CTMRG regional meeting in the Year 2000/2001.
- iv. Identification of priority areas for future action. Loggerhead turtles (*Caretta caretta*) have already been identified by the CTMRG as a species where status is in need of review.

e. International Forums

Cuba has attended and presented information at various forums, including the annual Meeting of Latin American Sea Turtle Specialists and International Sea Turtle Symposia [Hilton Head Island, USA (1995, 1996), Orlando, USA (1997), Mazatlan, Mexico (1998), South Padre Island, USA (1999)].

f. International Reviews

Cuba has published detailed accounts of its management program (ROC 1998a; Carrillo *et al.* 1999; Moncada *et al.* 1999) and has solicited international review of its program by: Chairman of the IUCN-MTSG (April 1999); Chairman of the IUCN-SSC (July 1999); Deputy Secretary General of CITES (August 1999); and, a Delegation from the Scientific Committee of the European Union (September 1999). A series of international workshops were attended (1992, 1994, 1995, 1997) in which Cuba's management program, goals and research were discussed and reviewed with international experts, and where priorities were set for new research.

5.2. Species Management (Resolution Conf. 9.24, Annex 6.C.4.2)

Groombridge and Luxmoore (1989) and Meylan and Donnelly (1999) summarise information on the management of *E. imbricata* throughout their global distribution.

5.2.1. Population Monitoring (Resolution Conf. 9.24, Annex 6.C.4.2.1)

a. General

With the exception of Cuba (Groombridge and Luxmoore 1989; Meylan and Donnelly 1999), few nations which use *E. imbricata* have monitoring programs allowing the extent of use and its impacts to be quantified.

Densities of *E. imbricata* in the wild tend to be high in areas with vertical faces of coral (Limpus 1992; León and Diez 1999). They also tend to be high in latitudes where nesting occurs and decrease as distance away from those latitudes increases. Juveniles and subadults can exist naturally in reef habitats at 3-4 per km² and show no change over time, or occur at densities in excess of 100 per km² (Table 4). The quality of habitat and temperature of sea water may be both involved.

Most indices of *E. imbricata* abundance are counts of nests or nesting females, which reflect the adult female segment of the population at one period of time. Mean trends (increases or decreases) in nest numbers are probably a good index of trends in the adult female population size, but stability of numbers (eg Antigua, Australia, Costa Rica, US Virgin Islands, Cuba) is more difficult to interpret. Factors other than the size of the wild adult female population may limit the proportion of females nesting annually, or nesting on particular beaches.

b. Cuba

Under Cuba's current management program, monitoring of the wild population and the new nest monitoring program (see Section 3.3; Moncada *et al.* 1999) are intimately linked to the harvest program. In addition to the size and sex structure of *E. imbricata* caught, a library of scanned C1 scutes has been compiled because the color pattern can be used to provide an index of both age and rate of growth (AACC 1998; Carrillo *et al.* 1998e). It is not logistically feasible to maintain an intensive annual nest beach study (Hoyle and Richardson 1993; Richardson *et al.* 1999; Dobbs *et al.* 1999) in the remote Doce Leguas keys, even if refinements such as those suggested by Kerr *et al.* (1999) are introduced. However, the new monitoring program is sufficiently robust to determine trends: whether the numbers of nests are increasing, decreasing or stable over time. Areas for systematic monitoring outside Doce Leguas are being investigated. The ability to maintain a rigidly standardised nest monitoring program is constrained by unpredictable weather and the lack of dedicated equipment such as boats.

5.2.2. Habitat Conservation (Resolution Conf. 9.24, Annex 6.C.4.2.2)

a. General

Eretmochelys imbricata has a global range encompassing over 100 million square kilometres of marine environment (Fig. 2):

- Marine habitats are unlikely to be limiting at a species level, although local populations in some countries may be affected by habitat degradation caused by both natural (eg hurricanes) and human-induced factors (NOAA 1999).
- Over the last 25 years many nations have implemented legislation aimed at protecting *E. imbricata* eggs, nests and nesting beaches (Groombridge and Luxmoore 1989).
- There is increased international awareness (IUCN 1995) of the need to integrate beachfront development with responsible management of marine turtle nesting, although it remains a widespread problem.

- At an international level, large tracts of *E. imbricata* marine habitat now lie within marine protected areas (eg Great Barrier Reef Marine Park, Australia), ensuring that large populations of *E. imbricata* are secure and safe for the future.

b. Cuba

Within Cuba, marine and coastal habitats are in generally good condition (Groombridge 1992; WCMC 1999). Harvest methods have no significant impact on habitats and harvest areas are extremely limited. The main nesting areas are remote, in a near pristine condition, and have not been developed for tourism. Nesting areas identified in other parts of Cuba (Moncada *et al.* 1999; MIP, unpublished) are mostly free of development.

5.2.3. Management Measures (Resolution Conf. 9.24, Annex 6.C.4.2.3)

The levels of management applied to *E. imbricata* within range states varies greatly (Groombridge and Luxmoore 1989). There has usually been a history of subsistence use, followed by domestic and international commercial use, followed by protective legislation for controlling or restricting commercial use.

Subsistence use remains common amongst coastal people in developing countries, which leads to domestic trade in shell byproducts (Groombridge and Luxmoore 1989).

Management in Cuba varies from that in most other countries in that:

- a. The wild harvest is strictly controlled and an institutional framework exists for implementing corrective actions should they be needed.
- b. Cuba's use of *E. imbricata* is part of a management regime for conservation and sustainable use.
- c. Data collection and monitoring are an integral part of the management regime.
- d. The harvest is carried out by the State.
- e. The program is associated with a considerable research effort.

5.3. Control Measures (Resolution Conf. 9.24, Annex 6.C.4.3)

5.3.1. International Trade (Resolution Conf. 9.24, Annex 6.C.4.3.1)

International trade in *E. imbricata* products from Cuba can be strictly controlled because:

- a. Cuba is an island nation without common land borders.
- b. Because of CITES there are no countries that could serve as a viable market for shell exported illegally.
- c. The only existing viable market is Japan, which has stringent import regulations and enforcement capability.
- d. The Cuban traditional harvest is controlled by the State and the shell is owned by the State.
- e. The marking system for shell (Section 4.1) is secure.
- f. There are no avenues through which *E. imbricata* shell produced elsewhere can enter Cuba and be exported as a Cuban product with CITES certification.
- g. The only CITES Export Permits issued for *E. imbricata* shell will be those pertaining to the current management stocks of shell, and the shell produced annually from the traditional harvest.

5.3.2. Domestic Measures (Resolution Conf. 9.24, Annex 6.C.4.3.2)

Various forms of utilisation of *E. imbricata* are permitted in different nations for research, subsistence and commercial purposes, and the domestic controls on use vary (Groombridge and Luxmoore 1989). Education programs have increased greatly in the last 25 years due to the actions of Non-Government Organisations and responsible Governments (IUCN 1995). Within Cuba, domestic controls (Section 5.1.1) on the use of *E. imbricata* have been in place for many years.

6. Information on Similar Species (Resolution Conf. 9.24, Annex 6.C.5)

The shell plates of *E. imbricata* can be readily distinguished from those of other species due to shape, thickness and colour. The marking system (Sections 4.1) adds additional security and allows identification to an individual turtle if required. Chemical and biochemical analyses (Sakai and Tanabe 1995; Sakai *et al.* 1995; Tanabe and Sakai 1996; Moncada *et al.* 1998b) have the potential to provide a further tier of security if needed, and there is now considerable mtDNA data available (Bass 1999; Díaz-Fernández *et al.* 1999; Okayama *et al.* 1999) which could be used to verify the identity of batches shell from Cuba. Scrapings of shell from each bag containing the shell of individual turtles taken in the traditional harvest (1997-1999) have been collected, and provide a reference source for confirming mtDNA haplotypes should this be required.

7. Other Comments (Resolution Conf. 9.24, Annex 6.C.6)

In preparing this proposal, Cuba has consulted with a wide range of regional nations and international technical experts (see Section 5.1.2), which included visits to several regional countries and expert delegations from the Caribbean and other nations visiting Cuba. A draft summary of the proposal was circulated to regional Parties in September/October 1999 both in English and Spanish (Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Colombia, Costa Rica, Dominica, Dominican Republic, France, United Kingdom, Guatemala, Guyana, Honduras, Jamaica, Mexico, Netherlands, Nicaragua, Panama, St. Vincent & the Grenadines, St. Kitts & Nevis, Suriname, Trinidad & Tobago, Turks & Caicos Islands, United States of America and Venezuela), with a request that comments be sent by facsimile as soon as they could. Attempts were made to contact all Parties in the region by telephone (October/November 1999) to ensure receipt of the summary.

The draft of the summary was posted on the C-TURTLE e-mail discussion list (19-20 October 1999) without previous consultation with Cuba, and when Cuba was made aware of this, it requested comments from any person or organization that wished to have its views considered. It was not Cuba's intention to publish the summary before regional Parties had been given the chance to review it and make changes.

The summary and supporting statements of this proposal were redrafted based on comments from visiting delegations, written and verbal communication within and outside the region from various organizations and specialists, and comments sought on the draft summary from range states. By 9 November 1999, the only concerns from consulted Parties were contained in a submission from the United States of America. Issues of concern identified by the United States of America were also raised by some private individuals responding to C-TURTLE.

In addressing these concerns it is important to recognize that:

- 7.1. Complete knowledge is an unattainable goal, and in the case of sustainable use of a wildlife resource, cannot be gained without applying use and monitoring the impacts.
- 7.2. Cuba's use of an adaptive management approach to ensure sustainable use is neither new nor risk-prone: it is a safe and precautionary approach consistent with the draft policy of the IUCN on sustainable use and with advice from most leading experts on resource use (eg Gibbs *et al.* 1999).

Most concerns on the Cuban draft summary of the proposal reflect opinions on scientific results that have been addressed within Cuba's supporting statement:

- 7.3. A series of technical opinions based on genetic research were presented which were helpful. Cuba addresses genetic evidence in the proposal (Section 3) and maintains along with most other scientists working in this field that the available data are not sufficient to identify with confidence the origin of many individual hawksbill turtles.

- 7.4. Cuba agrees that *E. imbricata* in Cuban waters are not restricted to Cuban waters throughout their life (Section 3). However, this does not constitute a valid nor compelling reason for forfeiting statutory rights to use local marine resources, which is considered fully valid for other Parties and other wildlife species.
- 7.5. Cuba has itself provided evidence indicating that *E. imbricata* hatched in Cuban waters may contribute to the wild population in Puerto Rico. But if so, Puerto Rico may benefit from Cuba's proposal being accepted because it places a ceiling on Cuba's traditional harvest. The conservation efforts being made in Puerto Rico are admirable, but it seems unreasonable to request Cuba to cease its controlled management program in order to assist further the *E. imbricata* populations in Puerto Rico and the US Virgin Islands, when according to the IUCN (1997 draft and final version) a local uncontrolled and unmanaged harvest of 1000-2000 *E. imbricata* per year takes place in those countries.
- 7.6. Cuba has welcomed the new and diverse information contained in Chelonian Conservation and Biology (Vol. 3, No. 2), but rejects the proposition that this constitutes evidence that the wild populations of *E. imbricata* are in serious decline. The results presented in this publication also establish population trends are improving in most countries where scientific monitoring programs have been implemented.
- 7.7. The United States of America's estimate of 15,000 female *E. imbricata* nesting annually equates to a population estimate of around 54,000 adults (nesting each 3 years; 80% sex ratio), capable of producing about 5.9 million eggs per year. To this must be added many times that number of juveniles and subadults in the wild population. Cuba considers this estimate conservative, but regardless, it is not a "small" population.
- 7.8. The IUCN classification of *E. imbricata* reflects problems with the IUCN criteria, which are currently under review, and it would be irresponsible to base local management decisions on them. Even Meylan and Donnelly (1999) agree that hawksbills are not facing global extinction, despite the IUCN criteria implying they are.
- 7.9. Cuba accepts the proposition that *E. imbricata* contribute to reef biodiversity in numerous subtle ways (Section 3.6), but rejects the proposition that the maintenance of coral reefs in the Caribbean is critically dependent on *E. imbricata*. Cuban reefs are considered to be in excellent condition by most authorities, yet *E. imbricata* in Cuban waters have been harvested for centuries.
- 7.10. The Cuban harvest is not based on a simulation model created by Doi *et al.* (1992), never has been, and nor is Cuba involved in trying to improve that model.
- 7.11. Cuba's position on sustainability is made clear in the proposal. The historical harvest was definitely sustained (kept going) and if simulation models predict it could not have been sustained, then they are obviously wrong. Past arguments that the size of the wild population was too small to sustain such a harvest were also clearly wrong. Whether Cuba's historical harvest could have been sustained indefinitely into the future is unknown, because the harvest was phased down to meet other objectives (Section 2.2.4). However, this possibility cannot be rejected on the basis of any scientific evidence available.
- 7.12. There are no scientific data indicating *E. imbricata* in Cuba take 35 years to reach maturity, and it is unreasonable to expect Cuba to accept such an estimate when growth data from Cuba and Mexico (Section 3.3.2; Fig. 4) indicate that it is wrong. [Using 35 years to maturity vastly increases any estimate of the wild population relative to the conservative estimate used by Cuba].
- 7.13. The historical harvest (Fig. 1) was sustained with decreases in fishing effort (Carrillo *et al.* 1998b, 1998c), not increases.
- 7.14. Heppell *et al.* (1995) and Heppell and Crowder (1996) argued Doi *et al.* (1992) had used the wrong estimates for population parameters but their sensitivity analyses indicated that if the parameter estimates they favoured were used, the size of the wild population would increase, not decrease.
- 7.15. The claim that populations of species with high early mortality and delayed maturity require very large populations to maintain a small stable adult population is demonstrably wrong, and Cuba cannot be expected to accept such hypotheses as fact.

- 7.16. The claim that illegal trade flourishes under the cover of legal trade lacks supportive evidence (Section 4.4.2). Reported infractions involving illegal trade in *E. imbricata* are decreasing not increasing, and legal trade has declined from tonnes each year for commercial purposes, to kilograms each year for scientific purposes (Section 2.1.8).
- 7.17. Cuba has implemented a rigorous system of controls to ensure the exports from Cuba proposed here are readily identifiable from other shell (Section 4).
- 7.18. Cuba's supporting statement demonstrates that the population of *E. imbricata* in Cuban waters does not satisfy the criteria for Appendix I, but does satisfy the criteria for Appendix II (Section 8).

On 9 November 1999, a letter from the CITES Management Authority of the Dominican Republic was received in reference to the summary of this proposal. The main issue raised was: "Because of the complexity of aspects such as life cycle, ecological relationships, migration patterns, population dynamics, taxonomic relationships and nesting cycles, among others, the current knowledge does not provide sufficient elements to ensure that the transfer of a segment of the population of *Eretmochelys imbricata* from Appendix I to Appendix II of CITES Convention will allow sustainable use of this species".

Cuba believes that the information provided in the supporting statement of this proposal does in fact address the general concerns raised by the Dominican Republic, and prior to COP11, will enter into dialogue with the Dominican Republic to determine if this is in fact the case.

Other comments about the proposal summary received from non-Parties are incorporated, discussed and now clarified in the supporting statement. An assessment of concerns raised by range states or other authorities after the submission date will be circulated to Parties at or before COP11.

8. Additional Remarks (Resolution Conf. 9.24, Annex 6.C.7)

- 8.1. Cuba indicated previously (ROC 1998a) that there was a regional need for a research, education and training centre devoted to marine turtles within the Caribbean. Should this proposal be successful, Cuba will once again investigate options for constructing such a centre within Cuba. Research in the region is seriously constrained by a lack of facilities and infrastructure, and collaborative research efforts often need to be undertaken outside the region for this reason.
- 8.2. This section summarises compliance with Resolution Conf. 9.24.
 - 8.2.1. The population of *E. imbricata* in Cuban waters does NOT comply with the "Biological Criteria for Appendix I" (Annex 1, Resolution Conf. 9.24).

Neither the Cuban nor global population of *E. imbricata* meets the biological criteria for Appendix I, although some populations in some range states and regions may need urgent conservation action (Meylan and Donnelly 1999). International trade is no longer a key threatening process. Specific areas of compliance with Resolution Conf. 9.24 are:

- A. The global wild population does not meet the definition of "small". The most conservative estimate of the population supporting the Cuban harvest is 110,905 non-hatchlings with 5865 adults (Section 3.3.2), and the number of nests in Cuba has been estimated from field studies to be between 1700 and 3400 (Moncada *et al.* 1999). In Mexico 4522 nests were found in 1996 (Garduño-Andrade *et al.* 1999), and nest numbers are increasing exponentially. In Australian waters 10,000 to 15,000 *E. imbricata* nests are laid annually (Meylan and Donnelly 1999; Dobbs *et al.* 1999), and the wild population is clearly large (see Section 3.3.1.e). The global population of *E. imbricata* may exceed one million non-hatchlings and 100,000 adults. It is not "small".
- B. The wild population does not have a restricted distribution. It has a global distribution encompassing over 1 million square kilometres (Section 3.3.1).
- C.i. With no significant commercial international trade (Section 5.1.2.b), no potential for it to resume without compliance with CITES, with *E. imbricata* protected in many areas (Sections 5.1.2.b, c and d), including Cuba, and survey results indicating increasing or

stable populations, the global population is stable or increasing, rather than declining. Some local populations may be greatly reduced relative to pristine times, but are not necessarily be declining further. Reduced populations largely reflect subsistence/domestic use and other factors (Sections 3.1.1; 5.1.2; 5.2.1) unrelated to international trade, and cannot be rectified by actions aimed at restricting international trade. Within Cuba, monitoring results are consistent with the population increasing - not decreasing (Section 3.3.2).

C.ii. Habitat is not limiting to the species (Section 3.1.2). Exploitation is reduced relative to historical levels and legal controls have increased greatly over the last 20 years (Section 5.1.2.b, c). In Cuba the harvest has been scaled down by 90% since 1990 and the abundance of *E. imbricata* is increasing. No significant extrinsic factors are involved in Cuba nor in many other parts of the range of *E. imbricata*. The reproductive potential of the population is not compromised in Cuba, where the main nesting areas are still intact, are not developed and are now subject to increased legislative protection (Section 5.1.1.w).

D. All available evidence suggests the status of *E. imbricata* on a global scale and within Cuba will continue to improve over the next 5 years, despite populations in some parts of the range of *E. imbricata* having been greatly reduced and the controls needed for recovery not being in place.

8.2.2. The population of *E. imbricata* in Cuban waters DOES comply with the "Criteria for the inclusion of Species in Appendix II in Accordance with Article II, Paragraph 2.(a) (Annex 2a of Resolution Conf. 9.24).

The population of *E. imbricata* in Cuban waters clearly meets the criteria for inclusion in Appendix II. If the worst case scenario was modelled, and the population was harvested intensively with no controls, commercial rather than biological extinction would occur, and as in Mexico, the population would retain the ability to recover over time if given the opportunity (Garduño-Andrade *et al.* 1999). No *E. imbricata* populations have become extinct and the ability to recover from low densities is well documented.

8.2.3. The population of *E. imbricata* in Cuban waters does comply with the "Criteria for the inclusion of Species in Appendix II" in accordance with Article II, Paragraph 2.(b) (Annex 2b of Resolution Conf. 9.24).

The population of *E. imbricata* in Cuban waters meets this criteria. Despite the ability to distinguish *E. imbricata* shell from that of all other species of marine turtles (Section 6), distinguishing it from other populations of *E. imbricata*, which will remain on Appendix I, can be achieved with reference to the marking system, security photographs (Section 4.6), and if necessary, chemical and biochemical analyses.

8.2.4. The population of *E. imbricata* in Cuban waters is not affected by "Special cases - split listing" (Annex 3 of Resolution Conf. 9.24).

Split listing is not requested on the basis of sub-specific classification but rather on the basis of geographic boundaries recognised in international law, which are the only ones within which nations can manage populations and fulfil their obligations under CITES. The marking system and trade controls ensure effective management and control now and in the future.

8.2.5. The population of *E. imbricata* in Cuban waters meets the "Precautionary Measures" (Annex 4 of Resolution Conf. 9.24).

Cuba has unequivocally demonstrated responsible management, and an ability to both detect and react to any unforeseen conservation needs that may arise from time to time. There is no valid reason to reject the transfer from Appendix I to Appendix II because of precautionary measures. Specifically:

A. The Cuban proposal does not meet this criteria because the distribution is stable and abundance is increasing under current management - neither are declining (Section

3.3.2). The results of the management program may have far reaching ramifications in enhancing *E. imbricata* conservation within and outside Cuba, because it is the only nation in which the impacts of harvest are being recorded, analyzed, researched and reported (Carrillo *et al.* 1999). The international trade proposed is conservative, highly regulated and creates real incentives to prevent illegal trade in both exporting and importing Parties.

- B.1. The Cuban proposal does not meet this criteria. Cuba is proposing to transfer the segment of the Caribbean population of *E. imbricata* in Cuban waters from Appendix I to Appendix II, not to remove it from the Appendices.
- B.2. The Cuban proposal does not meet the criteria. The population of *E. imbricata* in Cuban waters does not meet the biological criteria for inclusion in Appendix I (see above). In addition, the species satisfies more than one of the five precautionary criteria (a-e) that would override this situation:
 - a. The Cuban proposal meets this requirement. The shell is not in widespread international demand, but rather critical demand within Japan where it is essential to the maintenance of long-established traditional uses. Japan has improved Governmental controls (Section 4.1.3), and proposed importers of the Cuban shell have indicated their determination to comply fully with CITES. There is no evidence to suggest that stimulation of illegal trade is a significant factor in this case (Section 4.4).
 - b. The Cuban proposal also meets this requirement. There are no other range states exporting *E. imbricata* under Appendix I (captive breeding) or Appendix II, and thus Article IV applies only to Cuba, where a commitment to total compliance with CITES, in particular Article IV, has been made.
 - c. The Cuban proposal meets this requirement in some respects. The proposal is not based on quotas, but self-imposed limits. There is a definitive stock of legally obtained *E. imbricata* shell derived from Cuba's national management program (Section 4.1.2) to be moved, and the traditional harvest is subject to prescribed limits (Section 4.1.1).
 - d. The Cuban proposal meets this requirement in that an upper limit of 500 animals per year has been established (Section 4.1.2).
 - e. The Cuban proposal is not requesting export of shell from a ranching program.
- B.3. The Cuban proposal meets this criteria. Cuba agrees to withdraw its reservation on *E. imbricata* within 90 days of the approval of its proposal.
- B.4. The Cuban proposal meets this criteria. It is not requesting removal from Appendix II.
- C.1&2 The Cuban proposal meets this criteria. Cuba supports the control measures indicated, although its proposal is not specifically based on a quota (B2.c or B2.d).
- D. The Cuban proposal meets this criteria. Cuba will submit a comprehensive report to the 12th Conference of Parties detailing progress and any amended management procedures based on scientific research (Section 2.2.12.h).
- E. The Cuban proposal meets this criteria. No evidence indicates *E. imbricata* is or ever will be considered "possibly extinct" in Cuba.

9. References (Resolution Conf. 9.24, Annex 6.C.8)

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