

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES  
OF WILD FAUNA AND FLORA

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Eleventh meeting of the Conference of the Parties  
Gigiri (Kenya), 10-20 April 2000

Assessment of issues raised by Parties on Proposal 11.40 (Cuba, *Eretmochelys imbricata*). Comments were provided mainly on a draft summary circulated internationally in September 1999, rather than on the full proposal itself.

Note from the Secretariat: Remarks by Cuba related to comments provided to them by Parties are, to the extent possible, included in *italics*.

Barbados (10 November 1999)

- a. After reviewing the draft summary Barbados has decided it cannot support the proposal to transfer the population of hawksbills in Cuban waters to Appendix II.
  - *The aim of circulating the draft summary was to gather comments on concerns from the region, which could be incorporated into the proposal. It was not the intention of Cuba to imply that decisions on support or rejection should be based on this draft summary.*
- b. Barbados would support the one time sale of stockpiled shell under the sanction of the CITES Secretariat if a conservation organisation rather than a country were the beneficiary.
  - *The option of selling the stockpile alone has been embodied in Proposal 2. Conservation and regional conservation organisations will clearly be beneficiaries of this sale, but not the sole beneficiaries.*
- c. Despite the evidence contained in the draft summary, Barbados has concerns about "whether the Cuban population can sustain a harvest of 500 animals per year".
  - *The information contained within Cuba's proposal indicates unequivocally that the harvest is being sustained which should satisfy the concerns of the Government of Barbados on this issue.*

Colombia (29 October 1999)

Colombia has acknowledged Cuba's desire to get regional comment and has distributed the draft summary to national experts for comment.

Dominican Republic (9 November 1999)

After reviewing the draft summary, the Dominican Republic concluded that:

- a. There were a range of complex issues to be assessed (life cycle, ecological relations, patterns of migration, population dynamics, taxonomic relationships, nesting cycles and other subjects) and that there was insufficient information in the draft summary with which to be confident about the impacts of transferring one segment of the population to Appendix II.
  - *The complete proposal does provides an extensive array of additional information which can be assessed by the Dominican Republic, but it does not constitute "complete knowledge", which is unattainable.*

- b. The Dominican Republic applauds Cuba's efforts in marine turtle conservation and management "as pillars for the incentive and advance towards a regional program of sustainable management of marine turtles".
  - *This supports Cuba's view that significant regional conservation advantages flow from Cuba's sustainable management program.*
- c. Together with increasing information on the regional program of sustainable management of marine turtles, we must start an effort in the formulation and application of national regulations in this respect.
  - *This supports Cuba's view that regional and national programs must advance together, and that one cannot wait until the other is perfect.*

Kenya (29 October 1999)

- a. On the basis of the draft summary, Kenya indicates that it will oppose Cuba's proposal because they believe " that any downlisting of any population of this species will make it more difficult for other range states, including Kenya, to protect their hawksbill populations from poaching and illegal trade".
  - *Cuba's proposal establishes that a more plausible proposition is that legal trade will discourage illegal trade.*
  - *It is noteworthy that Kenya downlisted its Nile Crocodile population (*Crocodylus niloticus*) from Appendix I to Appendix II in order to engage in legal international trade, and has not subsequently reported any upsurge in illegal trade. Indeed, legal trade in crocodylian skins, including those from Kenya, has been directly implicated in illegal trade declining to the lowest levels ever recorded, and there is no reason to doubt the same thing will not happen with Hawksbills in Cuba.*
- b. Kenya accepts, and agrees with, the conclusion of the IUCN Marine Turtle Specialists Group that the Hawksbill is critically endangered throughout its global range. Kenya does not believe that any species classified as critically endangered should be removed from Appendix I if there is any demand for its parts or products.
  - *Kenya is obviously unaware that Hawksbills are "classified" as critically endangered because of obvious errors in the criteria used by the IUCN which are currently under review. It is obvious with even a cursory examination that Hawksbills do not in any way meet the definition of "critically endangered", which implies "an extremely high risk of extinction in the wild in the immediate future".*
  - *Even the IUCN-MTSG agrees that Hawksbills will not become extinct in the foreseeable future.*
- c. Kenya believes that downlisting of even part of the global population may harm efforts to conserve the species as a whole.
  - *Cuba has established in its proposal the conservation benefits, nationally and regionally, that accrue through its program.*
- d. Kenya believes that criticisms of the "critically endangered" listing of Hawksbills have been answered by the paper published by Meylan and Donnelly (1999).
  - *In reality this paper establishes unequivocally that the criteria are fatally flawed and at least 3 papers currently in press point this out. The MTSG conclusion that Hawksbills "meet the criteria for critically endangered" should not be confused with the MTSG's other conclusion, that Hawksbills are not expected to become extinct in the foreseeable future.*

- e. Kenya's wild population is estimated as about fifty females and they feel strictly controlled trade between Cuba and Japan will impact on them. The justification for these concerns appears to be a statement by Dr. Karen Bjornadal: " Every case of illegal trade and every request to re open any form of legal international trade encourages fishermen to continue to stockpile scutes, in the belief that eventually they will be rewarded when markets re open or when opportunities for illegal trade arise"
- *This is an unsubstantiated opinion that did not happen when Kenya downlisted its population of Nile Crocodiles and nor should it be expected with Hawksbills from Cuba.*
  - *The issue can be tested by determining whether cases of stockpiling have increased dramatically since Cuba's COP10 proposal. If so, it has not been reported from Kenya or any other country.*
- f. Kenya believes that even debating a proposal of this nature may encourage further illegal trade in tortoiseshell.
- *It has been clearly been debated at length since 1996 and yet according to CITES records, illegal trade is declining not increasing.*
- g. We therefore urge the Government of Cuba, as a fellow Range State, to avoid this risk by either not submitting its proposal or, if it has already been submitted, by withdrawing it as soon as possible.
- *The proposal has been submitted and perhaps when Kenya examines the supporting statement, which includes the information needed to assess the proposal in accordance with Resolution Conf. 9.24, they may find that the proposal meets the criteria for Appendix II listing.*

#### Mexico (16 November 1999)

In regard to marine turtles, Mexico indicates that it has bilateral programs in place with both the United States of America and Cuba, and that it ascribes to the approaches to conservation and management contained in the Inter-American Treaty on marine turtles which is not in force.

Based on the draft summary circulated, Mexico has provided Cuba with a series of comments and criticisms that go well beyond what was requested or expected from distribution of the draft summary.

Many of these reflect a fundamental failure to realise that the adaptive management goals being pursued in Cuba are completely different to the management goals being pursued in Mexico. Hence the two programs require different types of monitoring and data recording.

The concerns identified by Mexico are:

##### 2.1. Population Status (Page 1, Para. 4 to Page 2, Para. 2)

- a. Mexico does not have confidence in the extent of nesting reported in Cuba because nesting areas are difficult to access, survey effort has been "erratic", the relationship between nests found and total nesting is difficult to quantify, and the results are claimed to be based on maximum values and not on averages or minimums. In their opinion, the total numbers of nests in Cuban waters may be overestimated and needs to be verified.

*Details of nesting are not included in the draft summary, and the comments appear to refer to conclusions reached by Moncada et al. (1999). Regardless, they imply a serious misinterpretation of the role of nest surveys in management. The following need to be considered:*

- *The program of nest surveying in Cuba was developed under the guidance and supervision of one of Mexico's most eminent sea turtle biologists, Dr. Rene Marquez, who participates in the program each year.*
- *The logistics associated with nest surveying in Cuba are very different to those in Mexico, and equivalent data are almost impossible to gather. There are not long stretches of mainland beach, but rather small uninhabited beaches on offshore islands, where access is unpredictable due to weather and the availability of boats, and limited financial and human resources.*
- *However, the prime management question addressed in Cuba's proposal to CITES is whether the nesting population is increasing, decreasing or stable? You do not need a complete inventory of all nests to answer this most important question in either Cuba or Mexico.*

*In Mexico's management program, a prime motivation seems to be to protect nests and enhance hatchling recruitment, and thus the data reported annually are the total number of nests protected (eg. 4522 in 1996; Garduno-Andrade et al. 1999). It is a different management question and goal to that being pursued in Cuba. That monitoring results also allow trends in the number of females nesting annually to be monitored (increasing, decreasing or stable), which is not necessarily the trend in the wild population (all sexes and sizes), is an important bonus.*

- *If Mexico decided to estimate the total number of nests in Mexico, for whatever reason, it would not be acceptable to provide the answer of 4522 in 1996. Just as it is not acceptable to define the number of nests found on Mona Island (537 in 1998; Meylan 1999) as the full extent of nesting in Puerto Rico.*

*These statistics (nests found or protected) need to be scaled. In Mexico's case, the 4522 nests protected would need to be adjusted for the percentage protected versus not protected (say 90% protected), the percentage found and not found in the survey area (say 90% found), and the percentage of all nesting in Mexico that is thought to be within the areas surveyed (say 90%): 6203. Errors (precision) around this estimate and its accuracy could be improved by further quantifying the correction factors (all assumed to be 90% here for the sake of example alone). However, for the purposes of determining whether the nesting population was increasing decreasing or stable, and thus whether current uses in Mexico or Cuba were causing a decline in the number of females nesting annually, this estimate and its accuracy and precision would have no application.*

- *Moncada et al. (1999) used this approach to provide a first estimate of the extent of annual nesting in Cuba (1700-3400 nests). The goal was to determine whether it was 500, 1000, 5000 or 10,000. There is no doubt that the estimate can be improved and that the errors can be reduced with further resources and research, and that independent validation if resources allowed it would be welcomed. But it is not a high management priority relative to other monitoring indices.*
- *The claim that Moncada et al. (1999) used "maximum" values rather than averages or minimum values to derive this general estimate reflects a failure to understand the way in which they derived their estimate. An island nesting beach in which 10 nests were found in spotchecks involving 10 days of searching in a season of say 150 days, in one year, could be reasonably described as: the best available data indicates the potential nesting effort for this beach to be 10+ nests per year. This is a considerable advance over having no indication of the extent of nesting on a beach. No authority would argue that 10 days search effort would result in a small proportion of total annual nests being found, so it is highly conservative. If this same beach was not examined at all in one season, or was examined for say 2 days opportunistically after a storm, and no nests were found, it would be correct to report zero nests were found, but incorrect to imply this is a measure of the number of nests laid on that beach in that season. The best estimate of the annual nesting potential, would still be the highly conservative 10 nests found on the previous year. This is especially so if nest numbers are increasing annually, which is now the case in Cuba.*

- b. Mexico believes that the estimate of the population size derived by Cuba (100,000 to 230,000 non-hatchlings, including 3500 to 4100 adults) is based on assumptions which are difficult to verify, is concerned that the model has not been tested empirically, and as such considers the real size of the population could be smaller.

*These comments are not related to the draft summary distributed for comment but refer instead to Annex 7 of Cuba's proposal to COP 10 (Carrillo et al. 1998e). The estimates referred to were revised and updated at COP10 (AACC 1998), and the revised values are included in Proposal 1 (COP11; Table 2; 110,905 non-hatchlings including 5865 mature adults).*

*The following should be noted:*

- *The Proposal (COP11) discusses this estimate in some detail, and establishes (as with nesting) that management actions depend far more on measured trends in the population than on estimates of total population size, which by necessity depend on a series of assumptions.*
- *Regardless, the model predicts a much smaller population than that predicted by other authorities based on Cuba's historical harvest data.*
- *To test the model empirically involves the assumption that there is an independent method of estimating sea turtle population size when all authorities appear to agree there is none.*
- *The survival rates after 1 year of age are based on the only estimates derived empirically in the literature ( $S= 0.95$ ), and if they are too high (which may well be the case), the final estimated population size would increase, not decrease.*
- *In terms of validation, the model proposed by Cuba is consistent with the known extent of nesting within and outside Cuban waters, whereas other models predict nesting at orders of magnitude above known nesting locally or regionally.*
- *The model is also broadly consistent with known densities of hawksbills in the wild whereas other models indicate densities would need to be much higher than those reported generally.*
- *The conservative nature of Cuba's population estimate make it much more likely that it underestimates rather than overestimates the size of the wild population supporting Cuba's harvest.*

## 2.2 Population trends (Page 2, Para. 3-5)

- a. To determine whether the species is increasing, decrease or stable basic information must be quantified and referenced.
- *Trends in wildlife populations are typically monitored using relative indices of abundance, and typically without needing to quantify life history parameters in depth. This suggestion mixes issues of "what" is happening, which is critical to management, with "why" it is happening, which may never be known precisely.*
  - *Taken in the reverse, the allocation of a significant amount of resources to the goal of perfect knowledge with a range of life history parameters, may have no bearing on the precision and accuracy with which trends in the population can be quantified.*
- b. Mexico believes that Cuba has assessed the historical harvest but has ignored current trends in abundance "in terms of protected nests and released hatchlings" and has failed to quantify "the total magnitude of nesting of *E. imbricata* within Cuba".
- *Cuba includes within its proposal a range of indices of abundance, including information on trends in nesting.*

- *Mexico's program of protecting nests and releasing hatchlings is tailored to local circumstances and threats (people and predators). In Cuba, with nesting on offshore uninhabited islands, the need for such a program is not as great.*
  - *As stated above, the expenditure of limited resources in improving the precision and accuracy of total nesting within Cuban waters may have limited application to management.*
- c. Mexico considers it necessary to make a scientific evaluation of the size and trends of the nesting population and of the status of the population harvested.
- *Cuba has provided both in the proposal.*
- d. Mexico considers the sustainable harvest of hawksbills from the traditional sites of Isle of Pines and Nuevitás are the product of fishing effort applied through the numbers of boats and nets and through recruitment of adult hawksbill turtles from other regions of the Caribbean and the Gulf of Mexico during the period 1968-90, given the results of mtDNA analyses show 30% or more of the turtles found in Cuban waters have origins in other countries of the region.
- *Detailed assessment of the available data from the historical harvest (1968-90) indicates catch effort was stable or decreasing rather than increasing (Carrillo et al. 1998b, 1999).*
  - *Cuba has never claimed that its population was closed, and has provided more evidence than any other country in the region on movements between Cuba and other nations.*
  - *Cuba's historical harvest was sustained with similar catch effort despite widespread harvesting in Mexico prior to the 1990's, which is not consistent with animals of Mexican origin contributing greatly to the harvest.*
  - *If Hawksbills in Mexican waters move regularly to Cuban waters, then the satellite tracking data collected in Mexico should confirm this, but apparently it does not. That the endangered Kemp's Ridley turtles are common in Mexican waters but are never encountered in Cuban waters suggests the deep waters between Cuba and Mexico, which are beyond the depth at which turtles can feed, may serve as a more effective barrier to movement than has been considered by Mexico.*

### 2.3 Regional perspective (Pages 2, Para. 6 to Page 3)

- a. The proposal is to take a relatively small number (500 individuals/year) compared with the traditional (historical) harvest in Cuba (5000/year), but Mexico considers the impact on regional populations that share places of feeding in Cuba could be significant because many of them are really very small (100 females/year), and to increase the pressure on them could create irrecoverable problems.
- *Cuba's proposal to CITES is not one that is seeking permission to harvest sea turtles. It is seeking permission to export the shell of turtles taken in a strictly regulated domestic harvest. No additional turtles will be taken as a consequence of the proposal being accepted or rejected.*
  - *If Cuba's proposal is successful, Cuba has made a commitment to limit its harvest to 500 per year. Cuba is under no obligation to impose such a limit otherwise.*
  - *During the 1980's, when Cuba's historical harvest was operating, regional populations being monitored were stable or increasing, not decreasing.*
- b. The nesting trends in places where there are recorded data over several decades, like in Mexico and Puerto Rico, indicate fluctuations in abundance of nests that coincide with the reduction of the traditional harvest in Cuba in 1992, and confirms the exchange of migrants between at least these colonies and the places of fishing in Cuba.
- *Correlation does not imply cause and effect.*

- *Mexican scientists attribute the increase in Mexican turtle populations as a direct result of Mexico's improved management programs (Garduno-Andrade 1999), which is consistent with the increase being well established before Cuba's harvest was phased down. Furthermore, Mexican sea turtle populations on both the Pacific and Atlantic coasts increased in response to the improved local management also, suggesting any contribution from Cuba may be minor: the credit can be rightly taken by Mexico.*
  - *The situation in Puerto Rico is unclear. Hawksbills in Puerto Rico share many mtDNA haplotypes with those in Cuba, but could occur with high or low levels of movement between the two locations. No individual Hawksbills tagged in Cuba have been reported as being recovered in Puerto Rico, and none caught in Cuba have been tagged in Puerto Rico. No turtles fitted with satellite tracking transmitters in Cuba have visited Puerto Rico, and to our knowledge, none of the turtles fitted with satellite tracking transmitters in Puerto Rico have visited Cuba.*
  - *As Cuba contains some 25 times the habitat of Puerto Rico, and contains warm water feeding grounds (like Mexico) allowing growth rates very much higher than in Puerto Rico, it seems likely that Hawksbills hatched and/or growing in Cuban waters contribute more to the population in Puerto Rican waters than the reverse.*
- c. The Cuban population of hawksbills is not isolated because haplotypes of Mexican mtDNA were recorded in samples from Cuba and 2 specimens marked in Mexico were caught in Cuban waters.
- *Cuba has provided most of these data, and has never claimed the population in Cuban waters was isolated.*
- d. More time should be spent studying genetics and migration to obtain further scientific evidence before seeking a CITES amendment.
- *Although Cuba will continue studying Hawksbills, and will provide more and more data on movements and the genetic make-up of Hawksbills living and nesting in Cuban waters, it is considered likely that these extra data will add little to the information needed to satisfy the criteria in Resolution Conf. 9.24.*
  - *In contrast, the data Cuba are providing from their sustainable harvest is critical to developing and understanding the impacts of legal and illegal harvest within the region, and in the absence of such data it is difficult to see how any regional management protocols could be based on anything other than ignorance and guesswork about the manner in which Hawksbill turtle population dynamics adjust to increases in mortality.*
- e. Recognising that this is a resource with migratory behaviour and shared geographically in the Caribbean region and the Gulf of Mexico, the participation and approval of countries with populations of turtles, within a regional management program, is needed for a proposal seeking a CITES amendment.

*Resolution Conf. 9.24 does not require participation and approval by all regional nations, and nor does it require that such approval be provided within the framework of a regional management program.*

- *CITES has no mandate to require nations to agree to any third party agreement as a prerequisite to complying with CITES and nor would any such attempt be considered valid in law.*
- *As it is impossible to get all countries within the Caribbean region to agree to a single protectionist approach to hawksbill turtle management, constraining national management subject to regional management amounts to an insurmountable barrier to any nation wishing to comply with CITES.*

- f. Mexico considers efforts with hawksbills should be restricted to evaluating global population size and trends and quantifying the magnitude of stocks by country, and that in their opinion this will allow proposed amendments to the CITES Appendices to be evaluated on the basis of more scientific evidence.
- *The impacts of controlled use can only ever be quantified by applying use and measuring the response of the population to it. Regardless of how many years of data are gathered on populations not subject to use, eventually such experimentation will be required.*
  - *In this regard, the Cuban program is an experimental harvest, and the results to date have already confirmed that many hypotheses about hawksbill turtle population dynamics are simply wrong. In some cases drastically wrong. The results from Cuba's program will assist Cuba and all other nations to build their conservation and management programs on realistic, empirically tested models of population dynamics, and the merits of abandoning this opportunity are far from clear.*

Netherlands (5 November 1999)

The Kingdom of the Netherlands notes the draft summary and postpones detail comment until the report of the fact-finding mission of the EU-Scientific Review Committee has been discussed within the European Union.

Singapore (15 November 1999)

- a. Singapore acknowledges that within their own national waters Hawksbill Turtles are threatened and listed in their Red Data Book.
- *This assessment of local status would seem to be consistent with the general status reported for this region (Meylan and Donnelly 1999).*
- b. Singapore has not yet been provided with information indicating the extent of recovery in the Caribbean, but accepts that the population may qualify for Appendix II if there is sufficient scientific evidence indicating that they are not endangered and will not be threatened by the levels of trade proposed by Cuba.
- *The data contained in the proposal and in references cited in the proposal satisfy these concerns.*

United States of America

**United States of America (FWS/OSA: 28 October 1999).**

The comments provided by the United States of America (USA) on the basis of the draft summary are comprehensive. They address a wide range of general and specific issues, many of which were subsequently clarified within the proposal.

**1. Introduction (Page 1, Para. 1-2)**

(Page 1, Para. 2). The USA agrees that Cuba has made a "considerable effort" to conserve sea turtles in the "Caribbean", applauds Cuba because it has "successfully established numerous marine protected areas ..." and through this accomplishment alone considers Cuba has distinguished itself "... as a leader in regional Caribbean conservation efforts".

Notwithstanding this, the United States of America states that it cannot support the proposal based on the information in the draft summary.

**2. Biology (Page 1, Para. 3 to Page 2, Para. 1)**



- a. The statement that the “Caribbean regional population of hawksbill turtles is comprised of genetically distinct stocks”, which gives the ability to identify “... the place of origin of hawksbill turtles, both immature and adults, on feeding grounds (Bass 1999)” is an oversimplification which is misleading.

It is not possible using current technology to determine the natal beach of perhaps most hawksbills in the Caribbean because:

- “shared haplotypes among multiple nesting assemblages in the wider Caribbean” (Page 1, last line) make it impossible to determine the place of origin (= stocks?) for these individuals.
  - “Endemic haplotypes” (= haplotypes so far identified from only one nesting site or group of nesting sites) are well established, but the degree of endemism is poorly known and changing continually as new data and larger sample sizes collected more randomly are gathered. For example, a mitochondrial DNA haplotype recently found in Cuba, but previously thought to be endemic to nests in Antigua, is now known from nests in Cuba.
  - Based on the numbers of haplotypes identified in the Caribbean to date, the low (or non-existent) sample sizes from most nesting and foraging populations, and the non-random nature of sampling, it would be irresponsible to use mtDNA data as the basis of stock assessment or management. Indeed, it seems likely that this may remain the case even if years of additional data and sampling throughout the Caribbean were possible. There is no guarantee that mtDNA data will prove suitable for regional stock management although it is clearly enhancing general information about hawksbills in the region.
- b. The statement that: “these genetically distinct stocks are mixed on their feeding grounds”, should not be interpreted as implying that foraging populations are randomly mixed throughout the Caribbean. The diversity of haplotypes in different feeding/foraging/transit areas, varies in different parts of Cuba and from country to country.
- c. A scientific paper reporting new mtDNA data for large samples of Hawksbills from Cuba, Mexico and Puerto Rico, in both foraging and nesting areas, concluded 30-58% of turtles caught in Cuban waters may originate from nests outside of Cuba. No significance is attached to these specific numbers in Cuba’s proposal, because they reflect the limitations of the analysis techniques used. Minor technical considerations and new data (see “a” above) support Cuba’s conclusion that around half the hawksbills caught in Cuban waters may originate from nests outside Cuba.
- d. The United States of America is concerned that the Cuban harvest may be impacting on the wild populations in Puerto Rico and the US Virgin Islands which have similar genetic structures (Page 2, Para. 1) in both foraging and nesting populations. There is no easy solution to this concern:
- Sharing haplotypes does not mean shared individuals, and identical haplotype frequencies could exist with limited or extensive exchange (the mtDNA data available to date cannot be used to quantify immigration or emigration rates).
  - Although some level of exchange between these populations no doubt occurs, it may not be so great. Cuba has not retrieved any tagged animals from Puerto Rico and only one from the US Virgin Islands, although tagging programs have been in place in both locations. Nor have any animals tagged in Cuba been reported from these locations.
  - Cuba contains 32% of shallow coral reefs in the Caribbean compared to 1.5% in Puerto Rico and the US Virgin Islands combined. Furthermore, Hawksbills grow faster in Cuban waters relative to reported growth rates from both these locations. It would thus not be surprising if Cuba contributes a great deal more to these populations than it receives from them (Bass 1999).
  - The IUCN (1997) reports an uncontrolled harvest of 1000-2000 Hawksbills per year from each of these islands, and it appears that this harvest is based on subsistence uses of meat rather than shell.
  - The voluntary reduction of Cuba’s harvest from 5000 to 500 Hawksbills may well have assisted Puerto Rico and the US Virgin Islands. The approval of Cuba’s proposal would result in the

permission to export being linked to the 500 limit being maintained, whereas if not approved, the 500 limit is a matter of domestic priorities and decisions.

### 3. Population status (Page 2, Para. 2 to Page 3, Para. 1)

- a. "Detailed systematic surveys that can begin to assess nesting trends in Cuba have only recently started".

This is correct and the results indicate nest numbers are increasing. Cuba does not rely simply on nest surveys (which are logistically difficult to carry out in Cuba) to monitor the status of wild populations. All other indices, some going back for many years, confirm the wild population is increasing, not decreasing. That is, the object of monitoring should not be to carry out nest surveys per se (which are an index of the adult female population), but rather to track the status of the wild population in total.

- b. "The sustainability of the current and proposed harvest cannot be confirmed".

The future sustainability of no harvest, of any animal in the world, "can be confirmed" and it would be irresponsible to assume it could, especially with sea turtles where population models can be wildly in error due to the inability to measure mortality rates in most life stages. All results from the current reduced traditional harvest (since 1996) are consistent with sustainable harvesting, and monitoring programs and the adaptive management strategy in place ensure this situation will be retained.

- c. Meylan's (1999) paper is accepted by the United States of America as reflecting current status of Hawksbill populations in the Caribbean which is reported as declining or depleted in 22 of 26 geopolitical units.

Meylan's report has been criticised by CTMRG (Caribbean Turtle Management and Research Group) members for being outdated, using anecdotal reference sources, and being compiled without up-to-date input from the appropriate authorities in most Caribbean nations. It was compiled as part of a package of material put together by the IUCN-MTSG and distributed at COP10 with the single aim of criticising Cuba and opposing Cuba's proposal to COP10. Its subsequent publication in *Chelonian Conservation Biology* was solicited by the IUCN-MTSG, presumably in the hope of giving the same report more credibility. In using the information contained to assess the current status of Hawksbill turtles in the Caribbean, the following should be considered:

- That populations are depleted relative to some reference point in the past (3 generations 105 years) does not mean that they are facing any conservation problem today. Perhaps all Hawksbill populations are depleted to some extent relative to pristine times and will remain so.
  - Meylan (1999) does not present data indicating that the current status (1999) in any of these nations is declining now. Indeed, all survey data she presents indicates they are stable or increasing at this time. Carrillo *et al.* (1999) in the same journal establish that the current trends in all areas where monitoring is taking place are stable or increasing - not declining.
  - In terms of a "regional population", geopolitical units have little bearing because the habitat is not distributed evenly (see Table 1 in Proposal 1). The majority of geopolitical units contain very little habitat (less than 10 square kilometres), and have a minimal impact on the regional population compared to areas with significant amounts of habitat (eg Cuba and Mexico with 6000 to 8000 square kilometres of habitat).
- d. Increases in the population of Hawksbills in Puerto Rico and Mexico may in part reflect the reduction in Cuba's harvest.

It is impossible to quantify the extent to which changes in these populations reflect improved local management or a response to Cuba reducing its harvest. That equivalent increases in population sizes of other sea turtle species have occurred on the Pacific coast of Mexico as well as the Caribbean coast, suggests the marked changes in local management (and not Cuba's harvest reduction) is the prime factor. This opinion has also been held by the Mexican researchers working on Hawksbills (Garduno-Andrade *et al.* 1999). The only way to test the hypothesis is to increase Cuba's

harvest back to 5000 per year to determine whether the exponential increase in nesting within Puerto Rico and Mexico is curtailed.

- e. It is claimed that the global population has been reduced by 80% in the last 50-60 years.

This claim by Meylan and Donnelly (1999) is based largely on anecdotal evidence, but more important, is based on "geopolitical units" rather than on the global, wild population. Although these are clearly important, it is equally misleading to interpret a reduction from 10 nests to 2 nests in one country on the edge of the nesting range, and an increase from 400 nests to 2000 nests in a country within the middle of the nesting range, as an 80% decline in the population in half the countries: in terms of the total global population it equally reflects a 488% increase in population size (410 to 2002).

- f. The global population contains 15,000 females nesting annually each year.

According to CITES and its definitions, the statistic of significance is the number of adult females in the population .... not the number that nest each year:

- Females nest each 2-3 years in some areas, and each 3-4 years in others, so with an average of 3 years, the 15,000 estimate indicates a wild population of some 45,000 adult females. Sex ratio tends to be around 80% females, so the total wild adult population would be around 56,250 adults. If the average age to maturity is around 20 years, and the global population is stable (most data indicate it is increasing), the total wild population of hatchlings, juveniles and subadults may be at least 10 times that number.
- The 15,000 may itself be a significant underestimate, because it could be accounted for by known or estimated nesting in a few countries [Australia, Indonesia/Malaysia, Mexico, Cuba and Mona Island (Puerto Rico)], when nesting occurs at varying densities throughout the world.

- g. The species has been categorised by the IUCN as critically endangered.

This is true and reflects obvious and serious errors in the criteria used by the IUCN. These criteria are being reviewed and revised. Furthermore, it reflects an assessment based on "geopolitical units", and only on nesting.

"Critically Endangered" in IUCN terms means extremely high risk of global extinction in the immediate future. Yet even the IUCN-MTSG, which supports, promotes and tries to justify this "category" for Hawksbills, to achieve other goals, conclude that there is no threat likely to cause global extinction in the foreseeable future (Meylan and Donnelly 1999; page 217). The only victim of this type of blatant error is the credibility of the IUCN itself (Mrosovsky 1997).

- h. "Based on our current understanding of the status of the Hawksbill in the Caribbean we do not consider it prudent for any range country to be harvesting hawksbills for domestic or international consumption".

Cuba's proposal should be evaluated in accordance with the criteria for Appendix II in Resolution Conf. 9.24, which does not and should not include considerations of prudence.

- i. A prerequisite should be a regional multinational agreement with agreed recovery goals before any harvesting is carried out.

This requirement lies beyond the ability of Cuba or CITES to achieve, and nor has it been able to be achieved by the United States of America through the promotion of various treaties. It amounts to an insurmountable barrier.

#### **4. Habitat (Page 3, Para. 2)**

The implication that coral reefs are critically dependent on pristine densities of Hawksbill turtles is an untested hypothesis and hardly a sound platform upon which to base management. Indeed, obvious tests indicate it lacks substance. For example, Cuban reefs are considered to be in excellent

condition by most authorities, yet *E. imbricata* in Cuban waters have been harvested for centuries. A more realistic hypothesis, but equally untested, is that when populations of Hawksbills are reduced, food abundance (sponges) increases, which in turn allows a reduced population to grow faster, mature more quickly, and sustain a level of annual harvest with a different set of population dynamics than that which existed in a population at carrying capacity.

## 5. Fisheries (Page 3, Para 2 to Page 4, Para. 2)

- a. "In order to evaluate the proposal, we need to know the proposed size-age-class structure and sex ratio of the intended harvest".

Information on the size structure and sex ratio are contained in Proposal 1. The best available information on age structure (technology for determining the age of marine turtles is in its infancy) is discussed in depth in literature referenced in the proposal (Carrillo *et al.* 1998e).

- b. "... harvests must be minimal and structured to ensure adequate adult stocks (with appropriate sex ratios) exist after the juveniles are exposed to years or decades of natural and incidental mortality".

The data contained in Proposal 1 confirms that mean size is increasing, abundance is increasing, nesting adults are increasing and juvenile life stages are abundant in significant areas of habitat. Furthermore, mtDNA results are consistent with these increases not being an influx of animals from Mexico, where the local population is increasing exponentially. The condition is met.

- c. "... analysis of the model used by Cuba (the Doi model, analysed in Heppell *et al.* 1995), suggests that errors in life history parameter estimates greatly affects the resulting population estimates".

- Cuba has never used the Doi model.
- Heppell *et al.* (1995) suggested that parameter estimates derived from areas well outside Cuba, often in slow growing "cold" areas should be used in preference to those derived locally - they equally demonstrated that these would result the predicted size of the wild population increasing relative to estimates made by Doi.
- Cuba long ago pointed out that although both models advanced our understanding of the problems of modelling sea turtle populations, it would be foolhardy to base real management decisions on predictions from them.

- d. "Figure 1 does not indicate the harvest was sustainable ...".

Cuba has never implied that the historical harvest records indicated that the historical harvest could have been sustained indefinitely at that level. However, it has equally pointed out (Carrillo *et al.* 1999) that the available data do not allow that possibility to be rejected. In addition:

- The historical harvest data demonstrate unequivocally that a harvest of 4744 per year was sustained (kept going), even though conventional theoretical wisdom indicates this would be impossible. Hence the theoretical wisdom, often quoted as though it were fact, is clearly wrong. The real population dynamics of Hawksbills subject to harvest are very different to those assumed to apply, which is to be expected given the most important parameters (mortality rates) are guesses based on no data for most age/size classes.
- That the Cuban harvest involved animals born in areas outside Cuba is obvious. However, that the Cuban harvest was impacting negatively upon them is not obvious, because as pointed out by Carrillo *et al.* (1999) populations subject to scientific monitoring in the Caribbean were stable or increasing while the Cuba harvest continued.

- e. The generation length is conservatively estimated to be 35 years.

If generation time is accepted as the average age of reproductively active adults in an unexploited population (IUCN 1994) this may be realistic. However, growth rates are slow in some areas, for example the southern Great Barrier Reef (30-40 years to mature), and fast in Cuba and Mexico (10-

15 years to reach maturity), and so the theoretical mean population dynamics of the average global population may have little relevance to the management of Hawksbills in Cuba.

- f. "Cuba's own scientists, in Carrillo (1999), concluded that the sustainability of the harvest could not be answered with available data, contradicting the information presented in C.2.2.5".

This is incorrect:

- Carrillo *et al.* (1999), when discussing the historical harvest (4744 individuals per year up to 1990), stated that there is no doubt that the harvest had been sustained (kept going), but there was insufficient information available to determine whether this level of harvest could have been sustained indefinitely in the future. Some evidence was consistent with it being sustainable in some parts of Cuba, at some times of year.
  - In contrast, the statement in C.2.2.5 refers to the current traditional harvest (since 1996) which averages 399 individuals per year, where all monitoring data presented in the proposal "are consistent with a sustainable harvest".
- g. Figure 1 is not adjusted for fishing effort.

The available data on fishing effort indicates it was stable or reduced during the historical harvest (Carrillo *et al.* 1998e, 1999).

- h. Cuba states that the Heppell papers estimated population size when they did not.

Heppell *et al.* (1995) and Heppell and Crowder (1996) argued Doi *et al.* (1992) had used the wrong estimates for population parameters and proceeded with estimates they thought were more appropriate. Their sensitivity analyses indicated that if the parameter estimates they favoured were used, the size of the wild population would increase above that estimated by Doi, not decrease. This is despite the survival rate used (0.90) being reduced (0.95), which greatly reduced population estimates.

- i. "Species with high early mortality and delayed maturity require very large populations to maintain even a small stable adult population."

This is a theoretical prediction, not based on data. It is probably in serious error and it would be irresponsible and dangerous for Cuba to accept it as fact.

- There is ample evidence from crocodylians, which have similar life cycles, that wild populations with large numbers of adults have very small complements of juveniles. The opposite to the theory above.
  - Recovering populations, or populations subject to sustained harvesting, have high numbers of juveniles relative to adults. The opposite to the theory above.
  - There are a multitude of combinations of population dynamics and density-dependent compensations that may be involved with the ability of hawksbills to withstand harvesting and none are known with confidence. That is, it is possible to measure "what" happens, and to ensure a population is sustained, but it will rarely if ever be possible to know in detail "why" it happens, and it will be completely impossible unless measurements are undertaken on populations subject to harvest.
- j. With loggerhead sea turtles Crouse *et al.* (1987) predict that 400,000 non-hatchlings are needed to maintain a population of 859 mature animals. On the basis of this relationship the United States of America concludes that for hawksbills: "Therefore, 110,905 non-hatchlings is likely insufficient to maintain an adult population of 5,865 animals".
- The Cuban population estimate (110,905 non-hatchlings) remains the only one consistent with independent estimates of nest numbers in the region, and the population dynamics used, and explains how the historical harvest was sustained.

- The loggerhead “model” referred to is a theoretical treatment from a different species with different population dynamics. It has no bearing on the relationship between the population size needed to sustain a particular level of adult Hawksbills in a population in the warm waters of Cuba (Carrillo *et al.* 1998e).
- If it did by chance have application to Hawksbills, 400,000 being needed to sustain a wild population of 859 adults would mean millions of individuals would have needed to be present in the Caribbean in order to sustain Cuba’s wild population and the annual harvest [5611 individuals per year by 1988-90; 1310 adults and 4301 larger subadults (Carrillo *et al.* 1998e)], not to mention harvests at varying levels throughout the region, which is hardly consistent with a “small” wild population.

**6. Trade controls and illegal trade (Page 4, Para 3 to Page 5, Para. 3)**

- a. “The history of trade in this species clearly demonstrates that given the opportunity, illegal trade in sea turtle products flourishes under the cover of legal commerce.”

This unsubstantiated opinion is clearly not held by the majority of Parties to CITES who have consistently voted (eg Resolution Conf. 9.20 Rev) for measures that allow legal trade.

A more compelling hypothesis is that legal trade will create even stronger incentives to curtail illegal trade in the major importing nation (Japan), which is what happened with crocodilians.

- b. Allowing the stockpile to be exported would “set a dangerous precedent for other countries to harvest and stockpile from populations of Appendix I species, in anticipation of eventually obtaining CITES permission to export. This would circumvent the intent and spirit of CITES”.

This is an unsubstantiated opinion that is clearly not held by the majority of Parties who have voted for transfers to Appendix II of many species without promoting stockpiling.

It has been obvious since COP10 that Cuba was going to present another proposal to CITES and no reports of “stockpiling” in anticipation of it have been received. In complete contrast, Cuba’s leadership in this field has promoted major moves in the region towards more effective conservation and management, for example through the CTMRG.

- c. The export of the stockpile is interpreted as “an “add-on,” not directly related to the principal proposal to transfer from Appendix I to II”.

Quite the contrary. Cuba has submitted 2 proposals, and the second one is for the stockpile only ... not for the traditional harvest.

- d. The situation with Hawksbills is considered different from elephants and it is believed that the Parties would not wish to invest limited resources in tight monitoring of the trade.

Trade in hawksbill shell has elements in common and elements quite different from that associated with ivory. The levels of control required are those needed to ensure compliance with CITES, and these are detailed in the proposal.

- e. It is claimed that illegal trade in Hawksbills is the highest volume, most widespread, most long-term, and persistent illegal trade of any CITES Appendix I species.

In some respects this is a measure of the abundance and widespread distribution of hawksbills, and the fact that the shell of one specimen can be used to make a great number of different items.

This being so, total trade has declined from tonnes to kilograms per year since 1993, and numbers of reported infractions are decreasing ... not increasing. There is no evidence that illegal trade is increasing.

- f. The United States of America claims that it would be better to focus attention on “increased efforts on combating illegal trade” [presumably rather than on efforts to allow legal trade in accordance with the Convention].

- This is an opinion on priorities, that could equally be applied to all wildlife species in trade, and does not apply to hawksbills or Cuba in isolation.
- Given the nature of consumptive uses of hawksbills in many countries today (subsistence uses for food with the shell being used to make a range of items sold in local markets), the possibility that additional investment in enforcement controls may have no conservation effect (the same number of turtles may be killed for subsistence) needs to be considered carefully.
- g. "legal trade, particularly in the case of individuals harvested in one nation but that belong to a much greater regional population, will reap no conservation or law enforcement benefits for the rest of the population and range states".

This is not so. Cuba's proposal details a wide range of conservation advantages, at national and regional levels. Exports from Cuba to Japan will not take place until internal controls in Japan have been strengthened, which is clearly an enforcement benefit.

- h. "All of the current international demand and markets for hawksbill turtle products are illegal and the impacts of these cannot be gauged to a meaningful degree on local or world populations."

International demand is not illegal and legal markets exist in many countries. In contrast, export in order to satisfy international demand has declined to the lowest levels known ... perhaps since the 15th century.

- i. "knowledge of hawksbill turtle population numbers in any country or region is so limited that the success or failure of allowing trade cannot be measured.

Monitoring programs are well established in a range of countries distributed around the world, and thus impacts on the wild populations can be quantified. The levels of reporting current associated with CITES-listed species allow an index of illegal trade of commercial and non-commercial quantities.

- j. Legal trade would provide an opportunity of laundering products of other populations and accelerate or assist current poaching and illicit trade.

- The export controls outlined in the proposal minimise the possibility of shell from other sources being "laundered" as Cuban shell.

- Cuba's initiative with Hawksbills has already promoted regional efforts to improve management and controls.

- k. It is claimed that Cuba's system for monitoring individual scutes will "do little to prevent illegal trade in countries other than Cuba".

Neither Cuba nor CITES can impact on domestic uses and trade, which legal or illegal, is a matter of national jurisdiction. However, Cuba's efforts are encouraging improved conservation and management now, and it seems unlikely that this will change in the future.

#### **7. Criteria from Conf. 9.24 (Page 5, Para. 4 to Page 6, Para. 5)**

- a. The United States of America claims that hawksbill turtles continue to satisfy the criteria for maintenance in Appendix I in three ways:

- a.1. The wild population is small and is characterised by a high vulnerability due to the species' biology (Annex 1, criterion A.v.), as detailed in the comments, and is considered to have high vulnerability due to their highly migratory behaviour, longevity and low reproductive potential.

- The wild population is not small. Even the USA acknowledges that the wild population exceeds 50,000 adults, which means hundreds of thousands of subadults and juveniles, and this is almost certainly a significant underestimate.

- Species which are highly mobile and long-lived have incredible insurance against extinction caused by environmental change or other factors relative to species which are sedentary and short-lived. That no sea turtles or crocodilians have become globally extinct, is testimony to the fact that they are tenacious survivors.
  - Hawksbills have an extremely high reproductive potential relative to virtually all extant reptiles, birds, and mammals - an average of around 3 clutches of eggs, each with around 130 eggs, and in many areas 30-40% survival to hatching. This endows them with a remarkable capacity to recover from temporary population declines. They have never previously been projected as having low reproductive potential.
- a.2. There has been a decline in the number of individuals in the wild, which is ongoing or has occurred in the past and has the potential to resume (Annex 1 criterion C.i).

Scientific survey data suggest the current status of the global wild population is one of increasing abundance, and some significant wild populations (eg Australia) may well be at carrying capacity.

For the uncontrolled exploitation of the past to be reinstated, nations around the world would need to abandon the protective legislation and enforcement activities steadily implemented over time, and CITES would need to be disbanded - neither would seem realistic nor likely.

- a.3. There has been a decline in the number of individuals in the wild, which has been inferred or projected on the basis of:
- a decrease in area or quality of habitat (Criterion C.ii);

Hawksbills appear to occupy their complete historical range. Within this, some nesting beaches and coral reefs have clearly been altered over time, but to a far lesser degree than the wholesale reduction in habitat that has occurred with almost all terrestrial wildlife species due to agriculture over the same period. Hawksbills are not threatened globally by habitat reduction, although at a local level this may be so in various locations. It is definitely not so in Cuba.

- levels and patterns of exploitation (Criterion C.ii); and

Exploitation levels have declined as commercial-level international trade was gradually restricted and finally abandoned. Between 1970 and 1999 many countries have also enacted legislation to restrict consumptive uses of hawksbills.

- from threats from extrinsic factors, such as bycatch (criterion C.ii).

The inshore habitats occupied by hawksbills are not those subject to trawling and so bycatch in shrimping operations is relatively minor in most areas. Bycatch in inshore net fisheries is probably common, and has an antiquity of centuries. It is rarely considered "bycatch", because the turtles are eaten. As Hawksbill populations continue to expand bycatch will increase, but it has not been demonstrated as being a significant threat to the species.

- b. Based on the information provided in the draft summary the United States of America is unable to confirm that precautionary measures (annex 4, para B.2.b) are met, namely:

- the Parties are not satisfied that range states are implementing the Convention particularly Article IV (Regulation of trade in specimens of species included in Appendix II);

As there is no legal international trade in Hawksbills no Parties are required to implement Article IV and Cuba has indicated that it is more than capable of satisfying the requirements of Article IV should the proposal be approved. To Cuba's knowledge, most range states are attempting to implement the Convention to the extent that resources allow.

- the Parties are not satisfied that appropriate enforcement controls and compliance with the requirements of the Convention are in place.



Cuba has detailed a range of enforcement controls and has a good record of compliance with CITES.

- c. The United States of America is not satisfied that enforcement controls in Cuba, in range states, or in importing nations are sufficient.

Enforcement controls for Hawksbills in Cuba and Japan are strict, and the issue of illegal trade is taken seriously in both countries. Range states for Hawksbills encompass many countries and Parties to CITES and are the same for all CITES-listed species: they are a compromise between competing demands on limited resources.

- d. Based on experience in Puerto Rico, Florida and US Virgin Islands the United States of America are concerned that illegal trade is a continuing problem which would be made far worse by any reopening of hawksbill sea turtle trade at this time.

The proposition that legal trade from Cuba will encourage further illegal trade in Puerto Rico, Florida and the US Virgin Islands is an untested hypothesis. Controls on use and trade in these countries is beyond Cuba's ability to influence other than by providing an example of the benefits of legal trade.

The implication that "the time is not right" for international trade in compliance with CITES is beyond the ability of Cuba to address. The Convention does not make provision for this problem to be addressed objectively or scientifically.

- e. Annex 4 para B.2.c. requires that if an export quota is approved by the COP effective enforcement controls must be in place and that the information in the proposal [draft summary] and in their experience this is not the case in range countries in the Caribbean or in importing countries.

The proposal details the extensive controls in place in Cuba and Japan.

## **8. Conclusions (Page 6, Para. 6)**

- a. The USA believes the proposal is premature and encourages Cuba not to submit the proposal.

In response to Cuba's COP10 proposal, the US offered the same opinion - it was premature.

This is difficult to interpret, because the Convention establishes a scientific basis for amendments, which are detailed through Resolution Conf. 9.24. Neither the Convention nor Resolution Conf. 9.24 gives direction indicating that even if the criteria are met, an issue of optimal timing needs to be considered.

It could equally be argued that the effectiveness of CITES will be compromised seriously if forward-thinking nations with proactive programs for management are restricted from advancing those programs, because they are well advanced.

U.S. Fish and Wildlife Service, AIA

ANNEX 1: TO COMMENTS OF THE UNITED STATES ON PROPOSALS TO AMEND APPENDICES I AND II OF THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA Provided by U.S. Fish and Wildlife Service; CITES Management and Scientific Authority of the United States of America, January 31, 2000

### **PROPOSAL 11.40.**

1. ... the United States recognizes and appreciates the considerable efforts made by Cuba to conserve sea turtles in the Caribbean.

*We believe it is significant that the United States formally acknowledges Cuba's considerable conservation efforts in the Caribbean region.*

2. ...As a range country, we provided comments to Cuba, based on the information provided to us in a proposal summary dated September 27, 1999. Those comments were already provided to the Secretariat, and are attached.

*Cuba addressed the comments made by the United States (28 October 1999) in Proposal 11.40, and in a separate detailed treatment forwarded to the Secretariat.*

3. We understand that Mexico, as a range State, offered comments in opposition to the draft proposals, although they were not noted in the final proposals.

*Mexico's comments were received after the submission date. The actions taken on these comments have been:*

- *The Mexican comments were subjected to a detailed written appraisal by Cuba.*
- *The Secretariat was provided with a copy of the appraisal, which highlighted numerous errors and misinterpretations.*
- *Given the comments provided by Mexico were only based on the summary of Cuba's proposal, the Cuban CITES MA wrote to the Mexican CITES MA, requesting whether any of the points of concern raised in their initial response still existed, now that they have had a chance to assess the complete proposal.*
- *To date no response has been received.*

4. Existing information shows that the Caribbean regional population of hawksbill sea turtles is comprised of genetically distinct stocks. Analyses of genetic samples taken from hawksbill turtles on foraging grounds across the region have revealed conclusively that these genetically distinct stocks are mixed on their feeding grounds.

*The statement that the Caribbean regional population of Hawksbill turtles is comprised of genetically distinct stocks, which implies the ability to identify place of origin of Hawksbill turtles, both immature and adults, on feeding grounds is an oversimplification which is misleading.*

*It is not possible using current technology to determine the natal beach of perhaps most Hawksbills in the Caribbean<sup>1</sup> because:*

- *"shared haplotypes among multiple nesting assemblages in the wider Caribbean" (Page 1, last line) make it impossible to determine the place of origin (= stocks?) for these individuals.*
- *"Endemic haplotypes" (= haplotypes so far identified from only one nesting site or group of nesting sites) are well established, but the degree of endemism is poorly known and changing continually as new data and larger sample sizes collected more randomly are gathered. For example, a mitochondrial DNA haplotype previously thought to be endemic to nests in Antigua, was recently found in Cuban nests.*
- *Based on the numbers of haplotypes identified in the Caribbean to date, the low (or non-existent) sample sizes from most nesting and foraging populations, and the non-random nature of sampling, it would be irresponsible to use mtDNA data as the basis of stock assessment or management. Indeed, it seems likely that this may remain the case even if years of additional data and sampling throughout the Caribbean were possible. There is no guarantee that mtDNA data will prove suitable for regional stock management although it is clearly enhancing general information about Hawksbills in the region.*
- *The statement that: "these genetically distinct stocks are mixed on their feeding grounds", should not be interpreted as implying that foraging populations are randomly mixed throughout the Caribbean. The diversity of haplotypes in different feeding/foraging/transit areas, varies in different parts of Cuba and from country to country.*

5. Samples collected from hawksbill turtles inhabiting foraging grounds in Cuba reveal that 30% to 58% of these individuals did not originate on Cuban nesting beaches.

*Diaz-Fernandez et al. (1999), from Cuba, report new mtDNA data for large samples of Hawksbills from Cuba, Mexico and Puerto Rico, in both foraging and nesting areas, and concluded 30-58% of turtles caught in Cuban waters may originate from nests outside of Cuba. No significance is attached to these specific numbers in Cuba's proposal, because they reflect the limitations of the analysis techniques used. Minor technical considerations and new data (see "a" above) support Cuba's conclusion that around half the Hawksbills caught in Cuban waters may originate from nests outside Cuba.*

*Neither Cuba nor any of the Parties have ever claimed Cuba or any other nation had or could be expected to have a "closed" population of Hawksbills! It would clearly represent an insurmountable barrier.*

6. We are particularly concerned with the harvest of turtles in Cuban waters that are genetically aligned with source nesting populations in Puerto Rico and the U.S. Virgin Islands.

*There is no easy solution to this concern:*

- *Sharing of haplotypes does not mean sharing individuals, and identical haplotype frequencies could exist with limited or extensive exchange (the mtDNA data available to date cannot be used to quantify rates of immigration or emigration).*
- *Although some level of exchange between these populations no doubt occurs, it may not be so great. Cuba has not retrieved any tagged animals from Puerto Rico and only one from the US Virgin Islands, although tagging programs have been in place in both locations. Nor have any animals tagged in Cuba been reported from these locations.*
- *Cuba contains 32% of shallow coral reefs in the Caribbean compared to 1.5% in Puerto Rico and the US Virgin Islands combined. Furthermore, Hawksbills grow faster in Cuban waters relative to reported growth rates from both these locations. It would thus not be surprising if Cuba contributes a great deal more to these populations than it receives from them (Bass 1999).*
- *The IUCN (1997) reports an uncontrolled harvest of 1000-2000 Hawksbills per year from each of these islands, and it appears that this harvest is based on subsistence use of meat rather than shell.*
- *The voluntary reduction of Cuba's harvest from around 5000 to 500 Hawksbills may well have assisted Puerto Rico and the US Virgin Islands. The approval of Cuba's proposal would result in the permission to export being linked to the 500 limit being maintained, whereas if not approved, the 500 limit is a matter of domestic priorities and decisions.*

7. Detailed systematic surveys that can begin to assess nesting trends in Cuba have only recently started.

*This is correct and the results indicate nest numbers are increasing. Cuba does not rely simply on nest surveys (which are logistically difficult to carry out in Cuba) to monitor the status of wild populations. All other indices, some going back for many years, confirm the wild population is increasing, not decreasing. That is, the object of monitoring should not be to carry out nest surveys per se (which are an index of the adult female population), but rather to track the status of the wild population in total.*

8. ... the extent to which the Cuban harvest has impacted populations outside of Cuba is also largely unknown, and we are concerned that the current (and proposed) harvest is unsustainable, and threatens hawksbills throughout the Caribbean.

*Monitoring results (see Mrosovsky 2000) demonstrate that Hawksbill populations outside Cuba are stable or increasing (not decreasing), and were stable and increasing during the 1980s and early 1990s when Cuba was harvesting an average of 4744 Hawksbills per year.*

9. Hawksbill populations are declining or depleted in 22 of the 26 geopolitical units in the Wider Caribbean area for which some status and trend information is available.

*Meylan's report has been criticised by CTMRG (Caribbean Turtle Management and Research Group) members for being outdated, using anecdotal reference sources, and being compiled without up-to-date input from the appropriate authorities in most Caribbean nations. It was compiled as part of a package of material put together by the IUCN-MTSG and distributed at COP10 with the single aim of criticising Cuba and opposing Cuba's proposal to COP10. It's subsequent publication in Chelonian Conservation Biology was solicited by the IUCN-MTSG, presumably in the hope of giving the same report more credibility. In using the information contained to assess the current status of Hawksbill turtles in the Caribbean, the following should be considered:*

- *That populations are depleted relative to some reference point in the past (3 generations 105 years) does not mean they are facing any conservation problem today. Perhaps all Hawksbill populations are depleted to some extent relative to pristine times and will remain so.*
  - *Meylan (1999) does not present data indicating that the current status (1999) in any of these nations is declining now. Indeed, all survey data she presents indicates they are stable or increasing at this time. Carrillo et al. (1999) in the same journal establish that the current trends in all areas where monitoring is taking place are stable or increasing - not declining. Mrosovsky (2000) has equally demonstrated the same positive trends.*
  - *In terms of a "regional population", geopolitical units have little bearing because the habitat is not distributed evenly (see Table 1 in Proposal 11.40). The majority of geopolitical units contain very little habitat (less than 10 square kilometres), and have a minimal impact on the regional population compared to areas with significant amounts of habitat (eg Cuba and Mexico with 6000 to 8000 square kilometres of habitat).*
10. Globally, the species has experienced a decline of 80% in the last 3 generations (105 years).

*This claim by Meylan and Donnelly (1999) is based largely on anecdotal evidence, but more important, is based on "geopolitical units" rather than on the global, wild population. Although status within geopolitical units is clearly important, it is misleading to imply geopolitical units contribute equally to the global population.*

*For example, a reduction from 10 nests to 2 nests in one country on the edge of the nesting range, and an increase from 400 nests to 2000 nests in a second country within the middle of the nesting range, can be interpreted as indicating an 80% decline in 50% of the populations - but in terms of the global population and risk of extinction of the global population, it reflects a 488% increase in the global population size (410 to 2002 nests). In the Caribbean, 80% of the Hawksbill population occurs in less than 20% of the geopolitical units.*

11. ..it is unlikely that more than 15,000 females nest annually.

*According the definitions in Resolution Conf. 9.24, the statistic of significance is not the number of females that nest each year, but rather the number of adult females in the population. This is clearly important in species like Hawksbills:*

- *Females nests each 2-3 years in some areas, and each 3-4 years in others, so with an average of 3 years, the 15,000 estimate indicates a wild population of some 45,000 adult females.*
- *Sex ratio tends to be around 80% females, so the US estimate for the total wild adult population would be around 56,250 adults.*
- *If the average age to maturity is around 20 years, and the global population is stable (most data indicate it is increasing), the total wild population of hatchlings, juveniles and subadults may be at least 10 times that number.*

- *The 15,000 may itself be a significant underestimate, because it could be accounted for by known or estimated nesting in a few countries [Australia, Indonesia/Malaysia, Mexico, Cuba and Mona Island (Puerto Rico)], when in reality, nesting occurs at varying densities in many countries.*

12. ... species has therefore been categorized by the IUCN as critically endangered.

*This is true, but it reflects obvious and serious errors in the criteria used by the IUCN. These criteria are being reviewed and revised. Furthermore, it reflects an assessment based on "geopolitical units", and mainly on nesting.*

*"Critically Endangered" in IUCN terms means extremely high risk of global extinction in the immediate future. Yet even the IUCN-MTSG, which supports, promotes and tries to justify this "category" for Hawksbills, to achieve other goals, concludes that there is no threat likely to cause global extinction in the foreseeable future (Meylan and Donnelly 1999; Page 217). The only victim of this type of blatant contradiction is the credibility of the IUCN itself (Mrosovsky 1997).*

13. The species does not qualify for transfer to Appendix II under Conf. 9.24: it both satisfies the biological criteria of Annex 1 for inclusion in Appendix I (particularly paragraphs C and D), and does not satisfy the precautionary measures in Annex 4 paragraph B.2.b. of Conf. 9.24.

*Cuba has presented detail information (Section 8.2 in Proposal 11.40) that the Hawksbill population in Cuban waters clearly meets the Resolution Conf. 9.24 criteria for Appendix II, and satisfies the precautionary measures.*

14. Based on our current understanding of the status of the hawksbill in the Caribbean we do not believe it prudent for any range country to be harvesting hawksbills for domestic or international consumption.

*Cuba has presented a great deal of evidence indicating that the Caribbean regional populations are secure and expanding, due mainly to the efforts of those countries that are strongholds for the species, and monitoring data indicating Cuba's harvest is being sustained.*

15. We are very concerned that any reopening of the hawksbill shell trade will undermine hawksbill conservation efforts not only in the Caribbean, but around the world.

*A more compelling hypothesis, supported by results from other species such as crocodillians, is that legal trade will create even stronger incentives to curtail illegal trade in the major importing nations (Japan), and will encourage nations to review and improve their local management programs.*

16. Based on CITES annual report data and other information, the illegal trade of hawksbill turtle products, as well as other sea turtle species, is the highest volume, most widespread, most long-term, and persistent illegal trade of any CITES Appendix I species in the Conventions 25 year history.

*This issue is dealt with in Proposal 11.40 (Section 2.1.8). In some respects the regular appearance in tourist trade is a measure of the abundance and widespread distribution of Hawksbills, and the fact that the shell of one specimen can be used to make a great number of different items.*

*This being so, total trade has declined from tonnes to kilograms per year since 1993, and numbers of reported infractions are decreasing ... not increasing. There is no evidence that illegal trade is increasing.*

17. We are unable to confirm that adequate enforcement controls are in place to prevent illegal trade in hawksbill turtle (or other sea turtle) specimens from Cuba or other hawksbill sea turtle range states in the Wider Caribbean, if an Appendix II listing were adopted by the COP.

*Enforcement controls for Hawksbills in Cuba and Japan are strict, and the issue of illegal trade is taken seriously in both countries. Range states for Hawksbills encompass many countries and Parties to CITES and are the same for all CITES-listed species: they are a compromise between competing demands on limited resources.*

## PROPOSAL 11.41.

18. ... We note further that Cuba has submitted two proposals for the same species, but which specify different sets of proposed annotations. We believe that it is not appropriate for a Party to submit more than one proposal for the same species or population, somehow hedging its bets that if the Parties do not adopt the first they might adopt the second.

*Cuba's reasons for submitting two proposals are stated clearly in Proposal 11.41 (Sections 2.2 to 2.4).*

19. If this proposal were to be accepted as a precedent, then in the future there would be potentially no limit on how many proposals a Party might submit on the same species, each with a slight variation in its scope of effect.

*This has always been an option available to Parties.*

20. The Rules of Procedure of the COP allow a Party to amend a proposal, prior to voting, and that is the more appropriate avenue.

*Last minute amendments do not give the Parties and NGOs sufficient time to evaluate and discuss the ramifications of proposed amendments, which is a continual source of complaint.*

21. We believe that it would be more appropriate for Cuba to decide which proposal it would like the COP to consider, and to withdraw the other. This procedural view is independent of our position on the specifics of this proposal.

*The suggestion is noted.*

U.S. Fish and Wildlife Service, AIA

ANNEX 2: TO U.S. RESPONSE TO PROVISIONAL ASSESSMENTS PROVIDED IN NOTIFICATION TO THE PARTIES 1999/97. Provided by U.S. Fish and Wildlife Service, CITES Management and Scientific Authority of the United States of America January 31, 2000

## PROPOSALS 11.40 AND 11.41

1. The hawksbill sea turtle is a highly migratory species whose biological status cannot be viewed and assessed based on conditions and information within the boundaries of a single nation.

*Cuba has clearly taken national, regional and international issues into account. Indeed, the United States acknowledges directly the worth of Cuba's efforts at the regional level. The tag of "highly" migratory begs the question of "relative to what?" Hawksbills are one of the most sedentary of sea turtles.*

2. Genetic and tagging evidence clearly demonstrate that foraging populations in any one country represent multiple nesting populations outside of its own territorial boundaries. Based on analysis of genetic samples from Cuba, over 30- 58 percent of hawksbills foraging in Cuban waters are in fact from nesting populations outside of Cuba (including the United States).

*This issue has been dealt with above.*

3. This proportion may be even higher since these studies did not consider the fact that one of the haplotypes is shared by multiple nesting assemblages as well as Cuba's.

*This is a minor technical issue, and in reality unless Bass's haplotype "A" was examined in the same way as Diaz's haplotype "CU1", it may not be strictly true. Regardless, attributing great significance to these figures ignores their limited application to management and the very imprecise statistical procedures involved in interpreting them. Regardless, the values reported are already outdated, because haplotypes thought to be restricted to areas outside Cuba are now known from Cuban nesting areas: that is, these analyses will predict less animals from outside Cuba.*

4. Given that hawksbill nesting populations are declining or depleted in 22 of the 26 geopolitical units with known status within the Wider Caribbean (Meylan et al 1999),

*This is an assumption not supported by data (see above).*

5. ...it cannot be concluded that the Cuban population of hawksbills is not declining.

*The proposition that an ongoing decline in the Cuban population cannot be rejected is hard to understand. Theoretically, one could propose that there has been some change in behaviour (rather than densities) that has resulted in all monitoring indices increasing, but it would not be convincing.*

6. In fact, if one only looks at the hawksbills nesting within Cuba, it is still not possible to conclude that the Cuban population is not declining.

*But the results are not consistent with a decline in the numbers of animals nesting.*

7. .... since nesting surveys within Cuba are far from comprehensive and detailed systematic surveys only began in 1997 ( Moncada et al. 1999). This is clearly an insufficient time period to draw conclusions about current nesting trends in Cuba.

*This has been addressed above. There is no fixed relationship between the size of a population and the number of nests in a country, and for example, the Bahamas is reputed to have a large population but little nesting. Nesting is not a good index of the wild population in many areas and may not be in Cuba.*

8. Moncada et al. (1999) also concluded that the full extent of nesting in Cuba is unknown.

*See above.*

9. The view that scutes from hawksbill carapaces proposed for trade by Cuba are merely the by-products of a strictly regulated legal domestic fishery that will continue regardless of the status of this proposal begs the question as to why Cuba should be further rewarded for conducting a fishery impacting the depleted or declining populations of hawksbills nesting within the boundaries of its neighbours in the Wider Caribbean.

*Cuba's responsible management of its Hawksbill turtles and its coral reef ecosystems contributes a great deal more to regional conservation of a variety of marine resources, including Hawksbill turtles, that are used throughout the Caribbean, than is the case in many other nations. The net contribution is very positive and to argue Cuba should not be rewarded for such actions is difficult to sustain.*

10. This is a particular concern for the U.S. as nesting populations in Puerto Rico and the U.S. Virgin Islands are severely depleted from historic levels and significant long term recovery efforts have been and are continuing in the United States and may be undermined if one of the proposals were adopted.

*There are no data supporting the view that nesting in these nations is severely depleted, and if it were, the high levels of local harvest may be the first area for correcting the problem.*

11. The Cuban proposal states that there are sufficient hawksbills in Cuban waters to sustain harvest at some level; however, Cuban scientists have concluded in scientific publications (Carrillo et al 1999) that the extent to which the Cuban harvest has impacted populations outside Cuba is largely unknown and the sustainability of the current (and proposed) harvest cannot be confirmed.

*Cuba has presented data indicating its harvest meets any reasonable criteria for sustainability and Cuba has a management program in place which can respond to risk and uncertainty. That populations outside Cuba are increasing or stable while the Cuban harvest continues confirms that the harvest is not causing population declines elsewhere.*

12. An analysis of the Doi model used by Cuba to justify the sustainability of its harvest suggests that errors in life history parameter estimates greatly affect the resulting population estimates (Heppell et

al 1995). These authors suggest additional research is needed to improve the life history parameters for any model used to set harvest levels and recommended modifications to the Doi model to improve its utility.

*Cuba has repeatedly stated that it would be highly irresponsible to use any of these models as a base for management, and has never used them. It uses an adaptive management approach that is highly precautionary, and accepts the inability of current science and technology to quantify even the most basic parameters needed for such models.*

13. The size and stability of the *Eretmochelys imbricata* population in Cuban waters remain highly questionable.

*Cuba has presented a highly conservative estimate of population size and it is more consistent with independent consistency checks than any other estimate so far proposed. The accuracy of the estimate may be a biological curiosity but is clearly not a critical factor involved in the adaptive management approach being pursued.*

14. Citations to Doi et al. 1992, Heppell et al. 1995, and Heppell and Crowder 1996 apparently mistake the large numbers in the Heppell papers as an estimate of the size of the population. In fact, these numbers merely demonstrated that the Doi model is inappropriate and that population estimates from such models are unreliable.

*Cuba agrees that these models are highly unreliable and should not be used. However, Cuba was criticised for using population parameters derived locally rather than those derived from distant places, and it is important to realise that if those "distant parameters" were used, population estimates would be greatly expanded over those accepted by Cuba as being the best estimate currently available.*

15. Further, sea turtle species with high early mortality and delayed maturity (such as hawksbills) may require very large populations to maintain even a small stable adult population (Crouse et al. 1987, Crouse 1999).

*This theoretical argument is not substantiated by data. It assumes that the ratio of juveniles to adults will stay constant in populations that are greatly depleted, recovering and recovered, when there is abundant data from long-lived reptiles indicating this ratio changes continually.*

16. The reportedly stable harvest of 5000 turtles/year was not adjusted for fishing effort and was only documented for only 22 years.

*This is incorrect. Cuba has present data on fishing effort indicating fishing effort declined rather than increased over time.*

17. However, increases in fishing effort can produce stable harvest numbers from declining populations for a generation,

*Agreed. But Cuba's fishing effort was stable or decreasing.*

18. ... and a single hawksbill generation is closer to 35 years (Meylan and Donnelly 1999).

*Definitive growth data from Cuba indicate that Hawksbills growth 2-3 times faster than in some nearby countries subject to cooler Atlantic waters.*

19. Mortimer (1995) has demonstrated that declines in sea turtle populations may not be detectable as declines in harvest for a full generation time.

*This is incorrect. Mortimer (1995) demonstrated that if every egg was collected from a theoretical population every year, it would take some generations before the effects of the egg collection on the adult population would be seen.*



20. The Secretariat states that the trade control system proposed exceeds the level of control required under Article IV.

*This is correct.*

21. However, based on CITES annual report data and other information, the illegal trade of hawksbill turtle products as well as other sea turtle species is the highest volume, most widespread, most long-term, and persistent illegal trade of any CITES Appendix I species in the Convention 25 year history.

*This statement has been addressed above.*

22. We are unable to confirm that adequate enforcement controls are in place to prevent illegal trade in hawksbill turtle (or other sea turtle) specimens from Cuba or other hawksbill sea turtle range states in the Wider Caribbean, if an Appendix II listing were adopted by the COP.

*This statement has been addressed above.*

23. The species does not qualify for transfer to Appendix II under Conf. 9.24: it both satisfies the biological criteria of Annex 1 for inclusion in Appendix I (particularly paragraphs C and D), and does not satisfy the precautionary measures in Annex 4 paragraph B.2.b. of Conf. 9.24.

*This statement has been addressed above.*

24. We strongly urge the Secretariat to consult sea turtle biologists, consider the above, and then reconsider its views on this proposal. [Note: References cited are available on request].

*Cuba fully supports the view that the Secretariat can and should consult widely where it feels such consultations are necessary, but would caution strongly against restricting such consultations to "sea turtle biologists", because Mrosovsky (2000), claims that many have a limited understanding of management and are have difficulty applying the same levels of scientific objectivity to management issues that they do to research on isolated biological questions.*

#### Literature

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