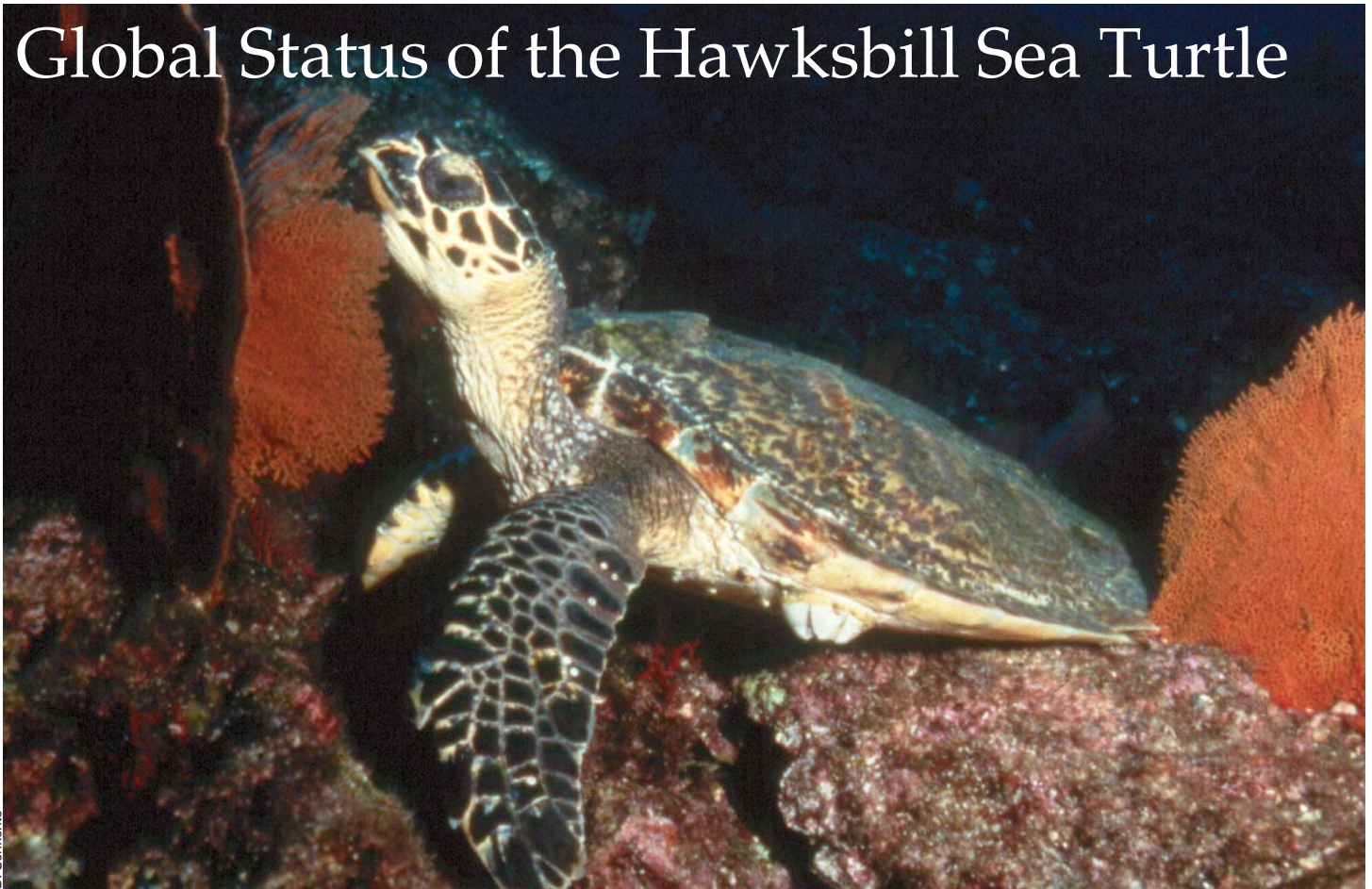


VELADOR

Using Science-based Conservation to Protect Sea Turtles and Their Habitats Since 1959

Issue 3, 2007

Global Status of the Hawksbill Sea Turtle



D. Schrichte

The hawksbill (*Eretmochelys imbricata*) is one of the world's most endangered sea turtles. Hunted intensely for their beautiful shells since ancient times, hawksbill populations declined dramatically during the 20th century. Nearly 40 years ago, troubled by the effects of trade and the loss of nesting populations in the Caribbean and elsewhere, Dr. Archie Carr aroused scientific and public opinion about the hawksbill's poor prospects for survival through a series of

publications. In 1977, in recognition of the species' plight, the international tortoiseshell trade was prohibited by the Convention on International Trade in Endangered Species (CITES), shortly after the treaty came into force. Hawksbills benefited substantially as the ban became widespread over time although even today, in many areas, hawksbills still are exploited for eggs, meat, and shell. Hawksbills also face a multitude of insidious and destructive modern

continued on page 3...



**Hawksbill Research
in Panama
6**



**Hawksbill Research
in Tortuguero
8**



**The Tortoiseshell
Trade
10**

Up Front by David Godfrey

This issue of the *Velador* focuses entirely on hawksbills and CCC's three-pronged approach to preventing the extinction of the species through science, conservation, and advocacy. CCC has been working to conserve hawksbills for decades, beginning with nesting beach research at our main station in Tortuguero, Costa Rica, since the 1950s. In the 1960s, CCC co-founder Dr. Archie Carr undertook extensive hawksbill nesting surveys in the Caribbean and Western Atlantic. His observations on hawksbill exploitation and calls for protection ultimately were heard when the Convention on International Trade in Endangered Species (CITES), a new treaty to protect wild animals, banned the international tortoiseshell trade in 1977. Dr. Carr's valuable legacy to hawksbill conservation includes the work of his last three graduate students, Drs. Anne Meylan, Jeanne Mortimer, and Karen Bjorndal. These world-renowned scientists remain closely affiliated with CCC through participation on CCC's Scientific Advisory Committee and, in the cases of Drs. Meylan and Mortimer, ongoing participation as associate researchers on various CCC projects.


CCC's hawksbill programs have expanded in recent years to include a major effort to study and protect nesting hawksbills at Chiriquí Beach, Panama, on what may be the species' most important Caribbean beach. The success of this program to date, and our collaboration with the local Ngöbe-Buglé Indians in this autonomous region of Panama, buoy prospects for recovery of this important hawksbill population. Since 2006, CCC has used satellite telemetry to track nesting hawksbills from the island of Nevis across the Caribbean, demonstrating the need for regional collaboration to protect the species. In 2000 and 2002, CCC played a key role in thwarting efforts at the 11th and 12th CITES meetings to overturn the ban on the international tortoiseshell trade. CCC also leads conservation community efforts to generate annual appropriations for the Marine Turtle Conservation Act, which funds numerous hawksbill projects around the world, including the multi-agency program CCC coordinates in Panama.

Most recently, on behalf of the IUCN Marine Turtle Specialist Group, CCC's Marydele Donnelly assisted Dr. Jeanne Mortimer in producing the 2007 Global Status Assessment for the Hawksbill. This in-depth review clearly demonstrates global hawksbill nesting populations have declined by 80% or more over the past three generations, qualifying the species for listing as Critically Endan-



Andrew Nelson

gered in IUCN's Red List of Threatened Species. There is widespread support for this listing in the sea turtle community, but a handful of individuals, the most outspoken of whom have financial ties to the tortoiseshell industry, opine the listing is inappropriate because the extinction of the hawksbill is not imminent in their view. It is apparent, however, that the label Critically Endangered means there is still time to prevent extinction. For a species that has been on Earth for more than one million generations, the dramatic decline of its breeding females in three generations is alarming. Two other long-lived species of sea turtles, leatherbacks and Kemp's ridleys, are also currently listed as Critically Endangered.

CCC will continue its dedicated efforts on behalf of hawksbills and hopes to expand these efforts in the years to come. By focusing global attention on the status and plight of this species, CCC aims to continue raising awareness and support for stronger policies and programs to protect and recover hawksbills. 

VELADOR {bel.a.dor}

In Caribbean cultures, *Velador* translates as "one who stands vigil" — originally referring to turtle and egg harvesters who waited at night for turtles to come ashore. Now CCC claims this title for its newsletter, and around the Caribbean, CCC's researchers and volunteers are replacing poachers as the new veladors.

Velador is published for members and supporters of the nonprofit **Caribbean Conservation Corporation (CCC)** and its **Sea Turtle Survival League (STSL)** program.

CCC is a nonprofit organization dedicated to the conservation of sea turtles through research, training, advocacy, education and the protection of habitats. STSL is the US-based outreach, policy and education program of the CCC.

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...from cover

threats, including the loss of nesting habitat caused by unregulated coastal development and erosion resulting from sea level rise. Hawksbill foraging habitat is threatened by loss of coral reefs caused by elevated sea temperatures as well as various types of marine pollution. Incidental capture in fisheries is also a problem for all species of sea turtles.

Recently, CCC participated in the production of the 2007 IUCN Red List Status Assessment for the Hawksbill Turtle, an in-depth review undertaken on behalf of the Marine Turtle Specialist Group by Dr. Jeanne Mortimer (CCC Scientific Advisor) and Marydele Donnelly (CCC staff). With a focus on changes in nesting populations over time, the assessment analyzed historic and recently published and unpublished accounts. This review unearthed intriguing information that provides a glimpse into a vanished world of abundance, including appeals for hawksbill conservation that were ignored almost a century ago. The 2007 analyses of populations at 25 Index Sites around the world show a decline of 88.3 to 90.8% in the number of females nesting annually over the last three hawksbill generations (105 years in the Atlantic and 135 years in the Indo-Pacific). Additional information on current trends in nesting and estimated populations in 58 countries, and the factors influencing them, is also presented. Based on their quantitative analyses, which demonstrate that hawksbill nesting has declined by at least 80% over the last 105-135 years, the authors recommended IUCN maintain the *Critically Endangered* listing for hawksbills. The assessment is currently under review.

The hawksbill is the most tropical of the world's sea turtles. Hawksbills currently nest in at least 70 countries, often at low densities, and are found in the waters of 108 countries. Substantial population declines occurred in all

ocean basins in the 19th and 20th Centuries, driven largely by the tortoiseshell trade. From 1950-1992 nearly two million hawksbills were killed for the Japanese trade alone. Although imports have ceased, the Japanese bekko (tortoiseshell) industry remains intact and continues to utilize its stockpile of shell. Earlier this year, the Japanese bekko associations publicly expressed their dismay that Cuba did not seek to overturn the international ban on tortoiseshell at CITES in June.



The hawksbill sea turtle gets its name from the hawk-like shape of its head and mouth.

Today only a few large populations (500-1,000 females nesting annually) can still be found in the Indo-Pacific and Atlantic Oceans. Many populations are depleted or remnants of their former size. In many areas, researchers will never know the full extent of the declines that have taken place in the last several hundred years.

Thousands of females still nest in Australia, but such abundance is the exception rather than the rule. None of the world's larger populations are free of threat. Hawksbills are heavily exploited and declining in Madagascar and the Maldives; their status in Iran is unknown but substantial numbers have been killed accidentally there by fisheries. Where they are protected in the Seychelles, nesting populations are increasing but overall nesting has declined during

the past two decades. Aboriginal egg collection, environmental impacts associated with the oil and gas industry, and intense exploitation in international waters are taking a toll on Australia's very substantial populations. Tragically, the most significant decline of the 20th century has occurred in Indonesia, historically the world's most famous waters for tortoiseshell. In the Atlantic, after more than a decade of dramatic increase, hawksbill nesting in Mexico's Yucatan Peninsula has fallen steeply.

On a global scale, threats to hawksbills vary by region. Egg exploitation is prevalent in many parts of the world, but it is especially pervasive in Southeast Asia where a culture of eating sea turtle eggs is well-established, with collection often approaching 100%. Capture at sea, both accidental and purposeful, is also an enormous problem in SE Asia where many thousands of large and small boats operate. Hawksbills have been relatively less exploited in the Northwest Indian Ocean in the Arabian Gulf, Arabian Sea, and the Red Sea, but activities associated with the oil and gas industry, coupled with unusually high water temperatures in recent years, have adversely impacted the region's nesting habitat and coral reef foraging areas. There is evidence that oil pollution may have a greater direct impact on hawksbills than on other species of sea turtles. In the Southwest Atlantic, hawksbills have hybridized with loggerheads as hawksbill populations declined; the presence of adult female hybrids on Brazilian nesting beaches and viable offspring demonstrate that hybridization will continue. In many parts of the world adult and juvenile hawksbills are still killed for meat and are even used as shark bait. Fishermen who target lobster and reef fish will often take hawksbills when they encounter them. Although hawksbills are less common as bycatch in industrial fisheries, they are particularly susceptible to entanglement in gill nets and on fishing hooks. Such bycatch, although extensive, tends to go unreported because it results from the activities of the world's small-scale fishermen.

The rapid development of tropical coastlines, especially for tourism, is causing extensive destruction of nesting habitat. Because hawksbills prefer to nest under vegetation, they are particularly affected by beachfront development and the clearing of dune vegetation. Similarly, the loss and destruction of foraging habitat is a significant threat. Hawksbills are typically associated with coral reefs, which are among the world's most endangered marine ecosystems. Climate change has led to massive coral bleaching events with permanent consequences for local habitats. Poor water quality as a result of adjacent coastal development also is problematic.

On the brighter side, increases in hawksbill populations also have occurred as a result of long-term protection, conservation and regional collaboration in both terrestrial and marine habitats. Thanks to the ban on



In May, 2007, Indonesian customs officials discovered 296 hawksbill sea turtles that had been killed and preserved aboard a Chinese fishing vessel. *Information and photo provided by Nono Rachmad Basuki of the Turtle Foundation.*

international trade regulated by CITES, some populations have stabilized, and others are now increasing, most notably in the Caribbean at Antigua (Jumby Bay), Barbados, Cuba (Doce Leguas Cays), Mexico (Yucatan Peninsula), Puerto Rico (Mona Island), and US Virgin Islands (Buck Island Reef Nat'l Monument). Increases in the Caribbean also coincide with dramatic reductions in the foraging ground harvest by Cuba which has, in effect, spared more than 55,000 large hawksbills since 1992. In the early 1990s world opinion and the threat of a U.S. fish embargo forced Japan, Cuba's only tortoiseshell market, to stop importing shell. Subsequently, Cuba reduced its annual fishery quota from 5,000 to 500 hawksbills. Cuba recently announced that in 2008 it will establish a voluntary moratorium on the fishery.

Seychelles, in the Indian Ocean, is one of the few places in the world where records of long-term monitoring of both protected and unprotected beaches are available. For the 22 inner islands of Seychelles, monitoring was conducted at all islands in the early 1980s and the early 2000s. Nesting populations at the two islands that had been well-protected since the 1970s increased by 389% over 20 years, while nesting populations at 13 islands that had received no protection prior to 1994 declined by 59% during the same period. When all 22 inner islands are considered together, there was an overall decline of ~24% in the total nesting population over the two decades. Given that all 22 islands now enjoy high levels of protection, however, population increases are expected in the coming years.

Protection and documented increases provide hope for the future if governments and others commit effort and funds for hawksbill protection and conservation. CCC's programs in support of hawksbill conservation will continue.

By Marydele Donnelly & Dr. Jeanne A. Mortimer

Marydele is CCC's Director of International Policy, Jeanne is on CCC's Scientific Advisory Board

COLORING CONTEST WINNERS!

Thank you to all the boys and girls who submitted artwork for the coloring contest! We really enjoyed all the colorful pictures, letters and additional pictures of sea turtles. Out of 39 entries, it was not an easy decision.

We eventually narrowed it down to two winners, one by Samantha Guagliardo, age 12 and the other by Grace Lombardi, age 4.

Both Samantha and Grace will receive a CCC tote bag.

Thank you all again for taking the time to color and learn about endangered sea turtles!



Samantha Guagliardo, Age 12



Grace Lombardi, Age 4



Hawksbill Sea Turtle Research in Caribbean Panama

Panama was one of the major sources of hawksbill shell for international trade during the 20th Century, with Japan being the principal destination. Thus, it was no surprise that when CCC research associates Drs. Anne and Peter Meylan started their studies of sea turtles in Bocas del Toro Province, Panama, in 1979, hawksbills were few and far between and under constant threat. During the early 1980s, the price for raw hawksbill shell in the region was \$50 per pound and almost every hawksbill researchers encountered was on the chopping block.

Thus, the establishment of the Bastimentos Island National Marine Park (BINMP) in 1988 was a major conservation step by the Panamanian government. One of the stated goals for the park was to help conserve the remaining hawksbill turtles in the region. With support from ANAM, the Panamanian wildlife authority, and the Wildlife Conservation Society, the Meylans initiated a research project in the park in 1990 at the Zapatilla Cays, capturing and tagging turtles in park waters and monitoring the nesting beaches. The majority of turtles captured in nets proved to be adult green turtles bound for the nesting beach at Tortuguero, Costa Rica. Most of the nesting turtles (of which there were very few) were hawksbills. As the national marine park developed, the few residents of the cays were relocated and restrictions on fishing in park waters were established, including a ban on spear fishing. A make-shift camp for turtle harpooners on the larger cay was dismantled, and human use of the cays at night was prohibited. Park guards are now assigned to live on the larger cay, and they monitor activities on both cays and in park waters. The park has become a mecca for tourists, and a source of significant income for the people of the province.

The park is now almost 20 years old, and protection



The Zapatilla Cays in Panama are the focus of the hawksbill research conducted by Drs. Peter and Anne Meylan.

efforts appear to be paying off for sea turtles, particularly hawksbills, in a big way. When the Meylans started their project on the smaller

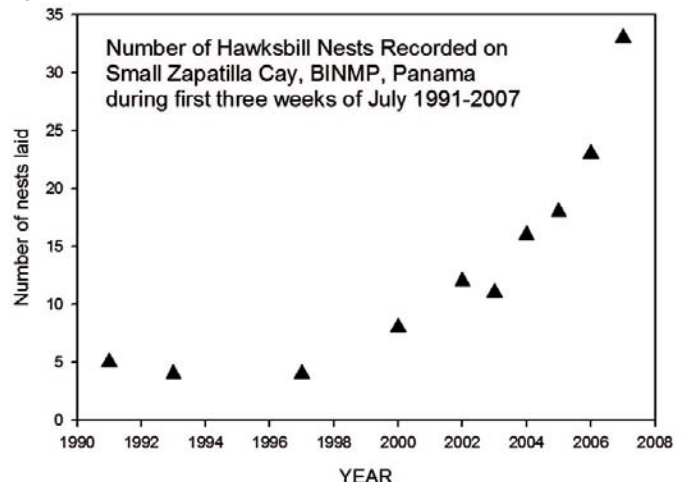
- Zapatilla Cay in 1990, they focused on the in-water
- capture aspects of the study, but also counted the number
- of nests laid by hawksbills during the first three weeks of

July. In the early years, only four or five hawksbill nests were laid on the small Zapatilla Cay during the three-week period, a rate of less than 1 nest every four days. Since then, the number has increased significantly (see Figure 1) with 34 nests recorded during the same period in 2007, reflecting a rate of 1.6 nests per night. A record number of 6 hawksbill nests was recorded on a single night on the small cay later in the 2007 season. The total number of hawksbill nests recorded on the two cays has increased almost every year since 2003, when monitoring was extended to the entire season (see Figure 2). The 2007 season is already the best yet

- recorded, and several months remain in the nesting
- season. Although these numbers of nests are small in the
- context of hawksbill populations in the Caribbean, and the
- number of nesting females is smaller still, the evidence
- seems clear that after nearly 20 years of protection,
- hawksbill nesting is on the rise in BINMP.

- Noting evidence of increases in hawksbill nesting on
- other protected beaches such as Mexico, Mona Island

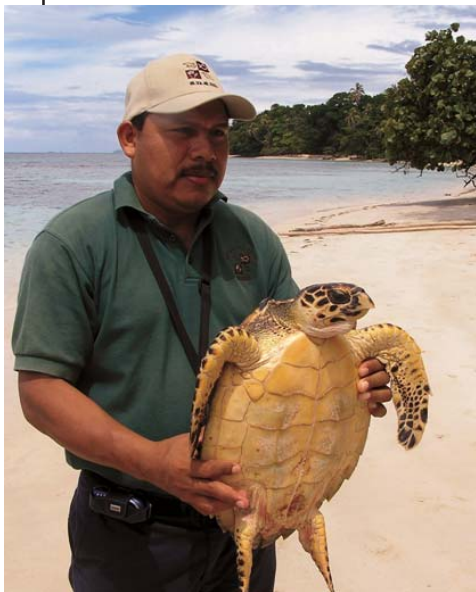
Figure 1.



(Puerto Rico) and Buck Island (US Virgin Islands), the Meylans joined with CCC, U.S. Fish and Wildlife Service (USFWS), and a group of other collaborators to develop a plan for research and recovery at another hawksbill nesting beach further to the east in Bocas del Toro Province—Chiriquí Beach. In 1956, CCC co-founder Archie Carr described Chiriquí Beach as the most important hawksbill nesting site in the Caribbean. Corroborating that claim were interviews that the Meylans did in the 1980s with turtle fishermen along the coast who felt that Chiriquí Beach had been for Caribbean hawksbills what Tortuguero is for Caribbean green turtles. The rationale for the new project was that if the recovery seen at the Zapatilla Cays, and known to have occurred at other long-protected sites in the Caribbean, then maybe the recovery of the hawksbill nesting population could be replicated at Chiriquí Beach. Thus the project “Research and recovery of the hawksbill turtle at Chiriquí Beach and Escudo de Veraguas Island, Ñö Kribo region, Ngöbe-Buglé Comarca, and Bastimentos Island National Marine Park” was begun in 2003.

This cooperative project, for which CCC’s Cristina Ordoñez is the Field Coordinator, involves numerous local and international groups, and has resulted in the monitoring of hawksbill nesting at Chiriquí Beach and at the Zapatilla Cays throughout each nesting season since 2003.

Results show an increase in the total number of nests laid



Licenciado Hernández Bonilla, Director of the Bastimentos Island National Marine Park, with a juvenile hawksbill confiscated from divers illegally fishing in park waters.

at these sites. By 2003, the Zapatilla Cays had been protected for 15 years and just fewer than 100 nests were documented on the two cays during that season. This number has increased rapidly over the last four years, and we expect more than 250 nests this year (234 at the most recent count). Similarly, the number of nests at Chiriquí Beach has

increased from 389 in 2003 to 650 in 2006. This year also looks promising. Although the rate of increase at Chiriquí Beach is not as high as it is at the Zapatilla Cays, the beach there has not been receiving protection for as long. Most of it is included in a new protected wetland, but a higher-level protected status is needed, and the entire

**Cumulative number of hawksbill turtle nests
Zapatilla Cays, Bocas del Toro Province, Panama**

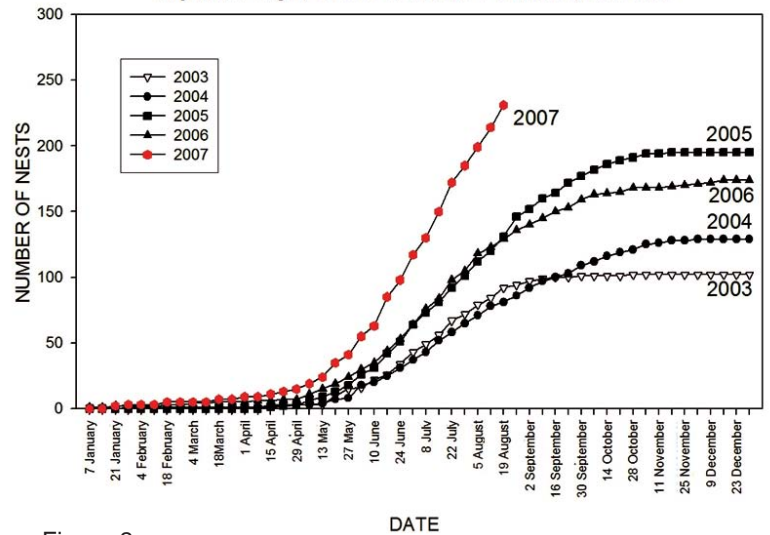


Figure 2.

beach should be included. We anticipate that increased protection will lead to a more rapid rate of recovery.

Several additional beaches along the Bocas coast are monitored as part of the project, including the island of Escudo des Veraguas, a mainland beach called Playa Colorado near Chiriquí Beach, and Playa Larga in the BINMP. As long as the harvest of hawksbills for shell is not resumed, the nesting activity at Chiriquí Beach and these other beaches could very well increase the way it has at the Zapatilla Cays, and this area would host one of the largest hawksbill nesting populations in the Atlantic within the foreseeable future.

The strength of this effort to recover the hawksbill in Caribbean Panama comes from the cooperative nature of the work. The Meylans studies of sea turtles in Bocas del Toro Province have been funded by the Wildlife Conservation Society since 1988. The larger Chiriquí Beach project is overseen by the Caribbean Conservation Corporation, and is coordinated in the field by Cristina Ordoñez. The group includes among its cooperating parties two indigenous NGO’s from the Comarca Ngöbe Buglé, the Ngöbe-Buglé Congress, offices of the Panamanian wildlife authority (ANAM) from Panama City, Bocas del Toro, Changuinola and the Ngöbe-Buglé Comarca, the Smithsonian Tropical Research Institute, WWF, and others. The project has been funded by grants from the USFWS, National Marine Fisheries Service, Marine Turtle Conservation Fund, National Fish and Wildlife Foundation, Disney Wildlife Conservation Fund, International Fund for Animal Welfare and the World Wildlife Fund. Protection and monitoring of sea turtles at Playa Larga is being carried out in coordination with Endangered Wildlife Trust and with support from the Busch Gardens Sea World Conservation Fund.

By Drs. Peter and Anne Meylan

Peter is a professor at Eckerd College, Anne is a senior researcher at the Florida Fish & Wildlife Research Institute.

Research in Tortuguero

Summary of Hawksbill Research in Tortuguero, Costa Rica

While Tortuguero is renowned for its population of nesting green turtles, and this species has been the primary focus of CCC's research initiatives there for the past five decades, it is important to remember that this beach also hosts other species of turtles during the nesting season; namely the leatherback, the hawksbill, and the very occasional loggerhead. Twelve years ago a new research project was established aimed specifically at gathering data on the leatherback, which nests in substantial numbers in Tortuguero and other locations along the entire Caribbean coast of Costa Rica. The hawksbill, however, nests in such low density in Tortuguero that the only manner in which information about this critically endangered species could be collected was opportunistically by researchers focused on these other turtle species. Despite the lack of a dedicated hawksbill monitoring program in Tortuguero, the turtles that have been observed have provided a wealth of information that has been invaluable in assisting with conservation initiatives for this species in the region.

Between 1956 and 2006 a total of 425 individual hawksbill females have been tagged while nesting at Tortuguero. In the last ten years, researchers have averaged only 14 encounters with hawksbill females for the entire season (eight months of nightly patrols). This is an almost insignificant number when compared to the thousands of green turtles, and the hundreds of leatherbacks, recorded each year! Their scarcity also means that very few individuals have been observed nesting in subsequent years. Of all those tagged, just 27 (6.4%) have been seen during more than one nesting season, and only three females (0.7% of all those tagged) have been seen more than twice.

In contrast, there are individual green turtles that have a nesting history spanning decades that have been encountered with regularity every two or three years. It does, however, impart a special significance to every encounter with a hawksbill that

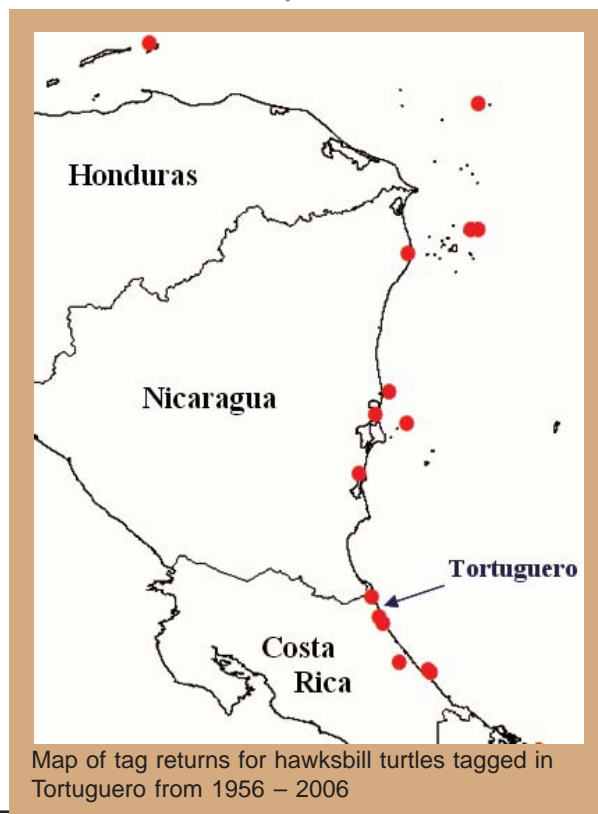
bears tags. In 2006, one female was observed that had originally

been tagged in 1998, eight years previously, which is the longest nesting history for a tagged hawksbill in Tortuguero. Tagging information can also help elucidate site fidelity of hawksbills; do they faithfully return to their natal beach like green turtles, or will they utilize different nesting beaches throughout their life, as witnessed by leatherbacks? With so few returning turtles being encountered this is a difficult question to answer. However, tag data from a female observed in 2006 revealed that at least some hawksbills do not use one beach exclusively. She had tags that were applied by researchers on a nesting beach in Mondonguillo, Costa Rica, some 120 km south of Tortuguero.

Another important aspect of a tagging program is that tag returns, when a turtle's tag or tag number is recorded from another location, provide valuable information on habitats being used by turtles when away from the nesting beach. To date only 20 tag returns have been recorded (4.7% of the 425 females tagged); of these 10 were from Nicaraguan waters, two were from Honduras and eight

were from Costa Rica (see map below). Those recovered from Costa Rica were presumably from turtles taken by fishermen during the inter-nesting period or while traveling to/from the nesting beach. The others suggest that Tortuguero hawksbills are heading north after the nesting season, to feeding grounds off Nicaragua, Honduras and Belize.

While tag returns provide a general indication of the destinations of Tortuguero hawksbills after they leave the nesting beach, they tell researchers nothing about the route an individual takes to arrive at this location. CCC researchers have been using satellite telemetry to fill in this



Map of tag returns for hawksbill turtles tagged in Tortuguero from 1956 – 2006



Hawksbill sea turtles were satellite tracked for the first time from Tortuguero in 2000.

information gap by allowing the precise movements of a turtle to be closely followed throughout its migration.

Satellite Tracking

In 2000, two hawksbill turtles were tracked from Tortuguero. One named “Mamoi” spent four weeks in Costa Rican waters after nesting, approximately 30 km off the coast of Tortuguero, before heading north. Her migration lasted 11 days. She traveled 314 km and then spent several months close to Man O’ War Cay in central Nicaragua before her signal was lost. Mamoi was observed nesting at Tortuguero in 2003, but had lost her transmitter. The other hawksbill, named “Miss Tomasa,” started her migration immediately after she was fitted with a transmitter. In 26 days she traveled 466 km to the Miskito Cays in northern Nicaragua where she spent the next 14 months before transmissions stopped (see map at right). She has not been encountered in Tortuguero since 2000.

Both turtles migrated to shallow-water coastal areas that were known to have coral reefs, the primary foraging habitat for hawksbills. The satellite tracking indicated that the final destination of the two hawksbills was suitable foraging habitat. For Tortuguero hawksbills, the importance of these identified foraging sites is confirmed by tag returns from the same areas.

Genetics Research

An investigation of the genetic variability of the hawksbill population in Tortuguero has also been conducted to add a further dimension to the study of their movements after leaving the nesting ground. Tissue samples from 42 hawksbill turtles were analyzed and revealed that the Tortuguero nesting population is a distinct genetic stock.

The analysis also showed that Tortuguero hawksbills are using feeding grounds in Cuba and Puerto Rico, and possibly Mexico, in addition to those in Nicaragua. This was a particularly important finding with respect to hawksbill conservation. A proposal was submitted by the Cuban government requesting that the status of the hawksbill turtle be downgraded so that they could trade hawksbill shell on the international market. One of their major justifications for the proposal was that the Cuban hawksbill population was essentially a closed population. They claimed the Cuban fishery was having no effect on the regional status of hawksbills in the Caribbean. However, the findings from the genetic research of Tortuguero hawksbills revealed that this was, in fact, not the case.

Based on comparing genetic samples, hawksbills from nesting sites around the region were found to be using the Cuban feeding grounds, and were therefore subject to capture by Cuban fishermen. Such sound scientific evidence, essentially disproving Cuba’s arguments, was one of the major forces behind the failure of this proposal and helped ensure that the hawksbill remained under the highest level of international protection.

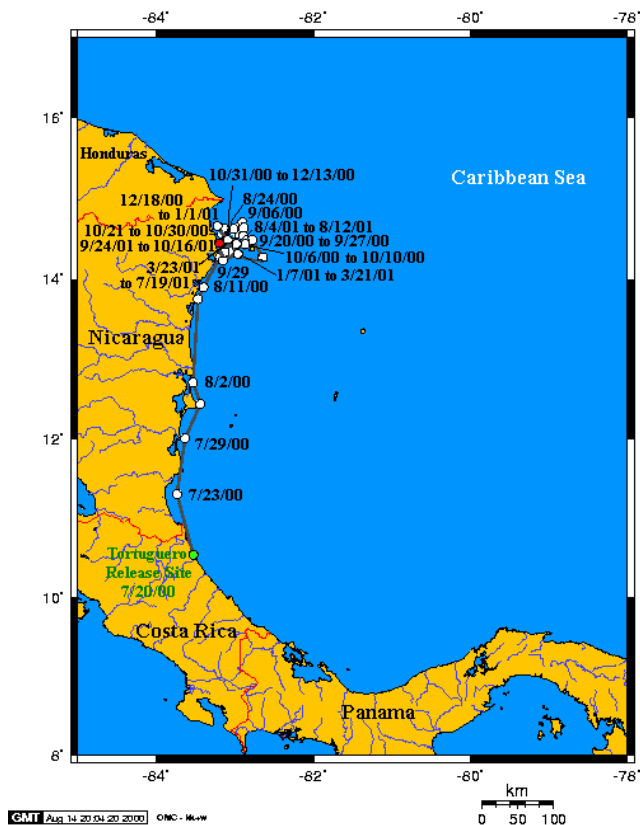
The Tortuguero hawksbill population might be small, but the results of investigations on these females have been significant with respect to broadening our knowledge of this species, and also aiding the international conservation efforts aimed at restoring hawksbill populations to their former levels. Every encounter with a hawksbill is celebrated at the CCC station. Everyone

involved in the research programs knows just how valuable the information from each female is, not just for the Tortuguero nesting population but for the species in general throughout the entire Caribbean.

By Dr. Emma Harrison

CCC Scientific Director

Tortuguero Sea Turtle Tracking Project
Miss Tomasa



International Advocacy



The Tortoiseshell Trade

Japanese tortoiseshell imports of more than 1.3 million large hawksbills from around the world between 1950 and 1992 have had enormous long-lasting effects on hawksbill populations. Percentage of trade to Japan by region: Caribbean and Latin America - 44.2%; Asia - 20.8%; North America - 15.1%; Indian Ocean and East Africa - 8.7%; Oceania - 5.8%; Europe and West Africa - 5.4%.

The beautiful “tortoiseshell” of the hawksbill turtle has been prized since ancient times. Over 2,000 years ago Julius Caesar considered the warehouses of Alexandria brimming with tortoiseshell to be the chief spoil of his Egyptian triumph. Surrounded by legend, tortoiseshell has been described as “one of the romantic articles of commerce, not only because of where it comes from, but because of the creatures from which it is obtained and the people engaged in the trade” (Parsons, 1972). Until the second half of the 20th Century, the tortoiseshell trade flourished.

The tortoiseshell trade has been closely linked to European discovery, conquest, and commerce. In the Caribbean, European hawksbill fishing began in the mid-17th Century and intensified as demand increased. As they decimated local hawksbill populations, turtle fishermen moved from one site to the next. The plentiful hawksbill resources of Central America were exploited for well over 100 years by traders, including Americans, who established the town of Bocas del Toro on the coast of Panama in 1826.

Exploitation and tortoiseshell trade statistics are key to understanding the enormous and enduring effect that trade has had on the world’s hawksbill populations and predicting current population trends. While all species of sea turtles have been imperiled by the loss of nesting and foraging habitat, accidental capture in fisheries and marine pollution, hawksbills

- have been further threatened by the intensive shell trade.
- Well into the 20th Century, tortoiseshell was a luxury item used to make elegant combs and brushes, jewelry boxes, and ornaments. In particular, Japanese bekko (tortoiseshell) artisans have been renowned as the world’s premier craftsmen since 1700, when they established themselves in Nagasaki. During the 20th Century, Japan was the world’s largest market for tortoiseshell; government records for 1950-1992 document imports of more than 1.3 million large hawksbills and 575,000 stuffed juveniles. At the same time, tourist trade in stuffed hawksbills and tortoiseshell flourished locally in the Indian Ocean, the Pacific and the Americas. Millions of hawksbills were killed for tortoiseshell in the last 100 years.

- In 1977, the tortoiseshell trade was finally prohibited by the newly created conservation treaty known as CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora. At that time, more than 45 countries were involved in exporting and importing

raw tortoiseshell. As major trading countries joined CITES, the volume of trade began to diminish, but it remained high for a number of years as a result of Japanese demand. In the four decades prior to the Japanese ban on imports at the end of 1992, Panama was Japan’s most important supplier, followed by Cuba and Indonesia. In 1989, a detailed CITES report concluded that global hawksbill populations were depleted or declining in



Bracelet made from tortoiseshell.

56 of 65 countries where data were available.

In 1991, in an effort to avoid a U.S. embargo of fish and fishery products, Japan agreed to end its tortoiseshell imports at the end of the following year and re-train hundreds of bekko artisans. Since that time, Japan has supported several unsuccessful efforts to re-open the international tortoiseshell trade at CITES. As long as the ban on international trade is in place, the 172 member countries of CITES are obligated to uphold it. Between 1995 and 1998, Japan's existing stockpile of raw shell and finished products was reduced from 188.4 to 102.73 metric tonnes (one turtle = 1.06 kg of shell). Subsequent information on use is not available, but supplies should be exhausted by now. Interestingly, the bekko industry is intact, and demand remains high (one kg of raw shell can cost more than \$1,000 in Japan). From 1991-2006, the



Tortoiseshell fans are not as common as bracelets and hair combs.

Japanese government spent \$6M for hawksbill research and \$1.1M for projects to resume international trade, including trade with Cuba. Earlier this year, Japan's Ministry of Economy, Trade and Industry announced its intention to support the bekko industry for another five years.

The tortoiseshell trade remains an ongoing and pervasive threat to hawksbill recovery in the Americas, Asia, and parts of Africa. Despite significant progress in reducing the global volume of trade, numerous hawksbill populations have not received sufficient protection to stabilize and begin to recover; many depleted, declining or remnant populations remain. The lack of management and law enforcement are major challenges.

An underground trade from southeast Asia to Japan and other countries has been reported. For example, in Vietnam shell purchased in bulk by tourists and others is exported to Hong Kong, Japan, South Korea, Taiwan, Thailand, China, and Asian communities in North America and Europe.

Indonesian trade volumes diminished significantly between 1991 and 2001, but the clandestine trade remains substantial.

In recent reviews of the Lesser Antilles, Dominican Republic, Central America, Colombia and Venezuela, an extensive furtive trade in hawksbills and other sea turtles continues.

By Marydele Donnelly
Director of International Policy

Wider Caribbean Research

CCC continues hawksbill project in Eastern Caribbean

CCC researchers traveled to Nevis, an island in the Caribbean, from July 28-30, 2007 to attach satellite transmitters on two endangered hawksbill sea turtles as part of CCC's Eastern Caribbean Hawksbill Tracking & Conservation Project, a unique partnership between CCC, the Nevis Turtle Group and the Four Seasons Resort Nevis. These turtles are now available for adoption and can be tracked online at www.cccturtle.org.

Hawksbill nesting in the eastern Caribbean has declined considerably in recent decades. In Nevis, about 30 females are recorded nesting each year. The two hawksbill turtles were named "Calypso" and "Ginger." A satellite transmitter was harmlessly attached to each turtle's carapace. The transmitters allow scientists to



collect data that will aid in efforts to conserve this species in the Caribbean.

The two hawksbills released with transmitters in 2006, named "Mango" and "Nevis," have already revealed important information about the migratory behavior of hawksbills. Since the time of her release, "Mango" has traveled 1,610 cumulative miles to the Miskito Coast of Nicaragua. Unlike Mango's long distance migration, Nevis stayed close to her release site, traveling only 585 cumulative miles around the surrounding islands.

Now is your chance to make a failsafe investment toward the future of sea turtles.

Andrew Nelson



Caribbean Conservation Corporation's endowment challenge campaign allows you to double your investment! CCC's Board of Directors has generously pledged to match, dollar for dollar, every endowment contribution made by CCC's members and supporters*. This is an unprecedented opportunity for you to help CCC build a sustaining source of funding to support sea turtle research and conservation well into the future.

Our goal is to raise at least \$5 million over the next three years. We're asking CCC members to make a contribution this year toward the endowment, or phase your gift over the next three years. Either way, your entire gift or pledge will be matched by CCC's Board.

It is estimated that sea turtle populations have diminished to less than ten percent of their levels one hundred years ago. CCC's mission is to protect and restore sea turtle populations so these magnificent creatures remain a wild and thriving part of the marine world. To do that, CCC needs the long-term resources of an endowment to sustain scientific discovery and conservation programs. At Tortuguero, Costa Rica, CCC's long-term conservation program helped increase green turtle nesting by over 400% since the 1970s. The same sort of success can be achieved with other turtle populations, if we have the necessary resources. If you've been thinking about making a lasting gift in support of sea turtle conservation, now is the time!

To discuss this exciting opportunity, please contact David Godfrey, CCC Executive Director, at (352) 373-6441 or by email at david@cccturtle.org.

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