

**PROCEEDINGS**

**OF THE**

**THIRTEENTH SYMPOSIUM**

**ON THE**

**NATURAL HISTORY OF THE BAHAMAS**

Edited by  
**Jane Eva Baxter**  
and  
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Conference Organizer  
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Gerace Research Centre  
San Salvador Bahamas  
2011

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Printed at the Gerace Research Centre

ISBN 0-935909-93-3

# THE ROLE AND NATURE OF THE SEA TURTLE IN PREHISTORIC CARIBBEAN AND LUCAYAN CULTURE: EVIDENCE FROM ETHNOGRAPHY AND ARCHAEOLOGY

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## ABSTRACT

Excavations at North Storr's Lake (SS-4) on San Salvador, Bahamas have yielded dense deposits of sea turtle (Cheloniidae). Approximately 1300 fragments of sea turtle were recovered representing plastron, carapace, vertebrae, and other skeletal elements. Sea turtle remains at North Storr's Lake weighed three times more than other vertebrate fauna recovered, which included numerous reef fishes. Sea turtle remains have also been recovered from the Minnis-Ward site (SS-3) dating to ca. A.D. 950-1450. Utilizing archaeological, historical, and ethnographic records, the role of the sea turtle in traditional ethnographically studied cultures and prehistoric Caribbean and Lucayan culture is investigated. Zooarchaeologists typically categorize sea turtle only to the family level, but this practice raises the issue of which of the three typical Caribbean Cheloniidae are represented in the archaeological deposits. Green turtle (*Chelonia mydas*) is culturally preferred worldwide as a food source, loggerhead (*Caretta caretta*) has been previously recovered on San Salvador, and hawksbills (*Eretmochelys imbricata*) are common in the waters of San Salvador today. Recent and ongoing stable isotope analysis (SIA) and DNA analysis have revealed

the presence of at least two species and three individuals present in excavations at SS-4, identifying the dietary signature of green turtle using SIA and identifying loggerhead via extraction of DNA from ca. 722-458 year-old sea turtle bone directly dated to ca. A.D. 1288-1552.

## INTRODUCTION

This article attempts to place archaeologically recovered sea turtle remains from North Storr's Lake (SS-4) and Minnis-Ward (SS-3) (Figure 1) into a wider cross-cultural context so that the exploitation of sea turtles by the Lucayans of San Salvador can be better understood. As a result, we will have to rely on both ethnographic accounts of historically known cultures that utilized sea turtles, and the archaeological record regarding sea turtle use, to comprehend the role and nature of the sea turtle in the prehistoric Caribbean and Bahamas.

The archaeological and anthropological significance of sea turtles should not be understated. The bones and shells of many different types of sea turtles have been used as grave goods, tools, decorations and much more. In some cultures, only the elite are buried with turtle bones

or other artifacts, some of which are decorated. Artistic, religious, and symbolic depictions of sea turtles are also found in a wide variety of cultures throughout the ancient world. Sea turtles have been found in the archaeological records of ancient Arabia, Africa, Australia, Asia, Europe, the mainland Americas, and the Caribbean. Therefore, the cultural uses of sea turtle elements and the human-modified forms left behind in the archaeological record can reveal much about a culture's religious beliefs, social stratification, sexual division of labor, and artistic expressions, as we will see in this essay.

The cultural and symbolic use of sea turtles occurs in many different regions and cultures, from the princes and Bedouins of Arabia to the hunter-gatherers and fisherfolk of the Caribbean. Sea turtle remains have been used as grave goods, tools, net gauges (spacers), decorations, and their shells have served as funerary urns, elite grave goods, sleds or sledges, and many other objects. Many burnt and butchered turtle bones have been found at the fifth millennium site of Dalma, United Arab Emirates (Beech 2000), and the third millennium sites of Ra's al-Hadd (Mosserli-Marlio 1998) and al-Hamra in Oman on the Arabian Peninsula. The burnt bones suggest that the fat of sea turtles was utilized as oil. Turtle bones were found on the surfaces of burial grounds in these areas and the carapaces of green turtles were found as grave goods in about half of the graves at al-Hamra. Only certain graves contained complete green turtle shells, which were buried near the heads of the deceased. Perhaps, this indicates that the individuals with the complete turtle shells held a higher social status than those buried with only partial or no turtle shells. Sea turtle parts used as grave goods seem to indicate elite status throughout ancient Thailand. One of several examples is the site of Nil Kham Haeng, ca. 700 B.C., in Central Thailand, where an entire carapace of a sea turtle was placed over the head and torso of a buried individual. Sea turtles were also used as important decorative grave goods at Khok Phanom Di in southern Thailand. Sites in pre-Columbian Champotón, Campeche, Mexico, a preceramic site at St. Michielsberg, Curacao, Tanki Flip, Malmok, Aruba (A.D. 1-900), the Tutu site, St. Thomas (A.D. 300-700), all yielded sea turtle bones as grave goods in at least ten percent of the graves which indicates the elite status and religious symbolic value placed on sea turtles. Turtle bones are typically found in the graves of the male members of these societies. Perhaps, this is because only men hunt sea turtles in all known prehistoric and ethnographically known societies (Biagi et al. 1984:47, Bliege Bird and Bird 1997, Cleuziou and Tosi 2000, Frazier 2005, Higham and Bannanurag 1990:39ff, Nietschmann 1985, Pigott 2004 cited in Frazier 2005, Potts 1990:71, Thomson 1934).

### San Salvador, Bahamas

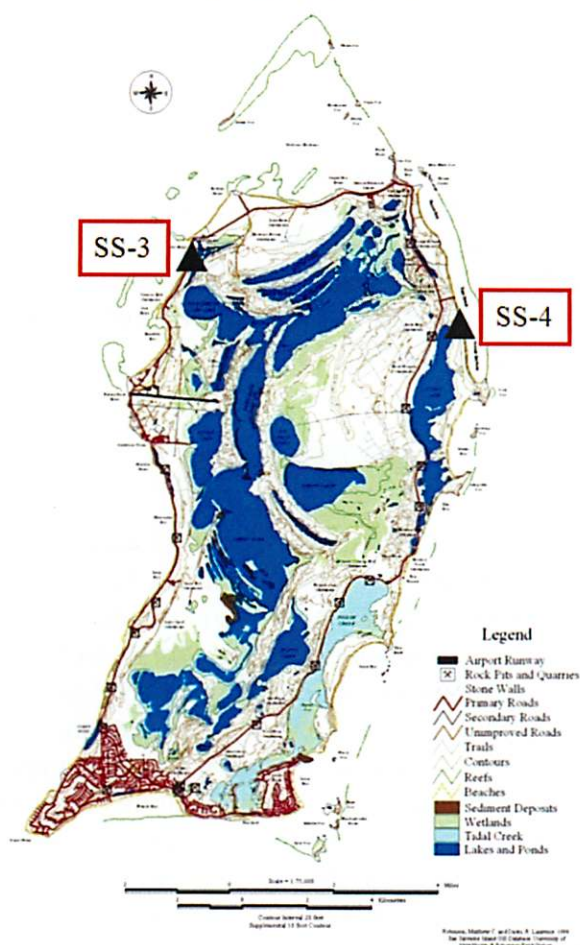


Figure 1. The North Storr's Lake site (SS-4) and the Minnis-Ward site (SS-3), two sites on San Salvador where large quantities of sea turtle have been recovered in archaeological excavations (from Robinson and Davis 1999).

Sea turtles have always been an important resource for the peoples of the Caribbean and other island nations. Traditional people of the Caribbean use almost every part of the sea turtle, including the meat, eggs, viscera, oil, calipee (cartilage), leather, penis, and other portions. The turtle shell is also kept for decoration or to make jewelry or tools. For generations, the Trobriand Islanders as well as the Australian Aborigines and Torres Strait Islanders have made the beautiful black and yellow tortoiseshell plates into elegant jewelry, hair combs, and fishhooks. The indigenous populations in the Tuamotu Archipelago also used sea turtle shells as platters and sledges (Frazier 2005, Nabhan et al. 1999, Oliver 2000, Traffic Network 2000, U.S. Fish and Wildlife Service 2006).

Even though the sea turtle is consumed in these cultures, it is also an important symbol to many of these groups. The Hawaiian Islanders thought of the green sea turtle as a deity of the individual family, or *amakua* (see Davidson 2003). Green sea turtles have been depicted in the petroglyphs and tattoo designs of Pacific Islanders and were an integral part of their ideology. Sea turtles were also religiously and symbolically significant to the Seri (aka Kunkaak or Comca'ac) of the Sonoran coast and islands of the Gulf of California (Smith 1974). The Seri had annual ceremonies where the males of the tribe hunt sea turtles in the ocean. The consuming of the meat of turtles was seen as special by the Seri. The Seri used every part of the sea turtles and used their shells to cover brush shelters, as umbrellas, trays, containers, water basins, fire wind breaks, cradles, coffins, and sledges for children's play toys. The Seri have many songs, legends, and activities all based on sea turtles. Sea turtle imagery is even reflected in changing religious beliefs due to contact with Western culture. For example, after the Marquesas Islanders were converted to Christianity, they substituted the pre-Christian sacrificing of humans with sacrifices of green sea turtles in post-contact times. In many areas of West Africa, the flesh, blood, and fat of sea turtles was used for traditional medicines and "voodoo" (Frazier 2005, Fretey et al. 2004, Nabhan et al. 1999, U.S. Fish and Wildlife Service 2006).

The hunting and obtaining of sea turtle meat is very symbolic and is typically obtained only for special ceremonies. The hunting practice of sea turtles in traditional cultures varies. For example, the value and social organization of obtaining sea turtle is demonstrated in the difficult, long-distance hunting of sea turtles by the Central African Bofi and Aka peoples. Sea turtles are thought of as very prestigious. Groups of village men will take boats out into distant waters in order to obtain a sea turtle for a ceremonial feast. The Bofi and the Aka then capture turtles in communal nets and then share the kill among their group to show unity. However if an individual captures a turtle alone, he earns the head of the animal as an honor. The Seri only hunted the green sea turtles and leatherback turtles once a year in ritualistic ceremonies in traditional hunting waters. Most island cultures form hunting parties composed of men that hunt sea turtles in the open waters at special times. Some cultures require that the men pull the sea turtle up onto the boat by hand, while others use spears or nets to capture the turtle (Lupo and Schmitt 2005, Nabhan et al. 1999, Traffic Network 2000).

Traditional cultures have held onto the importance of consuming sea turtles even in modern times. The hunting methods change when new technologies are introduced or the diffusion of ideas and practices from other cultures are adopted. The Aborigines, Torres Strait Islanders, and Palauans traditionally hunted dugongs and sea turtles in wooden outrigger canoes in the islands and reefs around their islands (Nietschmann 1985, Thomson 1934). These traditional canoes have been replaced by motorized boats, which unfortunately have greatly increased the ease of hunting sea turtles (Bird and Smith 2005, Matthews 2002, Nabhan et al. 1999, Spotila 2004).

The Caribbean Islands have also had a very long tradition of hunting native sea turtles. However, these traditions can have negative consequences in modern times because it can include the harvesting of eggs, meat, and the disturbance of traditional nesting grounds. Female turtles are particularly sought after due to their high quantity of fat, and this can impact breeding populations. The green turtle, which is the most-often preferred

species for consumption at cultural ceremonies (Parsons 1962), as well as other sea turtles, have become endangered by these more efficient hunting methods that are found today in modern Suriname, Costa Rica, Mexico, Florida, and throughout the Caribbean. In the Caribbean, the Bahamas, British Virgin Islands, Cuba, and Haiti still allow a controlled amount of hunting and sea turtle harvesting today (although the Bahamas recently pass a new law on this issue in late 2009). However, this is only permitted using the traditional method of open sea hunting (Traffic Network 2000). Poaching of sea turtle eggs, even by indigenous groups, has been outlawed internationally (Campbell 2003, Traffic Network 2000, U.S. Fish and Wildlife Service 2006).

The obtaining and sharing of turtle meat have immense social implications. The hunting of sea turtles often follows a strict pattern of sexual division of labor. Men tend to hunt the sea turtles for special feasts, while the women tend to provide the foods obtained from foraging, such as fruits and vegetables, to compliment the turtle meat at ritual feasts. The consuming and sharing of turtle meat can reflect social stratification, as, for example, at the big man feast practiced by many Melanesian cultures which emphasizes the obtaining and ritual preparation of sea turtles as a show of high leadership status in the village. It can also be part of important symbolic and religious rituals. The Australian Aborigines and Torres Strait Islanders place great emphasis on sharing of sea turtle meat with members of their family (Nietschmann 1985). For more isolated Aboriginal and Torres Strait islander groups, the dugongs and green turtles are valued socially even more because they are difficult to obtain and they provide the main meat source for these communities (Bird and Smith 2005, Frazier 2005, Nabhan et al. 1999, Traffic Network 2000). Based on the examples presented in the sections above, it is clear that the study of the cultural uses of sea turtles and sea turtle parts and their human-modified objects can reveal much about a culture's religious beliefs, social stratification, sexual division of labor, and artistic and ideological values.

## SEA TURTLE CAPTURE, BUTCHERY, DISTRIBUTION AND COOKING PRACTICES: EVIDENCE FROM ETHNOGRAPHY AND ARCHAEOLOGY

Sea turtle capture, butchery, dismemberment, and distribution are most likely seen today by peoples of the industrialized Western world as cruel, barbaric, insensitive, and ecologically devastating. Even as long ago as the 1930s, before environmentalism and animal rights emerged on the scene, the ethnographer Thomson noted that, "The cutting up of a turtle is a particularly gruesome business...and the native method only serves to prolong the death agonies of the creatures" (1934:249). Spotila (2004:82) calls sea turtle butchery a practice "too disturbing to describe." In this report, we will not attempt to apply 21<sup>st</sup> century ethics to prehistoric and preliterate cultures lest this interfere with the analysis at hand. It is true, however, that in the face of the plight of the world's sea turtle populations today (e.g., Davidson 2003, Spotila 2004), many readers may find the following descriptions of sea turtle capture, butchery, distribution, and cooking extremely unpleasant and disturbing.

### Sea Turtle Capture

In the pre-Columbian Caribbean Sea, it has been said that "the free-swimming reptiles were large, easy to spot, and abundant" (Smith 1985:329). Bjorndal and Jackson (2003:261) report that, "Before sea turtle populations were depleted by humans, sea turtles occurred in massive numbers that are now difficult to imagine." In fact, Jackson (1997, Bjorndal and Jackson 2003) estimates that some 33-39 million adult green sea turtles lived and bred throughout the waters of the Caribbean. Suffice it to say that sea turtles of all sorts would have been plentiful for the taking by the indigenous inhabitants of the Caribbean and Bahamas. But just how were those turtles hunted and captured? Since indigenous Caribbean peoples, for the most part, disappeared rapidly in the wake of European colonization, we must turn to ethnography of modern turtle hunting cultures,

most of which derives from studies of Pacific island peoples, to answer that question.

Several techniques of turtle capture are described in the ethnographic literature: capture during egg laying (Bliege Bird and Bird 1997, Doran 1964, Johannes 1981, Smith 1985, Thomson 1934), harpooning or spearing from boats (Carlson 1999, Johannes 1981, Parsons 1962, Thomson 1934), use of remoras or suckerfish (Parsons 1962, Smith 1985), capture by swimming and roping (Mosserli-Marlio 1998, Thomson 1934), use of nets (Carlson 1999, Frazier 2003, Smith 1985), and by turning the turtle over on its back (usually of egg-laying or mating turtles caught unawares) (Doran 1964, Frazier 2003, Smith 1985).

During nesting season, sea turtles are vulnerable prey since they must leave the relative safety of the water and lumber up to the beach to lay their eggs. It has been recorded that most turtles captured were females (Bliege Bird and Bird 1997, Nietschmann 1985, Thomson 1934), probably because they are such easy prey when nesting. The early Spanish chronicler, Oviedo (1526 [1959]:111), noted that, "the way in which they are caught in quantity is when they leave the sea to come out on the beach to lay their eggs or to feed." Eggs, whether laid or unlaid, are also considered highly desirable by many turtle hunting cultures (Parsons 1962) as unlaid eggs are sometimes removed from the female after capture and butchery (see below). Capture of sea turtles, or their eggs, at laying is not the random occurrence it may first seem. Sea turtles have egg-laying cycles that are easily recognizable by any coastal dwelling people that live on or near the beach (Johannes 1981). For example, "Palauans have...the ability to predict when a turtle will return to its nesting beach.... By examining the [previously laid] eggs they can deduce how long ago they were laid. ... [A Palauan] knows when it is time to intercept the turtle on its return to the beach" (Johannes 1981:57). Many cultures additionally recognize the lunar cycle, tidal, and locational preferences for sea turtle egg-laying (Johannes 1981). "Female turtles lay their eggs several times per season and individuals will usually return in the evening on a high tide to the same stretch of

beach for each laying" (Johannes 1981:56). On the Pacific island of Truk, Micronesia, "the traditional Trukese name for the night of the full moon is ... 'night of laying eggs'... [when] green and hawksbill turtles lay their eggs at night" (Johannes 1981:39) typically around full and new moons (Johannes 1981:57).

Harpooning or spearing from boats is probably the most dramatic of the capture techniques, and is the most common method of turtle hunting worldwide (Carlson 1999). Historically, "the Island-Caribs used harpoons in hunting the sea-turtles just as their kinsmen the Galibis [Caribes] also did in killing the same creatures" (Lovén 1953:425). "During the breeding season the turtles are easy prey to harpoon or spear as they drift on the surface of the sea preoccupied in copulation" (Parsons 1962:4). Thomson (1934:246) reports that during their mating period, sea turtles "lose their accustomed wariness and may be very easily approached in canoes." Other reports suggest that, "In pursuing turtles," stealth is required: "The canoe fisherman paddled slowly and quietly up to a turtle hoping to get close enough to throw his spear before being seen or heard" (Johannes 1981:25). Most ethnographically known harpoons are wooden (Thomson 1934), sometimes hardened by fire, and range in length from a little over one meter to about three meters in length (Carlson 1999). In Cape York, Australia and in Palau, sea turtles (and dugong) were hunted with long, heavy spears (Johannes 1981, Thomson 1934). While the size of the canoe or boat crew apparently varied from two to four members depending upon the culture, there seems to have been a great deal of cooperation between the harpooner and the steersman: "The *wotadji* (harpooner) is by far the most skilled and most important member of the [four man] crew. He is really master when the craft is at sea, and it is he who gives directions to the *kotikonji* (steersman) when the quarry, dugong or turtle, is sighted" (Thomson 1934:243). In the Caribbean, on the other hand, "Turtles work in teams of two; one maneuvers the boat while the other harpoons. ... Within 20 m [of the turtle], the harpoon is released with a high arc and the carapace is pierced vertically" (Carlson 1999:111). Among the Cape

York Aborigines, it has been reported that the harpooner actually jumps off the bow of the canoe or dinghy and uses his weight, as he falls through the air, to drive the harpoon (Thomson 1934) through the hard shell of the sea turtle. Other reports suggest that, "It was necessary to harpoon the animal in a soft place, preferably in the region of the neck, for the wooden harpoon would not penetrate the hard carapace" (Thomson 1934:246, *contra* Carlson 1999). Some scholars have commented upon the accuracy of the harpooners (Carlson 1999, Smith 1974) as archaeologically and ethnographically known spearings appear to have hit their targets very accurately at dead center (e.g., Carlson 1999 reports a few pieces of pierced turtle carapace from the Coralie site on Grand Turk) or in the soft neck or flippers (Johannes 1981, Thomson 1934). "To drive a harpoon through the back of a turtle's neck or fore-flippers... must have been a real feat" (Smith 1974:140). In Palau, "Sea turtles are usually speared in a front flipper. A turtle thus speared is forced to swim in circles (only the front flippers are used for propulsion in these species) and is unable to fight effectively" (Johannes 1981:19). After harpooning or spearing, a fisherman must be careful not to let the turtle drag him under or to drag the boat into dangerous waters. After about an hour or more, the sea turtle's struggles cease and the turtle can be taken aboard the canoe alive (Thomson 1934) or tied alongside for transport.

One of the most remarkable and strange manners of sea turtle capture is that of the use of the remora or suckerfish to "hook" the turtle. According to an account by Oviedo (1526 [1959]:21-22):

...the remora darts straight as an arrow and fastens itself to one side or the belly of a turtle. ...In a short time the fish or turtle to which the remora has fastened itself becomes tired and swims toward the shore. ...The wave throws the fish out of the water, and the Indian seizes it and drags it to dry land. ...Some of the turtles caught in this fashion are so large that two Indians, and sometimes even six, have difficulty carrying them on their backs to the town.

Lovén (1935:425) further noted, "By means of this little sucking fish, the Cubans [Indians] could draw up turtles weighing 4-5 arrobas [300-375 lbs.]... Afterwards, the Cubans often kept such turtles, brought up with remoras, in corrales [turtle pens." Apparently, some cultures actually train the remoras to become accustomed to human handling and tying as a kind of "bait," and use their natural instincts to attach themselves to a sea turtle and assist in the landing of the turtle (Parsons 1962). This technique is reported from many cultures worldwide including cultures of the Pacific, Africa, and the Caribbean. For example, Indians of the Caribbean captured sea turtles "with the aid of a semi-domesticated suckerfish, the remora (*Echeneis remora*). Handled by a length of string tied to its tail, the remora attached its dorsal suction device to the underside of large marine prey, which could then be hauled into a boat" (Smith 1985:329-330). Although there is some debate as to whether this technique is a pre-Columbian trait or a post-Columbian introduction from the Old World, the recording of the practice among contact-era Indians strongly suggests the technique is indigenous to the Caribbean but may not have survived long after the arrival of the Spanish: "The first account of the use of the suckerfish in turtling is that of Columbus, who on his second voyage observed the practice in 1494 among the islands of Jardinnella de la Reina on the south coast of Cuba. ... the use of the remora for taking turtles must have vanished from the Antilles with the aboriginal population" (Parsons 1962:85). The use of turtle pens to store captured sea turtles is verified by Lovén (1935:421-422): "The Taínos were accustomed – to place in corrales their catch of different animals, and to take from there as they needed them. ...Sea-turtles, sometimes as many as 500-1.000 of them, were also kept in such corrales along the southern coast of Cuba."

Several authors report the taking of sea turtles by swimming or grappling, before or after harpooning (e.g., Mosserli-Marlio 1998, Thomson 1934). According to early Spanish accounts for the Caribbean:



I say that in the island of Cuba large turtles are found, sometimes so large that ten or fifteen men are necessary to pull one of them from the water. ...In the village of Aclá [Tierra Firme, Panama] I saw one so large that six men were hard put to carry it, and ordinarily the smaller ones are quite a burden for two men. The large one that I saw there carried by six men had a shell seven spans long, measured down the middle of its back, and more than five spans wide. (Oviedo 1526 [1959]:111)

This would involve the locating of a sea turtle from a boat and the fisherman simply jumping into the water to wrestle the sea turtle into submission, a feat easier said than done. The so-called “turtle-eaters” of the Red Sea are reported to have captured sea turtles in this manner and the technique is also recorded among modern-day Aborigines of Australia working off of motor-boats. “The chelonophagi, or turtle eaters, are described as swimming out to the animals in twos and tipping them over, whereupon a rope was fastened to the tail and the animal hauled in” (Mosserli-Marlio 1998:4). The capture of sea turtles using the swimming technique is also practiced by the Palauans who catch the turtles unaware while sleeping:

Turtles feed mostly during the night, early morning, and late afternoon. Often around midday they move into the lagoon and sleep on the bottom for two or three hours. The hawksbill generally sleeps in a crevice or cave in the reef; the green turtle more often chooses a sandy bottom, under an overhanging coral or rock. ...Both have customary sleeping places with which Palauans are familiar. The animals are easy to catch here because they are almost oblivious to disturbance. Palauans say a person who is hard to wake up *bad el wel* – ‘sleeps like a turtle.’ (Johannes 1981:58)

Some have suggested that sea turtles could also have been captured in nets (Carlson 1999, Lupo and Schmitt 2005, Smith 1985), but this

technique appears may have been a technique introduced by Europeans or Africans after contact (Carlson 1999). Early Spanish documents, however, indicate the use of netting just post-contact: “Often turtles are caught in drag nets....” (Oviedo 1526 [1959]:111). Nevertheless, sea turtle netting appears to be a fairly common technique of turtle capture worldwide (Frazier 2003).

Finally, the easiest method of sea turtle capture appears to have been the technique of turning or “turning turtle,” that is, to turn the turtle upside down to render it immobile. This technique was most often used on female nesting or other basking turtles and also as a storage technique for sea turtles that had already been captured (Bliege Bird and Bird 1997, Doran 1964, Frazier 2003, Parsons 1962, Smith 1985) (turned turtles can be kept alive for days and weeks if kept moist and out of the sun). Oviedo (1526 [1959:111]) noted:

...When the Spaniards or Indians find their tracks in the sand, they follow them. The turtles, being surprised, run toward the water, but since they are heavy and slow they are easily overtaken. Then a stick is placed under its front legs and as it runs along, the turtle is turned over on its back. Since the turtle cannot turn over from its back to an upright attitude, it must stay there. Leaving the turtle upside down, the hunters can follow tracks of any others that may be there, and handle that turtle in the same fashion. In this way many are caught. This is a very good fish [sic] of good flavor and healthful.

After capture, if taken from a boat, the turtle could be, “Pulled over the gunwale by its front flippers and positioned on its back in the bilge, each turtle was [then] spancelled by piercing and tying its flippers together in a crisscrossed fashion” (Smith 1985:331, referring to turtle capture in historic times). In the western Caribbean, Miskito Indian canoes, measuring six meters long by one meter wide, could carry three to four adult sea turtles back to shore (Carlson 1999:60 citing Nietschmann 1972). In the Torres Strait, after roping the sea turtle,

the hunters have several options for transport: if they have traveled by the dinghy, they can drag the turtle to the waterline and load it into the boat. If they have traveled on foot and the tide is high enough, they use a long lead rope and allow the turtle to return to the sea, letting it swim back to their household (or butchery location) as they walk along the shoreline holding the other end of the rope. Alternatively, hunters may leave the turtle upended and collect it the next morning. On returning to the residence, hunters tether the turtle on its lead to a tree, allowing it to swim freely for a few days before being butchered. (Bliege Bird and Bird 1997:55-56)

#### Sea Turtle Butchery

Among the Seri Indians of West Mexico, after the capture of a sea turtle there was a long, complex, four-day ritual in which the captured turtle was thought to have spoken to the participants, the animal was sung to and painted, and then, "At the end of four days, the turtle was killed and eaten" (Smith 1974:141). Often times the animals are dispatched by clubbing them in the head or by decapitating them to avoid being bitten (Mosserli-Marlio 1998); other times the animals are dismembered and disarticulated while still alive (Thomson 1934). In any event, the absence of skull fragments is typical at many turtle butchery sites (Carlson 1999, Mosserli-Marlio 1998), although Winter (1980) reports a *Caretta caretta* skull from the Minnis-Ward site (SS-3) on San Salvador complete enough to be identified by specialists at the American Museum of Natural History in New York. Some peoples, such as the Fijians and Samoans, save the turtle's head for the consumption of the chiefs: "Eating the head of the turtle was reserved for the chief of highest rank, because it was believed to contain the *mana* [the spiritual power of the turtle]. The rest of the turtle was apportioned by rank. ... Eating the head of the turtle was also reserved for the chief of highest rank in Samoa" (Luna 2003:32).

In the archaeological record one may expect to find cut marks or butcher marks on different bony elements of the turtle (e.g., Frazier 2003): "Cut plastral elements may indicate that the animals were turned over onto their backs and then cut open after roasting, a practice reported both during the classical period and in modern ethnographic studies.... Radii, ulnae and humeri, though not common in the [Ra's al-Hadd, Oman] sample, did show butchery marks. Phalanges frequently showed cuts, a practice associated with the removal of the skin for the production of leather" (Mosserli-Marlio 1998:3). Several authors (Carlson 1999, Frazier 2003), including the present primary author, have remarked on the almost complete obliteration of the turtle remains, often resulting in tiny pieces that often exhibit burning (e.g., Minnis-Ward site) and, more rarely, cut marks. This extent of utilization of the animal should be no surprise, however: "With their many useful body parts: flesh, fat, shell, leather, egg and bone, it would certainly be in line with historical and ethnographic reports of maximum utilisation of the entire animal" (Mosserli-Marlio 1998:4).

In many ethnographically known cultures, the butchery practice follows an orderly sequence of events from the landing of the animal to the ultimate distribution of its meat and other parts. Turtles first must be hauled off the boat or hauled up the beach to the butchery location, in some cultures, very near the waterline or coast (Bliege Bird and Bird 1997, Frazier 2003). In the York Islands, "The carcass [is] dragged bodily onto ... [boughs to keep the sand out of the meat], where it is cut up and apportioned between the [master of the canoe] and the crew, who in turn share it with the remainder of the group" (Thomson 1934:247). In many cultures, turtle "Butcherings are frequent and represent an important social activity" (Nietschmann 1985:645) and are "carried out according to rigid tradition" (Thomson 1934:247). Butchery of the sea turtle may or may not be carried out by the actual hunter or killer of the turtle, and the hunter may or may not have much control over how the meat is distributed (Bliege Bird and Bird 1997). It is clear, however, from many ethnographic accounts that clan, family, and other social obligations play a great part in the butchery

and distribution processes (Bliege Bird and Bird 1997, Davidson 2003, Nietschmann 1985, Pacific World & Associates 2003, Thomson 1934).

The following accounts of the actual butchery are derived from two Pacific island cultures from the York Islands and Torres Strait areas of Australia and are provided to demonstrate how sea turtles have typically been butchered in pre-literate cultures since such accounts are non-existent for the Caribbean region. Among the York Islanders, "The actual cutting up [of the turtle] may be carried out by the [master of the canoe] or [harpooner], or by one of the old men of the group. Formerly this was done with knives...made from split bamboo.... The cutting up of the carcass is carried out very skillfully, and with a technique that would do credit to a tradesman butcher" (Thomson 1934:248). The seeming care that is taken and the skill that is used in the butchery of the turtle has practical applications: turtle butchery can be a rather laborious task, the meat must be divided evenly among clan, family, and other social groups, and the meat must not be spoiled in the process. "Turtles have inherently large butchery costs because 90% of the edible flesh is contained within the carapace. The plastron must be removed and flesh cut from both the plastron and the carapace before division can occur, and it must be done carefully so as not to contaminate the meat" (Bliege Bird and Bird 1997:57). Thomson (1934:249) provides a detailed description of sea turtle butchery among the York Islanders as follows:

The cutting up of a turtle is a particularly gruesome business. Turtles are notoriously difficult to kill and the native method only serves to prolong the death agonies of the creatures. The victim is laid on its back, while the ... (anterior and posterior flippers) are one by one laboriously cut through. An incision is made around the ... (plastron), which is then dissected off, while the animal enlivens the proceedings by emitting at intervals a deep gasping sound. It is now divided into four portions, so that each [person] has its share of ... (flesh) and ... (fat).

Bliege Bird and Bird (1997) have provided a more recent description of the role of sea turtle hunting and butchery among the Meriam of the Torres Strait, Australia. While their work was primarily devoted to a behavioral ecological analysis of hunting and food sharing, they noted with great care the numbers of sea turtles caught, their sizes, how many people there were in each household and village, and how much sea turtle contributed to the overall diet. Bliege Bird and Bird (1997:57) recorded their highly detailed account of sea turtle butchery in the following passage:

Butchery occurs near the waterline and follows a semiritualized sequence. Butchers first stun the turtle, then remove the plastron (belly plate) and carry it up to a table. They then remove the shoulders and pelvis and carry these up with the bone still internal. After removing the limbs, they begin taking out the remainder of the flesh within the carapace, retaining the lungs, intestines (after cleaning in the ocean), unlaidd eggs, kidneys, liver, and stomach and even scraping fat from the connective tissue covering the inside of the carapace and keeping the blood to cook with the meat. Only the bile duct, gall bladder, ovaries (emptied of their contents), and urinary bladder are discarded. The head and tail may be removed at this point or may be discarded with the carapace, now picked clean, as there is very little edible meat in these parts.

After butchery of the sea turtle, the distribution begins of the meat, organs, and other parts, which, in most parts of the world, follows an extremely rigid process to ensure that clan, family, and other social obligations are met.

#### Sea Turtle Distribution

In the Torres Islands, "Butcherings are frequent and represent an important social activity" (Nietschmann 1985:645). The landing of sea turtles seems mostly to be a seasonal affair, primarily during the nesting or egg-laying season,

and appears to represent a period of sharing, abundance, and perhaps even fertility (e.g., unmarried men advertise their hunting prowess and marriageability to village females at this time of year via the capture of sea turtles) (Bird 1999, Bliege Bird and Bird 1997). To make sure that the sea turtle is divided up appropriately, "The cutting up and sharing of ... turtle is carried out according to rigid tradition" (Thomson 1934:247) in which it has been recorded that "women distribute the meat [and other turtle products] among relatives and friends, in accordance with firmly established social patterns" (Davidson 2003:69, see also Matthews 2002). Of course, "The main object in sharing the animal [turtle or dugong] is to ensure a fair division of fat and flesh" (Thomson 1934:249) so that everyone who is socially deserving, or that everyone who expresses an interest, in getting some turtle meat does so. Among the Meriam of the Torres Strait, "this sharing pattern seems to have changed little since the days when the Meriam lived in kin-based clan groups within each village district and thus would have shared their turtles during the nesting season solely with neighbors who were close patrilineal kin" (Bliege Bird and Bird 1997:66). This division of turtle meat seems primarily to occur along kinship lines. For example, in the Torres Islands, "meat is given away freely and equally as it always has been. ... The receipt of meat is a social transaction, dependent upon kinship ties" (Nietschmann 1985:645, see also p. 646, Figure 10). On the island of Satawal, Yap Islands, "Turtle is considered a delicacy here. We used to go out and hunt for turtles, bring one home and divide the meat amongst the family [clan]. We usually cooked it on its back, since in those days we didn't have big pots" (Pacific Worlds & Associates 2003:8). Australian Aborigines are also known to divide game so that some meat "goes to other people in the families of the clan" (McConchie 2003).

Often, turtle meat is divided up into very specific units or cuts of meat and apportioned very carefully by size or weight to make sure that families get equal portions or proportionate servings depending on the size of the family (Bliege Bird and Bird 1997, Nietschmann 1985). For example, Torres Islanders divide green turtles into

30 meat and organ categories for distribution to kin (Nietschmann 1985:646, Figure 10). "The average mature green turtle yields about 150 pounds [68 kg] of edible meat" (Parsons 1962:109), although today among the Meriam, the average is recorded as about 50 pounds (22.7 kg) (Bliege Bird and Bird 1997). In some cases, turtle meat is not necessarily divided up among clan and family members, but rather the meat is divided up among the members of the boat crew responsible for killing the creature. In this case, individual boat crew members get specific portions of the turtle according to their role in the boat. Traditionally, among the Cape York Aborigines, turtles were divided into the following sections (as borrowed from Thomson 1934:249-250): 1) head with associated flesh; 2) anterior flippers with a quantity of flesh; 3) the plastron which carries the largest portion of meat; 4) posterior flippers with much flesh and the eggs (with or without the shells). "An additional 'sharing out' may take place to ensure an equitable distribution of ... (fat) and (stomach and intestines)", specific portions of which are distributed to the canoe master, harpooner, middleman, and steersman of the boat crew (Thomson 1934:250).

### Sea Turtle Cooking

A review of the ethnographic and archaeological literature, and even a review of ethnographic photographs on the world-wide web, indicates that the primary technique of cooking sea turtles was by placing them on their backs, starting a fire on their bellies, and roasting them using their own shell as the cooking pot. Some cultures are recorded as cooking sea turtles in earth ovens. For example, among the Meriam, turtles "are usually roasted whole in an earth oven after removal of the bile duct and gall bladder and cleaning of the intestines" (Bliege Bird and Bird 1997:58-59). At the Mayan site of Isla Cerritos, "fragments of turtle shell were found with scrapes, surface gloss, or very even breaks. These were interpreted that the animals were roasted on an open fire and that cut marks were received during butchery" (Frazier 2003:16 citing Carr 1989).

In at least one instance, there is ethnographic evidence that some Australian Aborigine groups heated rocks and placed the hot rocks inside the body cavity of the green turtle in order to cook it from the inside out. Use of rocks, either in the form of platforms or as hot rock roasting areas, is recorded from Pacific Island cultures. For example, on Tongareva, "The turtle was cooked on an elevation of stones as a sacrifice to the gods" (Luna 2003:32). In New Caledonia, "Sea cow, turtle, and fish remain ceremonial dishes, along with *bougna*, a dish of steamed yams and meat cooked under hot stones" (Thomson 2006:5). The hot rock cooking technique, whether inserted into the body cavity of the turtle as among certain Australian tribes, or whether used more like a roasting surface or pit, would certainly explain the significant quantities (12.875 kg or 28.385 lbs) of apparent "fire-cracked" rock (FCR) found in the 2006 excavations at the North Storr's Lake site (see Blick, Creighton and Murphy 2006, Table 1, for the quantities and weights of FCR recovered in the excavation units). In fact, there appears to be a rather widespread "midden" or layer of FCR over a large portion of the North Storr's Lake site tested by Blick and Gnivecki in 2005 and 2006. Whether or not this concentration of FCR is discreetly arranged into hearths or roasting surfaces, as one might expect, is currently being investigated.

Numerous hearths, many of which were primarily oriented toward roasting sea turtles and fish, have been reported from the Taíno site of Coralie, Grand Turk. Carlson (1999:94-95) describes turtle preparation and cooking as follows:

very little butchering of the turtle was done before roasting. The hearths contained turtle carapace, plastron, all the long bones and some broken up skull pieces; even the small bones of the fins and the tail were found. The bony elements were not butchered before roasting, but perhaps some of the soft tissue was removed. ... These tissues could have been removed from the turtle before roasting by severing the cartilage holding the plastron and carapace bones together, and peeling back the plastron [see for example, Parsons

1962:107, lower photo]. ... The turtle carapace and plastron bones from Coralie were rarely charred. Instead of placing the turtles right on the hot coals, perhaps an insulating layer of conch shell was laid down in between the coals and the turtle. ... There was only one example of an extremely burned plastron ... from the final phase of the occupation.... The roasted turtles at the Coralie site appear to have been cooked whole in their shells. Most parts of the turtle, including the head, neck and flippers have food value and would have been consumed.

Most of the cooking methods described above would result in large quantities of burned and scorched or blackened turtle bone: "much of the [turtle] material was...burned and it was hypothesized that the burning resulted from cooking" (Frazier 2003:5). This is exactly the pattern found at archaeological sites on San Salvador such as Minnis-Ward (Blick 2004) and North Storr's Lake (Blick, Creighton and Murphy 2006) (see Figure 2), both of which are located ca. 100 m from potential (past) sea turtle nesting beaches (Sand Dollar Beach and East Beach, respectively).

#### THE ROLE OF THE SEA TURTLE IN THE PREHISTORIC CARIBBEAN AND BAHAMAS

According to Smith (1985:335), "the capture and utilization of sea turtles was at the core of Caribbean island survival," in both pre-Columbian and historic times. Perhaps the most recent and most extensive compilations on the sea turtle in the archaeological record as food, tool, and cultural items are those of Frazier (2003, 2005). While Frazier has attempted worldwide coverage, his accounting of sea turtle remains in the Greater Caribbean is focused upon here. Frazier has recorded archaeological presence of sea turtle remains in numerous sites in Florida (Frazier 2003:7-9 Tables 1.2 and 1.3), the Bahamas, Turks and Caicos, Virgin Islands, Dominican Republic, Jamaica, Trinidad, and numerous islands of the Antilles south to the coast of Venezuela

(Frazier 2003:9-10, Table 1.3) dating from ca. 2000 B.C. to the time of the Spanish conquest and including several sea turtle taxa including ridleys, loggerheads, greens, hawksbills, and (mostly) generally identified Cheloniids (identification beyond the family level is typically difficult or not done in most analyses).



Figure 2. Sea turtle bone from the North Storr's Lake site. Upper left is a nuchal bone; on the right are long bone fragments. Some plastron fragments show evidence of burning (J.P. Blick).

“The Bahamas are recorded from earliest [colonial] times as supporting a large population of browsing greens [sea turtles] [but]...there seems to be no evidence that they ever bred there ... although hawksbills, loggerheads, and leatherbacks all nested on Bahamian beaches” (Parsons 1962:24). While remains are few and far between, archaeological deposits with fragments of sea turtle are found scattered from Florida through the Bahamas, Greater and Lesser Antilles, to the northern shores of South America in Venezuela.

The variety of sea turtles encountered in the archaeological record mirrors that found in the waters of the region today (although today's turtles are much reduced in numbers). “Turtles of several species were important to the indigenous peoples living throughout the Caribbean. Green turtles were prized both for their meat and for their eggs, while the hawksbill's beautifully mottled gold-green and brown shell was made into jewelry and used in trade. These and other species also played a role in the spiritual life of pre-Columbian peoples” (Davidson 2003:67).

Rouse (1981, 1992) reports that several prehistoric cultures of the Caribbean, the Courian, Saladoid, Taíno, and Ostionan, hunted and ate sea turtles, stored them live in weirs, and sometimes decorated their pottery and stone objects in the images of sea turtles, perhaps in recognition of some mythological role they played in Caribbean cosmology (Figure 3). “Turtle imagery is one of the few decorative motifs found in the Ostionan style. Effigy bowls have modeled lugs [handles] depicting the turtle's head and flippers, and a hemispherical vessel representing the turtle shell” (Carlson 1999:200). The liminal nature of the sea turtle, being a creature caught between the worlds of water (where it lived), land (where it laid its



Figure 3. Zemi (fetish) in the shape of a turtle from Baracoa, Cuba, carved in diorite, from

*the Museo Antropológico Montané, Universidad de la Habana, Havana (used with permission).*

eggs), and air (which it breathed), very likely granted it a certain mystical aura in the eyes of preliterate peoples. For example, “Turtle is seen as a benevolent character who inhabits the spiritual world and the physical world at the same time.... It is the link between the two,” according to Sam Ka’ai, a traditional Hawaiian *kahuna* or spiritual leader (quoted in Davidson 2003:217). “Being an animal of both land and water, turtles were symbolically associated [by the Polynesians] with boundary crossings and became incorporated into mortuary activities. Similarly, the Taíno imbued spiritual significance into animals that lived in more than one domain – earth, water, or sky... – and depicted turtles and other nature spirits in their artwork” (Carlson 1999:200). In fact, the ancient Taíno believed that they were the descendants of a male culture hero named Deminán Caracaracol and a female sea turtle (Taylor 2000). The sea turtle continues to play a role in modern Taíno art and mythology, as seen in modern art in places such as Puerto Rico.

Sea turtles “have historically been revered as special and sacred beings” (Luna 2003:1) by many cultures around the world. For example, the later Carib culture of the Lesser Antilles possessed a myth in which the Milky Way was referred to as the “Trail of the Turtle” (Robiou Lamarche 2005). The position of the sea turtle constellation, Catáluyuman (the celestial turtle or “turtle spirit,” formed partially by the star Capella) crossing the Milky Way in the night sky corresponded to the egg-laying time (ca. June-August/September) of the sea turtle (notably the preferred green turtle). The trail in the sand on the beach after the turtle laid its eggs apparently resembled, in the minds of the Caribs, the Milky Way galaxy (Robiou Lamarche 2005) (see Figure 4). It is for these (and other) reasons that the “Caribs of the Lesser Antilles originally did not eat turtle meat, being fearful of taking on the characteristics of that reptile.... Yet they relished the eggs” (Parsons 1962:10 citing Rochefort 1666). Although the ideological significance of this myth and the nature of the sea turtle in Caribbean cos-

bean cosmology may not be fully understood by us today (e.g., in relation to creation myths, as among the Seri of Mexico, or its funerary association, as among the Calusa of Florida, see Smith 1974, and Schaffer and Ashley 2003, respectively), it is clear that for the Caribs astronomical phenomena were tied together with seasonal and subsistence-related matters, and a large, mysterious, widespread, and heavily utilized marine creature that undoubtedly had a large impact on prehistoric Caribbean cultures (Bjorndal and Jackson 2003, Carlson 1999, Carlson and Keegan 2004, Frazier 2003, 2005).



*Figure 4. The Milky Way galaxy as the trail of the celestial sea turtle, compared to the tracks of a female sea turtle returning to the sea after laying her eggs (photos used by permission).*

On a more utilitarian level, “there is evidence from the Caribbean that tortoiseshell was fashioned into fishhooks in pre-Columbian times” (Frazier 2003:14 citing Price 1966 and Wing and Reitz 1982), very much like the cultures of the Pacific fashioned fishhooks from turtle shell, especially hawksbill (Johannes 1981, Matthews 2002). Lovén (1935:427) has noted that, “In Veragua [Panama] as well as on the Tainan islands, therefore, they had [fish] hooks of tortoise shell that were cut out directly with a knife-like utensil, without a transition stage of half-fabrication. In

primitive time the Island-Caribs also made fish-hooks of tortoise shell." According to Carlson (1999:114), "The Island Carib made [fish] hooks of turtle shell" and other utilitarian items in the prehistoric Caribbean were made of turtle bone, such as net gauges (spacers) (Carlson 1999) and likely other items of fishing and hunting equipment. While not exactly Caribbean peoples by definition, the Kuna of northern coastal Panama used hawksbill shells for jewelry and ornamentation (Davidson 2003) much like turtle shell was used in the Pacific for jewelry, bracelets, and other forms of wealth (Johannes 1981, Matthews 2002). Keegan (1992:43-44) reports three main genera of marine turtles as occurring throughout the Caribbean (Keegan's account generally coincides with Frazier's 2003 data): loggerheads (*Caretta caretta*), hawksbills (*Eretmochelys imbricata*), and green turtles (*Chelonia mydas*). Keegan (1992:44, 127) claims no loggerhead remains have been found on archaeological sites (*contra* Winter 1980), while both hawksbill and green turtle bones have been found in Florida, St. Lucia, and other localities throughout the Caribbean and Antilles, respectively (see also Steadman and Stokes 2002 for a brief description of turtle remains on Tobago). Keegan (1992:132, Table 6.1, 133) also asserts that green turtles were the highest ranking food type in the region, yielding the highest amount of grams of protein per kg and would have been captured quite readily during their seasonal availability during the months of ca. April-July (Keegan 1992:130). According to Keegan (1992:147), "Marine turtles ... would have been highly prized for their meat and eggs," which the coastal-dwelling Lucayans of the Bahamas would have captured, in at least one manner, on turtle-nesting beaches near where they lived and which they could have monitored regularly (Keegan 1992:44, 130). The North Storr's Lake site is perfectly situated on the coast to have allowed its inhabitants to monitor the beach for sea turtles. The settlement location at North Storr's Lake meets the settlement criteria for at least one known turtle hunting culture (Miskito) in another part of the Caribbean: "1) near turtle banks [egg-laying beaches], 2) near terrestrial hunting grounds, and 3) at a haulover site (a nar-

row neck of land that separates two bodies of water)" (e.g., the Atlantic Ocean and Storr's Lake) (Carlson 1999:175 citing Nietschmann 1972; see also Blick, Zardus and Dvoracek, This Volume, xx, Figure 1).

Due to past and present human exploitation for meat, eggs, shell, and other elements, the green turtle "has long been swept from the Bermudas, the Bahamas, Florida, the Dry Tortugas, and the Cayman Islands in the New World" (Parsons 1962:94-95). Therefore, the recovery of archaeological sea turtle remains in the Bahamas and Caribbean is vitally important for paleoecological studies in the region. For example, recent research by Blick (2007, 2006a, 2006b, Blick and Kjellmark 2006, Blick and Murphy 2005) and Carlson (1999, Carlson and Keegan 2004) has revealed strong evidence of declining terrestrial and marine resources in the Bahamian Archipelago from ca. A.D. 700-1500. Sites around the world with sea turtle remains are scarce enough (see Frazier 2003, 2005, for example), and even fewer archaeological sites have been recognized for the fact that sea turtle remains tend to decline over time. For example, as long ago as the early 1960s, "archaeologic [sic] work on the coast north of the Santa Elena peninsula [Ecuador], for example, reveals very large concentrations of turtle remains in the earliest horizons (ca. 4,000 years ago), but much less in more recent time" (Parsons 1962:81 citing Carlos Zevallos Menéndez). Carlson's (1999) faunal analysis of the sea turtle from the Coralie site on Grand Turk has shown a convincing decline in the abundance and size of the sea turtle remains recovered there: "Sea turtle remains decrease over time.... The number of MNI drops from 25 in the early period sample to 10 in the later. ... Site wide, a total of 50% of the turtle MNI came from 8<sup>th</sup> century contexts; only 15% came from post-A.D. 1000 contexts. The largest specimens also came from the earliest deposits" (Carlson 1999:140, 141, Figure 22). If the sea turtle remains discussed in this report can be shown to be from a species (or multiple species) that no longer inhabit the waters of San Salvador, that would be a major piece of evidence to suggest more than a browsing population, but rather a living and breeding population of sea turtle(s) in the



San Salvador area that is no longer extant. This would be an important contribution to the knowledge of the historical geography and distribution of the green sea turtle or other sea turtles in the region. Toward this end, DNA analyses and stable isotope analyses (SIA) (e.g., Moore et al. 2003, Seminoff et al. 2006, Wallace et al. 2006) are currently ongoing on the archaeological sea turtle remains from North Storr's Lake and Minnis-Ward. To date, SIA and DNA have confirmed the presence of two different species (*Chelonia mydas*, green turtle, and *Caretta caretta*, loggerhead) and three different individuals at North Storr's Lake (sea grass eater, carnivore, and algae eater). Demonstration of declining sea turtle abundance or size over time (e.g., Carlson 1999) would also be a significant finding with implications for the impact of small human populations on island resources in the pre-Columbian past (Blick 2007, 2006a, 2006b, Carlson 1999, Carlson and Keegan 2004, Quitmyer 2003, Steadman and Stokes 2002); that study is currently underway. In this manner, the present report hopes to contribute to our knowledge of the presence and pre-Columbian utilization of sea turtles in the prehistoric Bahamas.

## CONCLUSIONS

The May 2006 excavation locality at North Storr's Lake, 85E51N and 87E51N, much like the excavation at 81E17N, appears to be a relatively short-term occupation dating to the late part of the Lucayan occupation of San Salvador (ca. A.D. 1288-1552  $\pm$  about 30 years), a period of some 264 years based on several new AMS dates from the 2006 excavations at SS-4 (Blick, Zardus and Dvoracek, This Volume). Perhaps the most interesting result of the 2006 excavations at North Storr's Lake includes the discovery of a dense deposit of vertebrate fauna dominated (in weight and likely meat yield) by sea turtle remains (Cheloniidae). Vertebrate fauna in the 2x2 m excavation units 85E51N and 87E51N are extremely dense in comparison to, for example, the Coralie site on Grand Turk, also in the Bahamian Archipelago, which has yielded large quantities of

vertebrate fauna, and in particular, massive amounts of sea turtle (Carlson 1999). In fact, when compared on the basis of faunal density per cubic meter excavated, the 2006 excavations at North Storr's Lake are almost six times denser in animal bone and about ten times denser in quantity of sea turtle remains. Other sites on San Salvador, such as Minnis-Ward (Blick 2004, Blick, Jackson, Thacker and Pittman 2009), have similar high densities of vertebrate and other faunal remains, indicating that these sites are extremely worthwhile for future investigations of pre-Columbian subsistence patterns and examination of changes in those dietary patterns over time. This is a blossoming research topic for Caribbean archaeology (Carlson 1999, Carlson and Keegan 2004, Steadman and Stokes 2002, Wing 2001, Wing and Wing 2001) to which archaeological sites in the Bahamas, and specifically San Salvador, can clearly contribute in a major way (e.g., Blick 2007, Blick 2006a, 2006b, Blick and Kjellmark 2006, Blick and Murphy 2005, Blick, Creighton and Murphy 2006).

To put the vertebrate fauna, especially the sea turtle remains, in context, this article has sought to understand those remains, to compare the findings to other similar sites such as Coralie on Grand Turk, and to examine the archaeological and ethnographic literature for examples of how other historically known peoples utilized sea turtles in their diet and culture. It is clear that sea turtles of all sorts were heavily utilized in prehistoric times around the world and in the Bahamian Archipelago. To many cultures, sea turtles were a mainstay, or at least a sizable component of the diet, providing meat, shell, bone, and other products for cultural use.

Finally, recognition of sea turtle in archaeological deposits on San Salvador, although known about now for some 30 years (e.g., Winter 1980), provides information about the range, distribution, browsing and perhaps nesting territories of these marvelous sea creatures, many of which are severely reduced in number or no longer extant in the waters of the Bahamas and San Salvador. Ongoing DNA and SIA testing should provide additional information regarding the identifi-

cation of sea turtle species represented in the archaeological record of San Salvador.

#### ACKNOWLEDGMENTS

We would like to thank Dr. Donald T. Gerace, Chief Executive Officer, and Vince Voegeli, then Executive Director of the Gerace Research Center, San Salvador, Bahamas. Dr. Tom Rothfus is also thanked for his recent assistance. Thanks to Dr. Donald T. Gerace and Mrs. Kathy D. Gerace for their support of the research reported herein. Don Gerace arranged for permission to work on the North Storr's Lake site through the Bahamian Antiquities, Monuments, and Museums Corporation (BAMMC). The BAMMC is thanked for its permission to allow vertebrate faunal remains and radiocarbon samples from North Storr's Lake and Minnis-Ward out of the country for additional analyses. My gratitude also goes out to Dr. Perry Gnivecki of Miami University, Ohio for use of some field equipment through the Archaeology Laboratory at the Gerace Research Center and also to a number of his students for help with screening and backfilling the two 2x2 m excavation units. Additional thanks is owed to Betsy Murphy who served as lab analyst for this project during which time she classified, counted, weighed and cataloged some 24,000 artifacts and ecofacts; much of the data presented in this report would not have been possible without her attention to detail. Georgia College & State University undergraduate students Kristi Brantley Smith and Megan O'Neill are thanked for their hard work excavating and recovering tiny artifacts from the screens. This research was made possible by the Georgia College & State University International Studies office which provided airfare, room and board for Blick and by 2005 Faculty Development Funds through the Department of Government & Sociology at Georgia College & State University. The generosity of the Donald T. and Kathy D. Gerace Foundation is also recognized for its support for room and board for Betsy Murphy in May 2006 and for general support for the North Storr's Lake archaeological project since its inception. Supplies

and equipment used on this project were provided by funds through a 2003 Faculty Research Grant from Georgia College & State University, a 2004 Dean's Award from the Dean of the School of Liberal Arts & Sciences at GC&SU, and also by a 2004 Council on Undergraduate Research grant to Blick. Drs. Randy Culp and Doug Dvoracek of University of Georgia's Center for Applied Isotope Studies (CAIS) are thanked for facilitating the processing of AMS dates from the 2005 and 2006 excavations at North Storr's Lake and the 2004 excavation at the Minnis-Ward site; funding for the AMS dating was provided by 2006 and 2009 Faculty Research Grants to Jeffrey Blick from GC&SU. Thanks to Amber Creighton for her research skills on this project and for writing the introductory section.

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