
14 THE BELIZE COAST IN ANCIENT MAYA SOCIETY

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Ancient Maya mariners used the sea as a transportation highway that provided access around the Yucatan and to inland rivers, and offshore, for trade, travel, and seafood. In contrast, the inland Maya viewed the sea as hazardous, with unmarked shoals, dangerous marine life, and underworld symbolism. The mercantile Maya on offshore islands such as Wild Cane Cay did not put their financial resources into monumental architecture on the scale of inland cities, but the coastal Maya did display their wealth by burying expensive and imported goods with their deceased citizens. Gold, turquoise, jadeite, imported pottery from Pacific Guatemala, from Honduras, and Mexico, and other goods, were transported along the coast and taken out of circulation and buried in graves at coastal trading ports. Salt was brokered from surplus household production as standard units in the form of salt cakes at the Paynes Creek Salt Works in southern Belize and elsewhere along the coast. The salt cakes were transported by boat and traded at inland markets, where there was a demand for dietary salt. Because of their standard size and non-perishable packaging, salt cakes were used as tokens for keeping track of financial transactions at marketplaces. Sea-level rise has submerged ancient Maya coastal sites, which are hidden from modern view, underwater or in the modern mangrove landscape, making the coastal Maya less visible in modern times compared to antiquity. The coastal Maya of southern Belize from the Middle Preclassic through the Postclassic are reviewed, with broader discussion of the ancient maritime Maya in general.

Introduction

Like coastlines world-wide, ancient Maya mariners used the coastal waters of Belize for fishing, transportation, and trade (McKillop 2007). The special skills required for sea-faring sometimes privileged sea captains in antiquity in commerce. For those who knew the coastal waters and knew how to read the water in unknown seas, it was a transportation highway providing opportunities for bulk transport of fish and other products to seemingly endless destinations. For those unaccustomed to boats, the dangers of the sea kept them on land, limited by sacbes and narrow paths through the rainforest. The sea presented challenges of unmarked shoals, currents, winds, horizontal driving rain, hurricanes, and pirates. No wonder the Maya equated the sea with the underworld and used stingray spines in ritual bloodletting. The inland Maya desired large conch shells to make trumpets, the spiny red *Spondylus* shells for ornaments, and by the time of European contact in the sixteenth century, the small *Olivella* shells for currency. Seafood was a delicacy at inland Maya cities, but plentiful on the coast. In fact, the coastal Maya diet focused on seafood and tree crops at some island communities, in contrast to the maize, beans, and squash of inland diets, supplemented by deer or peccary. When the Spaniards arrived at the Yucatan in the sixteenth century, there was a thriving coastal canoe trade moving salt, gold, copper, pots, and other rare and bulk goods and resources to and

from destinations in Mexico and beyond the Maya area to lower Central America. In this paper I review the time depth of coastal Maya commerce and settlement.

Submerged Landscape of the Belize Coast

Sea-level rise created the Belize barrier system when the inshore lagoon between the modern reef and mainland was flooded. The cays developed on limestone ridges that parallel the coast, creating mangrove cays near the mainland and sand cays farther offshore. The process, timing, and rate of sea-level rise is recorded in red mangrove peat that extends as much as 11 m below the sea floor in southern Belize. Coring mangrove peat makes it possible to study this record (Macintyre et al. 1995; McKee and Faulkner 2000). A core was taken in Punta Ycacos Lagoon, in a depth of 45 cm of water (McKillop et al. 2010). A hole was dug in the sea floor and a vertical face exposed. A sediment column was excavated in 10 cubic cm sections from the sea floor to a depth of 1.5 m. Each section was wrapped in cling wrap and labeled with an arrow indicating the orientation. A sample of sediment from each section was burned to reveal the amount of organic matter in the sediment, in a process called loss-on ignition (LOI). The sediment was highly organic, ranging from 40 to 80%. Another sample from each section was sorted in water in a petri dish, identifying that the organic matter was red mangrove. Fine red mangrove roots were

selected for AMS radiocarbon dating in order to define the timing and rate of sea-level rise, which fit with the curve for the western Atlantic (McKillop et al. 2010; Toscano and Macintyre 2003).

The rate of sea-level rise has fluctuated over time since the post-Pleistocene flooding of the barrier reef, with various responses by coastal settlers (McKillop 2002). On Wild Cane Cay, the Classic period Maya (A.D. 300-900) built pole and thatch houses on the island, fished and grew tree fruits, with household garbage passively countering the deleterious effects of rising seas. During the Postclassic (A.D. 900-1500), the Wild Cane Cay Maya constructed coral rock foundations, with coral dredged from the sea and ferried by boat to the island. Finger coral was used as a sub-floor, with hard-packed earthen floors and pole and thatch buildings constructed on the coral rock platforms (McKillop 2005a). Excavations of one of the mounds, Fighting Conch mound, revealed there were six successive building efforts, with associated burials. The Classic period deposits in the non-mound areas of the island were further submerged. Stratigraphic shovel testing every 10 m in the water and mangroves around the cay revealed buried deposits below the sea-floor to depths of 1m below the sea floor (McKillop 2002).

The Classic period site on nearby Pelican Cay is buried under 50 cm of red mangrove peat and slightly below sea level (McKillop 2002). The site was discovered during survey of the cays in the Port Honduras near Wild Cane Cay. Since there was no visible evidence of occupation, a shovel test was conducted, revealing buried cultural deposits, which were later exposed in an excavation unit. The small settlement was abandoned in the Late Classic, as indicated by radiocarbon dating. Red mangroves encroached on the island, depositing detritus as seas continued to rise, and eventually obscuring the site from modern view.

The Paynes Creek Salt Works along the shores of a coastal lagoon on the mainland opposite Wild Cane Cay were abandoned at the end of the Classic period or early in the Postclassic due to lack of customers (McKillop 2002, 2005a, 2005b, 2019). Rapid sea-level rise submerged the salt works underwater, preserving

the posts that were dug into the ground during construction of pole and thatch salt kitchens, and perhaps other buildings. The large size of potsherds embedded in the sea floor indicates there was no trampling on the sites after they were abandoned. Sea-level rose too quickly for red mangroves to keep pace in most areas, leaving patches of red mangroves in the large, salt-water lagoon.

The ancient Maya elsewhere on the coast and cays of Belize responded in similar ways to rising seas, but the story is best recorded in southern Belize by thick deposits of mangrove peat. The waters in the inshore lagoon in northern Belize are much shallower, with limestone bedrock closer to the ground surface on the coast and cays. Paleoenvironmental reconstruction for Marco Gonzalez site on the southern end of Ambergris Cay indicates a long record of sea-level rise and human settlement (Graham 1989; MacPhail et al. 2017). At Moho Cay, the water table was reached above Classic period burials (McKillop 2004). The record of sea-level rise along the coast of Belize and the ancient Maya response to rising seas provide a sobering reminder of the fate of low-lying communities along the coast of Belize today.

Coastal Settlement in Belize

The coast of Belize was settled by the ancient Maya for 2500 years from the Middle Preclassic through Postclassic periods (Figure 1). Earlier evidence Paleoindian and Archaic settlement found inland in Belize is not known from the coast. The earliest coastal settlement in northern Belize is Santa Rita Corozal, occupied by about 900 B.C. (Chase and Chase 2006). The earliest coastal site in southern Belize is Ich'ak'tun, a shell midden at the mouth of the Deep River (McKillop and Robertson 2019). Coastal settlement expanded during the Late Preclassic (300 B.C. –A.D. 300), with use of Cerro Maya, Santa Rita, Sarteneja, Marco Gonzalez and Chac Balam on Ambergris Cay, Moho Cay, and Ich'ak'tun (Boxt 1989; Freidel 1979; Graham 1989; McKillop and Robertson 2019; Robertson 2016; Valdez et al. 1995; Walker 2016). Classic period coastal settlement expanded along the entire coastline and on many of the offshore islands, as well as sites submerged by sea-level rise. Early Classic



Figure 1. Map of the Maya area with selected coastal and inland sites.

coastal settlement is known for Santa Rita, Cerro Maya, Sarteneja, Marco Gonzalez, Ek Lu'um, Laguna de Cayo Frances, and Chac Balam on Ambergris Cay, Moho Cay, Wild Cane Cay, and six underwater sites at the Paynes Creek Salt Works. Late to Terminal Classic settlement is recorded for many sites on Ambergris Cay,

notably Marco Gonzalez, Chac Balam, San Juan, Ek Lu'um, and eight more sites on Ambergris Cay (Graham and Pendergast 1989; Guderjan 1995). Salt production is widespread during the Late to Terminal Classic at Saktunja, Northern River Lagoon, and other lagoon systems in northern Belize (Masson 2004; Masson and

Mock 2004), Placencia Lagoon (MacKinnon and Kepecs 1989; Sills 2017), and Punta Ycacos Lagoon (McKillop 2019). Other coastal sites include Moho Cay and the Colson Point sites of Watson's Island and Kakalche (Graham 1994; McKillop 2004).

Marine Resources

The Caribbean Sea was the source for ritual and dietary resources desired by the inland Maya as early as the Middle Preclassic. Marine shell was imported for working at Pacbitun in the upper Belize Valley during the Middle Preclassic (Powis et al. 2009). Horse conch (*Turbinella angulata*) and queen conch (*Strombus gigas*) were carved for use as trumpet shells, both at coastal and inland sites (Dockstader 1964). Stingray spines were transported inland for use in ritual bloodletting. Coral, manatee bones, stingray spines, and other marine resources were deposited in caches and burials (Haines et al. 2008; Maxwell 2000). Seafood was consumed at inland communities, but on a limited basis (McKillop 1984; McKillop and Aoyama 2018; Williams et al. 2009). Inland communities located near the coast, such as Lubaantun, Altun Ha, and Dzibilchaltun, or accessible by inland waterways, such as Lamanai, often included seafood in their dietary regimes, whereas communities farther inland tend to have little evidence that seafood was consumed (McKillop 1984). Isotopic analyses of human bone from Lamanai indicated seafood was consumed but that it was a minor part of the diet (Coyston et al. 1999).

Not surprisingly, seafood was a major component of the diet at communities along the coast and on offshore islands. Land animals and river fish contributed significantly to the diet at the mainland community at Cerro Maya during the Late Preclassic (Carr 1976). Marine fishes comprised the main part of the diet at Marco Gonzalez and San Pedro on Ambergris Cay (Williams et al. 2009). A major reliance on manatee at the island site of Moho Cay in the estuarine waters in the mouth of the Belize River, was supplemented by various mollusks (McKillop 1984, 1985). Waterlogged midden deposits at Wild Cane Cay yielded abundant, well-preserved bones from fish and other animals from a wide variety of microenvironments,

indicating a diverse diet with various procurement strategies (McKillop 2005a). Some species, such as mangrove snappers and groupers, may have been caught on lines from the shore or from night-lines set offshore in shallow water. Other species, including manatee and sea turtle, were caught from boats. The nearest coral reef habitat for parrotfishes is several cays distant off the western end of Frenchman's Cay.

The most common mollusk in the middens at Watson's Island are fighting conch (*Strombus pugilis*), with mud conch (*Melongena* sp.) also present, but queen conch (*Strombus gigas*) absent. Mud conch occurs in the immediate area of the site, whereas fighting conch occurs in deeper water and queen conch in saltier water. The preference for fighting conch also occurred at Wild Cane Cay (McKillop 2005a; McKillop and Robertson 2019). Mangrove oysters (*Crassostrea rhizophora* and *Isognomum alatus*) formed the major part of the Middle and Late Preclassic layers of the shell mound at Ich'ak'tun (McKillop and Robertson 2019). Located on high ground overlooking mangroves at the mouth of the Deep River, the Ich'ak'tun shell species reflect the immediate environs of the community.

There is evidence at coastal communities that fish were caught and processed for inland trade. Late to Terminal Classic settlement at Northern River Lagoon site included a focus on marine resources, especially catfish (*Galichthys felis*; Masson 2004). Comparison of different skeletal elements revealed that catfish heads and spines were more common than other parts of the body, supporting an interpretation that the heads and spines were removed before the fish were salted and traded inland (Masson 2004). Salting fish for inland transport also is indicated at Watson's Island in central Belize, where six tuna vertebrae (*Euthynnus* sp.) were split dorso-ventrally, suggesting the fish were cleaned and the vertebrae were cut to splay the fish for salt drying (Graham 1994: 254, 261). A variety of other sea fishes lacking butchering marks were identified from middens at Watson's Island dated to the Protoclassic and Early Classic (Graham 1994). Use-wear analysis of stone tools from the Paynes Creek Salt Works in southern Belize revealed most of the tools were used for cutting fish or meat, with some used for scaling fish or

scraping hides (McKillop and Aoyama 2018). This finding was surprising due to the lack of fish or other animal bones at the sites. However, the acidic red mangrove peat (*Rhizophora mangle*) matrix of the sites would not have preserved bone (McKillop 2019). Even calcium carbonate temper in sherds was dissolved, leaving voids in the pottery. Interestingly, the same species of fish identified at the nearby inland city of Lubaantun were included in the repertoire of species identified from Wild Cane Cay, a couple of km from the salt works (McKillop and Aoyama 2018). At Lubantun, 39% of the animal remains were marine fish bones, including jacks (*Caranx* sp.), groupers (*Serranidae*), and snook (*Centropomus* sp.; Hammond 1975).

Farming was likely not possible at communities along coastal lagoons dominated by mangrove ecosystems or on small offshore islands. Williams et al. (1999) suggest that corn was transported to Marco Gonzalez from Lamanai. Supporting evidence is the unsuitable salty soil for agriculture, as well as the strong ties between the two communities, particularly in the Middle Postclassic “Buk Phase.” Similarly, the margins of coastal lagoons along the Belize coast are poorly suited for farming due to high salinity. However, the recovery of cohune (*Orbignya cohune*) and coyol (*Acrocomia mexicana*) endocarps from excavations at the Paynes Creek Salt Works suggests that native palms grew at the communities in antiquity (McKillop 2019; McKillop and Sills 2016). The salt works were flooded by sea-level rise and are submerged underwater (McKillop 2002, 2019; McKillop et al. 2010). Recovery of the remains of other edible fruits, including mamey (*Pouteria* sp.), supa or nance (*Byrsonima crassifolia*), and hogplum (*Spondias* sp.) indicate tree-cropping was a significant part of the food system at the salt works (McKillop 2019: 121-122).

Use of tree-cropping at the salt works mirrors the diet at the nearby offshore islands of Wild Cane Cay, Frenchman’s Cay, and Pelican Cay (McKillop 1994, 1996). Along with a reliance on seafood, the Maya on Wild Cane Cay focused on tree-cropping on the island. A similar pattern was common at other islands in the Port Honduras, notably Pelican, Tiger Mound, and Frenchman’s Cay, as well as the Paynes Creek

Salt Works. In particular, three species of native palms with edible fruits similar in taste to coconuts but smaller in size, dominate the plant food remains at Wild Cane Cay and other nearby islands and at the salt works. They include cohune, coyol, and poknobo (*Bactris major*). Additional plant foods in the tree-cropping regime include nance/craboo, mamey apple, avocado (*Persea americana*), and hogplum. Corn (*Zea mays*) is present in the Wild Cane Cay deposits but represents a minor component of the assemblage and by extension was likely a minor part of the diet. Although it is possible that some corn may have been planted on the 10 acre island, it is more likely that the corn was grown on the adjacent mainland by the Wild Cane Cay Maya as part of their subsistence regime. Geographer Bernard Nietschmann (1973) documented people at Tabaspauni, Caribbean Nicaragua, exploiting food resources from the mainland, east to a coastal lagoon, and out to sea, following a seasonal pattern of resource availability. Since canoe travel in the area is documented by the canoe from Eleanor Betty, the full-sized canoe paddle from K’ak’Naab’, and other fragmentary canoe paddles from Site 74 and the Elon Site at the Paynes Creek Salt Works (McKillop 2019), the fact of regular canoe travel needs to be incorporated into interpretations of coastal Maya subsistence.

Sea Trade

There was a vibrant sea trade from the Middle Preclassic through the Late Postclassic along the coast of Belize, that at times was integrated into the circum-Yucatan transportation system, and at other times served as a corridor from the Maya highland resources to the lowland Maya cities. Different coastal communities participated in sea trade over the course of two millennia. During the Middle Preclassic, the Maya at Ich’aktun on the south side of the Deep River in southern Belize, participated in sea trade with the Maya highlands, obtaining obsidian from Ixtepeque. The obsidian was in the form of flakes that had been struck from cobbles, typical of the Middle Preclassic, such as at Ceibal (Aoyama 2017). The community of Pacbitun in the upper Belize River valley procured marine shells for manufacturing crafts in the Middle Preclassic (Powis et al. 1999).

Cerro Maya was a major trading port during the Late Preclassic, integrated with canoe trade around the Yucatan and south to the Motagua River jadeite outcrops and farther upriver to the Maya highland obsidian outcrops. These and other exotic materials were desired by emerging elites at Cerro Maya who traded with their counterparts at other rising centers at Tikal, Uaxactun, Dzibilchaltun, and Lamanai, displaying their ritual power on painted stucco mask on the exterior of temples (Freidel 1979). The community commanded a strategic view of Chetumal Bay, at the confluence of the New River and Rio Hondo and inland locales. Salt was produced at Cerro Maya, presumably for export, since there was a harbor (Robertson 2016). Moho Cay likely participated in coastal-inland trade at this time, although Late Preclassic Sierra Red pottery is known only from the surface collections of this site, which was destroyed for tourism development (McKillop 1984). The fact that communities far inland up the Belize River had trade goods, including Caribbean shells, among their repertoires of goods, attests to the use of Moho Cay during the Late Preclassic for trade.

Inland transport of salt and other marine resources was a feature of many communities along the coast of Belize during the Classic period. The Early Classic period witnessed fishing villages at Wild Cane Cay, Pelican Cay, and Marco Gonzalez on Ambergris Cay. Santa Rita certainly participated in sea trade during the Early Classic, assuming the role Cerro Maya had during the Late Preclassic. Moho Cay was a trading port from the Early Classic, but several more trading ports developed in the Late and Terminal Classic periods at Marco Gonzalez and San Juan on Ambergris Cay, False Cay near Placencia, and Wild Cane Cay. This was the time of maximum population size and urban density in the southern Maya lowlands, including inland cities and other communities in Belize. The inland Maya desired trade goods, including Caribbean marine resources, jadeite from the Motagua River outcrops, obsidian, and other resources.

The inland Maya also needed salt, which was produced along the shores of salt water lagoons along the entire coast of Belize (McKillop 2019). Some of the coastal trading

ports displayed evidence of their trade connections that over time expanded to include circum-Yucatan canoe trade, with connections to more distant areas. This included Tohil Plumbate pottery vessels transported from the Pacific coast of Guatemala or Mexico found at Marco Gonzalez, San Juan, and Wild Cane Cay, as well as at Isla Cerritos, the trading port for Chichén Itzá located off the north coast of the Yucatan. Transport of obsidian along the Caribbean coast north from Ixtepeque and El Chayal increased substantially, with Ixtepeque obsidian becoming overwhelmingly dominant by the Terminal Classic.

The dynamics of coastal trade along the Caribbean involved multiple networks and different types of traders. Inland trade of marine resources was carried out as part of surplus household production, as at the Paynes Creek Salt Works (McKillop 2019; McKillop and Aoyama 2018). Spectacular preservation of wood included 4042 mapped building posts that demarcated the rectangular outlines of salt kitchens where brine was boiled in pots over fires to produce loose salt, or further hardened to produce salt cakes. Indoor production protected against rain and wind, but also provided a place for the salt workers to store fuel, salt, brine, and other resources related to brine boiling. Similar salt kitchens were likely located along the entire coast of Belize where brine boiling is documented in coastal lagoons. Using an ethnographic analogy with the modern community of Sacapulas located at a highland salt spring, each family had a salt kitchen where they made the salt, but lived elsewhere in the community. At Sacapulas, the salt makers took salt cakes to markets in other communities but this distribution may have instead been done by others in the family, with tasks often distributed among an extended family, such as pottery making in the Yucatan (Arnold 2016). Brine boiling was in standard-sized pots to produce a tradable commodity on Bohol Island in the Philippines, with the hardened salt traded in the pot which were sometimes cut vertically in half to provide a smaller-sized commodity (Yankowski 2010). A case study of the dimensions of brine-boiling pots from the Paynes Creek Salt Works indicated they were standardized in their dimensions, and that the

pots from three salt works in the study has statistically significant differences in their dimensions—underscoring the idea that they represented different salt working families (McKillop 2002, 2019). Salt workers or their relatives transported salt cakes to inland communities for sale at marketplaces, with the standard units of salt cakes serving as “tallies” to record debt owed at the end of each season or other periodic financial reckoning. Salt cakes may also have served as currency equivalencies, since they were a standard size, widely used and in demand, and a storable commodity.

While the Maya at salt works along the coast of Belize transported salt and other marine resources to regional inland markets, other mariners ferried goods and resources longer distances, sometimes including royalty for courtly visits in distant polities. The sixteenth century Maya had special class of merchants, p’olom who were engaged in coastal trade at various distances (King 2015: 46). God L, the merchant god, was the patron of trade and cacao, and became known in the Postclassic period as Ek Chuah (McAnany 2010: 255-257). The Wild Cane Cay Maya may have included resident mariners who ventured great distances and for long times to obtain goods. Other trading ports, such as Marco Gonzalez, San Juan, and Isla Cerritos, may also have included resident mariner-traders. Certainly by the Postclassic, traders were armed, as suggested by the mural on the Temple of the Inscriptions, which shows armed men standing in canoes in the sea, with sterns men poling with paddles. Some long-distance sea trade involved state visits by dynastic leaders bringing gifts, which would explain the presence of the Altun Ha vase at Copan.

Conclusions

Although sea-level rise has submerged ancient Maya sites underwater and below mangroves on the coast and offshore islands, archaeological research indicates the coast of Belize was settled from the Middle Preclassic through Postclassic periods (600 B.C.-A.D. 1500). The island Maya at Wild Cane Cay, Frenchman’s Cay and Ambergris Cay (Marco Gonzalez and San Pedro) exploited a wide variety of marine fishes, manatee, and sea turtle.

Corn cobs identified at Wild Cane Cay (McKillop 1994) and isotopic evidence that corn was consumed at Marco Gonzalez (Williams et al. 1999) beg the question of where the corn was grown. Williams et al. suggest corn was traded from Lamanai, which may have used Marco Gonzalez as a port. Using the site catchment model presented for the Tabaspauni in coastal Nicaragua (Nietschmann 1973), the Maya on Wild Cane Cay may have used fields on the adjacent mainland. Since ballast is important in canoe travel, traders may have transported salt cakes and salted fish from the Paynes Creek Salt Works up rivers and returned with corn and other commodities as ballast and for use (McKillop 2019). Evidence that seafood was salt dried at coastal communities in Belize for inland transport comes from underrepresentation of body parts at Northern River Lagoon (Masson 2004), cut marks on the ventral side of tuna vertebrae from Colson Point (Graham 1994), and chert stone tools with edge-wear from cutting fish and scraping scales (McKillop and Aoyama 2018). There was active sea trade in Belize from Middle Preclassic obsidian trade to Ich’ak’tun (McKillop and Robertson 2019) to Postclassic trade in gold and copper at Santa Rita and Wild Cane Cay (McKillop 2005a).

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