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The Classic Maya (AD 250–950) landscape was imbued with sacred, animate qualities. Of particular significance were openings in the earth, such as caves and pools because, as portals to the underworld, the Maya could communicate with gods and ancestors to petition for plentiful rain and crops. The 25 pools of Cara Blanca, Belize embody such a place; their isolation from settled communities and the relatively sparse but unique architecture near pools suggest that it served as a pilgrimage destination. Growing evidence from exploratory dives and excavations at a possible water temple indicate that the Maya increased their visits in response to several prolonged droughts that struck between c. AD *800 and 900. Not only do we present results from a type of site that has been little explored, we also detail how non-elites dealt with climate change via ritual intensification and pilgrimage. It also serves as a lesson for how we deal with climate change today — that relying on traditional means rather than changing our course of action can have detrimental repercussions.*

The Classic Maya (AD 250–950) lived in a multidimensional world comprising three layers: a heaven with 13 levels, the earth's surface that floated on a primordial sea represented as the back of a crocodile or turtle, and the underworld with nine levels (Schele & Freidel 1990, 67). The Maya accessed the underworld through portals — openings in the earth — where they petitioned gods for rain and bountiful crops (Bassie-Sweet 1996, 16, 24, 60; Stone & Zender 2011, 135; Vogt 1969, 375–87). All openings in the earth are portals — sinkholes, caves, water bodies and crevices (Bassie-Sweet 1996; e.g. Vogt 1969, 302, 386–7). The Maya depended on seasonal rainfall to nourish their fields, replenish their reservoirs and for a myriad of other uses. Predicting the onset of the rainy season, however, was a challenge, for which they relied on supplications to gods and ancestors. Ancestors living in lineage mountains were also vital actors, to whom the Maya propitiated in the home, field, temple and portals (McAnany 1995). In the last several decades, caves have become a major focus in Maya archaeology (e.g. Brady & Prufer 2005; King *et al.* 2012; Moyes & Brady 2013; Moyes *et al.* 2009; Prufer & Brady 2005; Stone 1995; 1997; Woodfill 2011; Woodfill *et al.* 2012, to name just a few). In this article, we examine another type of portal, the pools of Cara Blanca in central Belize (Fig. 1).

The pools of Cara Blanca embody identifiable sacred aspects on the landscape. Before presenting them, we briefly discuss Maya belief as it pertains to openings in the earth and water symbolism. We then turn our focus to Pool 1, a 60+ m deep pool at the base of a limestone cliff with a water temple situated at its edge. Through a discussion of underwater explorations and surface excavations, we seek to show that Pool 1 served as a sacred location for water ritual and pilgrimage, especially during the end of the Classic period (*c.* AD 800–900) when the Maya faced several prolonged droughts. Not only do we present results from a type of site that has been little explored, but we also detail how non-elite people dealt with stress (climate change: see Lucero *et al.* 2011) via ritual intensification and pilgrimage. Cara Blanca also provides a counter balance to iconographic and epigraphic records by emphasizing material manifestations of a vital cosmological element.

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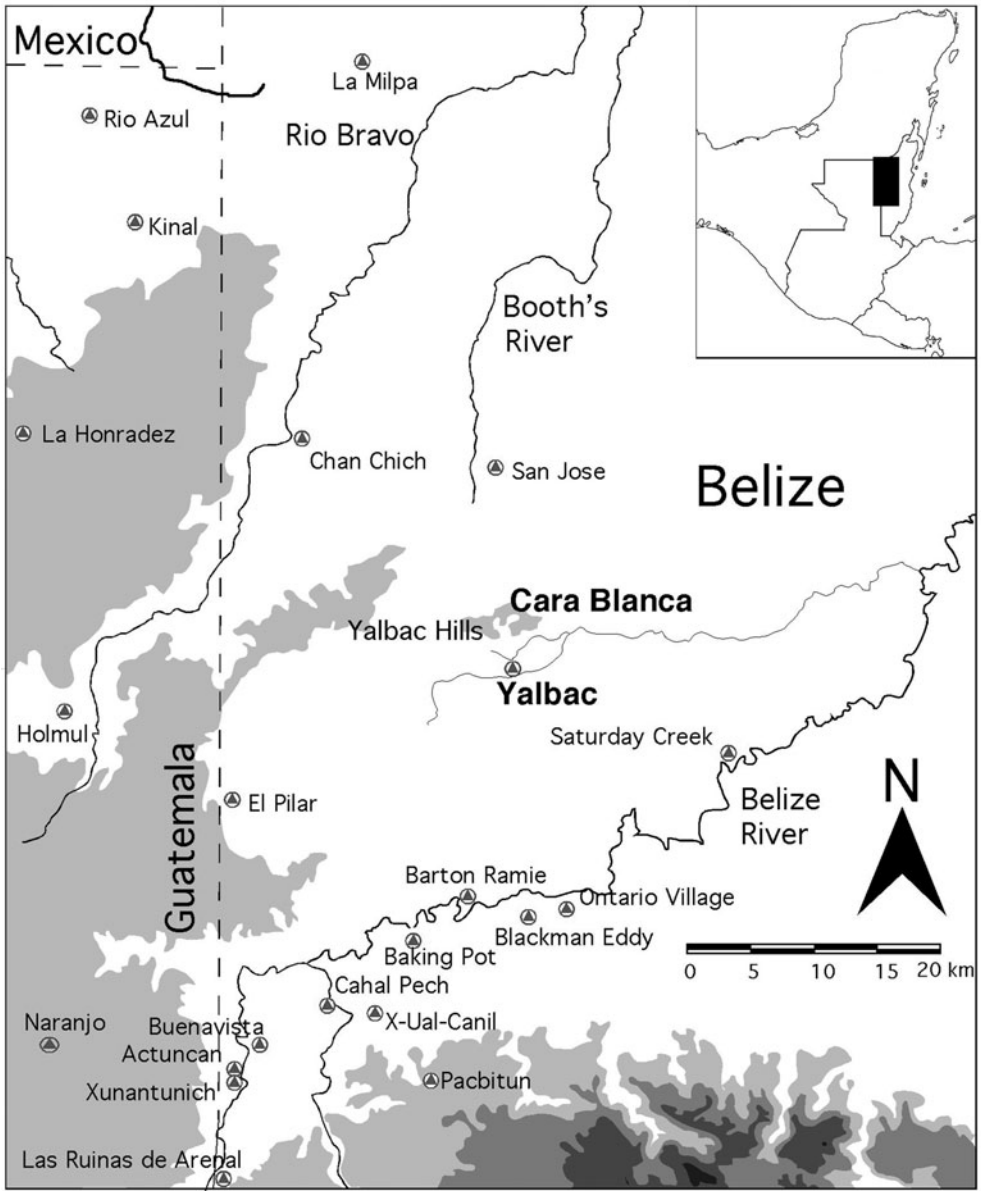

Figure 1. *Map of the research area showing major sites mentioned in text. (Generated by Joanne Baron.)*

Openings in the earth

The Maya landscape is imbued with sacred, animate qualities, which they either left untouched to use in its natural state or transformed using prescribed concepts. They built structures, from residential compounds to centres, to reflect 'a symbolic representation of their universe' (Sharer & Traxler 2006, 731). For instance, the Mayan term for lineage mountains, *witz*, is also used for pyramid temples (Stuart 1987; Stuart & Houston 1994, 82), the doorways of which can be adorned with *Witz* Monster iconography that signify portals (Schele & Mathews 1998, 43, 417). Centres with pyramid temples such as Tikal represented 'water mountains'. Their layout not only embodied a vital cosmological element but also collected and diverted water into centralized reservoir systems (Scarborough 1993; 1998). Unlike at centres, however, the Maya at Cara Blanca did not have to build artificial lineage mountains (temples) or openings in the earth (reservoirs, temple entrances) because the gods had already provided them. And openings in the

earth are particularly significant in Maya cosmology as the ethnographic, ethnohistoric and archaeological records show.

As openings in the earth and portals to the underworld, caves and water bodies define borders and manifest community identity (Brady & Ashmore 1999; Stone 1992; Stuart 1997). Water from certain pools and caves has special qualities that contemporary Maya collect as *suhuy ha*, or pure water, for special ceremonies either at the portal or back in their community (Stone 1995; Wisdom 1940). Gods dwell within these places and their power is manifested in their control over lightning, rain, clouds, wind, land and fertility (Stone 1995, 40). Like other components of the Maya world, sacred features also have dangerous aspects; sorcery and soul extraction take place in caves (Stone 1997; Vogt & Stuart 2005), which also can house disease-producing forces and dangerous spirits (Nash 1970, 23; Redfield 1941, 239). Evil spirits often are associated with isolated and unprotected areas — that is, dark areas (Moyes 2006, 26–31).

Still-bodied water bodies were sacred to the Maya (Scarborough 1998; 2006), especially *cenotes* — steep-sided sinkholes fed by groundwater.

> [They] served simultaneously as sources of water, sacred and symbolic spaces, magical portals to mythic realms, and centers of religious and ancestral veneration. Offerings deposited in them, together with their accompanying rituals, were believed to facilitate communication between the everyday and sacred worlds, thereby guaranteeing the preservation of the natural cycles of life, death, and rebirth (Martos López 2010, 225).

Most *cenotes* are found in the northern lowlands in the Yucatán peninsula, Mexico, and sometimes are the only source of water outside of rain (Beddows 2003; Brown 2006). In the southern lowlands including northern Guatemala, Belize, southeastern Mexico and western Honduras, the water table is often too low for water to percolate to the surface in large amounts, especially in the interior where the largest centres emerged. Contemporary Maya in the Yucatán believe that *cenotes* are the source of the wind (Redfield 1941, 118). While *cenotes* in town have both utilitarian and sacred features, those located outside of habitation areas 'in the bush' have sacred but dangerous qualities, and must be approached carefully (Redfield 1941, 119). And approached they were, as the conspicuous amount of offerings indicates.

The Maya make pilgrimages to pools and caves located away from the living, sometimes from great distances, where they propitiate ancestors, rain and water deities, and other supernatural entities for rain and bountiful crops. They left offerings of jade, ceramic vessels, and human sacrifices (Stone 1997; e.g. Patel 2005; Tozzer 1941, 54, 109). At the cave Naj Tunich in eastern Petén, Guatemala, Classic period elites from several centres painted emblem glyphs on the walls for all to acknowledge their pilgrimage (Brady 1989, 414). Some of the earliest ritual deposits are found in caves (e.g. 1200 BC: Moyes *et al.* 2009), typically consisting of offerings in jars (e.g. maize); jars also were used to carry and pour ceremonial water and are associated with rain deities (e.g. Chaak, Chaak Chel) (Taube 2001). In fact, the most common artefacts in caves and *cenotes* consist of storage jars or ollas (Martos López 2010; McNatt 1996). The Maya buried some of their dead in caves, leaving them closer on their way for their journey in the underworld to become ancestors, although they also killed and placed sacrificial victims in portals (Brady 1995; Ishihara 2008; Lucero & Gibbs 2007; Moyes 2006), as illustrated at the Sacred Cenote of Chichén Itzá (*c.* AD 750–1150) in the northern Yucatán.

The Sacred Cenote is located 400 m north of the site core, isolated from monumental architecture but connected via a causeway (Brown 2006). The Maya built a small temple at its southern edge from where they threw in offerings. Edward H. Thompson dredged the *cenote* between 1904 and 1911 and removed ceramic vessels and figurines, masks, copper bells, jade, ritually 'killed' objects, representations of the Maya rain god Chaak, gold and silver items, textiles, copal incense balls, wood items, shell, chert and obsidian objects including sacrificial knives, rubber, and both human and faunal remains from throughout Mesoamerica (Coggins 1992; Coggins & Shane 1984; Tozzer 1941, 180, n. 951). Osteological studies on remains collected in the early 1900s and later in the 1960s (total: 228) indicate that 61 per cent of the 'inhabitants of the well' comprised sub-adults, and that both sub-adults and adults, predominantly male, show evidence for perimortem violence — that is, ritual violence (Anda 2007; Beck & Sievert 2005). The Maya may have sacrificed the young in times of trouble, as Bishop de Landa noted in the sixteenth century when the Maya offered both adults and children to Chaak in times of severe drought (Tozzer 1941, 180, n. 948).

The Maya also cast offerings in lakes over a 2000-year period from the Late Preclassic through the Colonial periods including effigy vessels, *incensarios* and other ceramics (Andrews & Corletta 1995; Mata Amado 2002). At Lake Amatitlán in highland Guatemala, divers recovered over 400 ceramic vessels depicting spider monkeys, various fruits, flowers, snakes, lizards, and human heads that largely date to the Classic period (*c.* AD 250–950) (Borhegyi 1961;

Mata Amado 2002). Chaak, the Maya rain deity, and Tlaloc, a central Mexican storm deity, were also represented, as were fertility and death gods. The stylistic diversity of materials from Teotihuacan in central Mexico, the central Mexican highlands, the Maya area, and other regions indicates that the lake functioned as a pilgrimage destination for diverse ethnic groups from throughout Mesoamerica.

Elites and rulers recreated aspects of the watery world in centres. For example, at Copán, residents created their own watery openings via artificial sunken pools covered with water symbolism (Fash 2005). The Maya also considered openings in the earth as an *axis mundi*, as seen at Dos Pilas in Guatemala, where the Late Classic Maya (*c.* AD 600–750) built major temples and palaces over caves and springs (Brady 1997; Brady *et al.* 1997a). This practice occurred at other sites, demonstrating a ruler's 'control over water, and presumably over rain-making and fertility' (Brady & Ashmore 1999, 130).

In this rainfall-dependent society, water was the most vital element and thus played a major role in Maya ceremonial life. Standing water is particularly significant since it exudes from the earth via springs, sinkholes and caves, features found throughout the karstic landscape (Finamore & Houston 2010; Hellmuth 1987; Ishihara *et al.* 2006; Lucero 1999; e.g. Vogt 1969, 375). 'Caves and cenotes ... served as ritual theatres for petitioning fertility gods of maize and rain, ancestors and other spirits' (Stone & Zender 2011, 135). During the Colonial period, Bishop de Landa noted that most rites that took place at *cenotes* related to rain (Tozzer 1941, 180, n. 948). It is thus not surprising that, when several prolonged droughts struck the Maya lowlands at the end of the Classic period (AD 800–900) (Kennett *et al.* 2012; Medina-Elizalde *et al.* 2010), there is increasing evidence that the Maya intensified ritual activities, including making pilgrimages to sacred openings to petition gods and ancestors to bring an end to the droughts (Moyes *et al.* 2009). Evidence suggests that something similar occurred at Cara Blanca, as we detail after a discussion of how the ancient Maya symbolically expressed the vital importance of water.

The watery cosmos expressed

One of the most important Maya gods is Chaak, the rain god, who is also associated with lightning, as well as fishing, war and sacrifice (Taube 1992, 17–27). Chaak 'dwells in watery underground places like caves, cenotes, and springs during the dry season and emerges from these locations ... to initiate the rainy season' (Vogt 1969, 290). Chaak also has the ability to withhold rain (Thompson 1970, 253). The rain god sometimes is depicted in cave openings, one of the most striking examples being a seated life-sized sculpture of Chaak inside the La Pailita cave in Guatemala used for rain ceremonies in the Classic period (Graham 1997).

Chaak Chel (Goddess O) is another deity related to rainfall, and is depicted as an aged woman with clawed hands and feet, a snake headdress and a skirt (Taube 1992, 99–105; Vail & Hernández 2012). Even though she is associated with storms, floods and world destruction, Chaak Chel is also associated with medicine, divination and childbirth — that is, both creation and destruction (Taube 1992, 101–3). Like Chaak, Chaak Chel is frequently portrayed associated with portals and often is depicted pouring water from a jar that represents the creation of rain or even a primordial flood (Brady 1989, 47–9; Moyes *et al.* 2009; Taube 2001). Chaak Chel is also associated with jars in caves, not surprising given that rain and renewal rituals revolved around these two deities (Vail & Hernández 2012; see also Taube 1992, 101; Thompson 1970, 251–3, 256).

Another aspect of water represented in the iconography is water lilies, which often cover water bodies, including reservoirs (Hellmuth 1987; Puleston 1977). Water lilies, specifically *Nymphaea ampla*, indicate clean water because they are sensitive hydrophytic plants that can only grow in clean, still, one to three metre deep water that does not contain too much algae (Lucero 1999). Nor do they tolerate acidic conditions or too much calcium, such as limestone. In addition, if the bottom sediment contains too much organic matter such as decomposing plants, the gases released, including methane, ethylene and phenols, can be toxic to water lilies (Burton *et al.* 1979). Whenever *Nymphaea* are present, however, water is potable.

Kings emphasized their role in providing clean water via reservoirs with water lily symbolism (Lucero 1999). They are often depicted with water lilies, for example, as part of their headdress (e.g. Graham 1967; Rands 1953). Kings with such names as Lord Water and Water Lily Lord made clear that they provided clean water to their subjects; in fact, their power was tied to this ability. *Nab Winik Makna*, or Water Lily Lords, refers to Classic Maya kings, while *Ah Nab*, translating as 'Water Lily People', refers to Classic Maya nobility (Ford 1996). Further, kings, shamans or priests likely used water lilies for their hallucinogenic properties during various rites (Dobkin 1974; Emboden 1982).

The water lily and its associated god — the Water Lily Serpent — further bolster the tie between clean water, power, and kings (Hellmuth 1987; Ishihara *et al.*

2006; Scarborough 1998). Whereas Chaak embodies rain, the Water Lily Serpent embodies terrestrial water that floats between the world of the living and the dead (i.e. rivers, lakes, *cenotes* and the sea). The Water Lily Serpent is most commonly represented as a serpent with an avian head, affixed to which is a prominent water lily headband. This image acts as the personification of the number 13 in Maya writing. One of the best illustrations of the tie between the Water Lily Serpent and a ruler's power can be found at Machaquila in Guatemala, where several *stelae* depict rulers personified as this god (Robertson 1990).

Monumental pyramid temples with Water Lily Serpent iconography signify water temples, as illustrated at Dzibilchaltun's Temple of the Dolls near the Cenote Xlaca (Hellmuth 1987; Robertson 1990; Taube 1986) and Structure B5 at Caracol (Ishihara *et al.* 2006). At Caracol, Structure B5 abuts a reservoir and has large Water Lily Serpent masks flanking the staircase; it faces Ca'ana across the plaza, the massive pyramid-palace complex built above a natural spring. The serpent is also featured in several murals at Chichén Itzá, perhaps referring to the Sacred Cenote; an image from the Lower Temple of the Jaguars shows the head of the serpent as a personified *cenote*, where the cranium is a water-filled basin covered with water lilies. Less clear is the role of the Water Lily Jaguar, depicted as a jaguar with a water lily tied around its head, other than the fact that it was an 'Underworld denizen' (Miller & Taube 1993, 184), for it was in the underworld 'where the dead sun, transformed into the nocturnal jaguar sun of the underworld, battled the lords of death in order to be reborn' (Sharer & Traxler 2006, 731).

The iconographic and hieroglyphic records leave little doubt as to the vital role of water in Maya life. These records reveal more than just royal customs since 'their origins lie in traditional Maya practices, such as the significance of directionality and colours, deities, ancestors, the underworld, and the heavens' (Lucero 2010, 139; e.g. Lucero 2003; 2006; Schele & Freidel 1990; Schele & Miller 1986; Thompson 1970).

Cara Blanca, Belize

Cara Blanca, Spanish for 'white face', is an apt name for the 80 to 100 m limestone escarpment; at its base lie 25 pools and patches of well-drained fertile soils (Lucero *et al.* 2004) (Fig. 2). We have surveyed 22 of the 25 pools (Nos. 1–21, 24), five of which have associated settlement: Pools 1, 7, 8, 9 and 20 (Kinkella 2009; 2011). Surveys in the surrounding cliffs to the north and *bajos* (seasonal swamps) to the south have thus far revealed little additional settlement. Large caves have not been found in the vicinity, likely due to the soft limestone that breaks off in large chunks (Beddows 2011). There are, however, smaller caves and rock shelters that contain Classic period ceramics and features suggesting their ceremonial use. The pools are the only major portals in this area.

The far western and eastern pools lie level with the ground surface and are classified as lakes or scarp-foot springs, while the central steep-sided water bodies at the base of the limestone cliff are *cenotes*. The western lakes have noticeable settlement nearby (e.g. Pools 7–9), whereas the centrally located *cenotes* largely lack settlement, including Pool 1, the focus of this article. For example, Pool 7, the westernmost pool, is a shallow lake (*c.* 2 m deep) with eight low-range structures adjacent (Kinkella 2009, 135–6) (Fig. 3). This community likely participated in ceremonies, market days and other public events at the centre of Yalbac about 4 km away, as well as certain ceremonies at Cara Blanca *cenotes*.

Cave exploration divers, several of whom have been exploring and mapping the extensive underwater cave systems in the northern lowlands and who began exploring Cara Blanca pools in 2010, noted that its *cenotes* are distinctive — especially their depths.[1] For example, diver Robbie Schmittner noted that the majority of cave systems in the northern lowlands are relatively shallow (*c.* 25 m), but can extend horizontally for tens of kilometres, quite different than at Cara Blanca pools, which have much greater vertical depths (Lucero 2011a). In addition to Pool 1, divers also explored seven other pools ranging from 5 to over 35 m deep: Pools 2, 3, 4, 5, 6, 16 and 20. Each has outflows and inflows, indicating the movement of water between the pools. Water lilies abound on pool edges, and we have noted a plethora of aquatic life including crocodiles, turtles, frogs, toads, fish, snakes, molluscs, crabs and waterfowl (e.g. heron or egrets, cormorants, etc.).

The focus of recent exploratory dives and surface excavations has been at Pool 1 (100 × 70 m), a *cenote* 60+ m deep surrounded by seven structures (Fig. 4), including Structure 1 that we argue functioned as a water temple and pilgrimage destination during the Late and Terminal Classic periods, especially between AD 800 and 900.

Pool 1

Pool 1 sits at the base of the cliff with teal-coloured water that belies its 60+ m depth. Even without the temple, the *cenote* would have been sacred (Martos López 2010). For example, among the Zinacantecos in Chiapas, Mexico, all 'waterholes are highly sacred, and myths are told about each of them, describing the

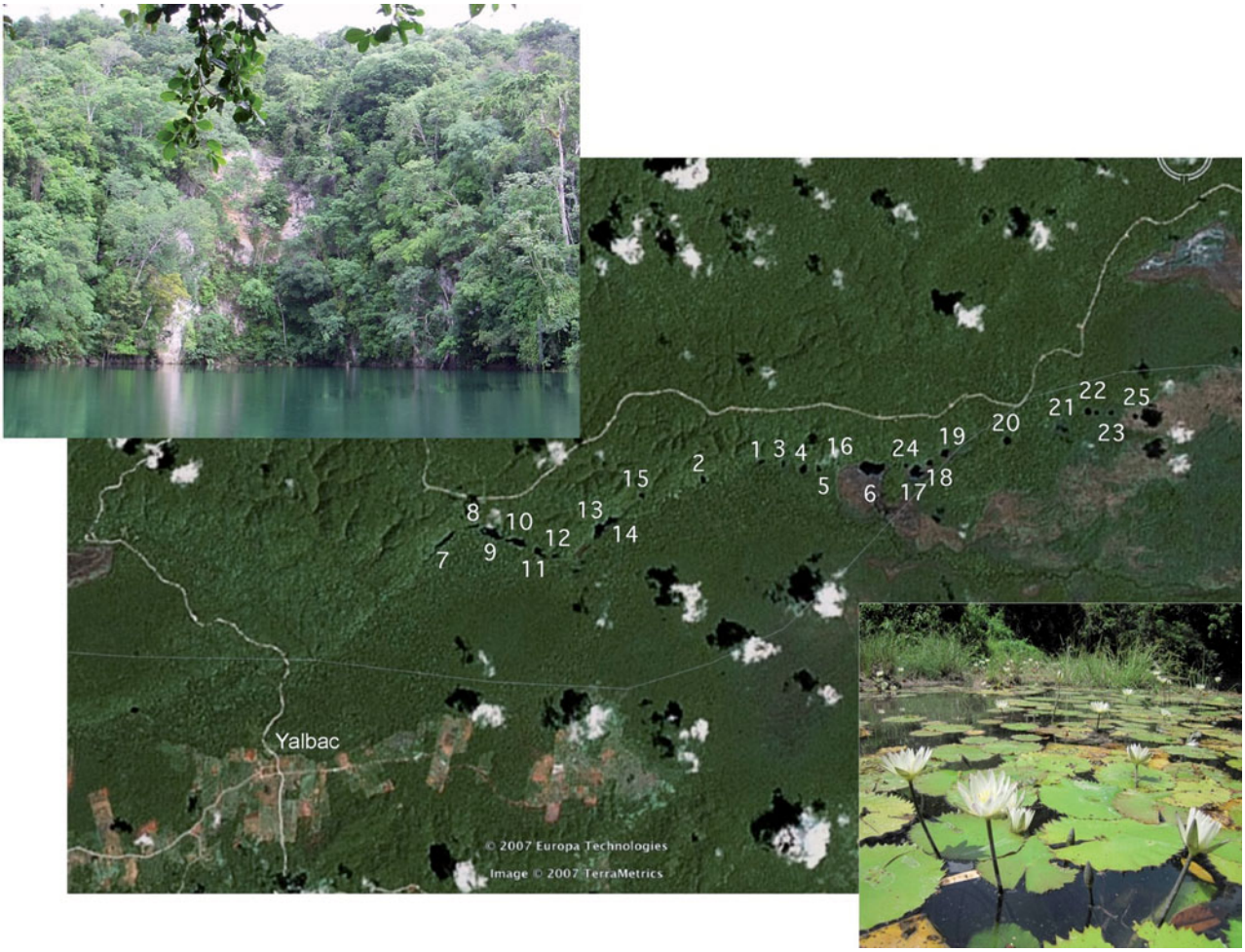

Figure 2. *Google map with 25 Cara Blanca Pools labelled and photos of the cliff face and water lilies.*

circumstances under which the ancestors found the water and the ways in which the waterhole acquired its distinctive name' (Vogt 1969, 146). Invisible from the surface is another portal — a massive cave on the north wall starting at 30 m deep with an entrance 40 m wide, which we named Actun Ek Nen, or Black Mirror Cave (Fig. 5). It continues to the pool floor and north into the cliff for over 70 m; divers have not yet determined how far the cave extends into *witz*. Divers also discovered a geological bed *c.* 20–25 m deep laden with fossilized megafauna bones, of which they collected rib, vertebra and humerus specimens from an *Eremotherium* or giant sloth (McDonald 2011). AMS dates on wood fragments and gastropods from the fossil matrix date between *c.* 9000 and 39,000 years bp (Lucero 2012), the more recent end of which would fall in the realm of human occupation (Lohse *et al.* 2006).

Four diving programs conducted between 2010 and 2013 have yielded intriguing artefacts and implications despite its depth, the obstacle course created by massive trees littering the sides and bottom, and sometimes the poor visibility due to hydrogen sulphide clouds caused by decomposing vegetation or debris caused by underwater excavations (Lucero 2011b; 2012; 2014). Several narrow shelves ring the pool and its bottom is roughly half the size of its surface because the pool wall slopes downwards from the south side towards the cave entrance at the north (Fig. 6). If the Maya cast in offerings from Str. 1, we predicted that they either would have landed on one of the shelves at 1.5, 5, or 20 m below, or rolled down to 50+ m. In order to explore these areas for possible artefacts, divers used a three-stage approach based on depth to collect artefacts from directly below Str. 1. Our research design was based on Nautical

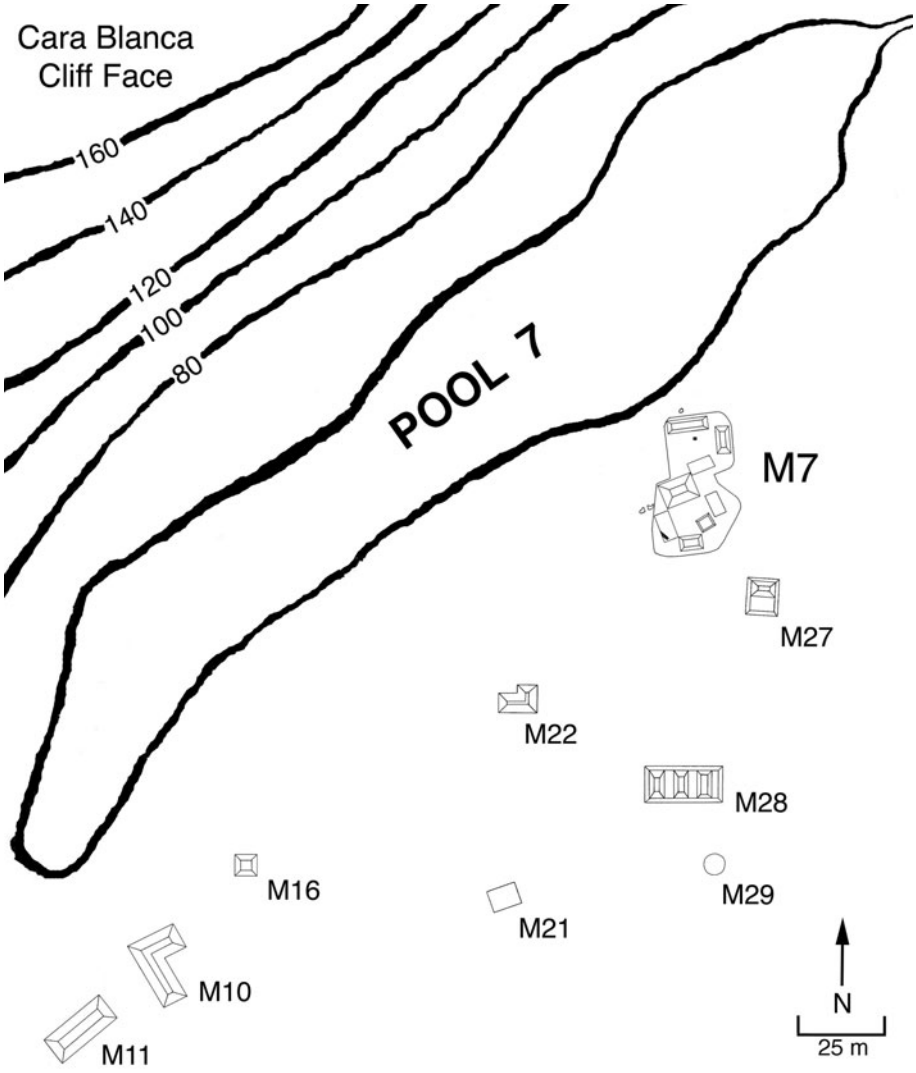

Figure 3. *Pool 7 settlement; it continues west and east along the southern edges of the western Cara Blanca pools (lakes).*

Archaeology Society (NAS) guidelines, modified for the specific conditions encountered in *cenotes* as opposed to shipwrecks (Bowens 2009). Stage One consisted of the use of mask and snorkel to explore the shelf at 1.5 m. Excavation at this depth consisted of gently fanning the surface with the diver's hand, and recording the location of any artefacts with the diver's depth gauge and GPS equipment at the surface. Stage Two dives explored areas from 4 to 30 m deep (including the shelves at 5 and 20 m) using scuba equipment with tanks filled with either atmospheric air or nitrox, and excavations continued with hand fanning and GPS recording. Stage Three dives explored the deepest depths of the pool from 30 m onward using trimix and rebreather equipment. At one area of the *cenote* bottom (54.3 m), divers experimented with excavation using a bucket and shovel, excavating in a 1 × 1 m area. We used a pulley system combined with lift bags to bring up buckets to the surface, and recorded the unit location using GPS. All materials were screened by hand and yielded sherds, lithics, bone and organic materials (Table 1).

Divers recovered most of the artefacts from immediately below Str. 1 at 1.5 m and 4.8 m deep, mostly jar sherds. Many of the artefacts likely are from looters' debris and building collapse. Divers also found several artefacts at 20.4 m, including a jar rim, body sherds, lithics, shell and a bone fragment. While they did not recover any sherds at 54.3 m, they did find several lithics. While the challenges of underwater excavations make it difficult to explore Pool 1, more fruitful for purposes of exploring the significance of Pool 1 have been the 2013 surface explorations at Structure 1.

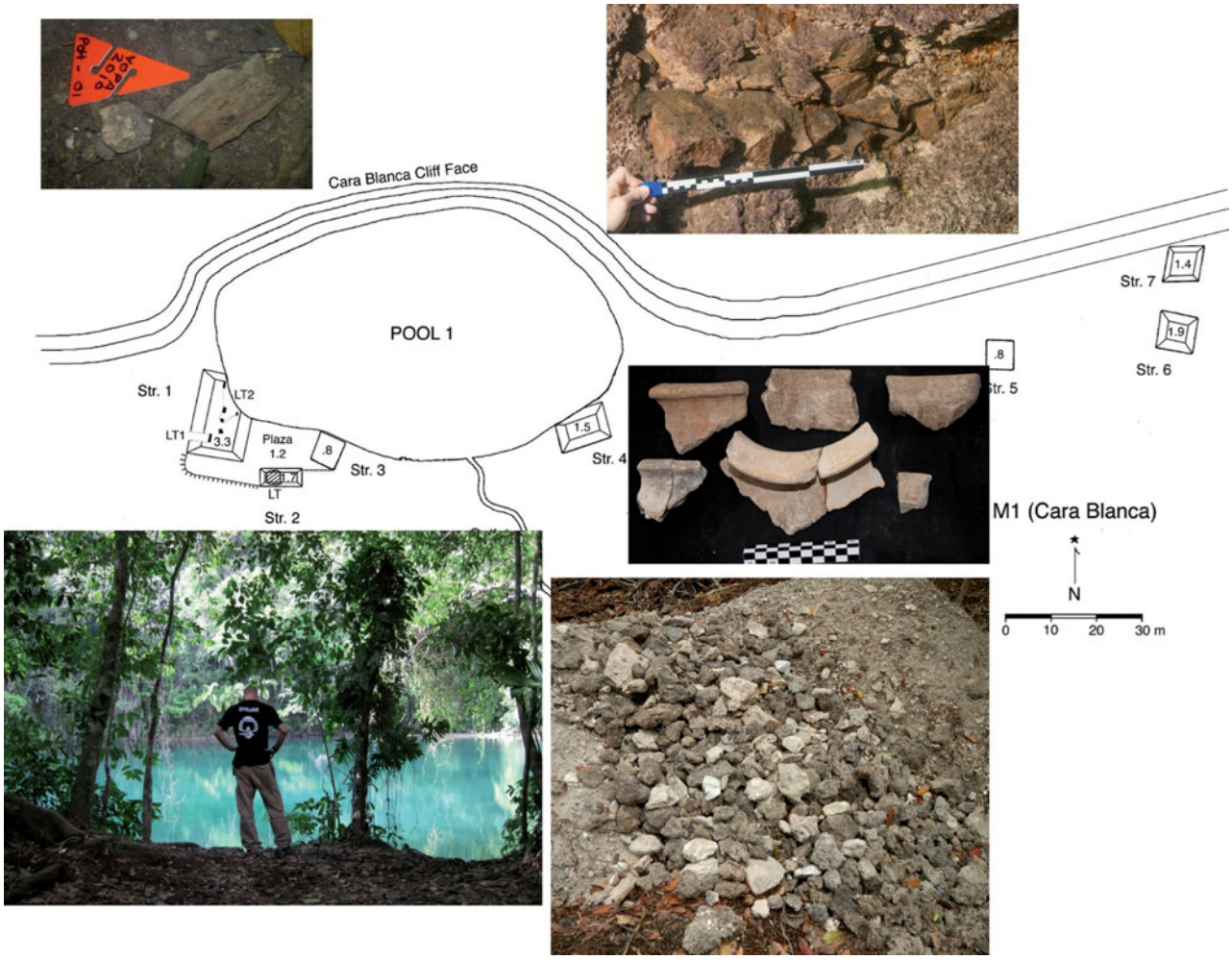

Figure 4. *Pool 1 with associated structures and rims, as well as photos including underwater finds and a pile of tufa.*

Structure 1 excavations at Pool 1

Str. 1 is a 20 × 8 m, 3.5 m tall corbel vaulted range structure with basal moulding, terraces and six to eight rooms; it sits on the pool's southwest edge facing east. Interestingly, while the southern portion of the building is oriented 10°, the northern veers east 18° starting about six metres from its northern edge (Fig. 7). It has been severely compromised by looting, and at least two rooms have collapsed into the water. The corbel roof has completely collapsed, evidenced by the plethora of vault stones, some up to 0.8 m in length. It is located on a slight rise and is built on a 1.2 m raised plaza that connects to Strs. 2 (5 × 4, 1.7 m tall) and 3 (*c.* 3.5 × 3.5, 0.8 m tall) (see Fig. 4). Str. 4 (11 × 7 m, 1.8 m tall), the only other building abutting the pool edge, is a platform; divers recovered several sherds directly below it at *c.* 1 m underwater. Strs. 5 (*c.* 6 × 5 m, 0.8 m tall), 6 (*c.* 8 × 8 m, 1.9 m tall), and 7 (*c.* 8 × 8 m, 1.4 m tall) are located further to the east *c.* 100 m at the base of the cliff.

We first exposed the exterior walls of Str. 1, which are 0.85 to 0.90 m wide faced with cut limestone filled with cobbles, small boulders and mortar. Most of the fill consists of tufa rather than the typical surface limestone cobbles and boulders that are plentiful and easily accessible in this karstic landscape, though the Maya used surface limestone for the cut stone façade. Tufa is a type of limestone that is created underwater and forms when calcium carbonate precipitates around things that fall into still carbonate-rich water bodies, like tree branches or shell (Pedley 1990). Because of the variety of materials around which it precipitates, tufa forms in a myriad of shapes and sizes (Fig. 8). Divers have noted the presence of tufa in the sidewalls at all levels below Str. 1 (Lucero 2012). Interestingly, the cut-stone architecture exposed in Str. 2's looter's trench did not include tufa (Kinkella 2011).

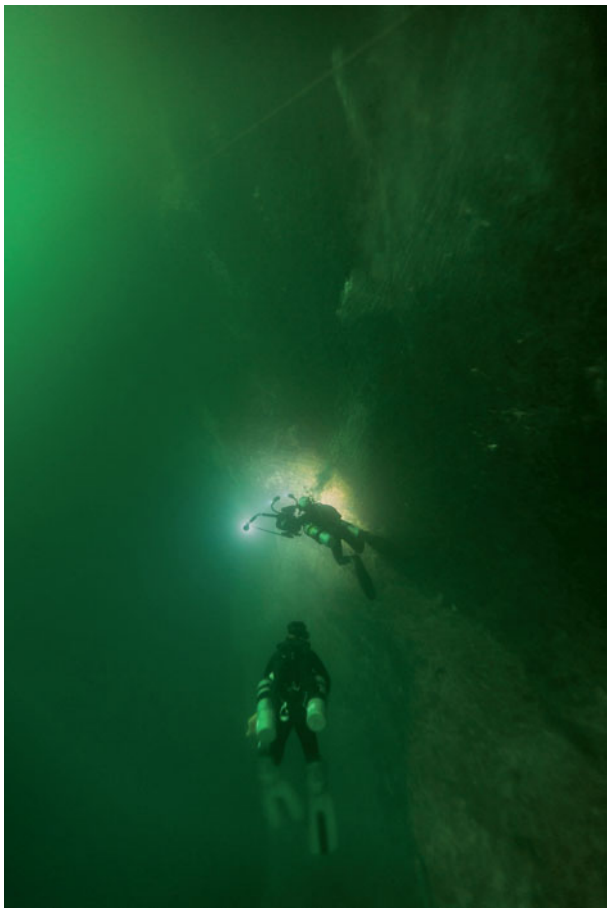

Figure 5. *Two of the divers, Marty O'Farrell and Chip Petersen, are to the right (east) of the entrance to Actun Ek Nen. (Photograph: Tony Rath.)*

An exterior plastered *c.* 2 m wide platform surrounds the structure, and there is an additional lower platform that likely will turn out to be the raised plaza connecting Str. 1 to Strs. 2 and 3. We excavated two eastern rooms (Rooms 1 and 2) and exposed their upper plaster floors. In addition to four marine shell fragments, we recovered two possible fossils, one consisting of what appears to be a five cm long tooth or claw and a long bone fragment (Fig. 9). At present, the only known fossils are found over 20 m underwater. In Room 2, of particular interest are the ceramic clusters on top of the plaster floor against the north wall. The western cluster consisted of a nearly complete inverted Cayo Unslipped jar rim and shoulder on top of Dolphin Head Red: Silver Creek Impressed dish sherds (40 cm collar diameter) with unique stick impressed designs on its basal break that ceramic specialist Eleanor Harrison-Buck stated that she had never seen previously (pers. comm. 2013). The centre cluster included large Vaca Falls Red: Vaca Falls variety medial flange sherds, red-slipped bowl body sherds and Cayo Unslipped jar sherds. The eastern cluster also includes Vaca Falls Red: Vaca Falls variety bowl sherds, as well as inverted Fat Polychrome bowl sherds with a jaguar design (the 'jaguar vessel'), a *mano* fragment, and nearly 200 *Pomacea* shells found immediately above the ceramics.

The Fat Polychrome sherds resemble those from the northern lowlands (Harrison 2014), and previously had only been found in northern and eastern Belize (Harrison-Buck 2007, 241–4; see also Thompson 1939, 114, 124–5). According to project iconographer Joanne P. Baron, the design on its rim may represent 'a sky band possibly with an *ak'bal* (darkness) sign on the left and a *k'an* (yellow/precious) sign on the right, basically marking the rim of the vessel as celestial' (email comm., June 2013) (Fig. 10). In conjunction with Chaak, the *ak'bal* symbol could also represent 'dark, rain-laden clouds' (Taube 2004, 77). The body's designs appear to incorporate water motifs in the form of wavy, parallel lines with a series of small dots or circles from which spirals emanate representing 'flowing water with waves or spray' (Baron email comm., June 2013). In front of the jaguar is what may be some of the water band. Jaguars are associated with water, caves, and other portals (Miller & Taube 1993, 103). Interestingly, we found a rim and body sherd from the jaguar vessel while exposing the southwest corner of Str. 1 over six metres away; we noted at least two other instances where sherds found on the southern end of the building refit sherds from Room 2 ceramic clusters, suggesting that the Maya intentionally broke and redistributed them. Natural processes could have resulted in this pattern, but it seems pretty consistent. If the Maya did purposefully break and place vessels, was it part of a termination rite, or does this behaviour reflect something else altogether?

Most of the ceramics came from Rooms 1 and 2 fill, and the east exterior wall; the ceramic clusters are the only artefacts found directly on a floor surface. The fewest number of artefacts were recovered on the west or back side, which would make sense given the focus of activity on the east side. In addition, we noted a few pieces of stucco in Room 2, including one with remnant red paint. Crew found fewer and smaller tufa stones as they excavated the rooms, but recovered a greater number of ceramics. Most ceramics date to the Terminal Classic period and largely consist of Cayo Unslipped jar sherds. In general, the assemblage contains relatively large vessels, including large flat, thick sherds (e.g. up to approximately two centimetres thick). Vessels are quite open; jars comprise the widest range of vessel orifice sizes, from 10 to 45 cm diameter — we measured collars rather

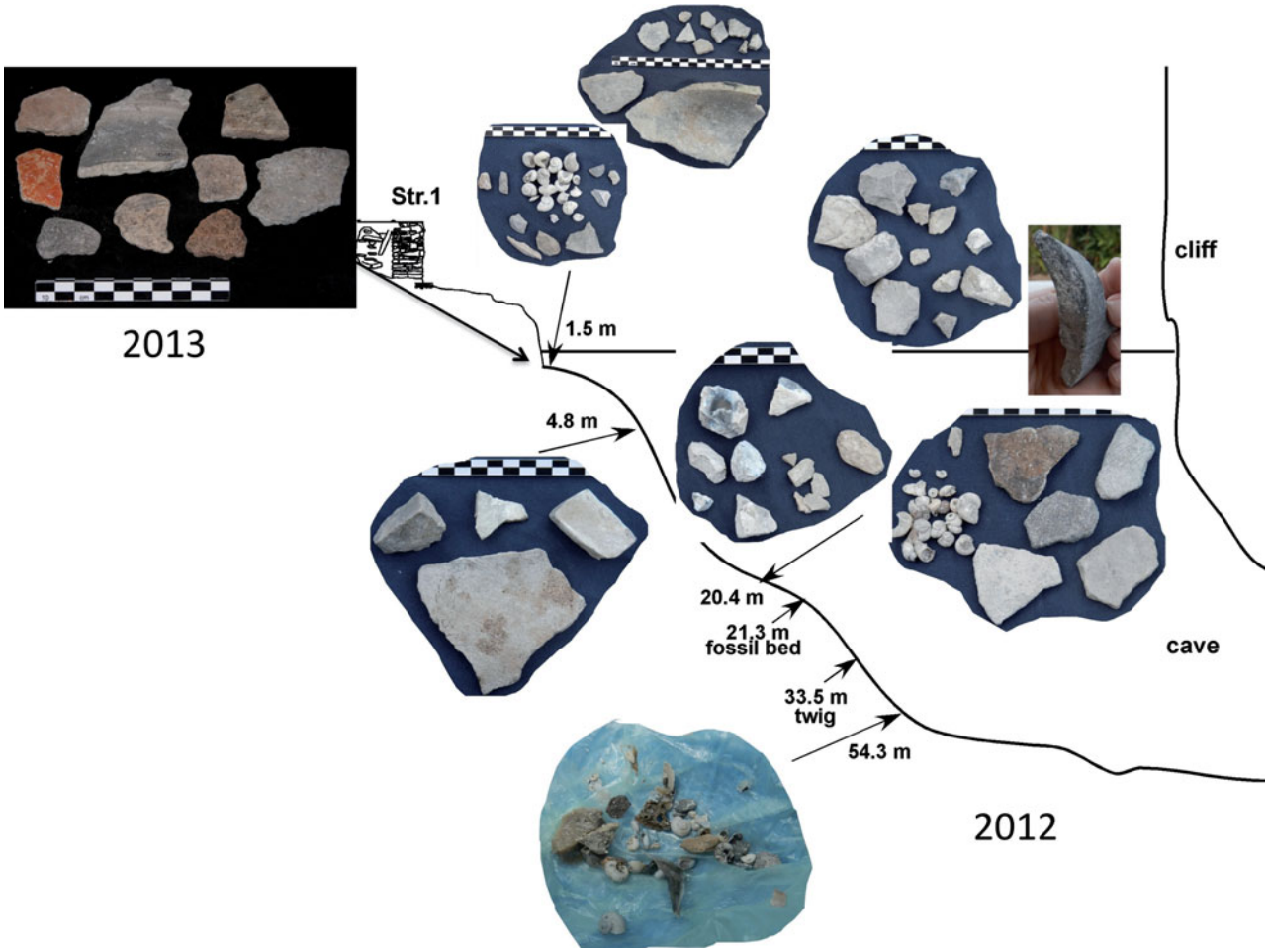

Figure 6. *(Colour online) Schematic of Pool 1 west profile with recovered artefacts from various depths.*

Table 1. *Pool 1 underwater artefacts.*

Depth below Str. 1	Artefacts	Additional information
1.5 m	Large jar neck sherd *c.* 1 cm thick and *c.* 45 cm diameter, 7 body sherds, bone fragment, 18 freshwater shells, tufa, 2 chunks, 2 small flakes, 3 biface chips	TuTu Camp or Cayo Unslipped jar sherds (AD 800–900)
4.8 m	Jar rim, jar neck, 8 body sherds, rectangular chunk, chunk, flat limestone piece, multi-layered clay/gravel, tufa, 26 flakes, 9 chunks, 2 cores (1 blue), burnt limestone	TuTu Camp or Cayo Unslipped jar sherds (AD 800–900)
20.4 m	Jar rim, 5 body sherds, 2 biface chips, smooth ovoid limestone, 5 small flakes, 2 haft tips, mid-section of a haft, 12 chunks (5 of which may be eroded, exhausted chert cores), 18 freshwater shells, bone fragment, tufa	TuTu Camp Striated jar sherds (AD 800–900)
21.3 m	Megafauna fossils (humerus, vertebra, limb, etc.)	Giant sloth (*Eremotherium)*
54.3 m	Tufa with embedded shell, chert cobbles, 3 fish bone, bone fragment, 1 ~seed, 3 small crystals, crystalline fragment, 23 complete freshwater shells, *c.* 15 shell fragments, 3 tiny blade fragments, 2 flakes (1 crystalline chert), 4 small chunks, 3 small unworked lithics	Lots of gravel, some silt

than rims to better gauge access (Table 2); 23 of the 51 jar sherds we measured have a 15 cm orifice diameter (Harrison 2014). We also recovered large open bowls with openings ranging from 20 to 50 cm; plates 29 to 45 cm; and dishes 40 to 50 cm.

The Maya may have used smaller jars and gourds for pouring and transporting water, especially since larger vessels filled with water would have been prohibitively heavy and cumbersome to carry any distance (Pendergast 1974, 42). LeCount (1996, table 7.4;

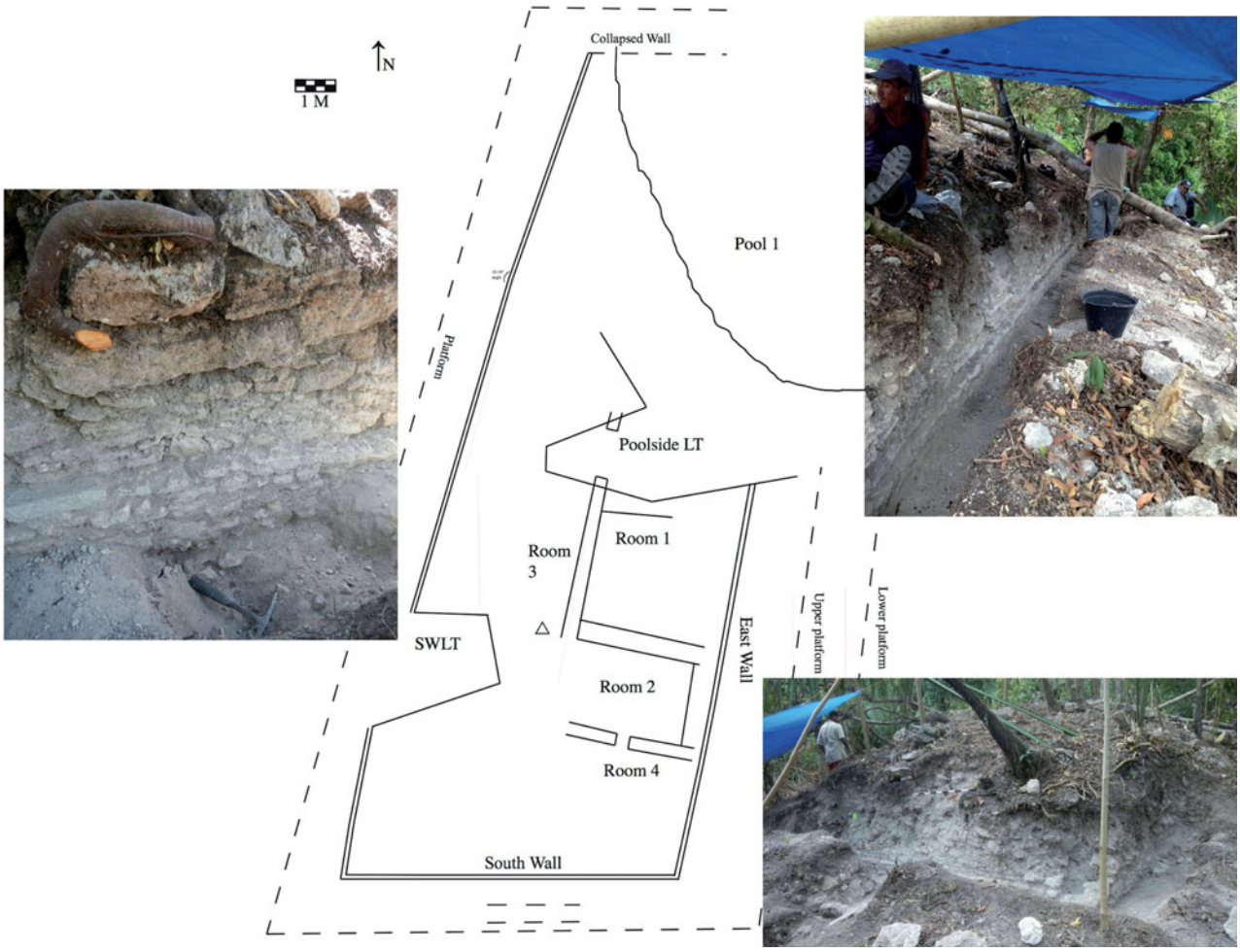

Figure 7. *(Colour online) Plan of Structure 1.*

2010, tables 10.3 & 10.4), using ethnographic and archaeological data, distinguishes water-carrying jars from water storage jars by their collar (opening *vs* rim size) as having up to a 12 cm diameter collar. Only a single measurable jar orifice measured under 13 cm (10 cm); the remainder came in at 15 cm and higher, up to 45 cm (see Table 2).

In assessing the Cara Blanca collection, Eleanor Harrison-Buck (pers. comm. 2013) noted that while Gifford *et al.* (1976, 279–82) highlight several different types of Cayo Unslipped jar rim treatments, she rarely sees them all represented in the same assemblage since they usually are found in different areas. The Cayo Unslipped sherds are also made with different pastes (Harrison 2014). The ceramics in general are more similar to those to the west in the Petén area and northern Belize than to those in the Belize River valley to the south (L. Kosakowsky pers. comm. 2007; Kinkella 2009, 184) (e.g. Achote Black). Though Mt Maloney (black slip) bowls predominate during the Late and Terminal Classic periods in the upper Belize River Valley area, we have yet to find Mt. Maloney ceramics at Cara Blanca or nearby centres including Yalbac and Saturday Creek (see Fig. 1) (LeCount 2010). Achote Black is the preferred black-slipped style at Saturday Creek, Yalbac, and Cara Blanca (e.g. bowl and tecomate sherds were recovered from Room 1 fill) (Lucero 2014). Also, thick-walled red-slipped bowl sherds from both rooms are similar to those described for Seibal in Guatemala (Sabloff 1975, 160–64). However, the presence of ceramics from the Vaca Falls and Dolphin Head Red groups are indicative of ties to the Belize Valley. That said, Dolphin Head Red ceramics are relatively rare in the Terminal Classic (LeCount 1996, 158). Five Sibun Red jar sherds, which typically are found in eastern Belize (Harrison-Buck 2007, 255), were recovered from Room 2 fill.

The large serving and storage vessels likely were used in public feasts and ceremonies. We recovered over 200 bones fragments, mostly faunal (e.g. bird

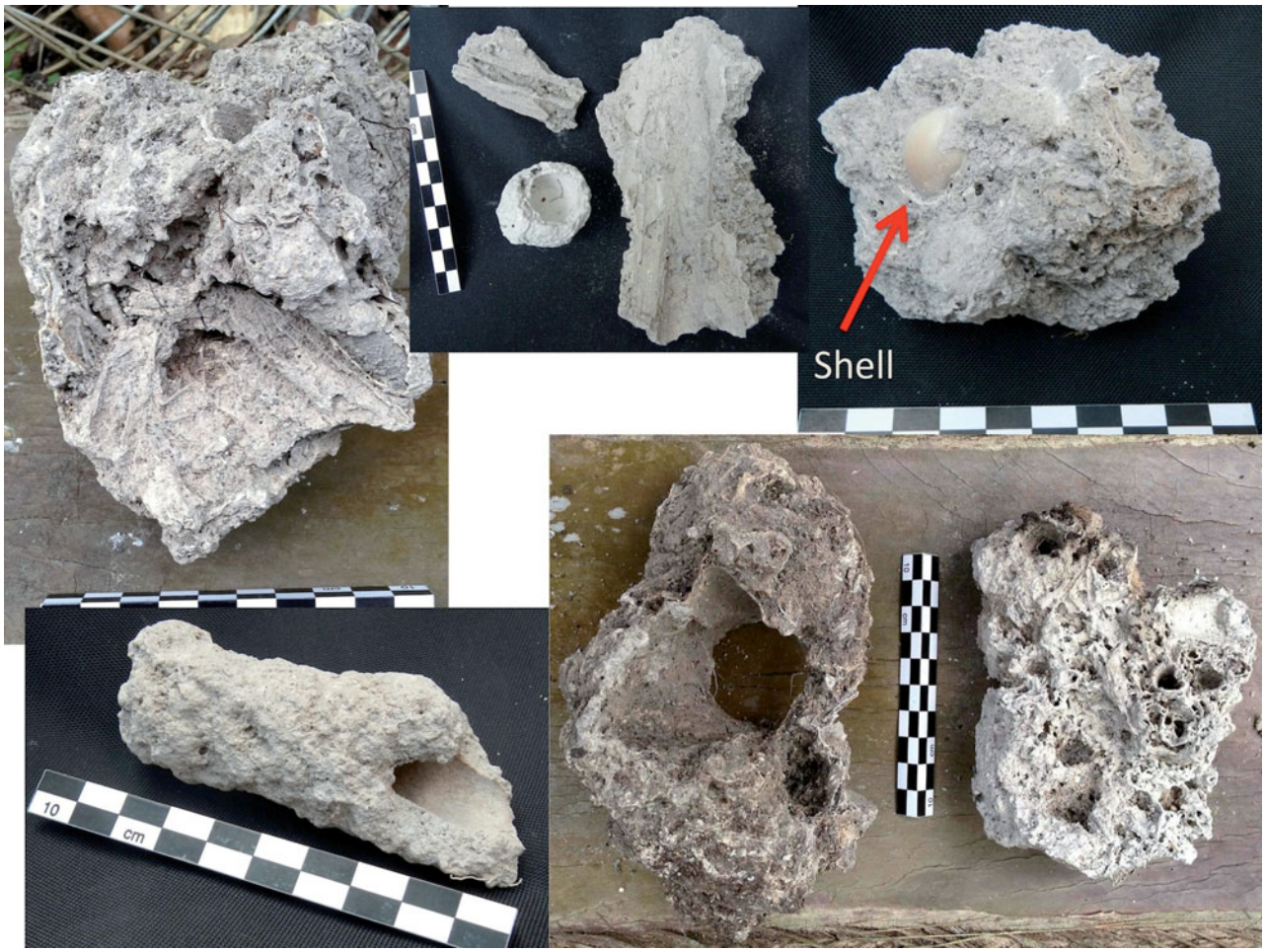

Figure 8. *(Colour online) Examples of tufa recovered from Str. 1 excavations.*

bones, mammals including deer), including a few thoroughly burned. The faunal remains could represent offerings and feasts because the Maya ritually sacrifice animals, followed by their consumption in associated feasts (Pohl 1983). The deposition of fauna in caches, burials and other ritual deposits is symbolically significant; for example, deer are associated with the sun and renewal while marine organisms with the watery underworld and origins, rains and fertility. Birds portend various things (death, renewal) and were used for blood sacrifice (e.g. turkeys, macaws, owls, raptors, etc.). The *Pomacea* freshwater shells from Room 2 are similarly sized, suggesting that they were selected, sorted and prepared. The Maya consumed *Pomacea* for meals and ceremonial purposes; for example, they are found in nearly all burial contexts at the site of K'axob, Belize, as well as in middens there and elsewhere (e.g. Nohmul), the latter in a similar size range to those at Str. 1 (*c.* 3.8 cm average diameter) (Harrigan 2004; Miksicek *et al.* 1991). Freshwater shells have been found in caves as well, perhaps indicating a connection with the 'cult of the sea' (Pohl 1983, 91).

In terms of other artefacts, we found a few hammerstones, five mano fragments, one obsidian blade fragment and blue chert flakes and chunks. Interestingly, we did not recover any stone tools or *metates*, censers or individual serving vessels. In Mayan languages, the colour blue is not distinguished from green (*yax*); both are associated with the 'centre' of their world and also have a watery aspect (shining, polished, smooth jade — or in this case, smooth blue chert) (Houston *et al.* 2009, 27–8, 40). The blue flakes and chunks we recovered are a deep blue fine-grained chert that is uncommon in regional artefact collections.

While we still need to excavate the four to six remaining rooms, preliminary results are intriguing and suggest that Str. 1 functioned as a water temple.

Figure 9. *Room 2 ceramic clusters found against the north wall, as well as Pomocea shell, and fossils from Rooms 1 (lower photo of possible tooth) and 2 (upper photo of partial long bone). The red arrow points to the jaguar vessel.*

Table 2. *Str. 1 diagnostic sherds.*

Sherd type	Frequency	%	Orifice diameter average (cm)	Orifice diameter range (cm)
Jars	98	62	17.4 ($n = 56$)	10–45
Bowls	33	21	36.4 ($n = 19$)	20–50
Plates	15	10	37.4 ($n = 13$)	29–45
Dish	10	6	45 ($n = 7$)	40–50
Tecomate	2	1	-	-
Total*	158	100	-	-

*total does not include 55 jar neck sherds.

Water temple and pilgrimage destination

Table 3 summarizes the main features of Str. 1. While each feature on its own does not indicate a water temple and pilgrimage destination, together we argue they do: things water *plus* the diverse vessel styles, *plus* the large vessels, *plus* things lacking support our contention that Str. 1 functioned as a water temple and Pool 1 as a pilgrimage destination. People came from different parts of the Maya lowlands, especially between AD 800 and 900 when they intensified their visits and ritual activities in attempts to counteract the multiyear droughts.

The fossils from Rooms 1 and 2 are of particular interest, especially if the Maya collected them from the fossil bed over 20 metres underwater;

Figure 10. *The Room 2 ceramic cluster jaguar vessel. (Drawing: Joanne Baron.)*

Table 3. *Str. 1 features.*

Things water	Things lacking	Public feasting, ceremonies
At the *cenote*'s edge, may mirror the *cenote* edge, similar location as other water temples, freshwater shell, marine shell, tufa, water jars, sedimentary and other aggregates created underwater*, water symbolism on the jaguar vessel, blue chert, water lilies, fossils from the deep.	No individual serving vessels, no stone tools, no *metates*, no censers, no spindle whorls, no bark beaters and only one piece of obsidian. No obvious human remains.	Faunal remains, including some thoroughly burned bones, sorted *Pomacea* freshwater shells; large preparation, storage and serving vessels, and a predominance of jars.

*While not discussed, we also recovered several kinds of sedimentary stones in Room 2 that divers also noted underwater, including a fine, sand-sized white aggregate, as well as a dark clayey aggregate with limestone pebbles and small cobbles.

conceivably they could have found them in streambeds, though we have yet to find any. Fossils are quite rare in archaeological contexts and we briefly describe the known cases. At the regional capital Palenque in Mexico, in addition to crushed fossils used in the mortar and plaster of major temple architecture, archaeologists also found slabs with visible fossil shark teeth and stingray spines referred to as *coquina* (Riquelme *et al.* 2012). Several outcrops are found near Palenque, as well as up to *c.* 110 km distant containing all types of extinct marine organisms.

One of the most intriguing uses of fossils in plaster and mortar is found in the Temple of the Inscriptions on steps 11–41 leading down to the tomb of Palenque's most powerful king, Pakal. Even more intriguing are the several ritual deposits with fossilized shark teeth and stingray spines (e.g. dedicatory deposits from the Temple of the Cross, Temple of the Foliated Cross and Temple of the Sun) (Cuevas García 2008). At the Temple of the Sun, for instance, a dedicatory cache included a vessel with a fossil shark tooth and stingray spine, as well as jade fragments

and bird bone; together they signify the sky, earth and watery underworld. Palenque has always been known for its creation stories that extend far back into time, an apt timeframe given that this centre emerged from the primordial sea. In the upper Pasión area of Guatemala, archaeologists noted several caves with fossil outcrops (e.g. conical sponges that look like stars in profile) (Woodfill *et al.* 2003). More significantly, they recovered coral fossils in plaza excavations and fill deposits at the nearby small hilltop site of La Caoba Vieja. Clearly the Maya purposefully extracted fossils from caves, indicating that these natural features have a connection not only to the underworld, but one to the watery world as well.

In general, almost everything we recovered was broken and incomplete, and nearly every substantial deposit appears to have been purposefully placed. The predominance of jars suggests that visitors collected sacred water in jars for rain or other ceremonies that took place either at the pool or back home, as the Tzotzil Maya do in Zinacantan in Chiapas, Mexico (Vogt 1993, 63–5). Other interesting patterns include the extensive fire clouding of Cayo Unslipped jar necks and rims found while exposing the exterior walls (Harrison 2014). Together with the lack of incense burners, in which the Maya burn incense for every ritual (e.g. McGee 1998; Sharer & Traxler 2006, 181, 194, 197, 244, 378, 452, etc.; Stross 1998; Thompson 1970 etc.), this suggests that the Maya either burned jars instead or the offerings which they contained. Also notable are the purposefully broken jars, which are found in the two rooms, summit and east wall; in this instance, we consistently find finger-sized breaks along jar shoulders (Fig. 11). Perhaps this practice was a means of terminating or de-animating them (see Lucero 2008). Most of the other interesting artefacts come from the temple's east side and rooms, including the shell, indicating that the Maya performed ceremonies at the water's edge, including casting objects into the water. While there is a possibility that the exterior artefacts indicate that the Maya left offerings after the region was largely abandoned in the AD 900s, as we have found at the minor centre of Saturday Creek and the medium-sized centre of Yalbac (Conlon & Ehert 2002) (and elsewhere, e.g. at Palenque: Perera & Bruce 1982, 12), there would have to had been a specific reason for doing so, which is what we are proposing; that Pool 1 served as a pilgrimage destination. It is also possible that the Maya terminated Str. 1 when rain rituals failed and the droughts continued.

There are other indications that Str. 1 served a specialized purpose. First, the majority of sherds consist of jar rims (62 per cent), which typically comprise less than half (15 to 38 per cent) of residential assemblages (Lucero 2001, tables 5.2, 6.1). We did find a domestic assemblage at Pool 7 (see Fig. 3); for example, a 1 × 1 m test pit in the northern plaza of the residential compound M7 yielded 19 diagnostic sherds largely dating to *c.* AD 700–900 consisting of 32 per cent jars (n = 6), 32 per cent bowls (n = 6), 21 per cent flat or annular bases (n = 4), 11 per cent plates (n = 2), and 5 per cent vases (n = 1) (Kinkella 2009, 126–9, 365). Even if Str. 1 served as a trash dump, we should still find similar proportions of vessel types representing whatever function the building served; the same goes for ceremonial dumps, which the Maya created when they destroyed or terminated items as part of a renewal ceremony (see Lucero 2006, 62–3; Mock 1998).

Second, its location at the pool's edge is similar to that of temples at sacred *cenotes* elsewhere, such as Chichén Itzá, Chinkultic, Cozumel and others (Andrews & Corletta 1995; Patel 2005; Tozzer 1941, 183). In the Colonial period, Bishop de Landa noted that the Maya had built at the southern edge of the Sacred Cenote at Chichén Itzá a small temple 'in which I found idols made in honor of all the principal buildings [deity temples] of the country' (Tozzer 1941, 183). The Maya may have built Str. 1 to mirror the *cenote*'s edge, similar to what Shaw (2002) found at the *aguada* at Yo'okop in Quintana Roo, Mexico, where the Terminal Classic shrine rims its edge. There is no evidence for activity prior to when the Maya built the Yo'okop shrine; they may have terminated it by tearing down the vaulted roof. It also has a paucity of sherds and other artefacts, especially domestic ones.

Third, its distance and isolation from densely settled areas or centres suggests a pilgrimage destination, a pattern found throughout Mesoamerica (Stone 1997). Finally, ceramic styles originate from different parts of the Maya lowlands — from the Petén to the west, the Yucatán to the north, the Belize River Valley to the south, and eastern Belize.

The significance of Str. 1 is its location at the edge of the *cenote*, relative isolation and artefact assemblage. Even if it started out as a local ritual place, as many water bodies do (Vogt 1969), people from greater distances increased their visits at the end of the Classic period. Even after years of drought, however, people continued to avoid building near Cara Blanca *cenotes*, despite its perennial water sources. When they did add to the landscape, they built ceremonial buildings. For example, they constructed a circular sweatbath *c.* 400 m west between Pools 1 and 2 as part of a settlement cluster (Group M186). The Maya used sweatbaths for ritual cleansing and other purification rites (e.g. Vogt 1969, 89, 446); they are also found in temples and other types of monumental architecture,

Figure 11. *A sample of jars that appear to have been purposefully broken in finger-sized breaks.*

such as Palenque and Piedras Negras (Houston 1996; Satterthwaite 2005 [1952]). It is possible that Group M186 comprised part of a ceremonial circuit through the Cara Blanca landscape, similar to what Vogt (1969, 149, 374, 390, 471) found in Chiapas regarding shrines at sacred waterholes and mountains. This settlement cluster is quite substantial and as yet untested, although we extracted a Cayo Unslipped jar rim from the wall mortar of the sweatbath. While Group M186 could have served as a residential compound, it may also have functioned as a stopping point for pilgrims or ritual participants to stay and ritually cleanse themselves before reaching Pool 1. There is other distinctive settlement as well. For example, while Pools 14 and 15 lack adjacent structures, we have found an interesting settlement configuration directly above them on the escarpment consisting of seven mounds, referred to as the Lookout Group (Kinkella 2009, 138–42). It might have served as a water shrine similar to what Fash (2005) argues to have been the case at the Cerro de las Mesas mountaintop in the Copán Valley that the Maya today still use for water and rain rituals.

While each feature by itself does not indicate a water temple, together they leave little doubt as to this structure's role as part of the staging necessary for worshippers to engage with the watery underworld. At centres, the Maya used monumental pyramid temples, inscriptions and iconography to symbolize essential cosmological aspects of their world, especially that having to do with water. This kind of expression was unnecessary at Cara Blanca because the gods had created all the sacred elements necessary to communicate with gods and ancestors.

Discussion and concluding thoughts

Archaeological, ethnographic and ethnohistoric records show that the Maya performed particular rites at specific times, including rain ceremonies at the end of each dry season. In addition, evidence from caves and other contexts show that they intensified visits and rituals in times of stress (Moyes *et al.* 2009), as Freidel and Shaw (2000) illustrate; they used 43 ethnographic and ethnohistoric Maya case studies

and found that people conduct more rain and fertility rituals in risky environments and times.

The lack of a full domestic suite of artefacts at Str. 1, such as stone tools and small vessels, plus the evidence presented, indicates that Pool 1 functioned as a dedicated special-purpose ritual site, perhaps with priests or caretakers residing nearby (e.g. Strs. 5–7 could have served as abodes or as storage facilities for ritual paraphernalia). While people living in the vicinity initially could have been its principal worshippers, evidence suggests that visitors from greater distances made pilgrimages to Cara Blanca during the prolonged droughts. We differentiate increased ritual activities from increased population size based on what cave archaeologists have shown for the 'drought cult' in the southern lowlands (Moyes *et al*. 2009); for instance, some caves show ritual activity for the first time between AD 800 and 900 (e.g. Actun Tunichil Muknal, central Belize), and offerings also changed from largely broken vessels in earlier time periods to intact ones, predominantly jars and bowls.

Cara Blanca's distance from densely settled areas indicates that it may have served as a political boundary, as well as a liminal place between the living and numinous entities to be approached at certain times. The similarity in artefact assemblages between Cara Blanca and Yalbac, the closest centre some 8.5 km away, suggests that Yalbac's leaders may have played a role in maintaining or controlling Cara Blanca, or minimally provided the religious specialists. Alternatively, local elites and commoners could have managed it as well; that said, the increasing number of visitors indicated likely would have included elites from surrounding centres and perhaps even beyond. Yalbac also is the most accessible centre; San Jose and Saturday Creek each are 11 km distant from Cara Blanca, but lack the direct access Yalbac has via Yalbac Creek, which merges with Labouring Creek *c.* 2 km southwest of Pool 1 and *c.* 6.5 km northeast of Yalbac. These perennial creeks would not only have provided means for pilgrims to reach Cara Blanca from Yalbac, Saturday Creek, San Jose and other centres (e.g. La Milpa, El Pilar, Chan Chich, etc.), but also would have provided the means to transport offerings, as well as trade goods (Thompson 1970, 130–31; e.g. Woodfill 2011; Woodfill *et al.* 2012). Other routes to Pool 1 are from the south by crossing Labouring Creek, from the east along the north side of the pools and from the north via several ravines.

The Maya collected materials from beneath the water to build the temple. In precipitating around things, the visible and on-going creation of tufa itself further demonstrates the pools' animate qualities. Harrison-Buck (2012) illustrates a similar case in the Sibun area to the east at a Terminal Classic circular shrine devoted to the wind god, Ehecatl Quetzalcoatl, where the Maya incorporated speleothems and marine shell in the architecture to animate it. Tufa, as 'artifacts as places' (Bradley 2000, 85), is similar to cached speleothems in public architecture (e.g. ball courts) because of their 'spiritual power' and association with water-related places (Brady *et al.* 1997b). We have not found tufa in any other tested structures or exposed architecture in the Cara Blanca area; nor was any found in test excavations in looter's trenches at Pool 7 buildings (Kinkella 2009, 126–36), or elsewhere in central Belize, for instance, at the minor centre of Saturday Creek (Lucero 2006, 73–113). We did find a few tufa stones at Yalbac in pyramid temples and associated buildings, but none was found in the nearby Yalbac Creek, suggesting that it could have come from Cara Blanca.

The temple faces east with unobstructed views 100 m across the pool and north to the cliff face, mirroring the edge of the pool; observers could witness the emerging sun shimmering on the water's surface and entrance into the underworld. Nearly all the ceramics date between AD 800 and 900, a period when the Maya experienced at least eight multiyear droughts lasting three to 18 years according to results of the isotopic analysis of speleothems from Yucatán caves (Medina-Elizalde *et al.* 2010). In response, progressively more and more people came to Cara Blanca from the north, south, east and west to supplicate ancestors and water deities. The Maya brought offerings to the temple and cast them into the sacred depths. They also collected the water as *suhuy ha* for ceremonies at the temple or back at home (e.g. Thompson 1970, 260). Ceremonies involved burning offerings in jars; contemporary Maya believe that black smoke attracts black rain clouds, summoned by a Chaak impersonator/ritual specialist (e.g. Thompson 1970, 166–7). The jars themselves also played an important part in rain ceremonies when priests poured water, imitating the deity pair, Chaak and Chaak Chel (Vail & Hernández 2012).

It is unknown at present whether or not people at Cara Blanca made the ultimate sacrifice and killed one of their own to supplicate deities and ancestors as found at other portals, dry (e.g. Actun Tunichil Muknal in Belize) and wet (e.g. Sacred Cenote at Chichén Itzá). The pool's depths make it challenging to explore — it hides much, providing yet another reason for the Maya to treat it with great sacramental respect. We have to wonder if they knew of the vast underwater cave, Actun Ek Nen, and would not be surprised if they did; we know they left offerings on ledges high up on cave walls that require spelunking

gear and skill to reach today (e.g. at Actun Tunichil Muknal).

In summary, with the abundant year-round water and good agricultural soils just beyond the pools, one would expect to find dense settlement at Cara Blanca, especially given the annual dry season when water was critical. Evidence from surface and underwater excavations show that Pool 1 at Cara Blanca was sacred to the Maya for pilgrimage and ceremonies crucial for their survival. While Pool 1 and the Cara Blanca area in general may have begun as a community ceremonial destination, the diverse ceramic styles originating from different areas — the Belize River Valley, northern Belize, eastern Belize, the Petén and the Yucatán — suggest that people were coming to Pool 1 from all over to participate in water ceremonies and public feasts, minimally in times of stress.

Such places are striking for their symbolic importance; the three levels of the Maya universe converged at Cara Blanca, where the major cosmological concepts revolving around water were manifested — water mountains, portals and the watery underworld. Cara Blanca's distance from centres, concentration of openings in the earth and relatively sparse but unique settlement testify to its special, sacred nature (Lucero & Kinkella 2014) — a case where the 'significance of unaltered places' tells its own story (Bradley 2000, 13). Pure, clean water emerges from the earth, indicated by the water lilies on the still pool edges, creating a powerful waterscape. In settings as charged as Cara Blanca, the Maya only added the bare minimum so as not to counteract what the gods had created.

In conclusion, natural features embodied the sacred at Cara Blanca. As such, it was unnecessary for the ancient Maya to embellish the landscape. The pools, in tandem with the mountains, created a place that people visited as pilgrims to engage with gods and ancestors. The watery portals have left their own history with which the Maya interfered little but interacted much. Most Maya studies focus on monumental architecture, iconography and inscriptions at centres. The case presented here differs and provides a counter balance by focusing on vital Maya rituals performed by everyone — those having to do with rain and fertility. In doing so we provide a narrative concerning the majority — commoners and local elites, and illustrate how they coped with stress, in this instance several prolonged droughts. It also serves as a lesson for how we deal with climate change today — that relying on traditional means rather than changing our course of action can have detrimental repercussions.

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Note

1. For site reports and maps, see http://www.anthro.illinois.edu/faculty/lucero/index.html. For photos and videos of the 2010–2013 seasons, see http://www.news.illinois.edu/news/10/0721dive.html; http://scientistatwork.blogs.nytimes.com/author/lisa-j-lucero/; and http://www.youtube.com/watch?v=Xw9Rus9EiO0.

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