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## Gulf of Fonseca, Archaeology of



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### Introduction

The Gulf of Fonseca is a hydrological feature on the pacific coast of central America. It borders El Salvador to the west, Honduras to the north, and Nicaragua to the east. It is restricted by cape Amapala to the west and the cape Cosigüina to the east. It is 80 km long at its widest point and extends 65 km inland. In total, it covers an area of roughly 1800 square kilometers. The Gulf of Fonseca presents itself as one of the few natural harbors on the Pacific Coast of Central America.

### Definition

The zone of the Gulf of Fonseca encompasses parts of Eastern El Salvador, southern Honduras, and western Nicaragua. In terms of geopolitical boundaries, the zone would roughly correspond to the department of La Union in El Salvador, to the departments of Valle and Choluteca in Honduras, and to the northern half of the department of Chinandega in Nicaragua. The artificial division

created by these modern borders has led to the absence of a macroregional perspective in the archaeology on the Gulf of Fonseca.

Diverse environments constitute the 216-km-long coastal zone around the Gulf of Fonseca (Fig. 1). To the west, the coast is characterized by cliffs, fertile alluvial plains, and the Conchagua volcano. To the north, the gulf splits up into three bays (La Union, San Lorenzo, and Chismuyo), which are lined with mangrove forests (Fig. 2). In Honduras, going inland, these mangrove swamps transition into savannah landscapes and foothills. To the east, the coastal line is marked by the delta of the Estero Real, tropical forests, flatlands, and the Cosigüina volcano. The Cosigüina and the Conchagua volcanoes, along with many of the islands dotting the gulf, are part of the Central American volcanic arc. The Gulf of Fonseca is further located on the Fonseca transverse fault system, resulting in regular seismic activity. Historically, this location has seen numerous ash-fall events due to the active volcanism of the region.

Over 34 islands are dotting the gulf. The most important are Meanguera, Conchagüita, Zacatillo, Conchagua, and Martín Pérez in El Salvador; Zacate Grande, El Tigre, Coyote, Ascensión, and Farallones in Honduras; and the *islotos* de Cosigüina in Nicaragua. The larger islands – Conchaguita, Meanguera, Zacate Grande, and El Tigre – are between 5 and 10 km in diameter. This island concentration constitutes an exceptional

feature for the pacific coast of Central America, on which islands are otherwise relatively sparse.

In contrast to the Caribbean coast of Central America, rivers and streams almost exclusively discharge in bays on the Pacific coast. Six rivers discharge into the Gulf of Fonseca, offering navigation opportunities towards inland El Salvador, northern Honduras, and the great Nicaraguan lakes: the Amatillo and the Goascorán rivers in El Salvador; the rivers Nacaome, Choluteca, and Sampile in Honduras; and the Rio Negro and the Estero Real in Nicaragua.

The Gulf of Fonseca has a (sub)tropical climate, with distinct wet and dry seasons. The dry season increases the salinity in the estuaries, leading to seasonal changes in the availability of marine resources in the mangrove-dominated wetland ecosystem. In the dry season, available resources are salt, crabs, and molluscs. During the wet season, shrimp and fish complement the mollusc population in the estuaries. Prehistorically, these resources would have given the Gulf of Fonseca strategic importance for resource exploitation (Baudez 1973). It is generally understood that these diverse environments hosted diverse cultural groups in precolonial times.

## Historical Background

### Scholarly Background

The early interest in the Gulf of Fonseca developed peripherally to early archaeological investigations in Central America. The zone is often only mentioned in passing in monographs discussing the prehistory of El Salvador, Honduras, or Nicaragua. This is in part due to the uneven developments in the history of research within those three countries, which were intimately tied to US interests in Central America. To a certain extent, this marginal position held by the Gulf of Fonseca in archaeological narratives can be traced back to the conquest and the scarcity of colonial records for this region. Even in the account of Andres Niño's first landing in the gulf in 1522, the zone takes on a very minor position in the narrative. Only a few later colonial accounts report on the Gulf of Fonseca, Fray Alonso Ponce's *Relación Breve y*

*Verdadera* (1873) being the best known. The relative absence of the zone in historical records is in part due to the stark decline of indigenous populations in the 30 years following conquest, resulting from the slave trade, war, and illnesses. In the following century, the Gulf of Fonseca also became infamous due to the frequency of corsair attacks, which resulted in the displacement of the surviving coastal and island indigenous communities to the mainland. Lastly, this historical void can be tied to conflicts of governance around the gulf from colonial times to the early 2000s. In the last 40 years, however, the archaeology of the region has seen regular developments due to the creation of national heritage institutions (Fundar, Concultura, Dirección de Patrimonio Cultural y Natural, Instituto Hondureño de Antropología e Historia, Instituto Nicaraguense de Cultura), as well as the strengthening of museums and the development archaeology programs at national universities.

The earliest archaeological investigation into the Gulf of Fonseca dates to the late nineteenth century with descriptions of the petroglyphs of Tanque Cañón on the Cosigüina peninsula in Nicaragua. At the same time, the first general descriptions were appearing for El Salvador and Honduras, showing a peripheral awareness of the prehistory of these regions. In the scholarship of the first half of the twentieth century – a time where archaeological work in Central America seems to gain in popularity – mentions of the Gulf of Fonseca remain scarce, except for a short volume focusing on El Tigre (Rivas 1934). Half a century after the first description of the site at Tanque Cañón, a few more archaeological sites finally appear in the literature. However, these lists of sites were rarely accompanied by descriptions or contexts. In the twentieth century, anthropological works – such as Lunardi's, Lehmann's, and Lardé y Larín's – also expanded the record of archaeological sites by documenting precolonial indigenous settlements in El Salvador and southern Honduras.

Doris Stone's *Archaeology of Central and Southern Honduras* (1957) was the first volume to focus on the archaeology of the region around the Gulf of Fonseca. Showing the region's



**Gulf of Fonseca, Archaeology of, Fig. 1** Satellite image of the Gulf of Fonseca, showing the diverse environments lining its bays (by the National Oceanic and Atmospheric Administration, image in public domain)

potential for archaeological investigations, all edited volumes on the archaeology of Central America have since then dedicated a small section to the Gulf of Fonseca. In the 1960s, building on Stone's research, Claude Baudez undertakes an archaeological reconnaissance of Southern Honduras (Fig. 3). From this investigation arises the region's first chronology that remains in use today (Baudez 1966). Only partially published, this study constitutes some of the last published material on the Honduran side of the Gulf of Fonseca (Baudez 1965, 1966, 1973, 1976). It is only followed up in the 1980s by some targeted testing in two sites around the gulf, the results of which were never released to the public. In the 1980s, only three more small-scale investigations take place around the Gulf of Fonseca: one in El Salvador, focusing on Asanyamba, and two around Chinandega in Nicaragua.

Since the 2000s, the number of archaeological investigations in the Gulf of Fonseca has steadily increased, often resulting from rescue archaeology. The bulk of the archaeological data for the Gulf of Fonseca has remained unpublished and can be found in official reports, theses, and dissertations (see Further Readings). In the last 20 years, a few larger projects have heavily contributed to our understanding of the Gulf of Fonseca. In Nicaragua, the Proyecto Arqueológico Chinandega, active since 2009, has recorded 34 sites. The testing of some of these sites has provided the region with the first archaeological sequences since Baudez's 1964 study (see Sirias Perez et al. 2018). In El Salvador, several volumes presenting results from rescue excavations from the early 2000s have focused on the archaeology of the Gulf of Fonseca (eg. Amador Berdugo 2009; Escamilla & Shibata 2006; Ito 2011; Valdivieso 2006). These volumes



**Gulf of Fonseca, Archaeology of, Fig. 2** Aerial photograph of the mangrove swamps bordering the oriental part of Gulf of Fonseca, 1966. (Photograph by Guy Stresser-Péan, in private collection of Claude Baudez)

have particularly highlighted the precolonial sites of Punta Chiquirín and Asanyamba in the Bay of la Unión, as well as the colonial sites of Conchagua Vieja, Santa Ana de la Teca, and Puerto Viejo. In Honduras, an ongoing investigation of the northern part of the Choluteca department by the Universidad Nacional Autónoma de Honduras has started producing new data for this little investigated region.

Due to the sparsity of archaeological research in the zone of the Gulf of Fonseca, the questions driving the investigations have remained relatively unchanged over the last century. Studies have steadily focused on chronology and sequence building, on exploring the role of the gulf on the so-called “Southwestern Maya frontier,” as well as on understanding the exchange of ideas and products between eastern El Salvador, Central Honduras, and Greater Nicoya.

### Archaeological Background

In the zone of the Gulf of Fonseca as delimited above, roughly 30 sites are known in the Salvadoran part, another 33 in Honduras, and about 30 more in the northern part of Chinandega (Fig. 4). However, less than a third of these sites have chronological associations, and thus far only one absolute date is known.

Coastal contexts throughout Central and south America provide some of the earliest dates for human occupation. The Gulf of Fonseca therefore holds potential for such deep levels. As Paleo-Indian sites are difficult to identify from surface features, they are often not recognized in the archaeological record. Some early occupations around the gulf may also be found under water, due to the rise of sea levels. To date, only one potential Paleo-Indian occupation has been identified in Chinandega (Sirias Perez et al. 2018).

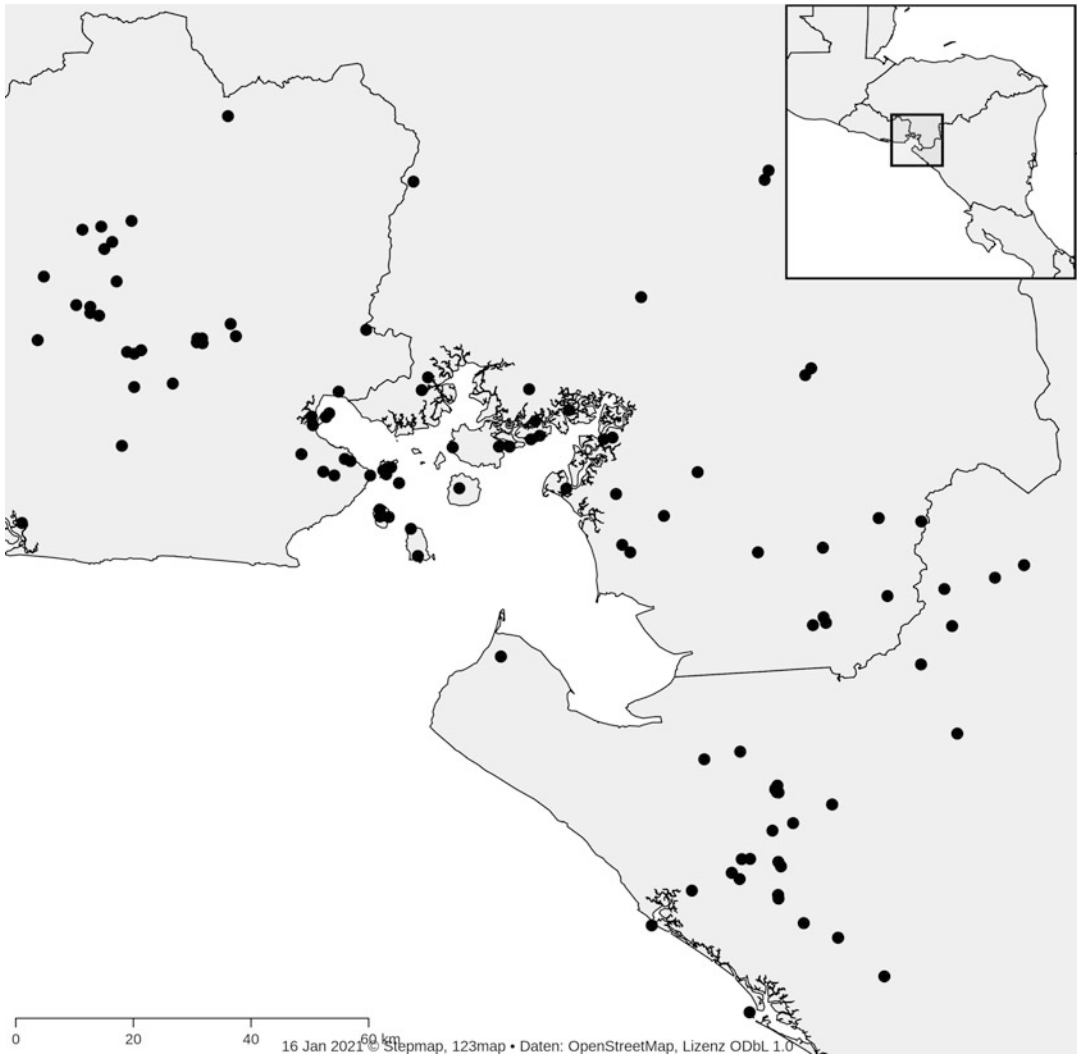
The first more widespread occupations date to the preclassic. Sites from this period primarily date to the late preclassic (300 BCE – 250 CE)



**Gulf of Fonseca, Archaeology of, Fig. 3** Excavations at two sites in Southern Honduras, 1965. (Photograph by Claude Baudez, in private collection)

with a few sites exhibiting possible early to middle preclassic components. These early settlements are primarily known from Chinandega. Two additional sites on Isla Periquito in El

Salvador have been reported as candidates for early preclassic occupations (Erquicia 2006; Costa 2020). The excavated late preclassic contexts in Chinandega are associated with ceramic



**Gulf of Fonseca, Archaeology of, Fig. 4** Map indicating the location of known archaeological sites around the Gulf of Fonseca. (Map by author)

from the Cosigüina Providencia complex, which exhibit similarities to the ceramic spheres of western Salvador and Guatemala (Sirias Perez et al. 2018). This evidence contrasts with the evidence from sites with terminal preclassic components which show greater ties to the Uapala sphere (which encompasses eastern El Salvador, Copán, and the Honduran valleys of Ulúa and Comayagua) through the presence of the hallmark Usulután pottery style. In Chinandega, late pre-classic contexts continue into the early classic to

the early postclassic around 1250 CE (Sirias Perez et al. 2018).

Most sites known from the Gulf of Fonseca date to the classic and early postclassic between 250 and 1000 CE. For this period in Southern Honduras, Baudez's ceramic sequence and its different phases continue to be in use (Fig. 5). About eight sites are associated with early classic occupations. In Honduras, these sites are organized concentrically around central "plazas" (Baudez 1966). Early classic ceramic assemblages seem to reflect local traditions conforming with broader

Dates	Mesoamerican Chronology	Choluteca Sequence	Comayagua Sequence	Greater Nicoyan Chronology
1500	Late postclassic	Malalaca		Ometepe
1400				
1300				
1200	Early postclassic	Amapala	Las Vegas	Sapoá
1100				
1000				
900	Late classic	Fonseca	Tenampua	
800				
700				
600	Early classic	San Lorenzo	Comayagua	Bagaces
500				
400				
300	Late preclassic	Chismuyo	Maradiaga	
200				
100				
1			Miravalle	Tempisque
100				
200				
300	Middle preclassic		Chilcal	
400				
500				
600	Early preclassic			
700				
800				
1000				Orosí
1100				
1200				
1300				
1400				
1500				
1600				
1700				
1800				
1900				
2000				

**Gulf of Fonseca, Archaeology of, Fig. 5** Chronological table comparing the sequences of the Gulf of Fonseca and the Comayagua Valley with the chronologies from

Mesoamerica and the Greater Nicoya. (Table by author, based on Baudéz 1970)

regional trends of monochromy, bichromy, and plastic decorations. Some sites in the piedmont

of northern Chinandega and southern Honduras appear to exhibit common traits with the sites of

El Cajón in Honduras and Segovias in northern Nicaragua (Sirias Perez et al. 2018). The presence of pottery types such as Delirio in the later phases may indicate an intensifying involvement of the communities of the gulf with interzonal networks between Quelepa and the Comayagua Valley.

Most known early classic sites exhibit a continuous occupation into the late classic. No major changes to settlement organization are noted between the early and the late classic, although parallel elongated platforms seem to become more frequent features. A slight change in settlement patterns can be observed in the late classic where waterways and coasts seem to become prime settlement locations. This favoring of riverine and coastal environments could have resulted from the intensification of maritime and riverine trade routes. Indeed, the late classic marks the beginning of a deeper involvement of the Gulf of Fonseca with interzonal networks (see Key Issues). The greater involvement in trade postulated for this period also results in a higher frequency of greenstone objects and higher concentrations of obsidian. In the department of Chinandega, the provenance of the obsidian is primarily the source of Güinope, with smaller quantities of obsidian coming from the Ixtepeque and La Esperanza sources (Sirias Perez et al. 2018). Lastly, the late classic and early postclassic can also be tied to the first evidence of salt exploitation.

In the late classic, it is possible to distinguish between several building styles: habitational stone mounds, stone mounds associated with shell middens, habitational mixed shell and stone mounds, and habitational or burial shell mounds. The use of shell in mound building is especially documented for the coastal and island sites of El Salvador, where they are sometimes associated with briquetage. Rarely mounded but associated with shell middens, seasonal camps constitute an additional site category for the late classic and early postclassic. With the exception of seasonal camps, the surface area of sites increases drastically. Lastly, some rock art sites – both petroglyphs and cave paintings – have been documented in the region, with recurring motifs throughout the Eastern El Salvador and Southern

Honduras. While some are believed to date to the terminal classic, these rock art sites remain difficult to date due to the lack of associated archaeological layers.

In Chinandega, late classic and early postclassic layers are associated with the Tecomatepe ceramic complex. Like other late classic assemblages in southern Honduras and eastern El Salvador, Chinandega assemblages include some Ulúa and Las Vegas polychromes and small amounts of the trade ware San Juan Plumbate. The presence of these ceramic types suggests a greater involvement with the centers in the valleys of central Honduras. In other sites emerging in the terminal classic, assemblages seem to show a greater presence of types from Greater Nicoya such as Vallejo polychrome and Papagayo. However, these assemblages are all still dominated by local types. In early postclassic sites, anthropomorphic ground stone statuettes become a frequent find. The occupation of the majority of these sites continues until about 1000 CE.

Except for one site in Honduras, there are no documented sites dating to the middle and late postclassic. This phenomenon may be due to a documentation bias, as it is likely that the settlements reported in the colonial period already existed in the late postclassic. Ponce (1873) mentions a few of these sites in coastal El Salvador, as well as on the banks of the Goascorán and of the Choluteca rivers. Ponce also mentions a fairly low density of settlements around the Gulf of Fonseca. This observation may reflect a population decline in the middle postclassic, as evidenced by the absence of documented sites for this period.

Many of the larger towns in southern Honduras and eastern El Salvador are likely built on or in the vicinity of indigenous settlements that existed prior to conquest. While many colonial sites are known – mostly old town centers – only a few have been subject to archaeological investigation: Puerto Viejo, built on the precolonial port of Amapala on the Salvadoran coast (Erquicia 2006); Las Bases, a colonial town built in 1535 north of Choluteca (Baudez 1965); an indigenous settlement around the town of San Lorenzo; and Conchagua Vieja and Teca (Gomez 2010),

colonial settlements associated with an old church and early colonial buildings.

## Key Issues/Current Debates

### Interzonal Connections

A key issue that has characterized the archaeology of the Gulf of Fonseca since its beginnings are the relationships between the Mesoamerican-like traditions of the western parts of El Salvador and Honduras with the Greater Nicoyan traditions. Like in the rest of Southern Central America, research questions pertaining to these relationships have long dominated the archaeological narrative at the expense of investigations relating to the understanding of local cultures. The zone of the Gulf of Fonseca has been marked heavily by world-systems theory and culture areal containers. Indeed, depending on the definitions of the Mesoamerican and Greater Nicoya culture areas, the gulf has often found itself in a position of frontier or periphery in the debates without having been investigated in its own right. In the first half of the twentieth century, this phenomenon mostly manifested with the tendency to look for the “Mesoamerican” or “Mayoid” features in site organization and assemblages. However, the ways these relationships are being addressed have greatly evolved in the last century. While it is still common to see assemblages compared to the better-known sequences of the Maya highlands, there is a growing understanding of the importance of local agency in the development of traditions along and beyond cultural borders.

The conceptions of borders and periphery, tied to the culture areal containers, have evolved towards a more integrated approach of the Gulf of Fonseca. The latter represents a nexus for exchange and communication between coastal and inland communities in El Salvador, Honduras, and Nicaragua; and between communities throughout the Pacific coast of Central America. There is now a growing set of evidence supporting this key position of the gulf in precolonial Central America. This is also suggested by the routes taken by conquistadores in the sixteenth century, which indicate a familiarity by the indigenous

informants with the routes around the Gulf of Fonseca possibly due to the precolonial reliance on the associated riverine system for trade (Fowler 2021). Far from just being a point of passage on those trade routes, recent data shows that the communities of the Gulf of Fonseca were active participants in the diffusion of ideas and trends to the shores of the Lake Cociboloca, the Comayagua Valley, and even centers in El Salvador such as Quelepa. This key position likely emerged from the gulf’s hydrological connection with densely settled valleys in most of Honduras and El Salvador, as well as its fluvial connection to the Nicaraguan lakes. More connection to the highlands of western Honduras, the Segovias mountains, and the Mosquito Coast are suggested by shared iconography for petroglyphs and elaborate *metates*, as well as shared ceramic styles, but remain to be further investigated.

The significance of the Gulf of Fonseca shifted diachronically with the development and decline of other centers. Trade routes through the gulf likely already existed in the late preclassic and in the early classic. A stark increase in connectivity between communities in the late classic seems to give the gulf its key position on the Pacific. In that period, evidence shows that its communities start to actively part-take in the exchange. In the middle and late postclassic, the scarcity of sites around the Gulf of Fonseca seems to also correspond to a decrease in settlement density in all of eastern El Salvador and the valleys of Honduras. This shift is often interpreted as being associated with the so-called “collapse” of Maya centers in the early postclassic and with the strengthening of the influence of Greater Nicoya, where sites exhibit a continuity from the late classic into the postclassic.

### Environment

While the Gulf of Fonseca only became a way-point in exchange routes in the late classic, the environmental diversity would have made this zone attractive to dwellers from early on. With its rich waters and estuaries as well as with its potential for mobility, the gulf was likely a key area in the precolonial exploitation of maritime resources. It follows that the question of human

adaptation features prominently in the archaeological narrative of the Gulf of Fonseca.

It has been hypothesized that island and coastal settlements traded maritime products with inland settlements for agricultural products. One of the first colonial accounts of the Gulf of Fonseca features canoes mooring in the Gulf of Fonseca, mainly carrying agricultural products, animals, and cotton cloth. This mutual reliance based on different environmental affordances likely arose early in the settlement history of the gulf. The exchange routes which developed from this mutual reliance may have then served as starting points for the interzonal trade that emerged in later times.

The impact of the environmental diversity around the gulf is also reflected in the use of shell in mound building practices in coastal and island sites. Numerous studies highlight this use of shell, some suggesting the feature to be a cultural marker (eg. Ito 2011). While at some sites, shells appear to have just been discarded in middens, other sites feature shell mounds as habitational platforms and as burial mounds. This difference in mound building with inland sites is also echoed in the difference in settlement organization.

The availability of maritime products varied with the seasons. Especially the sites located in the estuaries and the mangrove forests would have been affected by tides and changes in salinity of the waters. Due to their visibility, these sites are underrepresented in the archaeological record. However, they have the potential to yield important information about coastal adaptations. Addressed in Baudez's early investigations of the gulf (1973), seasonality of site occupations likely played a defining role in the social landscape of the Gulf of Fonseca. These "seasonal camps" seem to be tied to two main activities: seasonal fisheries and exploitation of salt. Considered luxury goods, salt and molluscs would have contributed to the position of the Gulf of Fonseca in precolonial trade. The targeted seasonal exploitation of these resources in seasonal camps underscores the role of seasonal mobility in coastal adaptations.

The significance of the environment did not only reside in its exploitation but also bore some cultural and social dimensions. The cultural significance of certain features, such as waterways and volcanoes, is highlighted by the abundant presence of petroglyphs and rock art in their direct vicinity. The potential symbolic value of mangrove swamps and islands in ritual practices is also suggested in the presence of small stone statuary in these environments (Cruz Castillo 2007).

Lastly, the volcanic environment came with its own affordances, as historical sources report ash-fall events obscuring the whole gulf and severely impacting navigability for days at a time. The impact of volcanism and tectonic activity on human adaptation in the gulf still remains unstudied.

### **Cultural and Linguistic Diversity**

An aspect that characterizes the debates around the Gulf of Fonseca is the documented cultural diversity at conquest. This point also ties in questions of mobility, as this diversity resulted from newcomers arriving to the Gulf of Fonseca at different points in time. While the timeframe of this increasing cultural diversity is still under debate, it has featured prominently in most of the research on the gulf.

Despite this research focus, the topic remains generally poorly understood. Lenca, Matagalpa (Cacaopera and Ulua), Maribio (Subtiaba), Mangue (Choluteca), and Nahua (Nicarao) speaking settlements were recorded in and around the Gulf of Fonseca in the centuries following conquest. With the archaeological record of the Gulf of Fonseca exhibiting high levels of diversity, archaeological investigations have often tried to identify linguistic groups in settlements and material culture. However, as Doris Stone already notes in 1957, there are numerous problems with attempting to correlate the historical record with archaeological facts.

The Gulf of Fonseca's cultural diversity is best observed in the historical records of bilingual settlements. Colonial documents indicate that several languages were spoken in the settlements of Tziramá (Ulúa and Lenca), Goascorán (Nahua

and Lenca), Nacaome (Lenca and Mangue), and Aramecina (Lenca and Nahua). This potential plurilingualism of precolonial settlements has yet to be addressed in the archaeological narrative. By contrast, the idea of foreign “enclaves” has dominated archaeological discourses. Indeed, the gulf has been considered as being mainly Ulua territory in earlier times and, in later times, primarily Lenca- (on the Salvadoran side) and Choluteca- (on the Honduran and Nicaraguan side) territory. Despite scarce archaeological evidence, the Cacaopera, Maribio, and Nicarao have often been thought to only occupy “enclaves” within those larger territories. This interpretation may have originally emerged from the culture area concept, which has not been conducive to the identification of cultural diversity in the past. Approaches derived from practice theory, which have started to gain traction in other parts of Central American archaeology, yield great potential for examining how cultural diversity was socially negotiated in the precolonial Gulf of Fonseca.

### **International Perspectives**

A problem that has impacted the creation of a regional narrative centered on the Gulf of Fonseca is the instrumentalization of archaeology in national discourses. Since the first investigations in the nineteenth century, archaeology has played a central role in the formation of national identity in Central American countries. Today, the archaeological discoveries in the Gulf of Fonseca continue to serve nation-building narratives in El Salvador, Honduras, and Nicaragua. The resulting absence of regional narrative would need to be confronted by trinational collaboration in archaeological investigations.

Another issue emerges from these national archaeological narratives: the invisibility of local archaeology. While some efforts are now made to integrate local and indigenous archaeologies in the curriculums, monumental Maya sites have long held an exclusive position in the definition of the precolonial past of Central America. The archaeological focus on monumental sites also

translates into lack of funding for the excavation of sites around the Gulf of Fonseca, which are not considered as having potential for tourism development. Investigations in the Gulf of Fonseca then only occur in rescue projects, preventive archaeology, or in the setting of externally funded academic projects. The invisibility of local archaeology then also results from the format of archaeological investigations around the gulf, which often only result in unpublished reports.

Historically, the governance dispute around the waters and the islands of the Gulf of Fonseca has affected the possibility to conduct archaeological work on the islands (Lange 2010). While formal conflicts between the three countries have ceased, the political and social instabilities continue to hinder archaeological work. The violence linked to the presence of gangs, cartels, and armed looters pose a threat to archaeology in many different areas of El Salvador and Honduras. These safety issues continue to discourage the development of new archaeological projects, especially around national borders.

Lastly, climate change and anthropogenic modifications to the coastal environment are affecting site preservation. Mangrove swamps and their ecosystems are particularly impacted, and sites located in mangrove forests are being flooded at an alarming rate. The increase of water levels is also modifying island topographies, eroding away potential coastal sites. Aquaculture, one of the main industries around the Gulf of Fonseca, is further responsible for the destruction of numerous coastal sites, while mounds are being levelled by agricultural machinery on inland sites. Recording those sites should therefore be a priority.

### **Future Directions**

Over the last 20 years, the archaeology of the Gulf of Fonseca has considerably developed. However, key parts are still missing from the archaeological record. This gap primarily needs to be addressed by more systematic fieldwork and better international collaboration. For a collaborative archaeology of the Gulf of Fonseca, it is first essential to improve documentation and accessibility

collected assemblages to allow for the use of common typologies and sequences, as well as future reanalysis. Promising new insights into the practices of the precolonial inhabitants of the Gulf of Fonseca could be obtained from chemical and technological analyses, sourcing, and use-wear.

Furthermore, there is still no common established chronology between the three countries of investigations, and chronology-building continues to rely primarily on relative dating through the comparison with other known sequences from western El Salvador and Guatemala. Absolute dates, which are still exceedingly rare, are needed for a unification of the archaeological record and would be a first step towards creating a regional narrative. In this volcanic region, tephrochronology could present new opportunities to build site chronologies. This need for more rigorous dating is combined with the necessity for more investigations into continuous site occupations. As of now, there is still a gaping hole in the regional sequence. Nothing is yet known of the original settling of the gulf, and the Paleo-Indian or preceramic occupation of the region remains an important issue for future research. Absolute dates would further allow for a closer study of the prehistoric relationship between the cultures of pacific Central America and their ties with the inland and highland regions.

While most works on the Gulf of Fonseca have recognized the role of coastal adaptations in the settling of the area, human-environment interaction remains a very scarcely represented topic in the literature. To this end, landscape archaeology, the study of volcanism, of foodways, and of paleoenvironments could offer promising angles of research. Avenues of investigations into human-environment interactions include the exploration of archaeologies in different environmental zones, as well as past engagements with the hydrology of the Gulf of Fonseca and the fluvial system connected to it. While many studies highlight the potential of the gulf as a nexus in the precolonial exchange systems, there are no studies that directly address mobility in and around the gulf. Islands sites would then also need to be approached from this perspective.

## Cross-References

- ▶ [American Pioneers and Traditions](#)
- ▶ [Central America: Historical Archaeology of Early Colonial Urbanism](#)
- ▶ [Historical Ecology in Archaeology](#)
- ▶ [Landscape Archaeology](#)
- ▶ [Mesoamerica in the Preclassic Period: Early, Middle, Late Formative](#)
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- ▶ [Provenance Studies in Archaeology](#)
- ▶ [Technological Studies in Archaeological Science](#)
- ▶ [Volcanic Activity](#)

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