

XII COLOQUIO
INTERNACIONAL
DE ARQUEOLOGÍA

MÁS ALLÁ DE LA EXCAVACIÓN Y EL "HALLAZGO":

LA INVESTIGACIÓN EN EL GABINETE Y
EL ESTUDIO DE COLECCIONES

LA INVESTIGACIÓN MÁS
ALLÁ DE LA EXCAVACIÓN

18 DE
AGOSTO



XII

COLOQUIO
INTERNACIONAL
DE ARQUEOLOGÍA

Cuatro Casos de Estudio sobre elementos marinos hallados en contextos arqueológicos de Huanchaco

Gabriel Prieto

Las Fundaciones Maritimas de las
Sociedades Andinas (Moseley, 1975)
Foto: Complejo Las Aldas, valle de Casma
Costa Norte del Peru







Chicama
Valley

Cerro Campana

Cerro Prieto

Cerro Cabras

Moche Valley

Cerro La Virgen
AD 1200-1450?

El Pollo
AD 1100-1500

Iglesia Colonial
1100 – 400 B.C.

Trujillo

Medanos La Joyada
AD 1450 - 1600

Huanchaco coast

Huanchaco

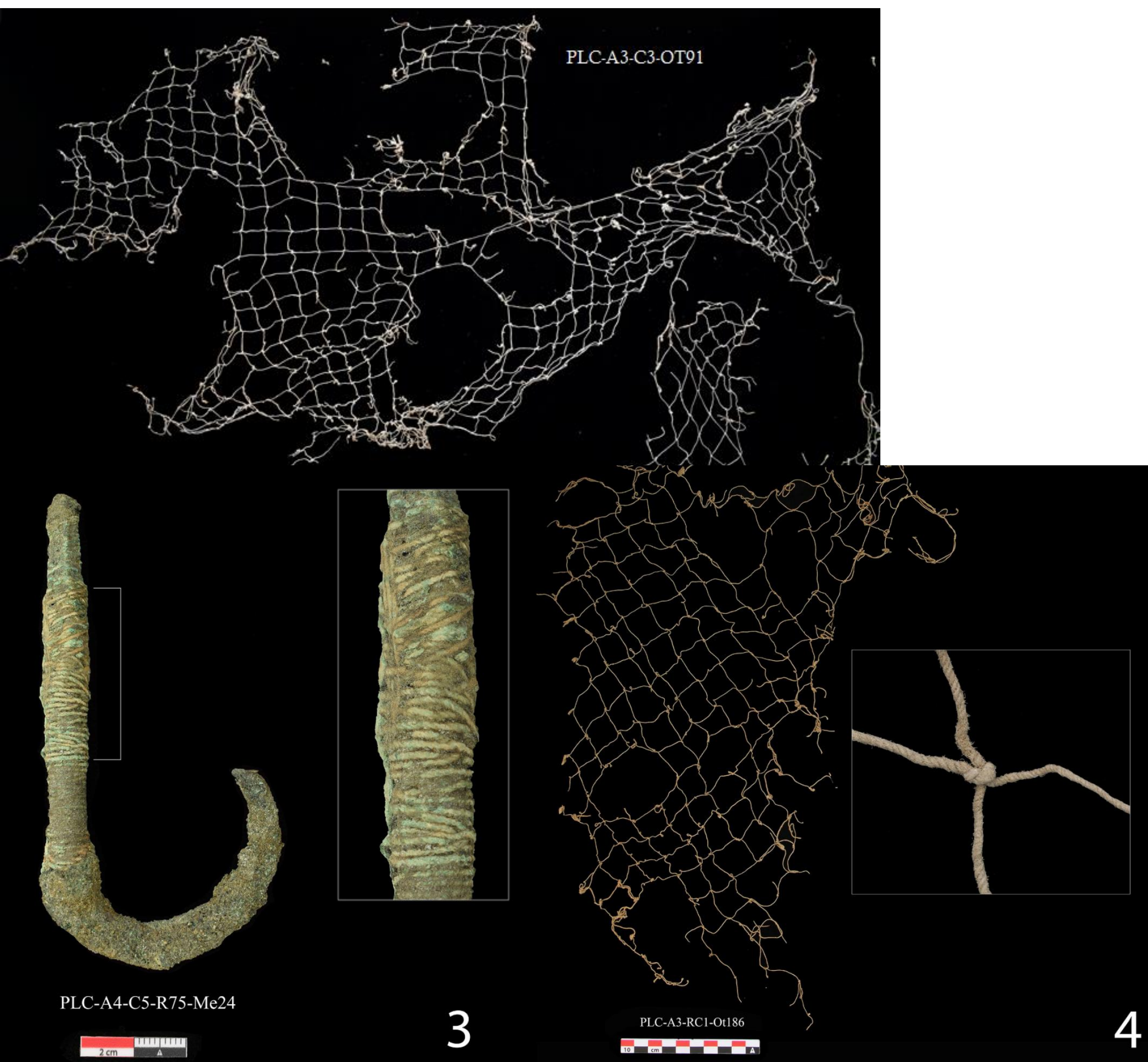
Pampa la Cruz
400 B.C. – AD 850

Gramalote
1500-1200 B.C.

Huanchaquito
Las Llamas
AD 1450

Chan Chan
AD 1050/1100 – 1525/1530 ?

CASO 1: LAS REDES DE PESCA HABLAN: DIMENSION ECOLOGICA



L. Grana and G. Prieto

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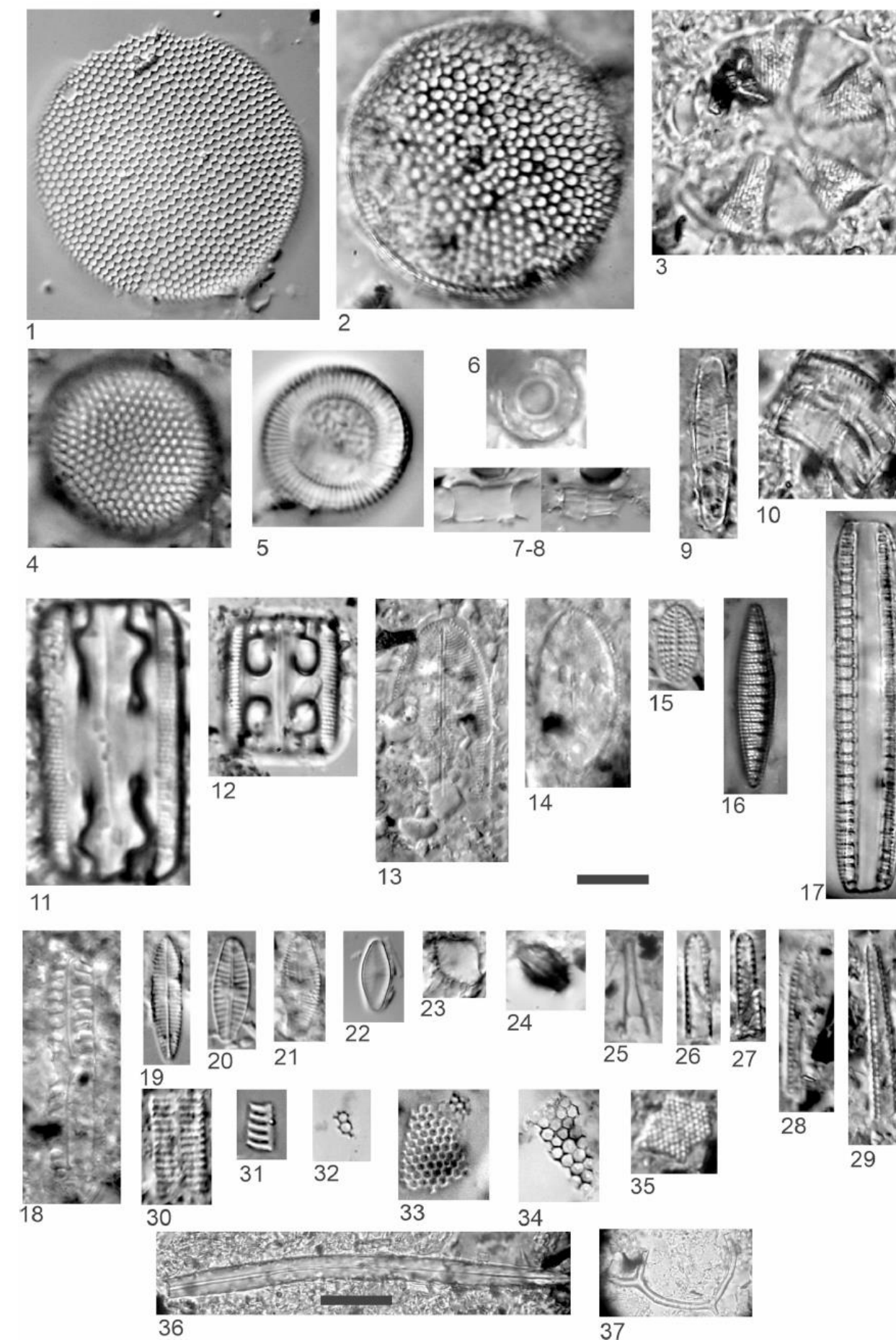


Fig. 4. Diatom and other microorganisms identified in the samples: 1. *Roperia* aff. *tessellata*; 2. *Coscinodiscus radiatus*; 3. *Actinopychus* sp1; 4. *Thalassiosira oestrupii*; 5. *Cyclotella littoralis*; 6. *Porosira* sp1 (?); 7–8. *Lithodesmium* sp1 (valve in different views); 9–10. *Rhoicosphenia genuflexa*, valve and girdle views; 11. *Grammatophora marina*; 12. *Grammatophora angulosa*; 13. *Cocconeis* sp 1; 14. *Cocconeis* sp 2; 15. *Delphineis minutissima* (?); 16. *Nitzschia amphibioides*; 17. *Denticula kuetzingii*; 18. *Pinnularia borealis*; 19. *Navicula salinicola*; 20. *Planothidium* aff. *frequentissimum*; 21. *Luticola* sp1; 22. *Achnanthes* sp1; 23–24. *Chaetoceros* resting spores; 25. *Rhizosolenia* (otaria); 26–27. *Thalassionemataceae* group 3; 28. *Thalassionemataceae* group 2; 29. 27. *Thalassionemataceae* group 1; 30. *Fragilariaceae*; 31. Indeterminate fragment of pennate diatom; 32–35. Indeterminate fragment of centric diatom; 36. Megascleres, sponge spicule; 37. *Dictyochophyceae*. Scale bar represents 10 μ m for all figures (1–36 & 37), except figure 36 the scale bar is 20 μ m.



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Marine diatom remains as bioindicators of the uses of pre-Hispanic fishing gear recovered in ritual contexts at Huanchaco, north coast of Peru

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ABSTRACT

The aim of this study is to test whether marine diatom remains recovered from archeological fishing implements (fishing nets and metal fishhooks) found at pre-Hispanic sites of the Huanchaco coastline, north coast of Peru, can be used as indicators to infer whether they were used, and if yes, how they were used by ancient fishermen before their burial ritual. The combined analysis and quantification of fragmented and complete diatom valves from the fishing implements and control samples, which can help to identify potential contaminations from soil deposits, can indicate if the fishermen used them in their daily subsistence activities. This study can help to infer which marine zones were exploited by these ancient fishermen. Marine diatom analysis results were combined with identified fish species consumed and later discarded in the site's middens. An interesting pattern emerges from the preliminary results of combining both datasets: while all fishing nets were intensively used, metal fishhooks seem to have been very occasionally sunk in the sea. Although these results could simply be the outcome of the type of materials tested and conservation issues, it prompted us to evaluate how fishing technology was used during the first part of the Early Intermediate Period (100–400/450 cal. A.D.) along the north coast of Peru and its impact on the daily subsistence activities of ancient pre-Hispanic fishing settlements.

1. Introduction

The aim of this paper is to assess diatom analysis as a useful proxy of whether pre-Hispanic fishing gear found in burials and votive offerings were used prior to final placement in ritual archeological contexts. To do so, it is important to understand the variety of ritual practices as well as the daily activities carried out by members of ancient fishing communities. The procurement of marine resources (fish, seabirds, marine mammals, mollusks, etc.) among pre-Hispanic fishers from the Peruvian North Coast included but were not limited to fishing expeditions offshore and near the coastline using reed boats, mainly fishing with nets, hooks, and lines. Fishermen also used nets placed from the shoreline into shallow waters and captured fish with baited fishhooks. Other activities included gathering mollusks, crustaceans, marine algae, and occasionally fish by hand during low tides along the shoreline. The latter was also performed by women and children (Flores de la Oliva, 2019; Prieto, 2009; Prieto, 2016).

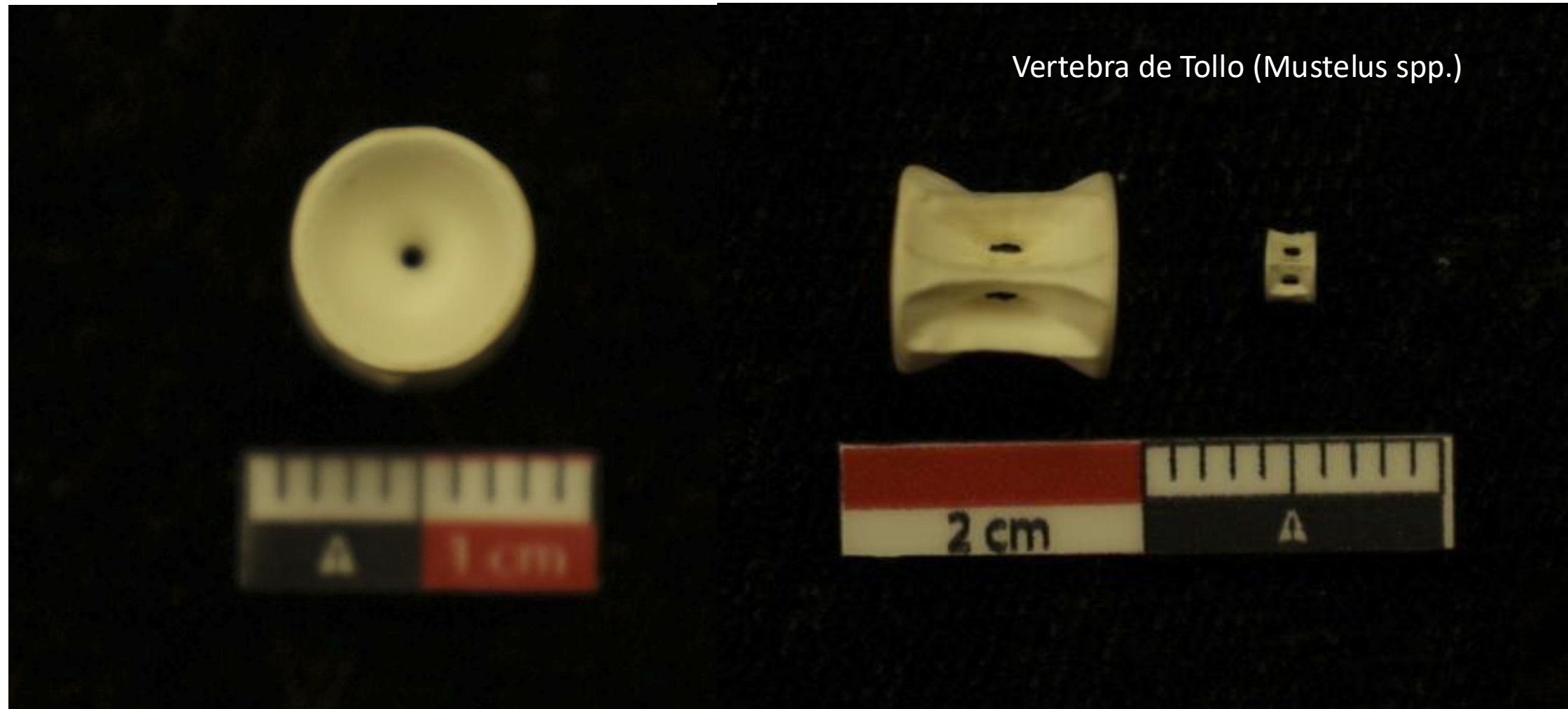
In terms of ritual behavior regarding ancient fishing implements, a variety of these tools have been found in association with the early Chinchorro mummies (7000–3500 BP) on the north coast of present-day

Chile as funerary offerings (Arriaza, 1995). At Huaca Prieta, a Late Preceramic (5000–2000/1800 cal. B.C.) settlement located north of Huanchaco, Junius Bird found a complete fishing net (including its gourd floats) ritually buried in one of the deposits of this site (Bird et al., 1985: 225, fig. 171). Later, Dillehay (2017) confirmed the ritual nature of the deposits in the construction of Huaca Prieta. At the Initial Period site of Gramalote (1500–1200/1100 cal. B.C.), fishing gear (fishing nets, stone sinkers, net gauges, and bone fishhooks) were carefully buried in different sectors of residential units and public spaces (Prieto, 2015). For the late Early Horizon (400–200 cal. B.C.) and the first part of the Early Intermediate Period (100–400/450 cal. A.D.), fishing communities in Huanchaco continued offering marine species and fishing implements in their domestic and community-based ceremonies. An interesting aspect is that in a few female burials of the late Early Horizon stone sinkers have been found, suggesting nets were included in their tombs, but unfortunately the organic part was not preserved (Prieto, 2017). Similarly, at the site of Pampa La Cruz during the late Early Horizon and the Early Intermediate Period, preserved fragments of cotton-made nets were buried in votive offerings in the NW sector of the site, perhaps a small area for community-based rituals. During the first part of the Early

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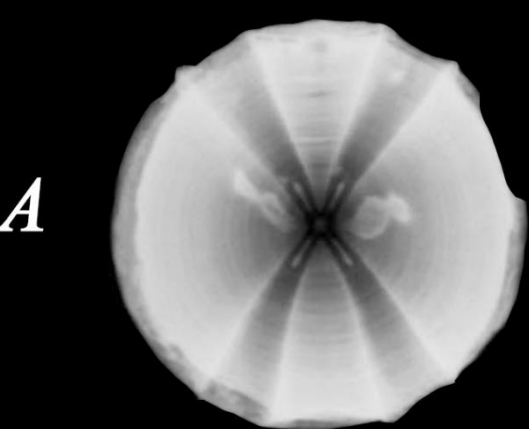


CASO 2: LOS TIBURONES DE GRAMALOTE: DIMENSION ECONOMICA

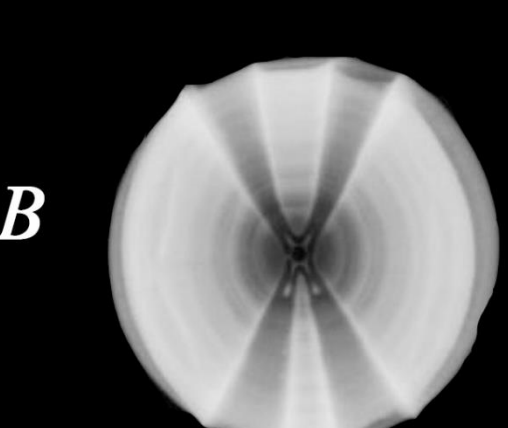


CARCHARHINIFORMES

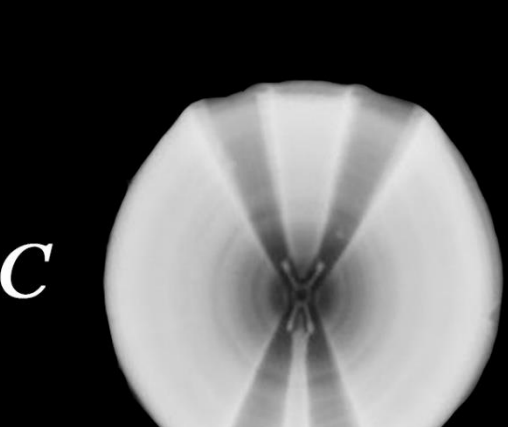
Carcharhinus leucas



Sphyrna zygaena



Sphyrna lewini

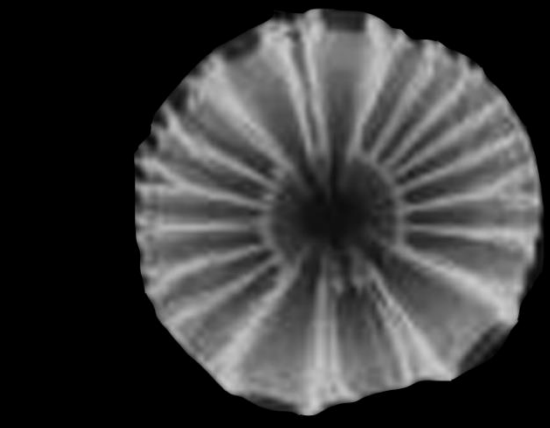


LAMNIFORMES

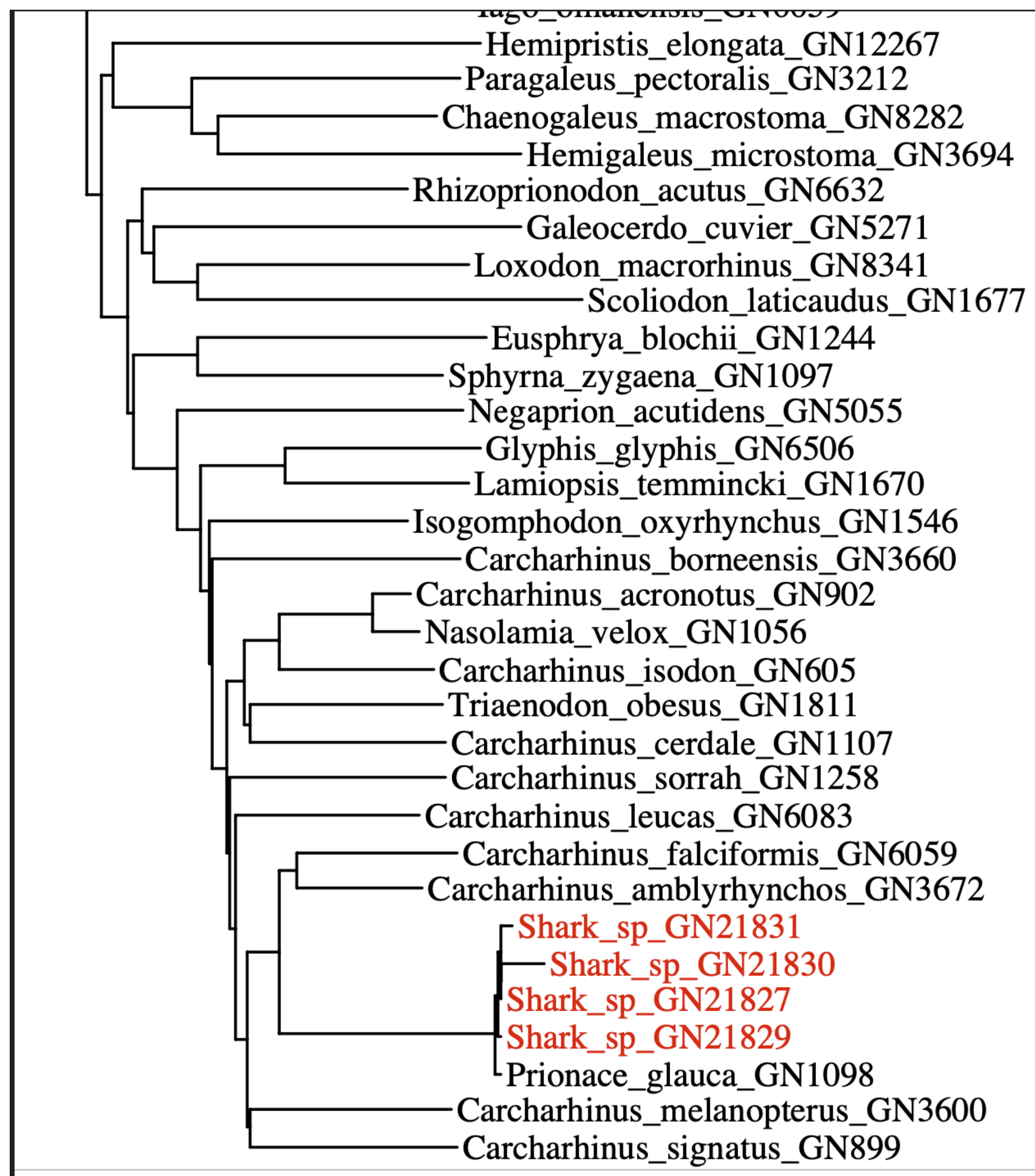
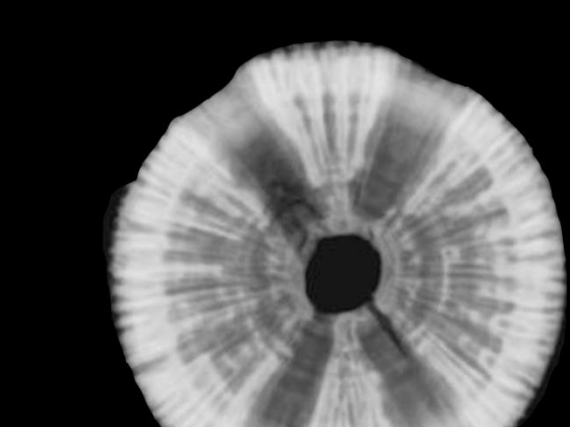
Isurus oxyrinchus

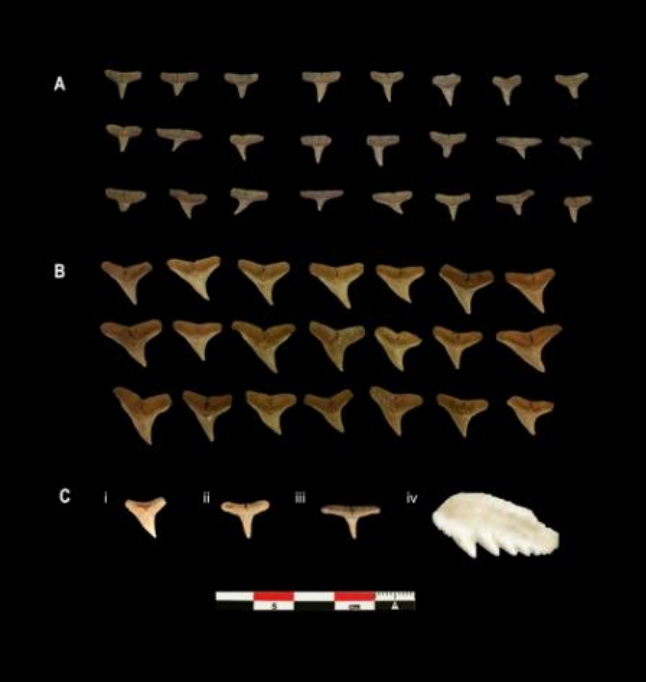


Alopias superciliosus

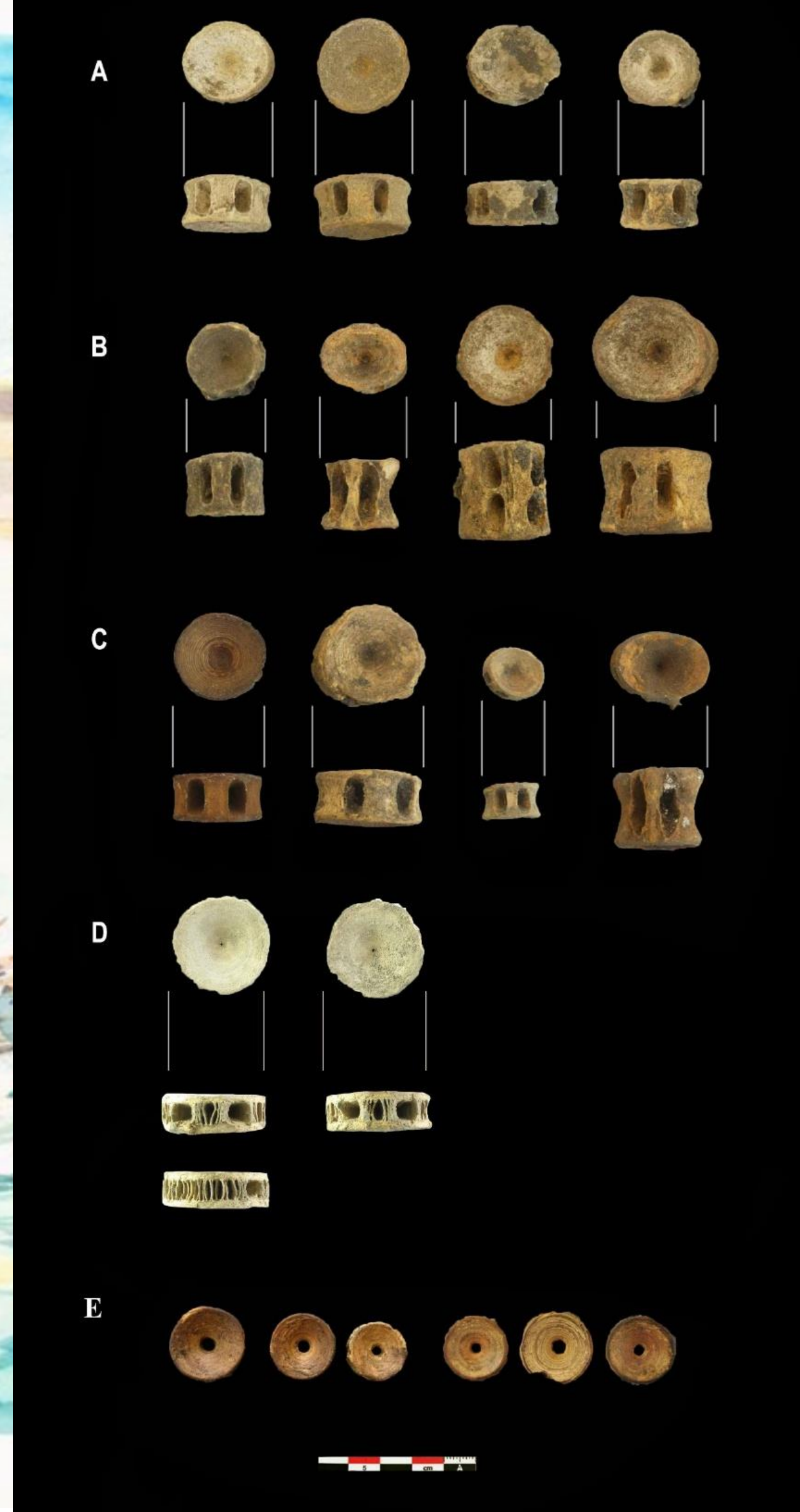


Carcharodon carcharias





Arte por Paul Perez Condor, 2011





Shark fisheries during the second millennium BC in Gramalote, north coast of Peru

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ABSTRACT

This paper stresses the importance of shark fisheries at the site of Gramalote, an early Initial Period (1500–1200/1100 cal BC) fishing settlement, which has yielded the largest amount of shark remains ever reported along the coast of Peru. The article discusses fishing techniques utilized to capture such dangerous fish with limited technology. Moreover, it highlights the economic importance of this abundant source of marine food for small-scale residential settlements along the north coast of Peru. Based on current evidence, sharks may have played an important role in the domestic and community-level rituals at Gramalote. Due to the abundance of shark remains, it is suggested that the surplus of its flesh was processed in storage facilities at family level and later was traded with residential settlements for products not available on the coast. Finally, this article suggests that, during the Late Preceramic and Initial Periods, a subsistence pattern may have emerged: while the Central Coast and the Norte Chico regions relied on anchovy as one of the most important fish species for subsistence and other needs, on the north coast of Peru sharks may have played a pivotal role for daily subsistence and economic transactions at the household level.

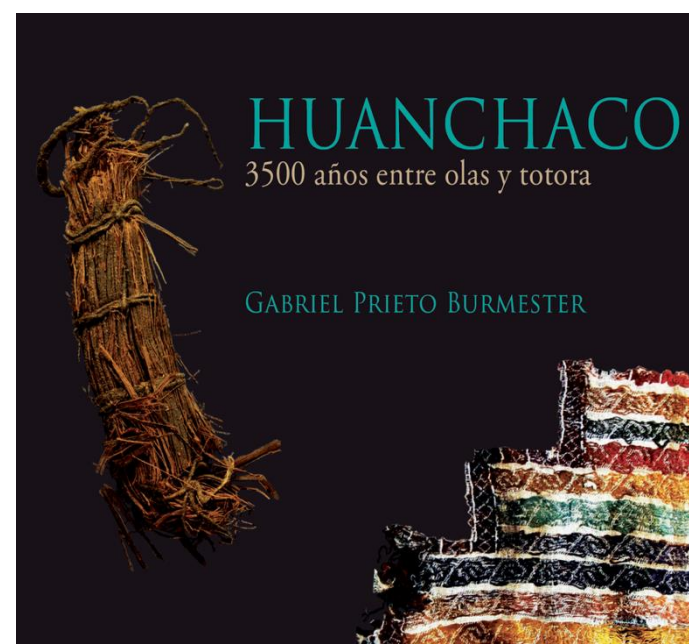
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KEYWORDS

Shark fisheries; Prehispanic maritime communities; shark consumption

Current reports estimate approximately 600 living species of sharks (Compagno 2001; Compagno, Dando, and Fowler 2005). Owing to their high yields of meat, abundant vitamin D, liver oil, skin by-products, and calcified vertebrae and teeth, sharks are a valuable economic resource (Dent and Clarke 2015). Shark fishing was an important economic activity in pre-Columbian times, feeding several maritime communities across the Americas; specifically, shark remains from Prehispanic sites have been reported along the Patagonian littoral, the Brazilian coastlines, the central and north coasts of Peru, the coasts of Ecuador, the east coast of Mesoamerica and the southeast, northeast, and northwest coasts of North America (Altamirano-Sierra and Vargas-Nalvarte 2016; Borhegyi 1961; Castro 2014; Gilson and Lessa 2019a, 2019b, 2021; Gonzalez 2005; Handley 1996; Hansel and Schmitz 2006; Kozuch and Fitzgerald 1989; Kozuch 1991, 1993; Lopes et al. 2016; Prieto 2015; Reitz and Masucci 2004; Rick et al. 2002; Shoji, Vasquez, and Rosales 2019; Vasquez et al. 2017). In the ideological realm, sharks have played an important role in ancient societies worldwide. Reports from different



HUANCHACO HACE 3500 AÑOS (1500-1200/1100 A. C.)



En Huanchaco, este periodo (1500-1200/1100 a. C.) está representado por el sitio de Gramalote —ubicado a 2.65 km al sur, en el actual centro poblado menor de Huanchaquito— y por al menos dos sitios arqueológicos de menor tamaño reportados en las faldas del cerro Campana, así como una mina de óxidos ferrosos (hematita) en la zona norte del mismo cerro, donde nuestros estudios han determinado su explotación desde esas épocas (figuras 5, 5a, 9 y 10). Gramalote está situado sobre una terraza marina elevada, a aproximadamente 13 m s. n. m. y a 300 m de la orilla marina actual. Si bien es cierto que el sitio debió tener poco más de 5 ha de extensión, en la actualidad su superficie conservada es menor (alrededor de 3.5 ha) como producto del avance urbano moderno.

Este periodo, visto desde Gramalote, podría sintetizarse como el momento histórico en que se funda el primer asentamiento permanente de tipo residencial en las costas de Huanchaco. Es posible que su ubicación se deba a una combinación de factores que priorizaron la cercanía a una buena zona de pesca y a la existencia de agua dulce para la subsistencia diaria.

La proximidad a humedales para la obtención de la totora (*Schoenoplectus californicus*), como los situados a inmediaciones del sur de Huanchaquito y toda el área baja localizada al este de la Vía de Evitamiento de Huanchaco (altura de Chan Chan), así como el cultivo de otras especies, también debió jugar a favor de esa ubicación (figura 11).

Gramalote tuvo una organización espacial relativamente compleja para su época. La mayoría de las viviendas se asentaron en la zona suroeste del sitio. En este «sector doméstico», las viviendas estuvieron organizadas alrededor de una suerte de plaza pública abierta hacia el mar. Al interior de esta hemos hallado plataformas bajas, fogones y áreas para el procesamiento y limpieza de recursos marinos como peces y moluscos. También hemos registrado que en esta zona estuvieron tallando huesos de aves, algunos con diseños iconográficos complejos, para diferentes usos (cuentas para collares, tubos para inhalar sustancias alucinógenas, etc.) (figuras 12 y 13). Otro hallazgo particular han sido algunas vértebras de ballena talladas para servir como asientos.

CASO 3: TECNOLOGIA DE MANUFACTURA DE ANZUELOS DE METAL: DIMENSION SOCIAL



UNIVERSIDAD NACIONAL DE TRUJILLO

FACULTAD DE CIENCIAS SOCIALES

ESCUELA PROFESIONAL DE ARQUEOLOGÍA



TESIS

**Estudio de tecnología de pesca en la comunidad marina de Pampa la
Cruz durante el Intermedio Temprano - valle de Moche.**

PARA OPTAR EL TÍTULO PROFESIONAL DE
LICENCIADO EN ARQUEOLOGÍA

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TRUJILLO – PERÚ
2019

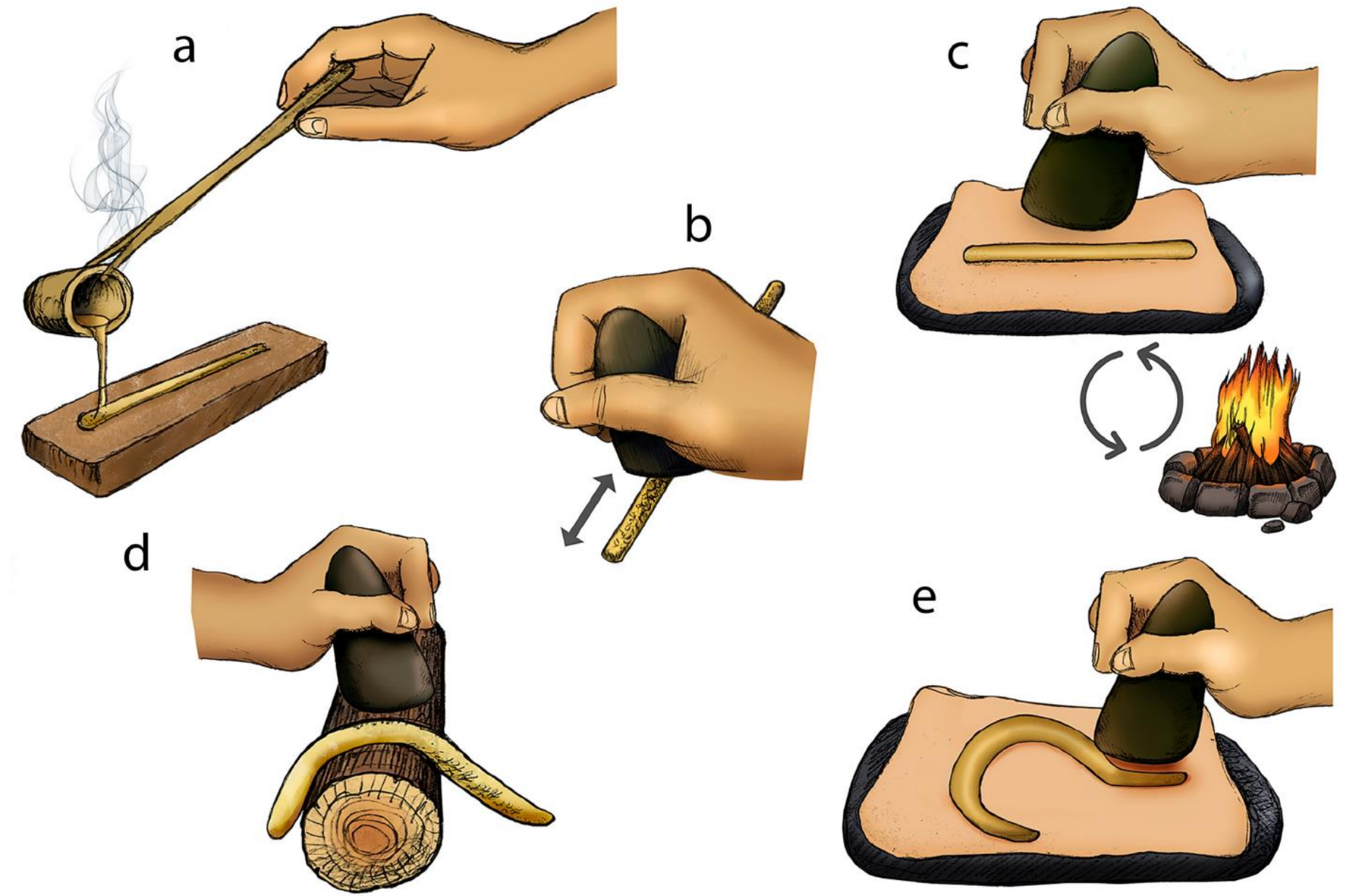
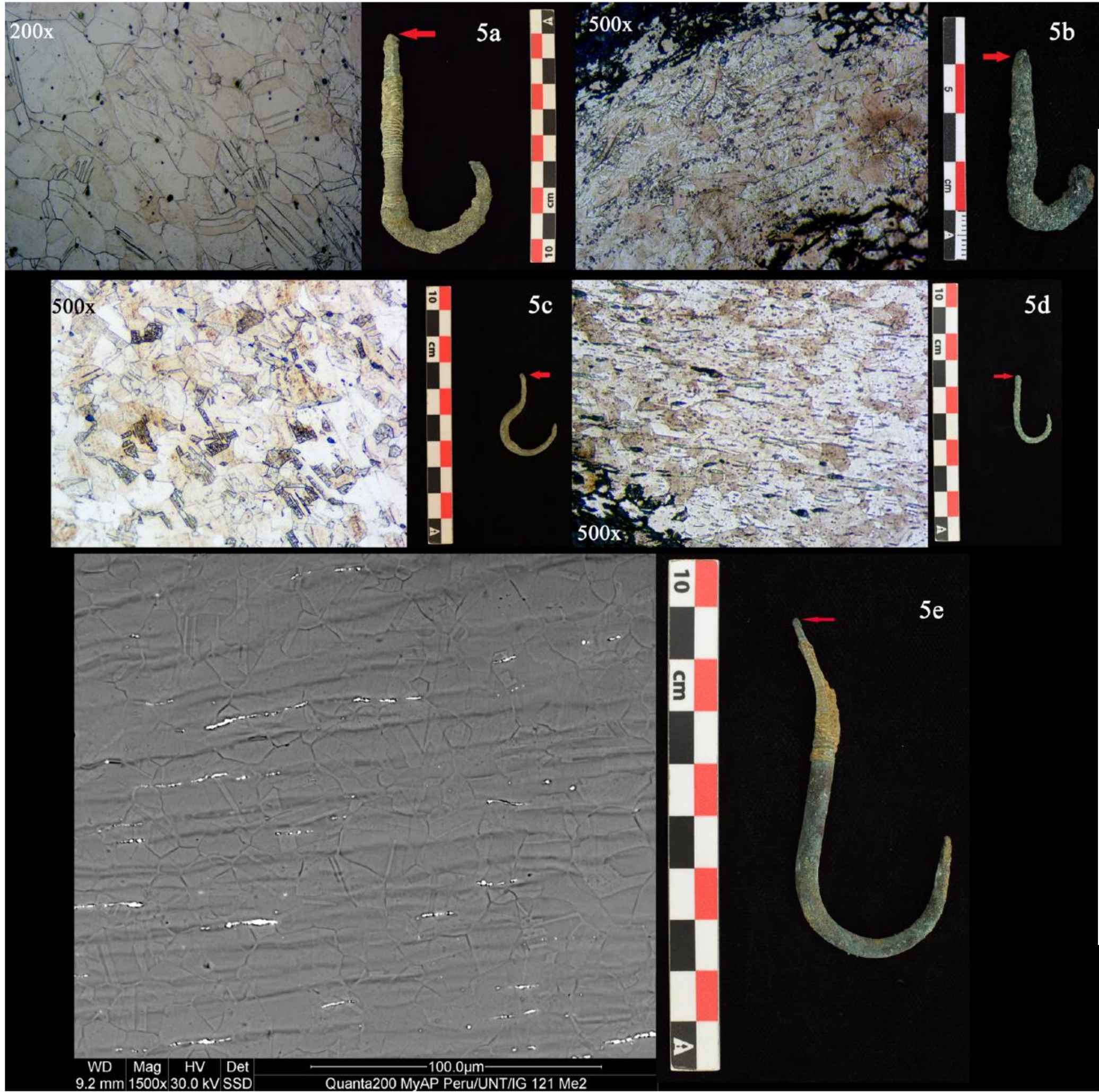


FIGURE 6 | Recreation based on archaeometallurgical analyses of the hook manufacturing process. (a) Clay mould casting: Molten metal is poured from a crucible into a mould with a predetermined rod design. (b) After solidification, the rod is polished to remove surface impurities and mould slag. (c) Constant hammering and intermediate heating (annealing) give the fishhook hardness and strength. (d) To achieve the fishhook's curved shape, it is hammered over a wooden rod. (e) The fishhook is placed on the anvil to shape the square surface of the handle with a hammer.

TABLE 2 | Elemental chemical composition of the seven hooks analysed (xxxx = show up in spot analysis).

Chronology	Field code	Metal composition					Total
		Ag	Cu	As	Pb	Fe	
Chimú-Inca							
Fishhook	MLJ-A11-RC2-ME 07	9.9	88.2	1.7		0.3	100
Fishhook	IG-121-ME 02		96.3		3.7		100
Chimú							
Fishhook	PLC-A3-RC1-ME 14	0.6	98.8			0.5	100
Moche							
Fishhook	PLC-A4-RC2-ME 18	xxxx	99.6			0.5	100
Viru							
Fishhook	C28-C2-T1-E1-ME 01	xxxx	99.5			0.6	100
Fishhook	IG-238-ME 01	0.4	99.2			0.4	100
Fishhook	PLC-A4-C5-R75-ME 24-4	xxxx	99.5			0.5	100

ORIGINAL ARTICLE

A Diachronic Archaeometallurgy Study of Metal Fishhooks in Huanchaco: Alloys and Manufacturing Techniques

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ABSTRACT
Archaeological excavations at three sites in Huanchaco, Moche Valley, North Coast of Peru, have yielded metal fishhooks in domestic and funerary context occupations from 150/50 BC to AD 1530. The marine-oriented nature of the Huanchaco occupations points to the necessity of using metal fishhooks in their daily subsistence activities. However, metal fishhooks seem to have been of more exclusive usage rather than of common availability. This article focuses on the results obtained through optic microscopy, X-ray fluorescence and scanning electron microscopy with disperse spectrometry energy and digital radiographic imagery done on the metal of these artefacts. We conclude that copper was the preferred metal during all periods. However, there are slight differences in the alloys employed within and between societies and time periods, while the manufacturing technique seems to have been the same (plastic deformation and annealing) with a few variances over time.

1 | Introduction

In the Central Andes, metallurgy has been characterized as one of the most advanced in the continent (Bray 1991; Lechtman 1978, 1984; Vetter and Carcedo 2021). The processing of precious metals such as gold and silver has been taking place since very early times (ca. 2300 BC; Aldenderfer et al. 2008; Vetter and Carcedo 2021). However, ‘...copper is the basis of all Andean metallurgy, as the center from which all alloys emerge or originate’ (Carcedo 1998, 62). With copper, pre-Hispanic Andean metallurgists developed a series of alloys such as bronzes like copper with tin, copper with arsenic, copper-tin-bismuth, among others (Lechtman 1996; Lechtman and MacFarlane 2006; Rutledge and Gordon 1987; Shimada and Craig 2013; Shimada and Merkel 1991). These alloys provide various properties to the finished object. The alloys offer great ductility, while for copper objects alloyed with tin or arsenic, such as those made from AD 900 by the Wari society, these alloys provide hardness

and allow strength and wear resistance (sharp tools), and they do not have good corrosion resistance, properties necessary for utilitarian objects such as the agricultural implements of Sicán or Lambayeque on the north coast (Vetter 1996). As we will see later, most of the fishhooks manufactured between 150/50 BC and AD 1450–1532 analysed here show that the mineral used is unalloyed copper ore, so copper alloys with other minerals have not been used to harden the fishhooks. Instead, other techniques have been employed to achieve this goal.

While it is true that most archaeometallurgical research in the Andes has focused on luxury objects (Fraresso 2010; Shimada and Griffin 1994; Shimada et al. 2000; Vetter Parodi 2020; Vetter Parodi and Guerra 2017; Vetter Parodi and Guerra 2019; Vetter Parodi et al. 2023; among others), there are a few investigations on the analysis of utilitarian objects, such as Lechtman (1991, 1996), who studies agricultural implements located in museums on the northern coast of Peru from the Lambayeque region.

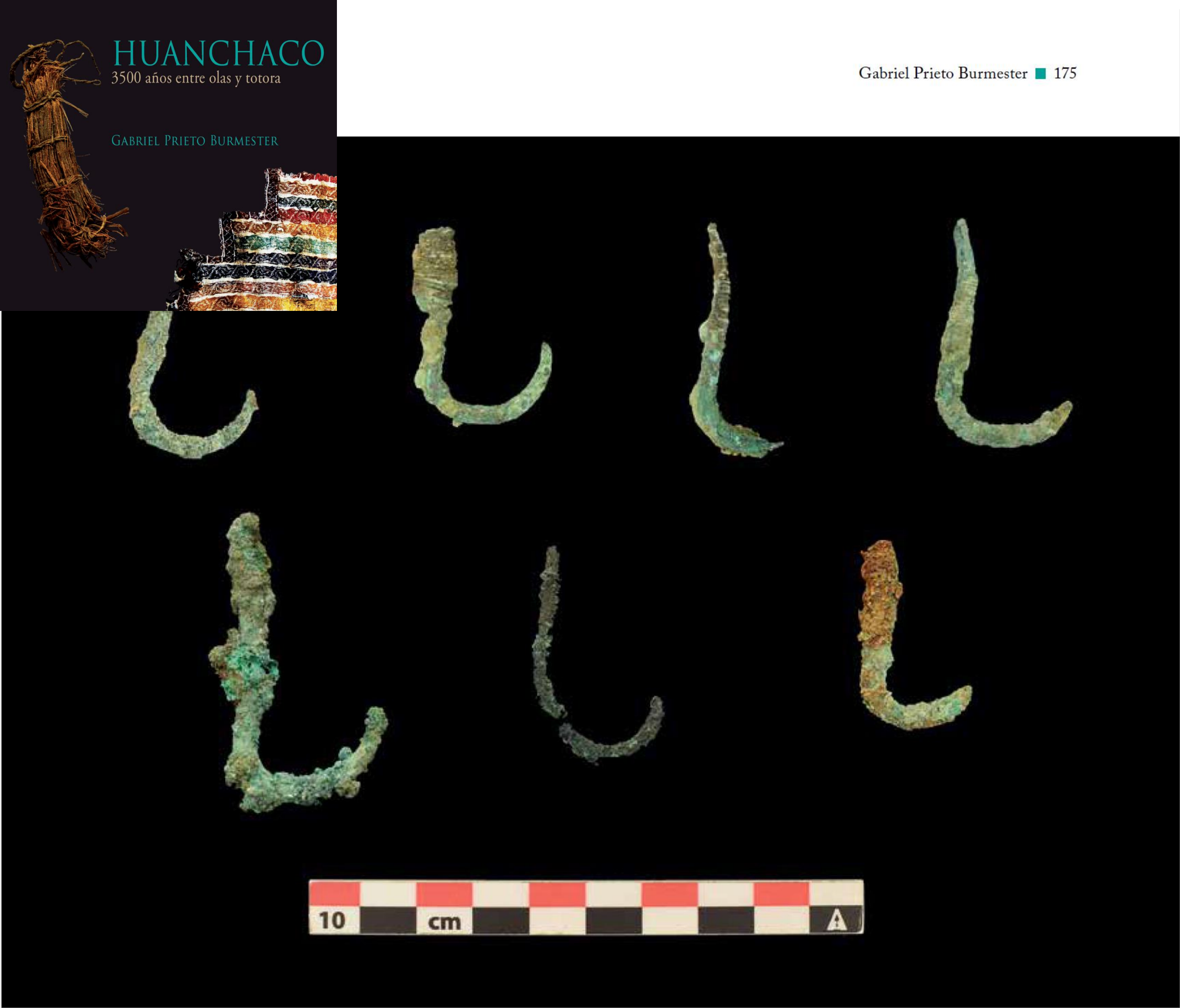
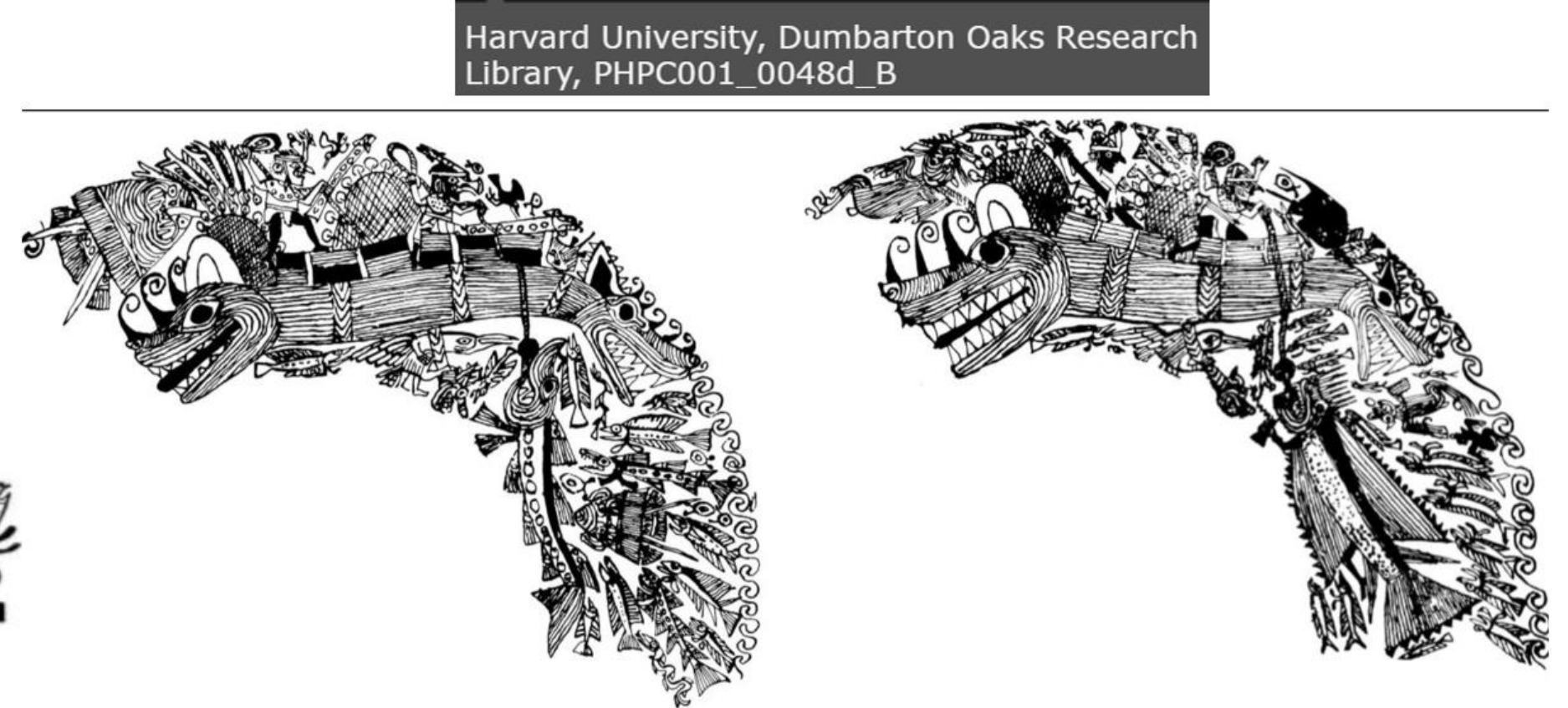


Figura 125. Anzuelos de metal pequeños documentados en tumbas y en las viviendas virú del sitio Pampa La Cruz y el sector José Olaya.

CASO 4: UNA OFRENDA MARINA: DIMENSION IDEOLOGICA



Iconografia Moche influenciada por la experiencia cotidiana de las comunidades marinas de la costa norte andina?





Viru Burials found in Huanchaco with shark teeth as funerary offerings

Ubicacion de la ofrenda marina

Templo Moche en Huanchaco,
Pampa La Cruz



Tiburón completo



Tiburón sin cabeza



Tiburón incompleto





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“The shift in content within the Moche mythical world of Phase V may signify a religious reorientation brought about by the increased importance of the ocean in their real world” (McClelland 1990: 102)

Introduction

The symposium from which this volume originated examines the ancient histories of how imagery both reflected and actively facilitated the negotiation of social relationships and identities. These dynamics occurred both between and within Moche and non-Moche communities of north coastal Peru during the first millennium C.E. Consequently, this book transcends internalist explanations of Moche society to explore the lived experiences of contemporaneous societies that shared territories, resources, and populations with the Moche.

Extant scholarship posits that the sociopolitical landscape of the North Coast between the second and ninth centuries C.E. was characterized by a dynamic, multiethnic environment that varied significantly across different valley systems. Contemporary models envision Moche polities as coevolving, local entities whose regional influence fluctuated over time. These polities maintained power through a diverse repertoire of strategies and institutions, including the negotiation of allegiance, ritual feasting, subordination, patronage, matrimonial alliances, and gift exchange (Shimada 2010: 72-73).

Historically, prevalent models addressing Moche politics, religion, and territoriality have focused primarily on two spheres: the foundational role of agricultural and irrigation systems



Figura 164. Vista general de uno de los tiburones azules completos ofrendados en el templo moche de Pampa La Cruz.

vegetación de lomas (figuras 178 y 179). Estos cactus son constantemente representados en la iconografía moche asociados a actividades de combates entre guerreros.

Varias víctimas tenían sogas en el cuello o presentaban los pies y las manos amarradas. Asimismo, algunas víctimas de sacrificio fueron enterradas con finos fragmentos de cerámica, como, por ejemplo, parte de un bello ejemplar de florero hecho en horno reductor

y muy pulido, decorado con elementos en bajo relieve e incisiones en la parte interior que representaban motivos escalonados. En la parte externa, en cambio, tuvo motivos en alto relieve que representaban la procesión de guerreros desnudos vencidos con sogas al cuello y, detrás, guerreros triunfantes portando sus armas y las de los vencidos. Lo peculiar es que presentan incrustaciones de conchas que enfatizan los ojos, ropa y decoración de los escudos circulares (figura 180).

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