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Stratigraphic lithic assemblages from shell middens on the northern coast of Santa Cruz (Patagonia, Argentina)

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ABSTRACT

Results of the study of artifact lithic assemblages recovered from systematic excavations of shell middens on the northern coast of Santa Cruz (Patagonia Argentina), are presented. The characteristics and composition of lithic assemblages are analyzed to discuss functionality and integrity of the archaeological sites, and also to evaluate general trends of the technological organization of human groups that inhabited the area. This work represents an initial approach to the interpretation of the archaeological record of coastal shell middens from the study of lithic artifact assemblages recovered in stratigraphic contexts.

The evidence from the artifact assemblages allows discussion of the activities that hunter gatherers carried out on shell middens, as well as issues of technological organization of manufacture of stone artifacts and the strategies related to exploitation of lithic raw materials in the study area. Coastal shell middens are places were multiple activities were performed. Regarding lithic technology, the manufacture and maintenance of stone tools, the use thereof, and the discarding of tools and debitage are the activities most represented.

1. Introduction

From the archaeological information generated from many years of study on the northern coast of Santa Cruz (NCSC; Patagonia, Argentina) we have evidence of the occupation of this coastal area by hunter gatherer populations from the middle Holocene, until the arrival of the first Europeans (Zubimendi, 2010). The occupation of this coastal strip and the exploitation of coastal resources would have had a greater intensity during the late Holocene (Castro et al., 2003). Shell middens represent the most common type of site in the archaeological record of the NCSC. These are composed of different archaeological materials in a sedimentary matrix: animal bones (seals, seabirds, fish, and terrestrial mammals, among others), lithic artifacts, charcoal and mainly, mollusc shells (Zubimendi, 2012; Hammond and Zubimendi, 2013; Hammond, 2013, 2014; among others).

Shell middens are heterogeneously distributed along the coastal strip and are located in sectors where marine resources, such as pinnipeds, seabirds, and molluscs, were available in the past (Castro et al., 2003; Zubimendi, 2010). Some archaeological localities on the study area would have been more intensely or recurrently used that other over time, especially due to the availability of food resources (Zubimendi, 2010).

In the case of the NCSC, we already know the main materials that compose the shell middens. However, we still need to define specific functionality, as well as the site formation processes of this type of coastal archaeological record. This work represents an initial approach to the interpretation of the archaeological record of coastal shell middens, from the study of lithic artifact assemblages recovered in stratigraphic contexts. We consider that the characteristics of the artifact assemblages recovered from shell middens are related to the activities that human groups performed at these coastal locations, the rate of discard of lithic artifacts, the conservation of raw materials, and the functionality of sites. The main aim of this article is to analyze the characteristics of artifact lithic assemblages recovered from systematic excavations of shell middens located on the NCSC, to discuss the

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functionality and integrity of archaeological sites, and to analyze general trends on the technological organization of human groups that inhabited the area.

On the NCSC, different sectors or localities characterized by natural, environmental, and geomorphological variability are recognized. In this article, we present the analysis of lithic assemblages from eight shell middens located in different archaeological localities along the NCSC (Fig. 1), all dated in the late Holocene.

Artifact structure of lithic assemblages and diversity (in terms of richness and homogeneity) is analyzed. Preservation indicators and lithic raw materials on which the artifacts were made are recorded. These results are evaluated and discussed considering the knowledge of the structure and fabric of shell middens, and the variables related to the formation processes, both anthropogenic and natural (Wood and Johnson, 1978; Schiffer, 1983; Kidwell and Holland, 1991; Favier Dubois and Borella, 2007; Zubimendi, 2012; Hammond, 2013, 2014; among others).

Technology is considered as an ordered set of knowledge and processes, aimed at production of material culture, to deal with social and natural world (Skarbun, 2009). In this sense, technology is a dynamic process that is socially constituted and, while technological options and the organization of productive activities have a material basis, are inherently social phenomena (Dobres and Hoffman, 1994). Its development involves the manipulation of resources and the implementation of different strategies, choices, and decisions that are shaped by external factors (environment and availability of raw materials, among others) and internal (level of knowledge and cultural norms (Alvarez, 2000). The technology in this context is closely related to the economical and livelihood strategies of human groups. It is argued that there is a relationship between material culture produced in a specific place and the functionality of the sites.

2. Regional setting

The study area of the NCSC extends from the limit between Chubut and Santa Cruz provinces at the north, and the archaeological locality of Bahía Laura to the south, through approximately 420 km of coastline (Castro et al., 2003, Fig. 1). The area is characterized by arid to semiarid climate with average temperatures ranging between 4 °C and 17 °C, and rainfall of 200 mm concentrated during winter season. The predominant winds come from the west and prevail during the summer months. The vegetation belongs to the Patagonian Province of the Andean-Patagonian domain, characterized by a shrub steppes composed of grasses and *coirones* (*Stipa humilius* and S. *speciosa*), interrupted by sectors of shrubs of *mata negra* (*Verbena tridens*).

The area presents geomorphological variability. In the San Jorge gulf, the coast is characterized by the presence of large boulder beaches with wide intertidal platforms and areas of rocky tidal flats with shoals of molluscs (called *restingas*). The Cabo Blanco sector has rocky shores and boulder beaches. South of Deseado ria estuary, sand and boulder beaches interspersed with outcrops of porphyries of the Bahía Laura formation are observed. In the latter sector, there are large shoals of molluscs, as well as sand dunes and aeolian mantles on terraces where numerous shell middens have been identified. There is also evidence of high consumption of coastal resources, especially molluscs and pinnipeds, by hunter gatherer societies that inhabited this coastal sector (Castro et al., 2003; Zubimendi et al., 2004; Zubimendi, 2012; Hammond, 2013; Hammond and Zubimendi, 2013).

From the study of different archaeological sites and lithic artifact assemblages recovered in each of these coastal sectors, on San Jorge gulf, a generic use of space and the absence of a defined pattern in the performance of activities of different kinds (consumption of

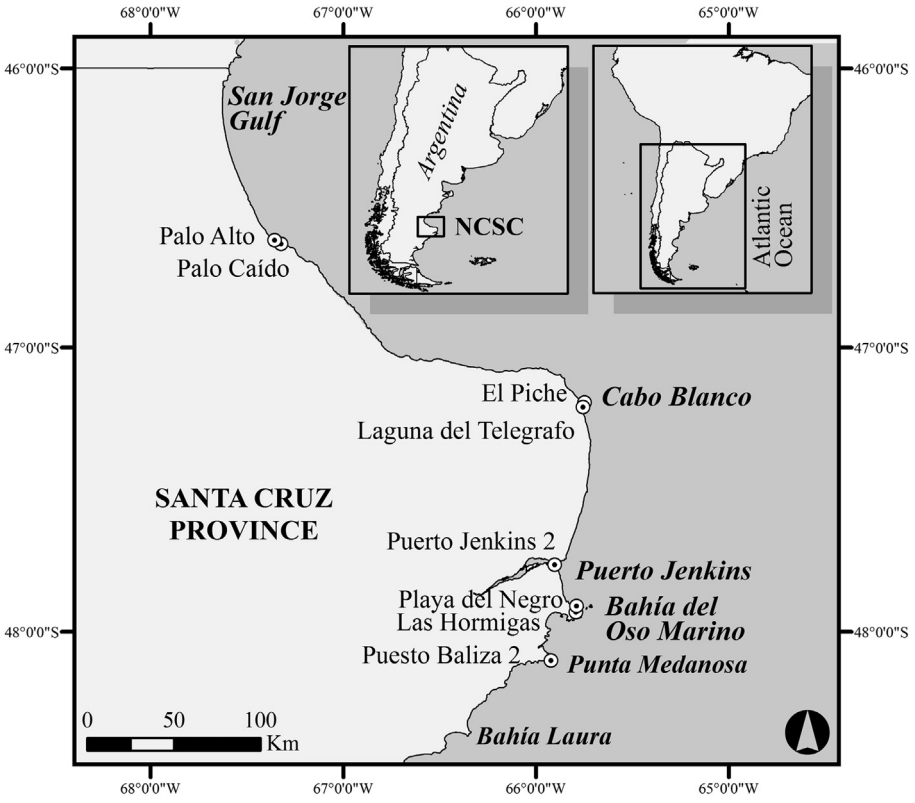

Fig. 1. NCSC and archaeological locations mentioned in this article.